



# There was a Man

The Life and Times  
of  
Sir Arnold Theiler  
K.C.M.G.  
of Onderstepoort



Thelma Gutsche

The illustrious name of Max Theiler, Nobel laureate in Physiology and Medicine, has tended to overshadow that of his famous father, Sir Arnold Theiler K.C.M.G. who was honoured and respected in scientific circles throughout the world. It is doubtful who did more for the welfare of humanity. This authoritative biography puts the reader in a position to judge.

Emigrating from Switzerland to the Transvaal in 1891 as a qualified veterinary surgeon, Arnold Theiler within weeks completely severed his left hand in a chaff-cutter. His career was apparently ruined but through sheer courage and dogged persistence aided by his wife Emma (who did much of his laboratory work), he became a world-famous veterinary pathologist.

President Paul Kruger gave him his first opportunity and thence onward, Theiler was associated with the outstanding historical, scientific and political personalities of his times – General Louis Botha, Field-Marshal J. C. Smuts, Lord Baden-Powell, the bacteriologists Robert Koch and Sir David Bruce, Lord Milner, Lord Selborne, Viscount Bruce of Melbourne, Viscount Bledisloe and countless others. He was both the beneficiary and the victim of South Africa's ferocious political life and from the Boer War onward, participated in historic events. The world at large prospered from his discoveries and after his death, his Government erected a statue in his honour. Animal husbandry continues to benefit from his work and his dauntless courage and determination continue to inspire his successors.

Drawn from hitherto unavailable sources, this is the first definitive account of his life and reveals the character and achievements of a strange man previously known only vaguely by repute.

Thelma Gutsche, born of South African and English parents, was educated privately and at the University of Cape Town where she majored in Ethics, Logic and Metaphysics, later attaining her Ph.D. in Social History.

Always inclined toward literary expression, she has published a number of biographies (*Old Gold, The Microcosm, A Very Smart Medal, The Bishop's Lady*, etc) and was awarded the C.N.A. Prize for Literature for *No Ordinary Woman* which revealed an unrecorded feature in the history of South Africa.

Her biography of Sir Arnold Theiler spans the world and deals with the scientific contribution of a unique character in the context of contemporary event and the competition of his peers.

#### DUST JACKET

When Arnold Theiler chopped off his hand, emergent countries rode on the back of draught animals. In that year (1891), 68 oxen were needed to drag a 15-ton boiler along 300 miles of 'roads' (pot-holed tracks wandering about the veld) from Natal to a gold-mine in Johannesburg, then only five years old. There was no transport by railway. Horses, mules, oxen and cattle generally were basic to a country's development. Theiler revolutionised their care and maintenance which attained increasing importance in the Machine and later Space Age.

# THERE WAS A MAN

The Life and Times of Sir Arnold Theiler K.C.M.G.  
of Onderstepoort

by

**Thelma Gutsche**

*gladly inscribed for "The Veterinary Faculty Library",  
Onderstepoort*

*Thelma Gutsche*

*5.9.84*



HOWARD TIMMINS  
45 SHORTMARKET STREET CAPE TOWN  
1979

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ISBN 0 86978 164 2

*Printed by Citadel Press, Lansdowne, Cape*

*Dedicated by kind permission to  
Her Royal Highness  
PRINCESS ALICE  
Countess of Athlone  
whose invaluable reminiscence and  
constant encouragement graciously contributed  
to the completion of this work*

*By the same Author*

NO ORDINARY WOMAN  
OLD GOLD  
THE MICROCOSM  
A VERY SMART MEDAL  
THE BISHOP'S LADY

published by Howard Timmins, Cape Town

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## CHAPTER ONE

### THE FERAL WORLD

ADAPTATION of living organisms to their environment and problems of survival remain the basic facts of existence. The vaunted 'balance of Nature' of the past and the ecological dilemmas of the future perennially preoccupy Mankind. Since first consciousness, man has presumed to control his environment by reason and not by instinct only.

'The Wonders of Nature' were perpetually fascinating both in themselves and for their utilitarian purposes. In time, the rich travelled to see them or sent emissaries abroad to make pictures and to collect samples. Study of the 'Natural Sciences' flourished. Some of their proponents became the pet creatures of plutocrats a few of whom endowed investigative centres on their own properties and paid scholars to conduct them.

When navigators found routes to new areas, the quest accelerated and travellers, hunters, traders and mere adventurers joined the dedicated botanists, zoologists and biologists in investigating the feral world. They reported many things (notably the failure of man and beast to control natural forces) and many strange and inexplicable occurrences like the mass suicide of whales and lemmings, the huge areas of land uninhabited by humans or animals because of flies, sudden pestilences and rampaging plagues, mass migrations of men and animals destroying all before them, and other 'wonders' that had no reason.

Man had his place in the feral world. He might be a pastoral itinerant, moving his flocks or herds or troops of horses or yaks to better grazing when he had denuded an area or droughts or floods had done it for him. Or he might be a forest agriculturist, burning a patch of open loam-rich soil among the bush and trees and planting his maize and pumpkins and cassava, living only so long in the area as it reached exhaustion and the barren soil was eroded by wind and rain – for the benefit of the delta-dwellers where some great rivers took it. Or he might be a hunter depending on the habits of wild animals or of fish in the rivers and sea. Feral man exploited his environment. There was so much of it. When calamity came, he died – if he could not move off quickly enough.

In gradually-evolving societies, there was often nowhere to move and it became imperative to control natural forces – to engage in communal action and concerted works. Uncontrolled exploitation at all times leads to disaster. The 'balance of Nature' fails to assert itself since Man himself seems no part of it. Deserts and desolation ensue on his negligence. Accordingly, from earliest recorded times, he resorted to devices and joint action, principally in agriculture – tillage and irrigation, fertilising and rotation of crops, selective breeding and culling and later, the first agricultural societies for common cause and encouragement. But banging drums and lighting fires seldom diverted a locust swarm nor incantations a murrain upon cattle. Nothing stopped the ghastly pandemics of Cholera, Smallpox and 'the Black Death' (Bubonic Plague) or the 'Cattle Plague' (Rinderpest) which periodically swept from East to West.

Old wives' tales and specifics sometimes helped. When Paul Kruger shot away his thumb and developed gangrene after applying first turpentine and then sugar, friends tied the steaming stomach of a freshly killed goat around the stump. Impregnated with herbs, it had healing properties. Much such lore of the East was unknown elsewhere till travellers brought it home. For untold centuries, successful prophylaxis against Smallpox was practised beyond the Mediterranean while Europe suffered periodic epidemics. Immunology was virtually unknown and thousands died until the wife of a British diplomat stationed in Turkey-in-Europe, Lady Mary Wortley Montagu, herself submitted to vaccination and loudly made it known.

1

In March/April 1717, she wrote from Adrianople (the present Edirne near the Greek border) to a friend: 'The smallpox, so fatal and so general among us, is here entirely harmless by the invention of *ingrafting* which is the term they give it. There is a set of old women who make it their business to perform the operation every autumn when the great heat is abated. People send to one another to know if any of their family has a mind to have the smallpox. They make parties for this purpose and when they are met (commonly fifteen or sixteen together), the old woman comes with a nutshell full of the matter of the best sort of smallpox and asks what veins you please to have opened. She immediately rips open that you offer to her with a large needle (which gives you no more pain than a common scratch) and puts into the vein as much venom as can lie upon the head of her needle and after, binds up the little wound with a hollow bit of shell; and in this manner opens up four or five veins.

'The Grecians have commonly the superstition of opening one in the middle of the forehead, in each arm and on the breast to mark the sign of the Cross; but this has a very ill effect, all these wounds leaving little scars, and is not done by those that are not superstitious who choose to have them in the legs or that part of the arms that is concealed.

'The children or young patients play together all the rest of the day and are in perfect health to the eighth. Then the fever begins to seize them and they keep their beds two days, very seldom three. They have very rarely above twenty or thirty (poxes) in their faces which never mark and in eight days' time, they are as well as before their illness. Where they are wounded (inoculated), there remain running sores during the distemper which I don't doubt is a great relief to it. Every year, thousands undergo this operation and the French ambassador says pleasantly that they take the smallpox here by way of diversion as they take the waters in other countries. There is no example of anyone that has died in it and you may believe that I am very well satisfied of the safety of this experiment since I intend to try it on my dear little son.'

Lady Mary, a hard-headed realist, intended 'to take pains to bring this useful invention into fashion in England' but was baulked by the conviction that the medical men of the time would reject it as 'destroying a considerable part of their revenue'. She reported to her husband that 'the boy was engrafted last Tuesday and is at this time singing and playing and very impatient for his supper'; but her campaign had no immediate success. Almost a century passed before the British doctor Edward Jenner inoculated an 8-year old boy with fluid from a pustule on a cow suffering from the relatively mild cowpox, contracted also by humans, and successfully immunised him against the more severe Smallpox. 'Vaccination' (vacca: cow) developed into an immunising technique.

By then the telescope and the microscope had revealed the hem of the unseen world and control of environment came closer. Medical science moved onward and the dual problem of the health of man and beast began to be attacked on a better equipped and organised basis. In the western world, it was to the credit of the French that they first instituted centres for veterinary education and research – in 1762 at Lyons and in 1765 at the Maison Alfort at Charenton, then outside Paris.

2

That great apostle of enlightened agriculture, Arthur Young whose 'Travels in France during the years 1787, 1788 and 1789' became a classic continuously reprinted into modern times (General Smuts was pointedly given a copy for special attention to soil erosion) described his visit to the Maison Alfort on the 19th October 1787:

'To Charenton near Paris to see l'Ecole Veterinaire and the farm of the Royal Society of Agriculture. Monsieur Philibert Chabert, the directeur-general, received us with the utmost attentive politeness. Mons. Flandrein, his assistant and son-in-law, I had had the pleasure of knowing in Suffolk. They shewed the whole veterinary establishment and it does honour to the government of France. It was formed in 1766; in 1783 a farm was annexed to it and four other

professorships established – two for rural economy, one for anatomy and another for chemistry. I was informed that Mons. d'Aubenton who is at the head of this farm with a salary of 6,000 livres a year reads lectures on rural oecology, particularly on sheep, and that a flock was for that purpose kept on exhibition. There is a spacious and convenient apartment for dissecting horses and other animals; a large cabinet where the most interesting parts of all domestic animals are preserved in spirits; and also of such parts of their bodies that mark the visible effects of distempers. This is very rich. This with a similar one near Lyons, is kept up (exclusive of the addition of 1783) at the moderate expense, as appears by the writing of M. Necker (the Swiss Minister of Finance in the Government of Louis XVI) of about 60,000 livres (£2,600). Whence, as in many other instances, it appears that the most useful things cost the least. There are at present about on hundred élèves from different parts of the kingdom as well as from every country in Europe *except England* – a strange exception considering how grossly ignorant our farriers are . . .'

England, where the horse was a sacred animal and cows, sheep, pigs and dogs scarcely less so, soon took the hint and in 1792, an institution was started in London which became the Royal College of Veterinary Surgeons. In 1823 a similar school opened in Edinburgh, subsequently the Royal (Dick) Veterinary College. Both were preceded in 1790 by what became the high-sounding Königlicher Thierartzlichen Hochschule in Berlin, a famous seat of veterinary learning.

The need to control environment and render it beneficent to mankind had now been immensely stimulated by commerce and, still slowly but steadily, by nascent industry. When Arthur Young visited Lyons in the middle of the French Revolution (December 1789), he made no attempt to visit the pioneering agricultural veterinary institute but occupied himself with noting the plantations of mulberry trees and having violent arguments with local worthies about their production of silk and their manufacture of goods from Chinese silk. Young felt that vis-à-vis cotton and silk manufactured articles, England should have come out better in a recent trade agreement with France.

A practicable route to the East had been opened more than a century before by the Dutch East India Company's founding a half-way provisioning station at the Cape of Good Hope. Its ships took three months or more to reach the fabled Cape of Storms but, once at anchor in Table Bay, the scurvy-stricken crews could be carried ashore and revived with fresh fruit and vegetables. Their rations of putrid salted meat and foul water were thrown overboard and fresh stocks shipped for the last long haul to India and further east.

This two-way traffic caused the Cape to prosper agriculturally but not without disastrous consequences. Ships returning from the east brought Smallpox which, in 1713, 1755 and 1767, greatly diminished the numbers of indigenous Hottentots, a coloured people who, apart from imported slaves, provided the only feasible source of future labour. 4

The Cape had its own Arthur Young in the person of C. L. Neethling who, similarly using his observations in France and Switzerland, carefully wrote a treatise in 1798 on methods of improving agriculture among his fellow colonists. He dealt with all aspects, including animal husbandry and spoke scathingly about the treatment of draught oxen and horses, then the only means of locomotion. It unfortunately remained unpublished but his personal propagandising certainly had effect. There were overseas-educated farmers at the Cape who soon founded agricultural societies.

In the East itself, health conditions for Europeans were much worse and the ships which passed the Cape on their way back to Europe frequently disembarked French, English and Dutch Company servants incapable of proceeding further. Later many took their furloughs there. Some bought houses and huge estates in the interior, constituting in the rudimentary Cape society a

coterie of 'Nabobs'. They brought a welcome wisdom to a developing country, particularly in the breeding of horses.

By this time, Southern Africa, India, the Far East, Canada and to a lesser extent Australia swarmed with naturalists of every kind, plain hunter-adventurers and traders, and sometimes military men and officials bent on other business than recording observations and collecting specimens. Few however resisted the impulse to communicate their impressions of a fascinating feral world where man by no means dominated his environment. Avid interest in Europe stimulated them to record it. This was the dawn of the great colonial era and what they wrote was of equal value to commercial men and scientists. 'The Wonders of Nature' became a universal vogue and the 'Curio' industry was born (the horns, hides, teeth and skeletons of animals; the weapons, musical instruments, ornamentation, skulls and skeletons of indigenous peoples; the pressed flower, seeds, twigs, bulbs and other evidences of strange plants could all be sold at high prices in Europe). The learned societies in every capital welcomed speakers freshly returned from the outer world and wondering members examined their specimens with gravity and awe.

5 The members of such societies and academic institutions were themselves travelling in the unknown world. Francois le Vaillant, a French student of natural history, spent three years at the Cape of Good Hope (1781-84), travelling extensively and leisurely in the interior and subsequently publishing his observations in five illustrated volumes which, such was the passion for Africa at the time, were soon translated and published in English, German, Dutch, Danish, Italian, Russian and Swedish. A zoologist by training, le Vaillant was keenly observant (if sometimes flippantly) of ecological factors and noted the animal diseases which hampered development of the settlement. Like almost all the observers, lay and professional who followed him, le Vaillant noted that cattle, indispensable for food, transport and traction, were subject to many afflictions such as Tong-Sikte (Blue Tongue in sheep), Klauw-Sikte (Foot-and-Mouth disease in cattle), Spong-Sikte (Black Quarter) and periodically to a crippling and finally fatal disease Lam-Sikte. He associated this 'lame sickness' with grazing on coarse grass and a seasonal depraved craving for chewing old bones and even the horns of their living fellows.

Much the same observations were made a decade later by the highly professional Martin Hinrich Karl Lichtenstein who, recently qualified as a doctor of medicine in Germany, came to the Cape in the entourage of the interim Dutch Governor before the British finally took possession of it. He subsequently became a professor of zoology in Berlin, no doubt stimulated in that direction by his Cape experiences which he recorded in a work describing his travels from 1803 to 1806 (translated as usual into English, Dutch and French).

7 Lichtenstein in the ecological context of immunising against disease, had however a special significance. With the menace of Smallpox always before it, the Batavian Government at the Cape resolved most enterprisingly to employ Jenner's method of prophylaxis in a campaign of wholesale vaccination. There were difficulties. Although the method was not alien to cattle owners wont to practice it on their beasts for Lung Sickness and like diseases, it was unusual for humans. Jenner himself had not made spectacular progress. Further, the cowpox necessary for the inoculation was not available at the Cape and the previous English administration's attempts to import it had failed. There were of course no methods of preservation by way of refrigeration on the long voyage.

By chance in November 1803, a Portuguese slave-ship with cowpox cases was brought to the Cape and the live infection became available. In the general campaign then promoted by the Batavian Government, Lichtenstein as a modern young doctor aged 23, played a leading part. In August 1805, he was instructed to conduct a vaccination tour deep in the platteland or hinterland of the settlement. In his short 'Diary of a Journey through the Karroo', he described the

anxiety of the remote and isolated inhabitants to take the treatment and also to have their Hottentot servants inoculated. He himself dealt with 300 cases, leaving precise instructions for vaccination by missionaries and for future action, should Smallpox break out. A vaccination centre was started in Cape Town but immunology soon tumbled off the eminence on which it had been enthroned. Only the hem of the unseen world had so far been revealed.

The venal world, on the other hand, had revealed itself all too clearly to the commercial companies of many nations. Some, like the Dutch East India Company, went bankrupt after a century of exploitation; but others, battenning on the riches of the Orient and undeterred by hideous diseases in man and beast coupled with lethal extremes of climate, created channels of commerce so closely affecting the well-being and development of European peoples that something had to be done to consolidate and perpetuate them.

Britain – never wanting the Cape because it had no riches beyond a few tough and militarily-serviceable horses and a small agricultural area useful for provisioning ships – grasped at India and adjacent territories. France and Holland entrenched themselves further east and Portugal at isolated trading posts. All sought a foothold in China. Tenuous commercial control was followed by colonial administration and with it came the Army and the missionaries to join the botanists and zoologists who joyfully continued their explorations and observations.

Army doctors and farrier-surgeons (or ‘horse doctors’) were expected to maintain colonial control in the face of a host of menaces to human and animal welfare. The Army was essential to protecting the constant supply of raw materials and locally-manufactured colonial goods to the parent countries. Without protection from disease as well as the outraged indigenous inhabitants, the system would have failed. Many of these men, confronted by conditions and epidemics totally omitted from their training, made valuable observations on human and animal diseases. If they could not fully control them, they at least gave prominence to the fact that if trade followed the flag, its continuance depended less on arms than on what was then called ‘hygiene’ or general health.

The missionaries, many of whom were medically trained and all of whom were acutely observant, travelled widely, reaching their apogee in David Livingstone in Africa. They too knew that the new lands could have no future without engaging disease, particularly among domestic animals. Without the horse and the ox, commerce, let alone civilised life, was impossible.

The diseases of the horse endemic in Europe and the Middle East had been known for centuries, perhaps for thousands of years; but there existed in Africa a mysterious seasonal ‘Horse Sickness’ with devastating mortality which no traveller failed to note from earliest times. (Burchell gave an account of it at the Cape in 1811.) A worse scourge since it affected both food and transport was the equally noted ‘lame-sickness’ among cattle and several other lethal diseases such as ‘Rooi-water’ or Red Water, known in India as ‘Surra’, and Lung Sickness.

8 In 1838, a Quaker evangelist James Backhouse toured the expanding Cape Colony and, nearing Bethelsdorp, the London Mission Station outside Port Elizabeth, noted ‘the poor moory tract of country which nevertheless supports considerable herds of oxen and some sheep and goats; and for these it is said to be favourable. The grass is chiefly sour and the cattle have a strong inclination for correctives. Sometimes they are said to eat the brush of each other’s tails. We passed two bullocks that were contending with two dogs for the bones of a dead horse. One of the former had the blade-bone in his mouth. Cattle often stand chewing bones in the kraals or folds of this country.’ He was watching the characteristic syndrome of impending ‘Lamziekte’.

Two days later, ‘one of our horses exhibited symptoms of a fatal disease called in this Colony, The Sickness. His eyelids were swollen and the blood-vessels of his mouth and tongue were in a state of congestion. He appeared to be in perfect health last night when tied to the wagon-

wheel to secure him from Hyenas which are numerous here. This disease usually comes on suddenly and runs its course quickly. On being loosed, he began to browse but had difficulty in swallowing. He was bled without delay and dosed with Calomel and Tartarized Antimony. After this he neighed cheerfully to his companion, went to him on an adjacent hill where he lay down. He soon rose again and began to eat but quickly lay down and then struggled and died. His death took place about an hour after the symptoms of "The Sickness" were first noticed. Before night, his carcass was nearly consumed by vultures and by the dogs of the Hottentots. Thus quickly is a horse finished in Africa!

9 At precisely the same time, a German observer, Professor Ferdinand Krauss of Stuttgart, travelling not much more than a hundred miles further south in the Cape Colony, was noting the number of serious cattle diseases including 'lahmsikte', and the high mortality from Horse Sickness – so high in fact that 'here, owing to the lack of horses, the post is carried on an ox. The postman sits on an ordinary saddle with reins and guides the ox in the Kaffir manner with a rein running through holes in both nostrils of the animal. The oxen are trained to trot and even gallop but it is neither as comfortable nor as quick as with a horse.' Soon after, Krauss lost his own pet riding horse. The symptoms were always the same – the animal showed slight signs of discomfort, ate normally, lay down, frothed voluminously at the nostrils and mouth, and was dead – within 24 hours.

When disease diminished both horses and oxen, the country drifted toward standstill. As time went on, it continuously occurred. The very future of humanity, indigenous and exotic, in the colonial world could well be menaced. There were great areas of Africa, empty of man and beast, to prove the possibility.

'Science' as opposed to 'Nature' now intervened at the instigation of Commerce and its handmaidens, the Colonial Empires.

A struggler from the depth of poverty in France, Louis Pasteur, by diligence and punctiliousness arrived at the post of professor of chemistry at the University of Strasbourg in 1848. Of equal ability in geology and physics, he went to Lille in 1852 to organise a new School of Science. In 1855, his alma mater l'Ecole Normale in Paris summoned him as director of studies and there he remained until 1867.

Pasteur combined prodigious versatility with acutely perceptive observation. In a wide range of observations, enabled by improved microscopes and methods of staining specimens to make them particularly visible under magnification, he enunciated a theory of the cause of change in various substances. Such changes, he said, were due to micro-bodies or 'germs'. They did not occur by themselves.

He was not the first to observe these creatures but no one previously had identified their causative function. Pasteur first studied chemically the process of fermentation at Lille and disproved Liebig's hallowed doctrine that such changes as it caused in substances were due to spontaneous generation. They were, he said, the work of 'germs' which operated variously in all forms of matter. He studied them in milk and vinegar, particularly under the influence of heat, and was able to control their effect. He drew the attention of the beer- and wine-makers of France to his results and revolutionised both industries. By the application of his studies of fermentation, it was estimated that he had saved France from an annual loss in wine of a quarter of total production amounting to £5,000,000 – a massive sum at that time.

That specific living organisms, visible only under high magnification, caused significant changes in all forms of matter was a new and heady doctrine capable of application in many fields. Its commercial importance had at once been apparent. Almost symbolically, Pasteur's attention was directed to a disease of silk-worms which had reduced the French silk industry from an annual income of 130,000,000 francs to 3,000,000. In 1865, he undertook a painstaking investi-



gation to find the 'germ' that caused it and at what stage in the life-cycle of the worm it appeared.

At that moment in history, a pandemic of Rinderpest swept from east to west across Europe destroying hundreds of thousands of cattle. Quarantining uninfected animals to prevent their contracting the disease proved a forlorn hope. No cordon sanitaire proved remotely effective and there was no alternative but to slaughter all animals likely to be infected. In England alone, 500,000 beasts were massacred. The possibility of isolating the 'germ' causing the disease crossed no one's mind. Bacteriology as initiated by Pasteur was still an infant science and from 1864 to 1870, Rinderpest had its way throughout Europe. Russia offered a prize of a million roubles to anyone who could devise a specific that guaranteed immunity.

Pasteur himself advanced from his silk-worm problem (which he solved in 1869) to highly sophisticated work in the fields of human and animal diseases. He could identify and isolate the 'germs' (or microbes or bacilli or bacteria as they were variously called) that wrought changes in organisms; but that brought him no nearer dealing with them in the sense of preventing their destroying the organisms they inhabited. In his painstaking imaginative way, he experimented in artificially cultivating bacteria, that is, without a host and grown in laboratory cultures. He subjected them to variations of temperature and other conditions including diluting and weakening them and even killing them outright. Then, applying the ancient immunological expedient of injecting a weakened form of a disease into a subject to confer immunity, he experimented in various fields. Of numerous successful attempts over several years, he was able in this way to offer immunity to Anthrax in sheep, to Glanders in horses (through a substance called Mallein deriving from the Glanders bacillus) and to Cholera and Rabies (hydrophobia) in humans.

The effect of his work on general agricultural economy and colonial expansion was incalculable. The French Academy of Sciences formally accepted his technique of prophylactic inoculation with a weakened form of the causative bacterium (or what was later termed 'attenuated virus') to confer immunity and established the Pasteur Institute in Paris to enable him to continue his work and to manufacture and market his preparations. It was by no means only an institute for pure research but very definitely a commercial proposition from which Pasteur derived financial benefit. It opened in 1888, accumulated a talented staff and soon extended its activities throughout the world. It was perhaps the most significant step yet taken in the recorded history of man's attempt to control natural forces.

By that time, the new science of 'Bacteriology' or Micro-Biology had gripped the world – and particularly the colonial powers – by the throat. Untold benefits would follow the solution of disease problems in man and beast in hitherto unexploited countries. There were in addition the advantages to be gained in those already 'civilised' and panting for further development in local industry if only increased supplies of raw products could be obtained and further markets found for their manufactured goods.

The prizes were munificent. To control natural resources, seen and unseen, to master environment for the benefit of man, to increase areas of domination became as much the ambition of power-hungry nations as of scientists of integrity. Progress in the new discipline must be encouraged. In Germany – most avid for colonial advance – the study of microbes was undertaken widespread, greatly aided by improved apparatus from the Zeiss firm at Jena and others. Among its leading investigators was the medical doctor, Robert Koch, junior to Pasteur by 21 years.

Pursuing in his spare time the same enquiries into the Anthrax and other bacilli, Koch improved immunological techniques. The German Government rewarded him with official appointment to the Federal Health Service and facilities for research. He was later awarded large sums of money for further successful bacterial work and in 1885, with the directorship of a special

Health Research Institute attached to the University of Berlin. At the same time, the German Federal Government launched a colonising campaign to stimulate its burgeoning industry. Its emissaries laid claim to large portions of Africa – the Cameroons and Togoland in the north west, South West Africa and East Africa (Tanganyika) – as well as certain areas and islands in the Pacific. Other nations clutched at the remaining pieces of unappropriated territory.

In the ‘Scramble for Africa’ and the economic development of home countries through the exploitation of their colonies, Koch became the pampered pet of the German Government and, by virtue of his striking discoveries, the envy and the target of criticism of his colleagues at home and abroad. Before long his Institute was as famous as Pasteur’s.

As long as strange and terrible diseases afflicted man and beast in Europe and abroad, the struggle for power between nations could not be resolved. It was in fact in Africa South that many of the world’s crucial economic and ecological problems were solved.

## CHAPTER TWO

### AFRICA SOUTH

IT CANNOT be gainsaid that where there were English in foreign lands, agriculture prospered. In Africa South, they had desperate difficulties.

The British, after earlier temporary occupation, finally took possession of the Cape of Good Hope in 1806. The lovely peninsula with its towering Table Mountain, rich in fascinating flora and small animal life, belied a hostile interior with truculent inhabitants.

As neither the nomad Hottentots (pastoralists) nor Bushmen (hunters) had any concept or intention of serving as labour, the previous administration of the Dutch East India Company had been forced to import slaves of many origins – labourers from Malagasy and West Africa and, most valuable, skilled craftsmen from the Malay States. The possession of slaves became a symbol of status and with it went abhorrence of working with one's own hands. The Hottentots would not work because they were free nomadic men. The immigrant farmers of many nations (of whom Germans and Scandinavians competed in numbers with the Dutch) would not do a hand's turn because, having slaves, it was beneath their dignity. The incipient Afrikaner would direct his labour but he would not work.

In the graceless country that stretched beyond the beguiling Cape Peninsula and environs, some sources of marketable goods had been established. Near at hand were grain- and wine-producing regions but beyond was only cattle country. What cattle! and what country! exclaimed the English observing scrub stock of hugely-horned oxen and leggy goats, stunted horses and comic sheep with enormous tails weighing up to 18 and 20 lbs but devoid of wool and covered only in strong coarse frizzled hair (never shorn) – all being driven seasonally about a huge wilderness conforming more to a desert but still teeming with wild animals.

Much of the domestic stock had derived originally from the Hottentots who in their time, had acquired some lore of cattle diseases caused by poisonous plants and passed it on to the 'Trekboere' then, at the British annexation, approaching the Orange River in the north. The Trekboere, originally forced to trek their beasts to find winter and summer grazing, had later wanted to get away from the corrupt and iron grasp of the Dutch East India Company. Now they had additional need to move. Their modus vivendi made them independent of authority and civilisation. All they needed was a periodic visit to the nearest settlement to buy gunpowder and perhaps a new wagon. Everything else would be brought by the 'smous' or pedlar-trader who would exchange clothing, knives, nails and other manufactured goods for sheep and oxen which he would drive enormous distances back to the markets of the Cape.

1 The Trekboere and indeed their few urban relatives, were impressed by what made things work. If axle-grease facilitated the revolving of wagon wheels and gunpowder made bullets travel and tar had a multiplicity of uses, they must also be powerful in other fields. Accordingly they added to their Hottentot and Kaffir lore of animal diseases a fearsome pharmacopea of all such substances. As late as the twentieth century, gunpowder was prescribed in cattle epidemics and other boererate died hard. On the whole, however, the cattle ranchers in their indolent manner made little effort to combat afflictions in their stock. They would shoot the wild animals that preyed on them but Brandziekte (Scab) and other preventable diseases which ravaged their sheep and oxen were the work of the Lord.

2 Confronted by this outrageous scene as soon as they could get away to visit the hinterland, the first British Governors concentrated on encouraging the formation of agricultural societies in the few centres where more enlightened and mostly English farmers had congregated. Im-

provement of stock was essential for the small existing salt-meat and hides-and-skins trade. Little was accomplished until the appointment of Lord Charles Somerset who arrived in 1814 and immediately took steps to institute a proper agricultural economy. During his 10-year administration (excluding a lengthy absence), he imported thoroughbred merino sheep and (at his own expense) horses which had dramatic effect on Cape animal husbandry.

3 The 'Cape Horse' became a legendary animal. Despite the mysterious 'Horse Sickness' which the earliest travellers had noted, it was possible to rear him in certain conditions. The disease struck in the rainy season and was associated with damp, dew and flies. It was apparently eliminated by frost. Horses could therefore be stabled at night and let out only when the dew had evaporated, or they could be reared in mountainous regions where frost evidently cancelled the causative factor. Prospering by Lord Charles' thoroughbred animals (for which he exacted stud fees), certain Cape farmers took to breeding horses in the high Hantam area about 150 miles north of Cape Town (now the Clanwilliam district). When British authority became irksome, they moved 500 miles northward to the Colesberg district near the Orange River, calling the area the Nu-Hantam, and there they bred splendid horses from further stud importations.

4 Some were raced but most were ridden and showed extraordinary capacity for endurance, requiring only to roll in the sand for refreshment on stages that might extend to as much as 60 or more miles in a single day. 'By 1825', wrote an admiring chronicler,<sup>5</sup> 'the Cape horse was sufficiently attractive to provoke the admiration of the lordly and debilitated Indian Nabobs who at this period flocked in large numbers to the Cape, then highly esteemed as a health resort and many horses were taken to India as hacks and chargers by the recruited health-seekers.' They were ready to pay high prices as the local animal could stand the Indian climate better than English horses.

6 Within ten years, a small trade had developed. The widespread institution of Turf Clubs even in platteland areas further improved breeding. By 1850, it was worth the Indian Government's while to appoint a resident commissioner at the Cape in the person of a retired remount officer, Lieutenant-Colonel Apperley, for the purchase of horses. He stayed for several years, continuously supplying horses and mules to India. 'Several of the Cape horsed cavalry regiments then in India', it was recorded, 'were ordered to Russia during the Crimean War and the Cape horses acquitted themselves admirably in that most trying campaign.' When the Indian Mutiny broke out in 1857, Apperley shipped 5,482 horses and 108 mules, spending a total of £215,645 on their cost, temporary keep and forage. That was money but Apperley was then withdrawn.

7 In 1854/55, the seasonal 'Horse Sickness' had developed into a virulent epizootic killing 64,850 horses valued at £525,000 (more than 40% of the total horse population of the Cape). When the Bishop of Cape Town, Robert Gray and his equestrienne wife Sophy, rode from Cape Town toward the end of 1855 on a visitation of the South Eastern Cape as far as Knysna and Beaufort West, they saw the skeletons of horses all along their route. (In 1869, a similar violent outbreak almost brought their last visitation by cart to a standstill, only 'starving screws' brought down from the mountains being available to replace their own horses.)

9 For this and other reasons, revenue from horse-breeding ceased to be a sizeable item on the Colonial Budget. Gentlemen and the military rode while others went by cart or carriage, using mostly imported hacks (often with docked tails) and carriage horses. In the country, the little Cape horses survived. 'Their speed and endurance are wonderful', the convalescing Lady  
10 Lucie Duff Gordon wrote from Caledon in 1861, 'there is no such thing as a cocktail in the country and the waggon teams of wiry little thoroughbreds, half-Arab, look very strange to our eyes, going full tilt. There is a terrible murrain called lung-sickness among horses and oxen here every four or five years but it never touches those that are stabled, however exposed to wet or

mud on the roads'. On the whole, the business of the country continued to be conducted by the ox and its revenue to be fortified by the sheep.

11 Outside the few small towns, possession of cattle marked the stature of every one of every race, particularly among the Kaffirs on the eastern frontier with whom the British Settlers and garrisoning troops futilely contended in a series of Cattle Wars. The animals showed two peculiarities. They bore no allegiance to their Settler owners and Kaffirs coming secretly in the night could mysteriously whistle them away and abscond with them through thick bush. Conversely in the arid wastes of the Karroo, cattle sold by remote Trekboere to traders would develop a homing instinct and trudge back from the driven herd for hundreds of miles through the waterless wilderness to their original owners who delightedly could again sell them.

12 The ox, of doubtful lineage, was the country's mainstay. All transport and conveyance of goods was by ox-wagon and, in emergency, they were ridden in the Hottentot manner. They were tough durable beasts, wilder than the indigenous animals on the veld until domesticated, but by no means immune to disease or poisoning by veld plants. Despite inoculation in their tails (which then frequently dropped off), they suffered widely from Lung Sickness (pleuropneumonia).

13 In sheep, the Cape had its only stable source of revenue. From 1826 when statistics were first kept, there was an adverse trade balance which steadily increased. By 1838 when the prejudice of the conservative ranchers against woolled sheep had diminished and merinos were running throughout the Karroo and in the Eastern Province, Colonial income began slowly to rise through export of wool and the skins of sheep and goats, later aided by ostrich feathers. By 1864, exports (£2,594,594) in the shape of nearly 4,000,000 lbs of wool valued at £1,865,703 and nearly one and a half million skins, a little copper and some ostrich feathers, for the first time exceeded imports (£2,471,339).

14 All seemed set fair and fortune appeared to favour the new woolled-sheep farmers, much as it did in Australia where animal husbandry particularly of sheep and horses, successfully progressed at this time without undue incidence of disease. (Fifty years later, the leading local exponent of veterinary science could state that 'in the early days of colonisation, Australia was no country for the veterinary surgeon'. Farmers combatted their incidental difficulties as best they knew.) The Cape was fortunate too in the arrival of lay and professional Englishmen who, fascinated on sight by the capricious Colony, remained to confer on it all the benefits of their wisdom and affection.

15 Remarkable among them was 'a farmer's son' from Bristol, J. B. Hellier who was 45 (then considered senescent) when he reached Graham's Town in the Eastern Province in 1864. Born to the land and familiar with its sophisticated procedures in the use of artificial fertilisers, oil-cake feed for cattle and specialised treatment of sheep, Hellier might have been considered an agricultural expert had he had professional training. His knowledge however was founded in devoted interest and affection for the land, both of which he immediately applied to his new home. A ready writer, he contributed sound common sense articles on agriculture to the very limited local newspapers and in 1868, launched *The Farm*, the first agricultural weekly in the Colony. His was the first instructed advice available to its farmers.

16 Labouring in another field was Peter MacOwan of Yorkshire who, trained in chemistry, emigrated to the Eastern Province in 1862 and was captivated by its botanical richness. Moving from Graham's Town to Somerset East in 1869, he served as science master at Gill College and continued his studies of South African plants, on occasion with special reference to their use in agriculture. Many men, likewise captivated down the centuries, had devoted themselves to systematic South African botany but MacOwan applied his local botanical knowledge to agricultural use.

The Cape of course was far in advance of every other part of Africa South, having attracted a miscellaneous-gifted population from 1652 onward. Two centuries later, it could claim men of talent and maturity in public affairs which were conducted with vision and sophistication deriving directly from Europe even if, for various reasons, there was not always administrative efficiency. Much the same could be said for the more recently settled Natal where English agriculturalists struggled with a sub-tropical climate and strange diseases in rearing sheep, horses and cattle in the only manner they knew. Protected by British forces from possible incursion by the restive Zulus, they also had the advantage of Army veterinary officers who knew more about horses than sheep, then Natal's most important product.

In general it might be said that the further north from Cape Town, the less agriculture. The vast wastes of the Karroo with their huge ranches running merino sheep and crossbred cattle with a few horses in the highlands extended across the Orange River into what had become in 1854 the Orange Free State. Although the management of affairs long continued in the hands of English-speaking men, agriculture was mostly the pursuit of 'Boers' who, in the long trek northward from 1836 onwards, had dallied in what appeared a promising land. Cattle-raising and horse-breeding were principally their occupation and they pursued it with the unassailable bucolic lore of their forebears and a certain local suspicion of poisonous plants. In human and animal health, little could disturb their faith in 'boererate'. Like their Cape Colony counterparts, they tended to despise manual labour and to rely on service from Bushmen, captured earlier as children, Griquas and impoverished Hottentots.

Further north, across the Vaal River, the South African Republic pursued a comic-opera existence first under a true Voortrekker Marthinus Wessels Pretorius and then under a Cape clergyman, President Burgers. The outstanding characteristic of the Afrikaner – his capacity to hate and oppose – was woefully evident. The Transvaal Boers fought the neighbouring natives, seizing their cattle, appropriating their lands and capturing their youngest children to train as servants (especially outraging David Livingstone as he skirted the 'Magaliesberg Boers' on his way to the north) and they fought with their brothers across the Vaal in the Orange Free State. Then they fought among themselves, brother against brother, in a lamentable little civil war in 1863/4. They were stiff-necked and passionate and by no means susceptible to reason. They could oppose and hate for untold generations.

There was much to harden their characters. The Transvaal was a wildly variegated country, changing suddenly from the bare and inhospitable Highveld in the south to a lower sub-tropical region, rich in water, vegetation, animal life and diseases. There were also real fighting natives in the north and west – fugitive Zulus led by Moselikatze from Chaka's murderous rule, and strange tribes living in the mountainous regions south of the Limpopo and extending into territory which the Portuguese had tenuously held for centuries. Beguiled by their lush and well-watered lands where fruit, vegetables and pasture flourished, the Transvaal Boers nonetheless were forced to maintain the commando system. It was useful anyhow to replenish their stock occasionally from native cattle.

All was not as idyllic as it seemed. Some of the lovely country, rich in grazing, was verboten territory because of 'fly'. In the fifties, Livingstone had startled the scientific world with his account of the tsetse fly in his 'Missionary Travels' (translated into many languages). They were lethal to cattle during the day and whole civilisations seemed to have perished in Transvaal areas. In later years, archaeological investigations revealed the habitations of highly-developed metal-working Bantu communities apparently abandoned in confrontation with some terrible non-visible enemy, possibly the tsetse fly moving south. When the Boers settled there, they kept outside the fly areas, tantalised by the excellent grazing within them. They could move their cattle across them at night at certain places, discovered by early travellers and trekkers; but

whole areas of delectable land were closed. On some of them stood gaunt ruins where their predecessors had foolhardily founded villages.

20 Marvellous though the agricultural possibilities of the Transvaal were, there was no point in cultivating them. There were no markets. Even if there had been, the perishables which flourished so splendidly – fruit and vegetables, dairy products, chickens and eggs, citrus and products of the Boer cuisine – would never survive the long hot journeys by ox-wagon. Agriculture was therefore confined to local vegetable patches for household use and animal husbandry, notably cattle, sheep and a little breeding of horses obtained from the Free State. All suffered from the old enemies of Lung Sickness, Blue Tongue and Horse Sickness. The only safe product was tobacco which grew phenomenally in the Magaliesberg.

21 It was to the credit of the emotionally-charged Transvaal Volksraad that on the 11th May 1870, it passed a law for the Suppression of Lung Sickness. It did nothing more than impose heavy fines on anyone allowing infected animals to infect others or failing to quarantine them in kraals and to advise neighbours; but at least it exhibited the State's intention to control disease.

22 Already in the Transvaal, attracted by its trading, transport-riding and other possibilities were men from Europe prepared to take a hand in its development. Notable among them was Hendrik Wilhelm Struben, born in Germany and subsequently a Dutch naval officer, who became State Attorney of the Transvaal in 1867 and whose sons worked and fought for their new land. There were many Hollanders such as B. C. E. Proes who, as Government Secretary, signed the Lung Sickness Act, and a large number of Germans including the Jeppe family of Rostock. The first to arrive in the sixties was Hermann a doctor who was shortly impressed into Government service as Postmaster General. He was followed in 1861 by his brother Friedrich (Fred), printer, publisher and cartographer who was also impressed as Postmaster General but, after numerous other occupations, devoted himself to publishing and the production of excellent maps including in 1877 a much-consulted map of the Transvaal clearly indicating the 'fly-line' or boundary of tsetse infestation. A third brother Julius arrived in 1870 and was made Postmaster of Pretoria before embarking on a commercial career. His two sons, Carl and Julius, impressively influenced the history of their new country.

23 In its lack of competent officials, the South African Republican Government gladly employed men of every nationality including English. Pretoria, its capital, strongly resembled a European village, being early distinguished by its oak trees and roses. Moving on its periphery in the guise of traders, transport riders, cattle dealers, speculators, remittance men and mere adventurers, was an equally cosmopolitan importation due as much to chance as design. Singular among them was Alois Nellmapius born in Buda-Pesth in Austro-Hungary but educated as a civil engineer in Holland. Voyaging vaguely to South Africa in 1872 (in the ship *Nathan* in a cabin shared with the rising Cape politician John X. Merriman who helped him to learn English), he met a group of Hollanders when his ship called at Portuguese East Africa and was persuaded by them that the hinterland offered opportunity. Nellmapius disembarked and plunged into sub-tropical Africa with the enthusiasm of the European that so vastly exceeded the Boers'. In his short lifespan, his activities significantly affected the whole sub-continent.

24 Africa South now sustained a convulsion tantamount to a severe earthquake. The diamonds sporadically found in small numbers in the Northern Cape were suddenly discovered in profusion on the banks of the Vaal River and inland. Hundreds of local inhabitants immediately streamed to the site from the Cape, Free State, Natal and Transvaal for a brief interregnum before hundreds more arrived from overseas, particularly goldminers from Australia, America and Canada. In place of the previously prevailing depression, there was now an insatiable demand for everything, raw or manufactured. It was alleged that the area north of what became

AREA INFESTED BY TSETSE FLIES  
SOUTHERN AFRICA  
after a map by Fred Jeppe, 1877





25 the town of Kimberley was denuded of trees and any bush large enough to serve as firewood, as far as the Congo – a despoliation from which the wilderness never recovered. The appetite of the steam-engines to haul and crush the blue ground containing the diamonds, became voracious and £30 was a common price for a wagonload of firewood.

Anything could be sold – food in any form, draught animals, timber, imported manufactured goods of any kind and the services of anyone who presented themselves for employment – many adventurers found themselves Town Clerks and secretaries of hospitals and even magistrates. The economies of the struggling republican and colonial territories began to improve, particularly at the Cape. When payable gold was found in the Eastern Transvaal some three years later, the adventurers and orthodox miners surged into that beautiful but precipitous area, riddled with fever, and gave hope of improving the chaotic financial affairs of the South African Republic, now under the presidency of the Reverend Thomas Francois Burgers.

26 The new ‘goldfields’ (so far from being ‘fields’, they occurred at all angles in some of the sharpest mountains in Southern Africa) presented daunting problems. They were in the realm of the ‘fly’ and animal transport, apart from ‘salted’ or supposedly-immunised oxen, was vitually impossible. Furthermore there were no routes or tracks, much less roads. The nearest port was at Delagoa Bay in Portuguese East Africa. In 1873, Alois Nellmapius obtained from the Transvaal Volksraad a concession for transport from the coast and employed his training as a civil engineer to build the ‘Nellmapiuspad’ to Delagoa Bay. He also bought land for farms and trafficked in gold and was on his way to success and status.

27 The gold-diggers never overcame the ‘fly’ – tsetse or mosquito, A decade later, while Pilgrim’s Rest still served as their centre, ‘it was a common thing to see a string of practically naked native women carrying cases of gin, whisky or brandy on their heads, marching hundreds of miles from the Portuguese seaport and competing successfully with ox-wagon transport. They sang as they marched; and they marched by sun and stars through the valleys and over the mountains where the snake, the lion and the leopard reigned, across rivers infested with crocodiles, delivering the goods to the white “Umlungu”; and they were well content with the reward of a sovereign for the perilous journey. When the boys emptied the bottles, they scanned the horizon eagerly for more Kaffir maids with more drink.’ Thus W. P. Taylor, one of the many diamond pioneers who took a look at alluvial gold. In the end, the gold ran out and the flies reigned supreme. Before that happened, Nellmapius had made a great deal of money in trading, land and gold but, together with the Transvaal Republic, endured hard times for some years before a state of economic stability was reached.

At the Cape, despite persistent drought and a prevailing depression which took long to lift, the additional and rising revenue from diamonds and the by no means negligible contribution of ostrich feathers, maintained the favourable trade balance which sheep and their products had achieved in 1864. The value of exports exceeded imports until 1875.

28 By 1872, the export of wool had reached a record value of £3,275,150 contributing to a total export value of £6,069,529 as against £4,388,728 in imports. Thence onward it declined and by 1875, despite the now massive contribution of diamonds (£1,548,634), exports only fractionally exceeded imports. It needed no statistician to divine that something was fundamentally wrong with the country’s economy. Industrial activity and mineral wealth could not compensate for diminished agricultural productivity.

29 It was in fact common cause that sheep farming had become so hazardous through the incidence of numerous diseases that many farmers had abandoned them for cattle. In 1865, there had been 693,514 cattle in white possession in the Cape Colony but in 1875, there were 1,111,713, an increase of 419,199. Productivity was moving from the more profitable to the less. In the years between 1865 and 1875, the sheep population had diminished from 1,995,445 to 1,345,883

or a reduction of 649,562. There was every reason to suppose that the trend would continue and basic revenue decrease.

In charge of the Cape Colony at the time were two Englishmen singularly appropriate to a critical economic situation and to the decision necessary to resolve it. The course of action they instigated ultimately changed the face of Africa South and, to a considerable extent, of the world at large.

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30 Sir Henry Barkly, Governor of the Cape Colony had had wide colonial experience, tropically in Mauritius and Guiana where he had owned sugar plantations, and agriculturally in Australia whose problems were in many respects similar to those of South Africa. He was in addition a man of wide interests with a particular fondness and knowledge of Botany. While in office at Cape Town, he collected and cultivated rare indigenous plants, sending specimens to Kew and urging magistrates and other colonial servants throughout his domain as well as amateur enthusiasts, to keep him supplied. The political convulsions of his unruly charge (largely originating in the turbulent Diamond Fields) caused him to travel extensively through the vast Colony and his knowledge of its 'agriculture' was anything but academic. He was also a congenial and approachable man sincerely devoted to finding a *via media* between the hot-tempered and intransigent local politicians who opposed each other in the two newly-constituted chambers of Responsible Government.

31 The chief promoter of this step toward political maturity and its first Prime Minister (1872) was John Charles Molteno of London (resident for generations in England, the family's Italian name had long ceased to have significance). Adversity sent him at the age of 17 with only rudimentary education to Cape Town where, at first variously employed, he founded in 1837 his own trading company. Molteno & Co. was an importing/exporting firm, mostly concerned with the wine trade which at that time provided the Cape's most acceptable product. John, an astute observer and industrious exploiter of opportunity, had however no confidence in the stability of viticulture and when he had accumulated sufficient capital, bought in 1840 about 100,000 acres of the desolate Karroo north of Beaufort West around Nelspoort for division into several sheep runs and the production of wool from merinos. On each of these 'farms', he placed an English cousin as manager and in 1844, himself took up residence upon one, devoting himself to the development of agricultural industry.

Beaufort West was one of the most curious of the Cape's first districts. Of vast extent originally, it had been very sparsely populated by trekboers of miscellaneous origin. The dorp itself had been founded on the farm of a coloured man, de Clercq but owed its development largely to Englishmen. The 1820 British Settlers in the Eastern Province had come to grief through a succession of disasters – floods, droughts and continuous infestation of their grain crops by the fungus known as 'rust'. Although legally bound to remain on their locations, a great diaspora of English through Southern Africa in fact took place. Trained in many crafts and trades as well as being naturally resourceful, they helped to found and administer many of the first dorps in the Karroo. They also bravely resumed 'farming' under totally alien conditions and endowed their sheep runs with characteristic names. Enduring in the Beaufort West district among the usual Paardefontein, Welgevonden, De Hoop, etc. are Little England, La-de-Da and other fancies of John Molteno's farming colleagues who in later years, were driven out by drought and took their talents to the diamond and gold fields.

Molteno worked hard to develop the wool trade on his vast estate, learning all the hazards of the sheep farmers and coöperating closely with his Afrikaner colleagues. He proved its success

and by 1851 when he went to England, it had reached an export value of just under a million pounds sterling. On his return, he formed a new export/import company, P. J. Alport & Co. whose variegated goods greatly diverted the local yokels in the dorp. Rich, influential and highly progressive, he was elected by Beaufort West to the Legislative Assembly of the newly-granted Representative Government and thence onward, campaigned for full Responsible Government against its many bitter and tenacious opponents. He was continually defeated but when Sir Henry Barkly, instructed by the Colonial Office to expedite a locally responsible regime, arrived in 1870, Molteno's policy finally prevailed over many widespread recalcitrants. In 1872, 'the Lion of Beaufort' was invited to form the first government. By then, in addition to their official coöperation, he and Barkly had become close friends. It was the record year for merinos, wool producing an export value of £3,275,150. It was also the last financially happy year for Barkly and Molteno.

32 A practical wool-grower himself with exceptional knowledge of the vagaries and afflictions of sheep, the new Prime Minister knew that the cattle population on which the economy of the Cape was based, needed attention superior to Hottentot specifics and boererate. Natal, facing a similar onslaught of diseases and diminishing returns, was drawn to the same conclusion and in 1873 appointed a commission to investigate Redwater in cattle, then rampant. A year later, the Colony imported Samuel Wiltshire of Gloucester, then aged 30 and recently qualified at the Royal Veterinary College, London and on the 28th October 1874, appointed him to 'the office of Colonial Veterinary Surgeon and Inspector of Cattle at Port Natal' at a salary of £400 per annum and permission to practise privately. The first incumbent of such a position in Africa South, Wiltshire with nothing behind him by way of office, staff, research facilities or indeed coöperation, had an impossible task but zealously did what he could.

33  
34 Molteno thought in other terms. He had a far vaster territory to administer, varying widely in conditions of climate, rainfall, fertility and accessibility. The main areas of animal productivity, particularly sheep, lay in the Eastern Province and the Karroo; but development everywhere was being impeded by disease. Other weighty matters were on his mind, notably the British Government's bumbling attempts to force federation on all the States of Southern Africa; but, in concert with Sir Henry Barkly, he proposed the appointment of a Stock Diseases Commission fully to investigate the situation with professional as well as expert lay advice. Then he went to England and while there, secured the services on a three-year contract basis of Professor William Catton Branford, Professor of Veterinary Medicine and Surgery at the Royal Veterinary College in Edinburgh. During his absence, Sir Henry formally appointed the Commission on the 17th August 1876. Its members consisted of a cunning selection of English and Afrikaner farmers from all parts of the Colony and J. B. Hellier, now widely accepted as an agricultural expert (his journal *The Farm* had failed through large numbers of the subscribers rushing to the Diamond Fields).

Catton Branford duly arrived from England to join the Commission and on the 6th October 1876, eight good men and true set out on a tour of the Eastern Province to investigate sheep farming and cattle diseases. Their sole authoritative advice was MacOwan's notes on the toxicity of various plants.

Their Report, drawn up by Hellier and much informed by local surmise, was a dismaying document. Even the ostriches which providentially had produced such spectacular profits in areas vacated by sheep, were now dying 'from internal parasites of the tapeworm tribe'. Innumerable other 'parasites' caused a host of mysterious diseases; but Gall Sickness, the Commission stated roundly, was caused by indigestion which could be cured, they had been told locally, either by one quart of an infusion from the Gall-bush, or one pint of linseed oil mixed with one wine-glassful of turpentine. The pharmacopea of overseas veterinary science seemed

surprisingly limited or perhaps unknown nor could anyone tell whether it would be effective with the mysterious 'parasitic' diseases.

The Commission ascribed them to over-grazing and the sheep 'having eaten out all the salines and bitter herbs'. Ticks and worms caused other diseases and damp was the cause of Liver-fluke in sheep. On known ground such as Glanders in horses (very prevalent in Europe) and Lung Sickness in cattle, slaughtering was forthrightly recommended and long quarantine for recovered cases to prevent infection. On the notoriously mysterious ground of Horse Sickness, the Commission flatly consigned the problem to Professor Branford.

There was in fact very little that in the general circumstance of ignorance it could report beyond disapproval of over-grazing, soil erosion and grass-burning. It emphasised the necessity of fencing, especially in preventing the loss of stock 'in the event of a native outbreak' (and sure enough, the 'Ninth Kaffir War' broke out less than a year later). The whole significance of the Commission's Report lay in its recommendation that two duly qualified Veterinary Surgeons be appointed as Stock Inspectors (presumably to prevent the spread of infectious diseases) in the Eastern and Western Provinces of the Cape Colony.

Moltano immediately applied for financial authority amounting to £1,000 to establish a Veterinary Department and to pay for the recommended assistants. His Government granted it and Branford was charged with selecting the staff of whom he hoped to be appointed Director when he had completed his assignment.

The field was now open to Catton Branford who, as far as is known, had never previously left England and was accordingly abashed by a harsh and hostile country inhabited by a hydra-headed monster of disease. Enjoying for his three-year period the title of 'Colonial Veterinary Surgeon', his first task was to tour the western and northern Cape Colony as far as Prieska but blood poisoning put him in hospital at Port Elizabeth and the verbosity of his 1877 Report hardly conceals his confusion and incapacity in an alien land. He had even considered asking to be relieved of his engagement.

In November 1877, he had travelled through Beaufort West as far as Graaff Reinet, finding little sheep disease. An urgent call from Victoria West to deal with the ancient 'Vomeerziekte' found him convalescent at the coast. He accordingly issued a questionnaire through the magistrate to the district's farmers who had for centuries believed that this lethal vomiting disease was due to young grass or the 'vomeerbos' on which the sheep grazed. He asked inter alia what 'remedial measures' had been adopted and with what result. One group of farmers (English and Dutch) listed 'tar water; gunpowder and vinegar; one ounce of common salt with water to dissolve it; epsom salts; croton oil in two to six drops; sulphur, salt and meal mixed with water; castor oil; sweet or salad oil. Results: hard to say - some recovered.'

In his 1878 Report, Branford recorded the gratitude of many farmers for the appointment of the Commission and the circulation of its Report. Some of its recommendations, notably in dipping sheep for Scab in the many preparations available (as well as tobacco solution), were being followed. In his last year, he returned to the Eastern Province whose whole wool-producing region had been denuded of sheep owing to disease. A fierce drought had ensued and then the Kaffir War (an historic sequence for the whole course of the century). In the unsettled state of the country, Moltano had told Branford that the appointment of veterinary officers would have to be deferred and he had better get on with his investigations. The situation had then deteriorated sharply.

Moltano had objected to the intention of the new Governor Sir Bartle Frere of employing Imperial troops in an affair requiring only police action and, as head of a virtually autonomous Colony, had sent Colonial forces to the affected area. Frere dismissed him and his able Commissioner for Crown Lands and Public Works, John X. Merriman, and reconstituted the Go-

36 vernment under Gordon Sprigg. For a short time, Molteno agreed to act in it as Colonial Secretary; but, out of sympathy with Frere's policy and acutely conscious of his demotion to a powerless bureaucrat, he resigned his seat at the end of 1878 and temporarily retired from public life. The Sprigg Government withdrew from its Estimates the £1,000 previously voted to initiate veterinary services.

37 There was now no future for Branford who had expected to inaugurate a department and instruct its assistants in the investigation of disease. He accordingly returned to England at the termination of his three-year contract in 1879. (A year later he was convicted on a charge of fraud and, having served a prison sentence and been struck from the register, practised as a veterinary surgeon. Finding after ten years that his conviction was prejudicing his livelihood, he appealed against it and was acquitted.)

38 The Government, however, continued to make use of J. B. Hellier who had industriously served on the Stock Diseases Commission and after. In 1879, he was appointed Superintendent of Immigrants for the benefit of farmers arriving at the Cape under a Government-aided scheme to improve agricultural economy by allotting land in the Eastern Province to qualified candidates. Hellier revelled in the work for which he was singularly equipped, taking his charges to their locations and remaining their guide and friend long after they were established. His appointment officially terminated in 1884 but he continued an active force in the farming field.

Molteno's progressive move, aided by Barkly, toward salvaging the agricultural economy only briefly lost momentum. Due to the drought and the wasting Gaika-Gcaleka War, the situation was accentuated. Real devastation faced the eastern districts. The Cape Government, still containing men who had approved Molteno's move and the voting of funds, was forced immediately to proceed along the lines that had emerged and caused steps to be taken in England to find a suitable Colonial Veterinary Surgeon. The search ended on the 22nd March 1880 when Duncan Hutcheon M.R.C.V.S. was appointed in London at a salary of £700 a year. He arrived in Cape Town on the 22nd April and was immediately posted to Port Elizabeth, focal point of the most seriously affected area, and without any foreknowledge or assistance, engaged the massed force of animal diseases.

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Duncan Hutcheon was a prime sample of Scotland's continuous and best export to Africa South during its long period of evolution. Scotsmen (including Livingstone) revealed the interior, brought the first civilisation in the shape of missions, engineered the roads and railways, designed, produced the bricks and constructed the buildings, and generally provided professional and technical services in almost every field. Hutcheon provided such pioneer service in the field of veterinary science.

39 He was born near Peterhead in 1842 and spent his boyhood in the household of a Calvinistic uncle, being well-schooled in Biblical knowledge and religious song and ritual. Scholarly by nature, he read widely with a strong inclination toward literary (as opposed to scientific) work. His favourite sources were the Bible, Thomas Huxley and Herbert Spencer. He had none of the inhibition of the devout student and was gregarious and out-going, being as ready to sing a Scots song or tell a joke in a broad accent in consorting congenially with his fellow men as to quote the Scriptures to solemn farmers.

Passing through the parish school at Old Meldrum and taking some classes at Mollison's Academy at Aberdeen as well as studying at night school, Hutcheon then obtained employment on a farm and began his career with a close study of animals and agricultural methods. He was

on the land when the great epizootic of Rinderpest struck the British Isles and witnessed the wholesale slaughtering of cattle in an attempt to stop it. Though there is no written record, it is possible that his deeply-stirring experience to which he often later referred, impelled him to the next step in his career.

In 1868 at the comparatively advanced age of 26, he enrolled at the Royal Veterinary College in Edinburgh and, gaining a bursary after the first term, completed the three-year course with exceptional distinction. He was awarded the silver medal for Anatomy, Physiology, Chemistry, Materia Medica and Hippopathology as well as other prizes. Man of the land though he were, Hutcheon had rejoiced in the unseen world revealed by his microscope and was never without it thereafter.

A fully-qualified veterinary surgeon entitled to add M.R.C.V.S. to his name, Hutcheon was first employed in private practice, mostly in partnerships, in Scotland, Ireland and England where in 1875, he was appointed to the Liverpool (Horse) Omnibus and Tramway Co., having hundreds of horses in his care. Here he gained a close knowledge of Glanders, Farcy, Strangles and numerous other equine diseases. He was 38 years old when the agent for the Cape Government secured his services – a fine figure of a man with a good head of hair, a heavy moustache and clear candid eyes which disarmed his critics. His bearing was impressive but his manner engaging. He got on with everybody and shirked nothing.

40 Hutcheon was given one room in Port Elizabeth from which to combat all the country's stock diseases, with particular reference to sheep and to Lung Sickness in cattle, then endemic in the area. Within weeks of his arrival, he was shown cases of Lamziekte at Bredasdorp for the first time in July 1880. His debut in a pronouncedly sceptical context was felicitous. Hardly a year in a totally foreign milieu which meant virtually relearning his profession, he was confronted by a disastrous epidemic of Pleuro-pneumonia in the Angora goats which brought wealth to the Cape Midlands. He had the manner and the authority to institute widespread inoculation and strict quarantine. The epidemic was quelled without much loss and the joy of the Angora breeders was expressed in a gold watch and chain, a gold cup and, with rare discernment, a binocular microscope. The Government presented him with a special bonus and he was publicly thanked in Parliament. Better, the newly-created Divisional Council of a little dorp in the arid 41 Noorsveld, Jansenville, resolved in August 1882 'to request the Government Veterinary Surgeon to attend certain farms in the district for the purpose of attending to some goats now suffering from a disease called Nenta and urge that he arrive as soon as possible as, during certain months of the year, it is prevalent.' Hutcheon had succeeded in hostile circumstances in being not only accepted but wanted. He was to be haunted by Nenta for many a long year.

While the Cape was left in comparative peace after the Gaika-Gcaleka War, momentous events had occurred elsewhere. President Burgers had proved inadequate to uniting the burghers in the Transvaal and to disciplining menacing native tribes in the north. The South African Republic had drifted into chaos and bankruptcy while the Zulu chief Cetewayo massed warriors on its border preparatory to attack. Many responsible burghers including Stephanus Johannes Paulus Kruger desired British protection against onslaught by the Zulus or appropriation by one or other of the powers scrambling for Africa. In April 1877, the British had quietly annexed the Transvaal and its numerous English inhabitants rejoiced.

42 The British caught a Tartar. Cetewayo refused to disband his massive Zulu forces on the Transvaal border and had to be brought to heel; but the rôles were reversed. Samuel Wiltshire, already knowledgeable about the peculiar animal afflictions of Natal, joined the military campaign but escaped the massacre of the British forces at Isandhlwana. Finally they prevailed at Ulundi and went on to deal with Sekukuni in the Northern Transvaal whose roving warriors were terrorising the inhabitants of the declining gold diggings. The regimental veterinary sur-

geons, particularly charged with maintaining an efficient cavalry force in a mist-enshrouded area, now met Horse Sickness at its worst. All they had was 'a small pamphlet issued under the authority of Lord Chelmsford (C.-in-C.) and the annual report of the Colonial Veterinary Surgeon (Wiltshire)'. If these documents described the disease, they were quite unhelpful in prescribing for it.

43 Confronted by increasing numbers of cavalry horses healthy at night and dead in the morning with foam-flecked nostrils, Sergeant-Major R. W. Jackson and Veterinary Surgeon R. Moore of the King's Dragoon Guards decided that it might be useful to record their observations during the Sekukuni campaign from October to December 1879. Limited and perforce speculative, it was at least a professional record. Fred Jeppe published it in his Transvaal Book Almanac for 1881. Something would have to be done about Horse Sickness if development was to proceed in the whole of Africa South.

44 Private veterinary surgeons had begun to arrive. Similarly with Australia where professional 'horse doctors' (and some charlatans) emigrated to the gold diggings in the fifties and sixties and then drifted to the few towns, veterinary surgeons were attracted to the Cape diamond fields and the early gold diggings in the Eastern Transvaal. 'In 1880', the Australian doyen recorded, 'there were only seven or eight qualified veterinary surgeons in Victoria, four of whom were in Melbourne and about the same number in New South Wales, most in Sydney. There were three in Adelaide, one in Brisbane, none in Western Australia, one in Tasmania and three in New Zealand'. With a much smaller white population and very uneven development, Africa South in 1880 was moving very slowly in the same direction. John Cammack M.R.C.V.S. who began his studies in London but qualified in Edinburgh in 1872, came to the Diamond Fields in 1878, progressing later to the Transvaal. A vociferous man, he readily wrote to newspapers and also communicated his observations to Hutcheon. In about 1886, an apparently unqualified man, George Charles Baker, tried to establish a practice in the Transvaal and in 1890, Mr Sam Howard M.R.C.V.S. put up his plate in Port Elizabeth. None succeeded in earning a living. Unqualified 'horse doctors' and numerous 'veterinary farriers' were to be found in the few large towns but merely added their surmises to the lore of local wiseacres.

46  
47 What was needed and periodically proclaimed by both the experienced and the scientifically-educated gentlemen at the Cape was a proper scientific approach to the whole problem of agricultural economy. The renowned Professor P. D. Hahn had been appointed to the chair of chemistry at the South African College (later the University of the Cape of Good Hope) but perforce spent all his time teaching. There could be no chemical analysis of soils. The farmers had their own groundless store of intuitive lore. They knew the peculiarities of brak or saline soil and of occasional characteristic mounds as much as 20 or more yards across, on their properties which were more fertile than the surrounding land - formed by ants or beetles or other insects, they said but no one knew authoritatively or why they should be exceptionally fertile. In 1881, MacOwan had become Professor of Botany and managed to produce a valuable brochure, printed in 1887, on 'Plants that furnish Stock Food at the Cape' which also dealt with toxic plants. But there were no laboratories, no research institutes, no organised attacks on the ecological problems which steadily grew more serious in Africa South.

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50 Hutcheon, a host in himself and still stationed on the eastern seaboard, was flung from one crisis to another while opening Agricultural Shows, judging exhibits, travelling incessantly and engagingly wooing the farmers with Scottish jokes and Biblical quotations to match their Calvinistic allies. He identified and described the historic Blaauwtong (Blue Tongue in sheep) and investigated Redwater in cattle. He also came to grips with Lamziekte and exchanged technical observations with Cammack in Kimberley and with sundry lay observers. Visiting Griqualand West in 1884, he had satisfied himself that both Lamziekte and Stijfziekte (Stiff

Sickness) were due to defective nutrition and had stated in his Annual Report that the causative  
51 shortage of phosphates could be compensated by feeding crushed bones and cereals. His re-  
52 ward was to be ridiculed by his superiors.

53 He had no journal to which to communicate his findings nor any official colleague with whom  
to discuss them. He could publish articles in the local *Racing Calendar* on the proper method of  
shoeing horses and suchlike, and on miscellaneous subjects in the daily newspapers; but when  
it came to combatting an outbreak of Redwater in 1883–84, he had no ancillary services to help  
him.

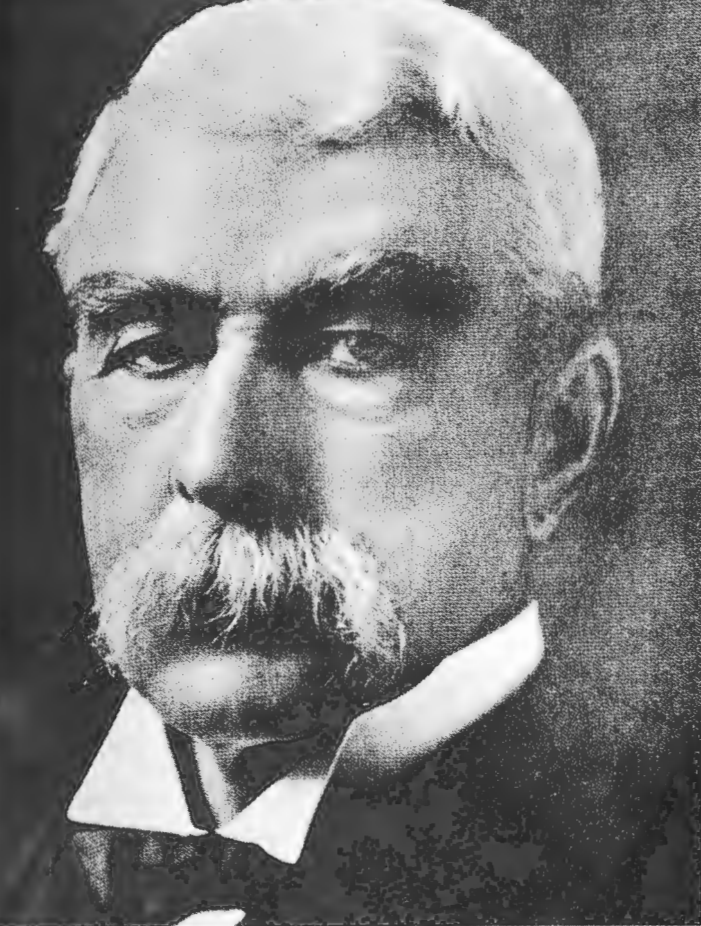
54 Relying as much on his microscope as his postmortem and other observations, Hutcheon knew  
that what he most needed was a bacteriologist. It was impossible, he said, to arrive at ori-  
ginating causes of diseases without one – ‘In very few, if any, can we lay the finger on the specific  
organism’. He confided his need to Merriman, then Commissioner for Lands, when both were  
in Graham’s Town in 1884; but even that energetic innovator was unable to meet it. Hutcheon  
officially made his request in writing; Merriman promoted it as long as he was in office; the  
Imperial Government, aghast at its losses in money through Horse Sickness, announced its  
willingness to subsidise an appointment; the proposal was bandied from Minister to Minister  
and no progress was made. Every year hundreds of animals died from Horse Sickness and in  
some years, thousands in every territory of Africa South. With all his special knowledge of  
hippopathology but with no resources to support him, Hutcheon could do nothing.

55 The British Army could and did do something. Their losses in horses and mules, particularly  
in Natal where numerous mounted regiments were quartered, had reached a height that demand-  
ed action. Regimental veterinary surgeons had reported continuously to their superiors in  
England but were baffled by the disease. The Army sent out its best man for the purpose –  
Joshua A. Nunn F.R.C.V.S. of the Royal Artillery (later principal of the Punjab Veterinary  
College) who had specially studied horse diseases in the north western districts of India. To make  
assurance doubly sure, the Army first sent Nunn to Professor Brown’s Bacteriological Institute  
in London and then to Pasteur in Paris. He was further furnished with laboratory apparatus  
and sent on his way in December 1886, arriving in Pietermaritzburg in Natal on the 5th January  
1887.

With his modern microscopes and slide equipment, Nunn hoped to be able to isolate the  
operative ‘germ’ or ‘microbe’ as Pasteur had done with Anthrax and, by injecting it in weakened  
form, to obtain a serum that would immunise horses. The microbe or ‘bacillus’ as it was now  
called, which he thought he had found, looked like Anthrax but refused to behave in its dis-  
tinctive manner. After a year, Nunn reported accordingly and was ordered by the Army to re-  
main another year which produced no further evidence than his confirmation of the long-held  
view that Horse Sickness was due to climatic causes. He had come no nearer identifying the  
causative bacillus. Hutcheon himself unwisely gave as his view in an article in the *Graham’s*  
56 *Town Journal* in 1885 that Horse Sickness was indeed Anthrax – a position from which he later  
withdrew. The diseases of Africa South were far more formidable than anyone imagined; but  
glimmerings of successful treatment were beginning to appear.

The importance of a properly-organised agricultural economy was now apparent to every  
African State. By 1886/87, the wool industry at the Cape had sufficiently recovered (possibly  
57 aided by Hutcheon and the writings of Hellier) to exceed £1½ million in value and soon surpassed  
58 £2 million. The value of hides and skins too was increasing. Bolstered by revenue from dia-  
monds, the Cape Government in 1887 resolved to institute an Agricultural Office under the  
59 Colonial Secretary and with Albrecht Fischer, a German professor of Experimental Science and  
Agricultural Chemistry at the Victoria College (later the University of Stellenbosch) as Secretary  
but actually a general factotum with illimitable duties. In time he acquired clerical assistants





*Duncan Hutcheon – pioneer veterinary scientist.*



*Jotello Festiri Soga – a native of the Transkei (fourth son of the Reverend Tiyo Soga) and South Africa's first qualified veterinary surgeon.*

*"Edington's Laboratory"* or the Cape Colonial Government's Bacteriological Institute in Graham's Town, adapted from the Royal Engineers Yard and Building constructed by the British Army in 1838.





*Edington at work in the most modern laboratory in the southern hemisphere.*



*Edington at his microscope.*

and an assistant analyst. Remote in Port Elizabeth, Hutcheon constituted the 'Veterinary Branch' with Hellier to help him unofficially.

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Across the Orange River, nothing stirred but across the Vaal, a voice was raised. The South African Republic had regained its independence in 1881 in a bloody war with the British, culminating in the tactical triumph of Amajuba (subsequently celebrated annually on Majuba Day) and the humiliation of the British Army. Stephanus Johannes Paulus Kruger, an extensive and enterprising farmer, became President and firmly took the government of his country in hand. Gold continued to be found in the eastern marches of his domain, bringing all kinds of rascals and rapsallions from the ends of the earth and a few respectable businessmen. Some, like the Strubens, Samuel Marks, R. T. N. James and A. H. Nellmapius turned to the land and began to farm imaginatively, particularly in the importation of stud stock and agricultural equipment. In 1886, there was yet another long-suspected gold strike, this time in the south on a low ridge known as the Wit Waters Rand. Kruger and his Volksraad concluded that it would be as ephemeral as the others and that attention should be devoted to encouraging commerce and industry. The shanty town that had appeared like a fungus on the feral Highveld was bound to become derelict in due course.

60 Very acceptable revenue could effortlessly be derived from granting concessions and monopolies. Samuel Marks bought one for making jams and preserves from the fruit he grew. Alois Nellmapius, Kruger's crony, obtained exclusive rights (some of which he later sold) to manufacture explosives, strong drink, iron, cement, pottery, sugar and other commercial commodities. But Nellmapius at heart was a farmer. Already possessed of numerous distant properties, he bought in 1886 a number of farms near Pretoria from the Erasmus family and built a seigneurial mansion on the favoured spot selected by D. J. (Rooi Danie) Erasmus. In 1888, he called his huge estate Irene after his infant daughter. Importing trained European specialists, he farmed with rare drive and imagination, his friend Kruger frequently visiting the beautiful property with its perennial streams and ancient willows.

61 Kruger, then a robust 62 but prone to periodic influenza and fogged vision due to ingrowing eyelashes, was well acquainted with modern means of farming and not unfavourably disposed; but his burghers were otherwise. No one could tell them anything. Congenitally self-reliant and for generations removed from the outward manifestations of progress, they knew better than anyone how to raise and treat cattle. They had little interest in crops. In the village of Pretoria, however, there were foreigners who not only knew about agricultural economy but saw in its absence in the Transvaal a chance for themselves.

62 In December 1887 after the Cape had enterprisingly instituted an Agricultural Office, a Hollander Dr J. J. Pronk wrote to the Transvaal Executive Council reasonably remarking that as Justice, Finance, Mining, Education, Natives and Public Works were all the care of the State, it should also embrace Agriculture, particularly in respect of Stock Inspectors, Model Farms, Experimental Stations, Agricultural Schools, Studs for breeding, stores of seeds, tree nurseries, veterinarians, water engineers, agricultural experts, etc. as well as legislation controlling Scab, Phylloxera and other diseases. Contrary to expectation, the dorp of Johannesburg on the Wit Waters Rand had not disappeared and Dr Pronk enforced his case by stressing the obvious value of its developing market. He wrote a great deal, emphasising the necessity for a Director of Agriculture (to which he expected to be appointed) but overplayed his hand. Dr W. J. Leyds, then State Attorney and also a Hollander, poured cold water on the idea; but in 1888, Dr Pronk resumed his attack. This time the State Secretary gave as his opinion that such a Depart-

ment 'would, as the English say, be "a white elephant".' Dr Pronk fell back but others soon picked up his banner.

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63 There had entered the scene of sub-continental economy at this time a strange and seemingly irrelevant figure in the person of an indigenous native who was to remain unique in the history of Africa South. His story begins in one of its darker spots – the Transkei in the south-eastern Cape Colony where the Ama-Xhosa were the chief protagonists of the Cattle Wars against the first Europeans. Here there lived a notable family named Soga who early fell under the influence of the Scots missionaries sent out by the United Presbyterian Church. In 1844, Tiyo Soga, son of a chief, was sent to their settlement at Lovedale to be educated; but in 1846, the school was destroyed during the 'War of the Axe' and the missionaries sent Tiyo to Scotland. Scholastically he was not a bright boy but earnest and devout and manifestly a person of quality. He was trained as a catechist and after serving at a Transkei mission for a few years, was returned to Scotland in 1851 by the Presbyterian Church to study for the ministry. It was hard going but Tiyo was ordained in 1856 and soon after, married Janet Burnside, a shrewd and devoted Scotswoman.

The Xhosa clergyman and his white wife arrived in a devastated Transkei in 1857. Vast numbers of cattle had been killed and maize destroyed at the behest of a girl-seer Nonquase. Thousands of men, women and children had died of starvation and disease inhabited the land. Tiyo was sent to a mission at Peulton in the centre of desolation, thence to Mgwali and later to other stations, always gaining in stature among the whites as well as his own people until he became a famous figure.

64 Tiyo and Janet had seven children including four sons all of whom were sent to Scotland for their education by the Presbyterian Church and all of whom brought honour to their calling. The youngest – Jotello (a tribal name in the Soga clan) Festiri (after his uncle, a teacher) Soga – was born in 1865 and when his time came to be educated in Scotland, would have received the same adjuration from his father as his three brothers before him: 'You will ever cherish the memory of your mother as that of an upright, conscientious, thrifty, Christian Scotswoman. You will ever be thankful for your connection by this tie with the white race. But if you wish to gain credit for yourselves – if you do not wish to feel the taunt of men which you sometimes may be made to feel – *take your place* in the world as *coloured*, not as white men; as *Kafirs*, not as Englishmen . . . you, my children, belong to a primitive race of men who, amid many unamiable points, stand second to none as to nobility of nature. The Kafirs will stand high when compared in all things with the uncivilised races of the world . . .'

65 Jotello Festiri Soga went forth as a Kaffir and in 1881, enrolled at the Royal (Dick) Veterinary College in Edinburgh. In a bold hand on the 9th November 1882, he signed the College declaration of obedience to its rules and refusal to foment dissension. Like his father, he was diligent but 'not a prizeman', his only outstanding interest being in Botany. In April 1886, the Board of Examiners of the Royal College of Veterinary Surgeons announced inter alia that J. F. Soga had passed his final examinations and been admitted as a member of the profession. He had also won a gold medal for Botany.

J. F. Soga M.R.C.V.S. was the first South African to qualify as a veterinary surgeon and the first man of colour. He was more of European than Xhosa cast of countenance but had the 'kroeshaar' (crinkled hair) betokening mixed blood. Good-looking and with the noble bearing of his people, he never aped the white man. His presence was imposing and his manners, it was said, 'those of a gentleman'. Like his father, he married a Scotswoman and in due course re-

turned to the land of his birth where, it may be assumed, he resumed his fluency in the Xhosa languages as his father had done. Of his three elder brothers, William Anderson Soga was fully qualified and occupied as a medical missionary; John Henderson as a journalist and author; and Alan Kirkland as a civil servant.

66 In the time intervening, the Cape Government had proceeded with its plan to extend the Agriculture Office and to widen its activities. The exploitation of mineral resources in the Northern Cape and Transvaal had been hampered by recurrent epidemics of animal diseases which diminished the only transport available, primitive and inefficient as it was, Railways had to be built at all costs; but the horse and the ox and the sheep remained of prime importance to the country at large. At the Cape itself, the wine industry, bedevilled at the outset by recurrent fungoid infection, ceased to be a source of revenue through a catastrophic outbreak of what was popularly known as Phylloxera; but in the east, ostrich feathers produced prosperity. In 1887/88, the Government pursued its development plan and increased the staff of the Agriculture Office, including the Veterinary Branch, and proposed issuing an Agricultural Journal. By resolution of the Legislative Council in January 1888, Hutcheon was to be sent overseas to buy horses for stud purposes and to engage an assistant.

67 Hurriedly Hutcheon wrote a number of articles to fill out the new Journal which would be edited by the Agricultural Secretary, Albrecht Fischer and which would make its debut during his absence. They included a series of three 'Letters' on Lamziekte and Gallamziekte (Gall Sickness) published in May/June 1888 which embodied his combined observations and the evidence of voluminous correspondence with lay observers. In typically modest manner, he asked for comment from readers. His views on phosphate deficiency had not been accepted by those on high but had aroused the interest of a bright young man of the day, Charles F. Juritz then pursuing a three-year Fellowship at the University of the Cape of Good Hope in examining the chemistry of South Africa woods, fodder and plants. Juritz defended Hutcheon's hypothesis and went on, in ever-widening chemical analytical work, to provide the richer knowledge required by veterinary science. (In 1890, Dr Juritz was appointed chemical analyst to the Cape Government and in 1891, senior analyst in charge of all laboratories.) In the meantime, all over the country including the Transvaal, countless cattle continued to stiffen, lie down and die.

68 The *Agricultural Journal* appeared in two versions, English and Dutch, on the 22nd March 1888. Published fortnightly, it was a powerful force locally (Hutcheon was a continuous contributor of simple practicable advice to stock farmers) and became the envy of other States. In the absence of a scientific journal, it also served to inform overseas research workers of the disease situation in Africa South. In addition it was a finely produced journal which frequently reprinted important articles from all over the world as well as local work such as MacOwan's on indigenous plants as stock food and thereafter, when he became Director of the Cape Botanic Garden, a great variety of informed and helpful comment on agricultural matters. By 1890, the circulation of the *Agricultural Journal* had reached 8,000 in both languages and its articles were being reprinted in technical journals overseas.

69 Scotland again exported an essential official to the Colony's aid. Hutcheon would probably have sought one nowhere else and duly turned to his alma mater in Edinburgh. A young man J. D. Borthwick born in Kirkliston was finishing his course at the Royal (Dick) Veterinary College and agreed to come to the Cape. He graduated at the end of 1888 and then undertook a short course in Bacteriology at the hands of Alexander Edington, Professor of Surgery and Lecturer in Bacteriology at the Edinburgh Medical School as well as Professor of Comparative Pathology at the Royal Dick. Edington, an early apostle of the new science after which Hutcheon so much hankered, had already done valuable work for the Scottish Fisheries Board.

Borthwick, a solid young man of 22, assumed his appointment as Junior Veterinary Surgeon

at £400 a year on the 27th March 1889 at the point when the Cape's veterinary services were transferred from Port Elizabeth to Cape Town. Hutcheon was given minimal office space, little secretarial assistance (he dealt with his enormous correspondence and wrote articles at night at home) and a range of duties beyond any single man's competence, even with Borthwick's and Hellier's help (The expanding Agriculture Office had appointed Hellier 'Agricultural Assistant' on the 1st September 1889 at £200 a year.) Further assistance was essential.

70 Borthwick was posted to the Eastern Province (except for a few months while Hutcheon again went to England to purchase more stud stallions) and tried to deal with its plethora of diseases especially in inoculating against Lung Sickness. The 'Border' area north of the Great Fish River was more than he could manage. On the 1st November 1889, there was appointed to Hutcheon's staff as Second Junior Veterinary Surgeon at £400 a year J. F. Soga M.R.C.V.S. who immediately went into action in this area having King William's Town as his headquarters. Within a few months of his appointment, the Secretary for Agriculture formally reported that he had 'been doing excellent work, principally in connection with the prevalence of contagious Lung Sickness in cattle, in the district of Fort Beaufort, Victoria East, Stockenström and neighbouring districts', where the farmers were both black and white.

71 The Secretary went on record - 'A sum of £500 is provided on the Estimates for the employment of a professional Bacteriologist who is to enquire into our specific infectious stock diseases, at first into "Red Water" and then into "Horse Sickness". Most likely the Imperial Government who have been appealed to, will contribute a part of the cost of this temporary expenditure so that a really first-class Bacteriological investigator can be secured as only such a one had a chance of discovering the true sources of these diseases which devour year for year such a large part of the national income of South Africa.'

\* \* \*

72 These developments were not lost on the neighbouring States, not even on the stiff-necked Transvaal. The damage to their economies was as great as at the Cape. At the moment of Soga's unparalleled appointment, no less a figure than the Surveyor-General of the South African Republic, G. R. von Wielligh (a 'Kapenaar' or man of the Cape who had come to the Transvaal in 1894) addressed an appeal to the State Secretary for an Agricultural Department. He was supported by the editor (F. V. Engelenburg, also a Hollander) of *De Volksstem* who after a time, noted that not the slightest notice had been taken by the Volksraad of either Pronk's or von Wielligh's representations.

Kruger however - primed by his Continental cronies, the Hungarian Alois Nellmapius, the Lithuanian Samuel Marks, the Hollander Struben and his sons, even the English R. T. N. James, all of whom farmed in the modern manner - was fully alert and in March 1890, stated at a country political meeting that he proposed instituting a Department of Agriculture. He announced it in his 'speech from the throne' when opening the next session of the Volksraad. It was necessary, he said, for the new market offered by Johannesburg. Labour-saving machinery must be introduced; farms must be better utilised and developed. He asked for members' urgent attention to the matter. In May, the Executive Council duly approved the proposal whereupon it was referred to the Volksraad.

That body, mainly constituted of horny-handed hairy burghers from remote areas, behaved as their counterparts have done down the ages. They were all aware of the great shortage of food which the new goldfields gobbled up in ever-increasing amounts and now imported in bulk from abroad. But they - free, independent farmers working their own lands for which they had fought - refused to countenance the imposition of bureaucratic control.

One of the members said he was tired of the whole thing. Such a thing would involve a whole lot of officials. The head would want £1,200 to £1,500 a year. He would sit in Pretoria and write brochures which a few people might read but certainly not the farmers. He would tell the boere what to do and what not to do and fine them if they didn't. Another expressed mystification that anyone should need to be told the difference between a well-bred ram and an inferior type. The difference was as clear as day and night. What was the use of talking about building dams when it just didn't rain? Others countered with the assurance that the Department was intended to dispense not discipline but enlightenment, to make pedigree stock available for breeding and to provide other facilities beyond the means of farmers. The Volksraad wavered and finally agreed to authorise the Government to frame regulations appropriate to an Agricultural Department and to publish them in the *Staatscourant*.

73 Instructions were given to a resident Hollander expert, Dr W. J. Fockens, to report accordingly. Fockens, then touching 60, had studied Chemistry, Botany, Zoology and Mineralogy at Grönigen, pursuing these subjects at Berlin and Göttingen and becoming a Doctor of Natural Sciences. On his return to Holland, he had entered civic affairs and served as burgomaster of Leek for 25 years while continuing his natural sciences research in his private laboratory. In 1884, he came to Pretoria, bought the Trevenna Estate and tried to farm there for a few years before accepting an appointment as teacher in Mineralogy at the Staatsgymnasium. He seemed eminently suitable as an adviser on the thorny problem of a new State Agricultural Department.

Within a few days, he laid his report on the table, stating inter alia that such a Department was not needed. District Commissioners for Agriculture as in Holland were all that was necessary and their joint activities could be called a department. No doubt he wished to be the Chief or coördinating commissioner. The President, his responsible officials and progressive members of the Volksraad were deeply disappointed. Fockens' plan was disregarded though, on the 13th November 1890, the editor of the *Cape Agricultural Journal* hopefully stated that 'in addition to the 8,000 local circulation, some 1,400 copies will probably shortly be ordered for the Transvaal'. Neither the Colony of Natal nor the Orange Free State had Departments of Agriculture but the Cape willingly supplied its appropriate Acts, reports and regulations to the envious progressives in the Transvaal. Before long, petitions demanding an Agricultural Department from farming areas anxious to exploit the new Goldfields' market – the Zoutpansberg, Potchefstroom, Heidelberg, Standerton, Vryheid, the Waterberg, Pretoria itself – fell like leaves into the lap of the Volksraad which talked them to death. Kruger himself could not move his obdurate burghers.

\* \* \*

74 The importance of the unseen world was now firmly established in the minds of progressive men in all parts of Africa South. Pasteur's Institute in Paris, run on commercial lines, had been open for two years and two of his men had been commissioned by the Australian Government to advise on the cultivating of the virus of Pleuro-pneumonia (Lung Sickness) in Queensland. Their report, widely published and reprinted in the *Cape Agricultural Journal* on the 10th April 1890, was avidly read and Borthwick, operating in the afflicted areas of the Eastern Province, began  
75 'inoculating cows with a virus produced from a calf specially inoculated after the manner recommended by M. Pasteur's representatives to the Australian colonists'. Of 500 beasts inoculated, 494 took satisfactorily. Soga, 'one of the most skilful and successful inoculators' as Hutcheon testified, used the same method and greatly engaged the respect and affection of the black and white farmers. Hutcheon himself was futilely struggling with Horse Sickness and withdrawing his view that it was linked with Anthrax. He longed for the day when his Bacteriologist might come.

76 The Government of the Cape Colony, baffled by the continuous infection of vineyards with Phylloxera fungus and the ruination of the wine industry, laboriously circularised its neighbours in Africa to enquire whether they would financially support such an appointment. Natal, also losing revenue in heavy stock losses, agreed to contribute £300 per annum. Sir Charles Mills, agent for the Cape Colonial Government in London, was instructed to place an advertisement in English newspapers offering appointment for three years at £500 a year to a Bacteriologist 'to investigate the nature of germ diseases in the Cape Colony'. Sir Charles was told to consult Professor Brown of the British Board of Agriculture in regard to candidates. The offer was unattractive. Professionally-qualified men, particularly in the new and essential science, expected at least £1,000 a year, especially if the position were in the Colonies. There appear to have been no candidates.

Mills consulted Brown who caused a telegram to be sent to Alexander Edington (whose student Borthwick had been) asking him to apply for the appointment. Then aged 30 and with much officially-commissioned bacteriological work behind him, Edington was well situated as assistant to the Professor of Surgery at Edinburgh University, Lecturer in Bacteriology at its Medical School, and Professor of Comparative Pathology at the Royal Dick. A man of considerable self-importance, he regarded it as a mark of eminence that 'an important officer of the British Government' should ask him to go to South Africa. On the 23rd October 1890, he duly made application supported by testimonials. A four-month silence ensued during which Edington's friends told him that he would be a fool to go as 'South Africa was the grave of reputations' and the salary was in any case inadequate. Then, he said, he had two further offers of Colonial appointment, one from India and while considering them, suddenly received a telegram from Sir Charles Mills on the 11th February to the effect that the Cape Colonial Government had accepted his application. That he complied with the belated advice was due to the motive that sent many men to the Colonies – the desire to be in charge of their own affair and not an insignificant part of a great organisation or institution, and the glamour of the Colonial Empire, now in an exciting stage of evolution.

77 In Cape Town, salvation seemed at hand. The terrors of the unseen world would not only be revealed but methods found to combat them. Barely had the advertisement for a Bacteriologist appeared in England than the editor of the *Cape Agricultural Journal* confidently appended footnotes: 'The matter will be taken up by the Agricultural Department as soon as the Bacteriologist arrives'. He did not in fact arrive for eight months during which Hutcheon fumbled on with Horse Sickness and the many teasing diseases that he knew so well but could not fathom.

78 Edington assumed duty in London and on the 22nd March 1891, accompanied Sir Charles Mills on a tour of France to examine the latest methods of combatting Phylloxera (grafting vines on to American stock had not been a complete solution, as the Cape well knew). His duty was to assemble and equip an entirely new laboratory at the Cape. He inspected the principal laboratories in Paris, including the Collège de France and the Pasteur Institute. Then he went to Germany where, he stated, Robert Koch gave him the entrée to the principal research institutes. Thence he went to Jena, the seat of the Zeiss and other technical apparatus suppliers and completed his purchase of stores and equipment. Unlike other pioneers, he would not be starting with improvised resources but with one of the best equipped and most modern laboratories in the world. All his purchases were despatched to London and Edington himself returned in May 1891 to arrange their shipment to the Cape. He sailed soon after, landing in Cape Town on the 4th June 1891. Another Scotsman had come.

By that time, a man of sterner stuff than he, had arrived in Africa South to combat its manifold diseases and to promote the prosperity of the world at large.



## CHAPTER THREE

### THE THEILER TALE 1867-1891

THE EFFECT of the industrialisation of Europe and particularly of the application of power, early became apparent in the nineteenth century. The factory-town supplanted the rural dorp, the population suddenly increased, the demand for draught animals declined and other ecological stresses and strains manifested themselves. Most were wrought by Steam, closely followed by Electrical Power. Toward the end of the century, Switzerland had won the reputation (doubtless due to its topography) of being the most highly electrified country in the world. Swiss electrical engineers and technicians were consequently in good demand.

Mechanisation of industries produced gross unemployment and distress concurrently with the revelation by explorers, wandering scientists and missionaries of new worlds to exploit – a prospect particularly pleasing to the incipient Colonial powers. What the new territories most needed was ‘mechanics’ – the contemporary term for artisans, craftsmen and anyone trained in a particular job. Great waves of emigrants left Europe for all the other continents, many of them through Government-aided schemes.

1 As mechanical force took a firmer grip on the older European cultures, rendering animal- and man-power more and more redundant, the waves increased. The peak of exodus from Switzerland took place in 1883; but the rate of men and women leaving die alte Heimat for overseas hovered around 7,000/8,000 per annum for a decade thereafter. The diamond and gold fields drew many to South Africa where their special skills in the food and hotel industry, metal working, electrical installation and domestic service seemed to have favourable opportunity.

In the highly cosmopolitan population of Pretoria, there was a small Swiss community engaged in most of these occupations and also flirting with farming. With the *Zusammengehangkeit* typical of their race, they kept in close communication with their friends and relatives at home, keenly aware of their hardships under the new order and anxious to find place for them in the raw but developing lands. In the small Pretoria coterie was an energetic Swiss, E. Constançon who, *faute de mieux*, was appointed Consul for Switzerland to the South African Republic and intermittently sent reports to the Swiss Emigration Office at Berne.

The prospect of emigrating was much discussed there by recently qualified young veterinarians. They included three Zurich alumni – Peter Lyss, Arnold Theiler and their friend Tüller. All knew from bitter experience that their chances of a career in die alte Heimat were virtually nil. Descriptions of the Argentine, Brazil and other South American republics enthralled them. Compatriots described too the burgeoning Transvaal Republic, on the verge of enrichment by a booming gold market, where the importance of animal power was supreme in a land devoid of railways and industry (apart from mining), where there was sun, warmth, the hunting of wild animals, the cheapness of black labour, the chance of every man being his own ‘baas’ with Kaffirs to work for him, the whole glorious quasi-colonial syndrome. It captured the imagination of frustrated youth. In 1890, 7,712 men and women had left Switzerland for the outside world. By the end of that year, Theiler, Lyss, Tüller and others had decided to join the stream. Their aim was South America.

2 In many ways, Arnold Theiler was typical of the tendencies of his times. His father Franz, born in 1832, came of pious peasant stock with 300 years of farming behind him. The family lands at Kriesbaum had become too small for further sub-division and when Franz’ turn came, there was no portion and he was forced to train as a teacher. A man of determined and distinguished character but without academic qualification, he rose high in his calling, developing

a catholicity of interest characteristic of the period. Natural History became his passion, with special emphasis on Botany; but he attacked any subject outside his normal compass with equal enthusiasm and at various times, mastered the French language, mathematics, book-keeping and calligraphy.

For Franz Theiler, the world was widely open to fascinating investigation, be it on the rocks and heath outside or in the myriads of books in which foreign travellers recorded their observations of distant lands. His fieldwork was as extensive as his reading. He enjoyed too the status of the classic triumvirate of his community – the mayor, the doctor and the school-teacher – the educated men of the village. Slowly he progressed from village to village in professional advancement, always extending his knowledge in eager study of various subjects until in 1866 at the age of 34 and high in the estimation of his superiors, he was appointed to a new school at Frick in the Canton of Aargau. It had a staff of three and Franz taught Natural History and Mathematics. Within three years, he was elevated to 'rektor' or headmaster.

His way then seeming clear, Franz had married the 24-year old Maria Jenny of Entlebuch. Shortly after, they set up house in Frick where they remained until his death in 1901. Here on the 26th March 1867, Arnold was born and later, two children who died in infancy. Marie, born in 1873, survived and immediately became the close concern and special love of her six-year old brother. Nine years later, a 'Laatlammetje' (or 'late lamb' as such an event was called in Arnold's future home) was born and christened Alfred. The 15-year old Arnold conceived a high sense of responsibility toward his only brother. His father was aging and, poorly paid as a country teacher, had limited means. In adolescent flights of moral rectitude, Arnold resolved to secure his brother's future.

The versatility of Theiler père was in itself an education. Arnold attended the school at Frick at which he was a gifted teacher. A stocky purposeful little boy, he tramped the long green hills with his naturalist father and climbed the mountains, examining plants and rocks, insects and birds and animals, bushes and trees, mushrooms and fungi, anything living or dead that bore upon the wonder of the world. Franz had outstanding powers of observation and, in revealing to his willing son the marvels of natural history, instilled in him a keenness of perception and a disciplined recording of observation which launched him on life. Refined and inspired by massive experience and study, it ultimately opened new realms for Science. If Arnold tended toward any special aspect of the wondrous Nature which his father worshipped, it was Botany. Until the end of his days, he remained deeply and constructively interested, not so much in systematic botany but in plants, their chemical composition and uses.

Pedagogue though he were, Theiler père turned his hand gladly to mundane matters and in the practical manner of the Swiss, was in many ways a handyman. He had a workshop with a joiner's bench and a turning lathe. He could also solder. He learnt glass-blowing and book-binding. Much of his apparatus was used in teaching Physics at the Frick school and was envied by other unendowed schools. Arnold learnt to be handy too and even as a child, helped his father with the swarms of bees which he enthusiastically bred in numerous hives. The bees, Arnold noted, suffered in health as much as humans and animals. Sometimes a swarm would perish mysteriously from a fungoid affliction.

Franz was a strict and thorough teacher, giving good grounding in all that he taught (including religious morality to his family) but was also esteemed for his general wisdom. Frick appointed him to commissions examining the disappearing vine industry and the difficulties of its water supply. He moved easily and with stature among his people and, upon occasion, participated in national events. He was an exceptionally good shot and long attended the National Annual Shoot where he won prizes. Arnold too loved guns and practised marksmanship.

The school years of the Theiler boy never lacked interest. He made collections of everything

he could as a matter of course – rocks and geological samples from other areas; plants, insects, skins of birds, anything relating to Natural Science. To his addicted father, the most precious acquisitions were specimens from overseas. They came rarely but excited enormous interest. Arnold had few idle moments. Such as he had at school were spent with a little girl, Emma Sophie Jegge with fair hair, dark eyes and a little pointed face as earnest as he and as interested in the natural world around them. Emma (soon orphaned) was making her way through school preparatory to finding some way of earning her living, at that time very difficult for unsupported women. As they grew older, Arnold and Emma grew close and pledged themselves to unknown things. His family disapproved and Arnold, already irked by their rigid religious attitudes, came to his own rebellious conclusions. He vowed ‘to spare my children all that made my childhood so unspeakably unhappy and caused me enormous mental anguish: the fear of a God who could only punish and had little love, the compulsion of a faith in which I saw no reason, the mystique of superstition and much more . . .’

In April 1883, at the age of 15, Arnold achieved the School Leaving Certificate at Frick and, waiting until he was 17, enrolled in the Aargau Canton School at Aarau for higher studies. He would walk many miles over the hills in rain and snow to visit Emma. A thickset sturdy chap with the build and cast of countenance of an Italian montagnard, he had all the cautiousness and obstinacy of the Swiss albeit a streak of wildness and insubordination. At Aarau he studied scientific subjects and the English language, having already decided to find his fortune abroad. The scientific world at the time was still agog at Koch’s identification of the bacillus that caused Tuberculosis and all that flowed from that discovery. Long endemic in Switzerland, the incidence of the disease could now to a large extent be controlled. Theiler read of these developments across the Rhine, only a few miles distant from his home, and anything else that fed his endless curiosity.

The conditions of the time and the massive emigration of the Swiss determined that his eyes should be upon the Aussland. He read Darwin’s ‘Voyage of the Beagle’ and Livingstone’s ‘Missionary Travels’ and other germane works. First he inclined toward South America, then Africa. Livingstone, a medical man, had described diseases and how, inexplicably, when Small-pox confronted the Bechuana natives in the very centre of Africa South, they had practised vaccination without any notion of its origin. ‘The disease passing under the term “horse sickness” (peri-pneumonia)’, he wrote, ‘exists in such virulence over nearly seven degrees of latitude that no precaution would be sufficient to save these animals. The disease attacks wild animals too. Great numbers of koodoos, gnus and zebras perished from it but the mortality produced no sensible diminution in the numbers of game.’

Deep in the Kalahari, Livingstone noted the incidence of other cattle afflictions among the local fauna. ‘I have seen the kokong or gnu, Kama or hartebeest, the tessebe and the giraffe so mangy as to be uneatable even by the natives . . . Great numbers also of zebra are found dead with masses of foam at the nostrils exactly as occurs in the common “horse sickness”.’ It was the recurrent scourge of Africa South and a challenge to the world of science. Pasteur and Koch, its then leaders in the bacteriological field, were concerned with men and not with beasts. In their new institutes in Paris and Berlin, the emphasis lay on human diseases. Koch in fact was in India investigating Cholera.

Theiler, a diligent student at Aarau and inclined to become a teacher like his father, kept up his nature studies and, wandering widely in the vicinity, increased his plant collection. Then he decided to qualify as a veterinary surgeon and, duly certificated by the Canton High School in 1887, moved to Berne to enter the Veterinary School at its University. The combativeness that was a lifelong characteristic rose to the surface in confrontation with those in charge. After some months, Theiler took exception to their attitude and summarily left, immediately enrolling at the

Veterinary School of the University of Zurich. The bitterness remained with him for many years until finally his account was squared.

12 Wounded pride, his rebellious spirit and natural exuberance threw him into the company of  
13 hard-drinking fellow-students and during his two years at Zurich, Theiler sowed his wild oats  
among the lieber alter Bierbrudern of his veterinary classes, creating a very bad impression on  
his austere parents. ('I was well on the way to a dissolute life through drink - a ne'er-do-well',  
he later wrote.) It was here that he celebrated his majority and in August 1889, attained his  
Veterinary Diploma. The ground that it covered hardly equipped him for his planned career (in-  
struction in Bacteriology, for instance, was perforce rudimentary though he served as an assist-  
ant in the new 'Bacteriological Institute' of Zurich University, and there was no teaching in  
tropical diseases); but the basis was solid as far as it went. Before he could test it professionally,  
he was compelled to complete the statutory Swiss military service spending a year at Thun as an  
Army Veterinary Officer but also receiving instruction in arms.

14 During that year, Koch had the whole scientific world by the ears. At the International Medic-  
al Congress held in Berlin in August 1889 (as Theiler got his Diploma), Koch announced a cure  
for Tuberculosis in the shape of a lymph deriving from the bacillus itself and subsequently call-  
ed 'tuberculin'. It was a rash claim which Koch later alleged he had never made though he  
made a similar one for a 'cure' for Leprosy. The injection of 'Koch's fluid' as the English called  
it, was supposed, despite violent and painful reaction, to cure the disease but in fact, it was mere-  
ly a useful test for its presence. It produced great controversy in the medical field, brought bac-  
teriology into increasing prominence and canvassed the merits of what came to be called 'the  
serum method' for various diseases. Koch's reputation temporarily declined but the brouhaha  
greatly publicised the need for bacteriological research.

15 Theiler, still sowing his oats among military comrades, was well aware of these developments  
though ostensibly they fell outside his field. In August 1890 with the controversy mounting, he  
was discharged from the Swiss Army with the rank of Lieutenant (having passed first in his  
class) and placed on the reserve as a regimental veterinary officer. Under Swiss law, he was re-  
quired to keep in training and to pay regular dues to the Military Department. His year of ser-  
vice had been of particular value in its close study of Army horses and their diseases as well as  
practice in marksmanship and familiarity with military methods. It had been however an unset-  
tling experience and he still lacked decision on the line of his future career. His student-colleagues  
were similarly undecided and pending the hatching of a plan to emigrate together to one or  
16 other of the developing countries in the southern hemisphere, Theiler essayed to go into private  
practice in the little village of Beromunster deep in the country about half-way between Aarau  
and Lucerne. His fate was certain. The forebodings of his parents seemed justified.

17 Centuries of animal husbandry and their own extreme carefulness had made the Swiss expert  
in horse and cattle culture. Once in a while, an epidemic of Swine Fever might sweep off the pigs  
or Glanders afflict the horses; but on the whole, farmers far in the country could deal with the  
welfare of their stock. In a region politically and socially antagonistic to his own, Theiler walked  
and talked but found no work. Later he would say that he found more cases of animal diseases  
in 3 or 4 days abroad than he saw in a month at Beromunster. Desperately he wrote from the  
cold disapproving atmosphere of his home at Frick to every Swiss consul in the southern hemi-  
sphere. To the wonderment of his loving sister Marie, then 20, a flock of letters came, all telling  
him to learn English before he thought of employment abroad.

18 By chance, someone sent him a report recently submitted by Constançon in Pretoria to the  
Swiss Emigration Office in Berne. It said that as there was no veterinary surgeon in the Trans-  
vaal which was periodically wracked by animal diseases, particularly Horse Sickness and Bovine  
Pleuro-pneumonia, opportunity seemed to provide for adventuresome and qualified young

19 men. Theiler made up his mind to go. He was not to know that John Cammack M.R.C.V.S. who had vainly tried to earn a living in Kimberley for some years, had been appointed Deputy-Inspector of Cattle at Durban under Wiltshire on the 4th September 1890 and allowed to accept fees. He departed soon after for Johannesburg where he set up a 'Veterinary Hospital'. The unqualified G.C. Baker was purportedly treating animals elsewhere in the Republic. Furthermore  
20 the Transvaal Government had blown hot and cold on the proposal to institute a Department of Agriculture with veterinary services and no action whatever had been taken.

Theiler had a fair knowledge of English from his studies at the Aargau Gymnasium at Aarau  
21 but now he must learn Dutch. He went to Lucerne for a quick course under Professor Brandstetter. The colleagues in his graduate class at Zurich were all in the same fix and he wrote them of  
22 the fine possibilities Constançon had mooted. Peter Lyss agreed to join him in the dashing step he proposed. For Theiler, it would be a heartbreaking wrench. His upright and exacting father already considered him a failure, a man of weak moral principle and flawed devotion to Natural Science. His mother could not but agree. He would miss Marie and little Alfred, then aged 8  
23 and recently embarked upon his schooling. Most of all he would miss Emma who, after time spent in Paris learning dress-making and haute couture, was now at Torquay in England as governess companion to a family. Secretly he wrote her his plans, promising that as soon as money could be earned from his Transvaal practice, he would send her fare and they would marry and live in Pretoria. In the atlases they had consulted, Pretoria was clearly marked in mysterious country widely dotted by a few high-sounding dorps – Potchefstroom, Lydenburg, Rustenburg, Pilgrim's Rest, Pietersburg, Zeerust, Middelburg . . . There was no Johannesburg.  
24 Cartographers had not had time to prepare and publish new maps indicating the upstart mining camp which unpredictably had failed to disappear but grew and grew.

Theiler made thoughtful preparations in the freezing winter months when travelling between his home at Frick and his professors and friends at Berne, Zurich and Lucerne became a hardship.  
25 His father was glad that Lyss would be with him. At the end of December 1890, Lyss astonished and disappointed them both with his refusal to proceed with their joint plan (he was contemplating marriage). Of his colleagues, Lyss was the man Theiler most wanted as partner and when they met at Zurich to say farewell, they agreed that Lyss would come at some time to join him. They would advertise themselves as

#### A. THEILER & P. LYSS

VETERINARY SURGEONS

*Diploma* – Veterinary Colleges of Zurich and Berne, Switzerland

Veterinary Surgeons of the Swiss Army

Later Assistants at the Veterinary College, Berne and the  
Bacteriological Institute, Zurich

For the present, Theiler would go alone, encouraged by the enthusiasm of his professors, particularly E. Zschokke of Zurich who had taught him Veterinary Pathology and Anatomy and whom he specially revered as friend and protagonist.

26 With his father's help, Theiler packed a trunk with his basic books, a good microscope, a small pharmacopea of essential medicaments and all his clothes barring those he would wear on the journey and the small necessities that he could carry in a valise. Permits and passports had to be obtained and arrangements made with the agent Schneebeli to consign his luggage to South Africa and thereafter, anything he might require. There was much consultation with Swiss who had relatives in South Africa. A Frau Ritter told him of her husband who was a plumber and tinsmith in Johannesburg. Ritter might help him and the electrician Lauber who would accom-

pany him (Lauber in fact came later). Theiler had never before left die alte Heimat. It was very affecting, particularly for his aging father, now gruff and displeased with his wastrel son.

27 On the 8th February, Theiler departed for England with his single suitcase, travelling via Antwerp, Ostend and Harwich to London where a kindly Swiss took him to the shippers Donald Currie & Co. to get his train ticket to Dartmouth to board *Grantully Castle*. He stayed in a cheap hotel and was visited by a Swiss friend, Jean Dietschi until due to leave on the 13th, ostensibly occupied in seeing the sights of London. Whether Emma took time off from her duties as governess in Torquay to bid him farewell in London is no longer known. His family disapproved of his attachment and nothing is recorded in his letters written them; but all signs point to their having met and reaffirmed their plan to marry when Arnold had made his way.

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On an upper steerage bunk in a bucking single-screw steamship, Arnold affected gaiety among his cosmopolitan companions (including a German band beloved by Victorians) 'going out to the Colonies'. He practised his several languages and tried to accommodate himself to the 'curious English food' – a kind of thick groats that one had to eat with a spoon and beef 'quite bloody and half-raw'. He remained on board at Lisbon and wrote his parents, and again at Madeira – he thought of them constantly, he said as the ship carried him toward his goal. 'God helps those who help themselves – so forward!' He had drunk *one* glass of beer and smoked only one cigar given him by a German. He was saving every penny.

Then came the bad weather that flung the old ship about like driftwood. The steerage, jerking horribly as the screw came out of the water, was flooded and hardly anyone came to the dining saloon where the bravest were frequently flung from their seats. A steward jumped overboard. As they neared the Cape of Storms, paradoxically it grew calmer. Incurably gregarious and eager to learn, Theiler found an Englishman on board with whom to practice the language, and two South Africans from Natal and the Transvaal to question about his prospects. Was it true, he asked, that there were no veterinary surgeons in the Transvaal? and the man replied that there was one in Johannesburg (Cammack) with his own veterinary hospital. It was a shock but Theiler gamely announced that he had no intention of going there and the man said reassuringly – 'Well, you'll have work enough.' In his letter home, he professed himself full of courage and eager to get started on his appointed path.

On the 6th March 1891, he landed in Cape Town and put up at the Hotel Hamburg where another Swiss joined him in walks round the town. He was astounded by the people of colour – from pitch black to light brown – and by the profusion of fruit ('grapes as big as walnuts') and of strange vegetation such as cactuses in full bloom. All was new and wonderful, even the stamps which he solicited from chance acquaintances and sent to little Alfred. His joy was brief. Search where he might, even in the innards of the ship, his trunk was not to be found. Without it, he was useless. Local Swiss helped him (one a policeman at the Convict Station); but neither the shipping agents nor the Customs nor the crew could trace the baggage which, he had been assured in London, had been sent to the docks to be loaded. In anguish, he wrote his parents to enquire from Schneebeli. It might be another 3 or 4 months before replacement of his equipment could arrive.

There was no point in waiting. On Sunday the 8th March 1891, he clambered at night into a 3rd Class compartment of the train that would take him to the borders of the Transvaal. The ticket cost him £2.4s.6d. and he provided himself with two bottles of wine, bread and sausage. The train would travel 700 miles to Vryburg in Bechuanaland and there he would mount the daily coach to Johannesburg for which he had already bought a ticket costing the immense

sum of £5 although the distance was only 300 miles. His train companions for two nights and two days in considerable heat and a barrage of smuts and dust, were raw natives going to Kimberley. Thereafter he travelled with 6 Swiss miners who had been on the ship with him and, finding no employment on the diamond mines, were going to Johannesburg.

Theiler had not been prepared for the arid wastes of the Great Karroo or the bleak appearance of the northern part of the Cape Colony. No bush, no tree, no blade of grass – only rocks varied by slight eminences, sometimes a tiny dorp of corrugated iron shacks, sometimes only a deserted siding. Everywhere blacks and a few whites at the stations. Toward the end of the railway, the country improved and for the benefit of his naturalist father, Theiler described the falcons and eagles and other birds, the colourful butterflies and the locusts in swarms, ox-wagons and mule carts, Kaffir kraals of beehive huts set in maize fields, and natives trekking along the roadside. Arriving at night and leaving before dawn, Theiler saw nothing of the historic dorp of Vryburg, only nine years previously the ‘capital’ of the Republic of Stellaland. He was to make its name resound throughout the scientific world.

Nothing in Europe resembled the journey by coach from the rail terminus at Vryburg to the Wit Waters Rand. It was the main route of supply to the large town that had grown out of the mining camp and could in no sense be called a road or thoroughfare. Carts, ox-wagons, coaches, droves of sheep and oxen, adventurers too poor to pay for transport plodding on foot, natives travelling to and from the mines, horsemen, stray animals, sometimes wild ones, tortoises, snakes, a miscellany of moving things used the eroded and pot-holed track that linked the Diamond City to the City of Gold. Its course could be traced by the dust that hung above it at the time Theiler rode, clinging to his cheap outside seat high on the coach and gazing with rapt interest at an entirely new world.

The mules or horses inspanned at ten-mile stages were driven hell-for-leather to the next where a fresh team, already harnessed, stood ready to be inspanned. In teams of ten or twelve depending on the terrain, they were less under the control of the driver as of the wielder of an immensely long bamboo whip with giraffe-hide thong. With exquisite skill, he would flick a lagging beast or a passer-by for sheer virtuosity, shouting the while. The coach rocked and swayed and came near to capsizing but, unimpeded by rain and flooded rivers, made good progress. In the three and a half days that it took to reach the Highveld, Theiler saw more vividly than his books had told him, how the economy of Africa South depended entirely on animals. If they were slowly being supplanted by mechanical power, they remained essential for non-trunk transport and for food. It was the season for Horse Sickness, he was told, and the mortality was exceptionally high in the Transvaal and Natal.

On the morning of the fourth day, wearied by the jolting journey and the crude ‘accommodation houses’ where he had shacked down for three nights with uncivilised travellers, Theiler saw the strange tinny apparition spreadeagled on the Highveld that called itself Johannesburg. Flicked into a final flourish, the horses galloped through its rough and muddy streets with their tormentor discarding his whip for a brass trumpet blaring the arrival of the post-coach. Among the small gathering at the terminus, the Swiss plumber Jakob Ritter soon declared himself and Theiler’s immediate troubles were over. Lodgings were found for him in the Commercial Hotel owned by another Swiss and he took his meals with the Ritter family. No work was done on a Saturday (when he arrived) or a Sunday and Ritter devoted himself to showing the town to the newcomer and discussing his future.

28 On the afternoon of his arrival, Johannesburg staged one of its characteristic audio-visual performances – a ‘mild’ thunderstorm with fierce lightning immediately overhead. On Hospital Hill, a short distance from Ritter’s house, a wagon plodding over the brow on its way to Pretoria was struck and three oxen killed, the owner surviving with severe shock. Uproarious and

29 shattering storms were typical of summer in the Transvaal. Before long, Theiler would see whole teams of oxen dead in their traces after lightning had struck the connecting trek-chain. During his stay in Johannesburg, rainstorms persisted, the post coaches were delayed and the road to Pretoria became almost impassable. Nonetheless the letter he immediately wrote to Constançon was safely delivered and within a day or two, he had a reply written by the Consul's father. Constançon was away for 8 days and would return only on Wednesday the 25th March. Theiler decided to spend the week in Johannesburg. It was still without street lighting except for the lamplit locations of innumerable bars and beerhalls, mostly conducted by his compatriots.

Ritter took him to a goldmine and typically, Theiler recorded every detail of the mining and crushing processes and the primitive means of extraction by which the heavier gold particles sank and adhered to wash-boards over which the residue flowed. The industry was in a state of slump but due to roar later into unprecedented booming life with the MacArthur-Forrest process of cyanide extraction which recovered the maximum gold and eliminated previous heavy wastage. Theiler possessed himself of a piece of gold-bearing quartz to send to his father.

30 More exciting to him was the tone of the depressed town. From the coach, he had seen a large race-course with expensive horses. Now he observed that there were in the streets few one-horse traps, many carts and mostly two-horses carriages as well as numerous riders. And what horses! he exclaimed. At the Cavalry School at Thun where he had done his military training, there were no horses such as these! Further there was a Tramway Company with 70 horses, the Mounted Police, heavy horsedrawn trolley traffic, many post-horses for the coaches, even circus horses. The local Swiss calculated the number at 5,000 excluding mules. They could tell him nothing of Cammack and his 'Veterinary Hospital' except that 'a so-called veterinary surgeon' had charged 25s. to visit a sick horse at an hotel. Theiler's hopes leapt high and already he wrote of sending money home.

31 As early as 1889, the few Swiss in Johannesburg had tried in typical fashion to unite themselves in a Schweizerverein (Swiss Society). Less than a dozen were permanent inhabitants though many more constantly arrived and found occupation in other parts of the country. Those that remained were mostly hotel-keepers and beerhall owners with a few artisans such as Ritter. By January 1890, they had formed the Schweizerverein Helvetia in Johannesburg which pursued an erratic existence owing to the constant transference and resignation of its members but nonetheless managed to celebrate National Day in August with what became a traditional ox-wagon picnic. A few of the foundation members foregathered at Ritter's house to meet and advise the young and ferociously-bearded Theiler. They told him that he was sure to find work of one kind or another but if he persisted in his profession, he must serve a term on the land to learn the idiosyncracies of Transvaal agriculture and to become fluent in Dutch and English. Without the equipment lost in his trunk, there was really no alternative.

32 After a week in Johannesburg enlivened by jollification among his compatriots and much  
33 toasting of the Fatherland (although they had no time for its consul who ignored them), Theiler took the coach to Pretoria, 36 miles distant, along a track washed away by the current storms. Earlier coaches had failed to negotiate the flooded Yokeskei river and some had overturned. After a torturing five-hour journey, he arrived at what its inhabitants affected to call 'the garden capital' - a sizeable village full of roses and flowers whose broad and deeply-muddy streets were in many places lined by water-furrows inhabited by crabs and eels. It looked, Theiler thought, more like a park, each house standing in large grounds (where horses and cows were paddocked) and few public buildings except for a monumental Parliament House standing in a muddy square. There was also a public gallows. It was sensibly hotter in Pretoria than in Johannesburg but, welcomed by alerted Swiss and a letter from his parents at the Poste Restante, Theiler was overwhelmed by other impressions.



Constançon owned a small farm at Les Marais (originally the home of a Huguenot descendant of that name) a few miles north of Pretoria where he engaged in dairying and poultry-keeping. Twice a day, his younger brother took the milk to town and, on the morning following Theiler's arrival, drove him back to the farm to await his brother. Theiler spent the time in fascinated observation of the kraal housing the farm's labour force (especially the bare-breasted women), even drinking Kaffir beer, entering the huts and exclaiming at their cleanliness, cracking primitive jokes and generally familiarising himself with their modus vivendi. He also took such hand as he could in the farming activities. Constançon returned the next day and at last he could ask for the full grounds of the advice given him.

34 They were many. Three months previously, Constançon said, a Pretoria Agricultural Society was formed by very influential people including the Commandant-General, Joubert. They would be staging a Show where Theiler could meet them. Each would be ready to pay him a monthly consultative fee to safeguard the health of their cattle. Further, they would expect him to assist in founding an Agricultural Journal. In time, he could aspire to a State appointment on the level of a Swiss district veterinary surgeon. There was also the possibility of appointment to the Staatsartillerie, the Republic's only organised army consisting of cavalrymen with field guns. There would in the end be much work even if the first year were difficult. But, said Constançon, he must first become fluent in English. There was no need to worry about Dutch – it would come by itself. And he must spend at least six months on a farm to gain indispensable local knowledge. The following morning (Good Friday the 26th March 1891), Theiler's 24th birthday – they drove to Pretoria.

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35 As Consul for Switzerland, Constançon could claim a certain standing among the powers around and behind the throne of the aging State President, Paul Kruger. He was therefore competent to conduct his protégé directly to the town office of the influential Alois Nellmapius who, for several days previously, had been embarrassingly engaged in litigation over the ownership of his newspaper *The Press*. The issue was never in doubt and by the time his visitors appeared, judgment in his favour had been given by Justice Morice. After a very unpleasant interlude, copiously reported by the town's three newspapers, he could again afford to be affable.

36 Constançon had described Nellmapius as 'a farm-owner who rates as the richest and most influential man in the Transvaal'. Barbered and bearded and addressing the Hungarian in German, Theiler manfully stated his case: he had come on the advice of the Consul to establish himself as a veterinary surgeon but because his trunk with his instruments and microscope had been lost and his command of English was not yet complete, he would like to find a position appropriate to his learning about farming, cattle, the land and its people.

The rat-faced dapper Nellmapius who wore his hair short and was clean-shaven but for a well-trimmed moustache, looked shrewdly at the bull-necked Swiss who had made no bones about his intentions. It was no act of charity that he inclined toward him. His estate at Irene was now highly developed with experts in charge of every section – dairying, vegetable and seed production, poultry and eggs, horticulture, even quarrying for flagstones – but there was no one in charge of the animals. A large herd of cows, riding- and coach-horses, 40 mules, about 200 oxen, some sheep and a miscellany of other animals, wild and tame, were essential to the farm and contributed to its losses through disease particularly, at this time of the year, Horse Sickness. A man of quick decision, he immediately engaged Theiler as Supervisor of Cattle and Forage at a salary of £10 a month with lodging but no board for which he would have to pay. On the same afternoon, he took him by horse and trap to his Irene estate, two and a half hours

distant, and immediately introduced him to the Estate Manager and his assistant. Leaving Theiler with them, Nellmapius drove to his seigneurial residence set in formal gardens at a distance from the farm buildings and out of bounds to the staff.

The effect of the scene, already legendary throughout South Africa, was overwhelming to the impressionable Theiler, smarting at the thought of his uncelebrated birthday, his lack of clothes and money, his equivocal status through lack of his professional equipment, and the general strangeness of his surroundings. 'Courage!' he cried to himself as he always did, and set about mastering the situation. Some of the farm buildings such as the immense cow byres and the cool dairy, were constructed of stone from the estate but the majority were of corrugated iron throughout, the floors, through lack of timber, being of stamped earth. Theiler was given a room in one of these. Its only window was the transom above the door. The furniture consisted of a bed with a mattress stuffed with grass and a table. He had no bed-linen and lay directly on the scratchy mattress under a thick woollen blanket bought in Antwerp but without a pillow. The door had no lock and the sole luxury was a wooden floor. Theiler propped a box against the door and stood an empty bottle upon it which, falling in the night, would wake him in time to seize his military revolver kept at the side of the bed. No burglars came but he was tormented nightly by myriads of fleas, bugs and mosquitoes. Not until his delicate European skin had accustomed itself to these plagues did an English colleague give him some flea-powder.

A man of lesser fibre than the young Theiler would have left the place within a few days. He had little standing among the farm staff who included imposing personalities like the bearded German horticulturist Hans Fuchs, then laying out magnificent gardens and woods on the estate. The managers ignored him. His job was menial – on a level with the smith, saddler, cabinet-maker, carpenters, butter-maker, storeman, coachman, drovers and numerous other specialist workers whom Nellmapius had imported. They were divided into farm workers and technicians. Theiler was a farm worker.

A time-keeper woke them by ringing a bell at 5.30 in the frosty mornings. Theiler rushed out, taking his keys, opened the stable doors, made a general inspection and examined any sick animals. At 6, he went to the store and measured out the maize for the mules (no natives could be trusted in the store), ensured that the forage was issued, the cows milked, the calves fed and put out to graze, the stalls and stables cleaned. The same procedure obtained at midday and in the evening, the cows being fed on a chaff of mealie leaves and stalks chopped by a steam-operated cutter mounted near the smith's workshop and also used for wood. Much of the farm work was mechanised. The cultivation, sowing and grass-cutting on the lands were done by machines drawn by mules or oxen.

The deadly routine might have quelled his spirit had it not been for his natural élan, irrepressible curiosity and the richness at hand of material for his true metier. It astonished him that no animals were sheltered at night. Cows, calves, horses, mules, donkeys, sheep were all left in the veld. When it grew really cold, Nellmapius would follow the example of the Boers and drive his stock to the Lowveld for winter grazing. Constançon had suggested that Theiler might accompany them or else be attached to some rich Boer as officer in charge of his migrant flocks and herds.

In the wet summer at Irene and throughout the Transvaal, Horse Sickness flourished. Theiler looked with amazement at a mule in good health in the morning and dead by the afternoon, emitting litres of frothy fluid from its nostrils. Two weeks before, as he sat in the train at Vryburg, *The Press* had published a 'Remedy' emanating from 'an experienced gentleman at the Cape': 'Take a handful of slanghoutjies (snake root), a handful of garlic and ditto of wynruit (an aromatic root), mix together and boil adding two bottles of water to one of the mixture, then add a handful of gunpowder and give to the animal, taking care that it does not drink any



*A botanical excursion in the Swiss Alps around 1880 of the kind that the young Arnold Theiler joined.*

*Arnold Theiler (extreme left front) – the only photograph showing his left hand – with his 'lieber Bierbrudern' at the University of Zurich.*





*Cape Town and Table Mountain as Theiler first saw them when he landed in 1891.*

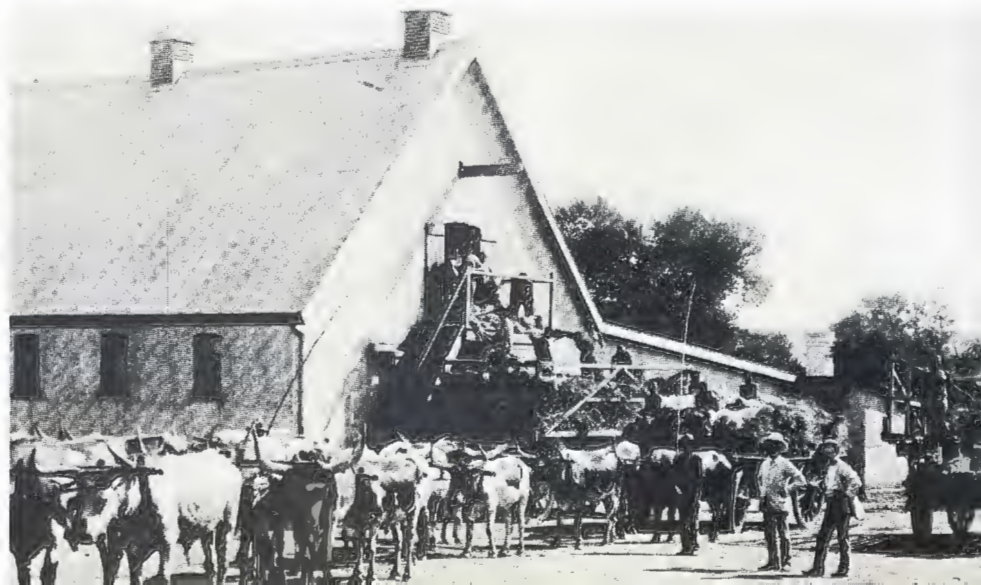


*The importance of the horse in transport, here seen in 1891 on the dusty track of Sir Lowry's Pass at the Cape.*



*The importance of the ox as a draught animal and in other ways including postal delivery by 'post-cart' in Bechuanaland shown here.*

*A cow byre at Irene with ox-wagons (12 in a span) unloading fodder for storage in the forage loft in 1892.*



water for three days. At the end of that period, give the horse about a bottle of water and then allow it to stand quiet for three hours. After this process, the horse may be allowed free' – if it were not dead.

38 The 'remedies' were more lethal than all the diseases that came to Theiler's notice. Within hours of his arrival, he was the reluctant witness of one of Nellmapius' horses being treated for congestion of the lungs. Arsenic and other chemicals were poured through its nostrils ('nothing could be more absurd', he expostulated), it coughed, developed pneumonia from the intrusion of foreign bodies, and died – as did others similarly treated. Meanwhile in Pretoria five fine horses died on one day and hundreds elsewhere ('en masse', Theiler called it and noted the steep rise in the price of horses) in 'one of the severest seasons ever known'. A few days later, Nellmapius told him that if he could find a cure for Horse Sickness, he would make £1,000,000 within two years. The bait was tantalising but there was still no sign of his trunk with its microscope and instruments which would have enabled him to take it.

Aided by the estate's 'Kaffirs' (Griquas, Shangaans, Zulus, Fingos, Basutos and others) with whom he had immediately made friends and who sat with him at night watching sick animals, Theiler made many postmortems on horses but came no nearer divining the cause of their sickness beyond suspecting Pneumonia. He also had to deal with Lung Sickness in nearly 200 oxen and, for the benefit of his parents, vividly described the demented scene in which his 'boys' would lasso a case among the half-wild animals whose huge horns clashed as they thrashed about the kraal into which they had been driven. The accepted remedy was Epsom Salts which, like linseed oil in vast quantities, was prescribed for all and any affliction and did no good.

39 Apart from the letter which travelled in the same ship as himself, no word came from his family and home sickness seized him. Without newspapers or visits to Pretoria, he could not know that torrential rains had delayed the coaches. Six mules had been drowned in a flooded river en route and the mail bags thrown into the water. The European mail had completely disappeared. His skill availed him nothing, his clothes were wearing out, his broken shoes were mended by the smith and his money was at an end. His colleagues were hostile though the English lent him cheap novels which he read at odd intervals to improve his knowledge of the language. Then, on the 12th April, a telegram came from Cape Town advising the arrival of his trunk and its immediate despatch. When it arrived, life would begin again.

He wrote long, acutely observant and vivid letters to his parents, describing all he had seen in Johannesburg and Pretoria and every detail of the Irene estate. The 'Kaffirs', 'kulis' (Indians) and 'Cape boys' (Malays and coloured) fascinated him. They were his friends and brought him snakes and lizards and beetles and other items for the 'collections' he hoped to send his father. Theiler was their 'Baas' but not in the sense of other Europeans who sometimes exasperatedly kicked them in the rear. He wrote piously that he considered even natives as freedom-endowed colleagues but he was not above yelling at them in Schwitzerdutsch when they did wrong, failing to understand his English. Soon they were coming to him with their own afflictions and, still without his instruments, he cleaned and sewed up stab wounds, extracted thorns from bare feet and, greatly enhancing his reputation, restored a pendant testicle to a badly-torn scrotum gored by an ox.

40 His experiences with animal welfare were far less felicitous but he learnt all the time and made copious notes on Horse Sickness with a view to contributing an article to the Swiss Veterinary Journal. Nellmapius and his manager brushed him aside when it came to the killer disease. He was forced to witness the barbarous treatment applied to any valuable animal showing a temperature. It was stabled in an hermetically-sealed stall in oppressive heat with a bag of hot bran round its head so that it breathed the steam. Utter nonsense, Theiler knew but, suffering with the agonised animal, could say nothing. If, after 24 hours, it became restive and tried to toss the

sack from its burning head, two native stable-hands would tie its legs and rub them with straw until the pain of its scarified skin caused the horse to kick which was interpreted as a good sign. When one of them asked him how long he should go on rubbing, Theiler bitterly replied – until the horse is dead. The managers would not allow him to apply his knowledge to any of the cattle diseases but continued in the barbarous practices which he abhorred.

He had however made his way with Nellmapius who gave him not £10 but £12 at the end of his first month and later specially instructed him to take complete control of all the animals. He must be independent of the other staff, Nellmapius said and take full responsibility. His salary would be further increased. By now he looked, he wrote, like a street thug with uncut hair and beard and holes in his shirt and trousers. There was no one to shave him at Irene (in the towns it cost a prohibitive 6d.) and his razor was in his trunk, allegedly on its way from Cape Town. His English had improved and he took easily to Dutch but he had not once returned to Pretoria. All his colleagues were now preparing the estate's exhibits for the first Agricultural Show and perhaps he would go then.

41 The assault on Theiler's pride, professional and personal, was hard to bear, particularly as no news came from home though all the staff regularly received letters from Europe. Doggedly he went on writing, reminded daily of his people by the Swiss condensed milk which he had at meals (all the farm's milk was sold). On the 16th May, he privately celebrated his parents' silver wedding day and bravely wrote that he longed to send them money and make his father proud. Nellmapius had bought a zebra for £22 which came under his charge and he described its mulish antics. Sometimes a copy of his employer's newspaper *The Press* came his way. He read of Kruger's ceremonial journey to Newcastle when the Natal railway reached the Transvaal border and of the cannonades and parades and addresses presented to him on his return. He is honoured like a King, Theiler wrote, resolving at all costs to get into his good graces. Nellmapius could arrange it. He must stay at Irene until the *démarche* could be made.

42 When the great day of the Show dawned, winter had settled on the Transvaal and the nights were freezing cold. Theiler had been swept into the preparations of the massive exhibits of the Irene estate and could gaze with pride on the imported thoroughbred Friesland bull William IV and his son William V. On the day before, a train of wagons took vegetables, seeds, poultry and all the products of the farm to the Pretoria Race Course to which some buildings had been added. On Wednesday the 13th May 1891, the State President opened the first Pretoria Agricultural Show. On the afternoon of the same day, the remains of the Voortrekker leader Andries Pretorius, having been exhumed from his farm, were ceremoniously interred in the Pretoria cemetery so that the Boers who came to town could attend both occasions.

43 Theiler missed nothing. Shocked at having to pay 4/- entrance, he milled among the crowd in the constricted space of the Show and chatted with everyone known and unknown. Constançon who won prizes for a milch cow and poultry and was himself a judge, was too busy to exchange more than a few words; but there were many convivial Swiss, one of whom had enterprisingly staged a Beer Garden. Elsewhere the Brass Band of the Johannesburg Wanderers Club contributed to the jollity. At a distance, he saw Kruger, 'a simple old man with a beard', in the company of Nellmapius whose bulls had duly won prizes. Other Irene products were similarly rewarded.

In such august company, the shabby Theiler had no chance of consorting with the great but his keen eye had noted them: the patriarchal General Piet Joubert, Commandant-General and president of the Agricultural Society who had won a prize for his team of six South African-bred mules; D. J. E. Erasmus, the rich cattle farmer and his brother S. P. Erasmus; E. P. A. Meintjes, the miller and landowner; Commandant H. N. P. Pretorius, head of the Staatsartillerie and many other notables indicated by his Swiss friends. Excluded from hobnobbing with the high

and mighty, they joined the impressive funeral cortège and listened to Kruger's emotional speech, twitting themselves that they too were Republicans. That night Nellmapius staged a party in his town residence, Albert House, at which the garden was electrically illuminated and the Wanderers Band played to raise funds for the Agricultural Society; but Theiler was too tired and went to bed in his bivouac on the Race Course. Mice ran over his head but at length he went to sleep.

44 The Show had been a great success and raised many hopes in many bosoms but Nature inter-  
45 vened. Even as it was held, dense clouds of locusts were carried down from Mashonaland and  
46 destroyed the Transvaal. Day after day they came and the ravages they wrought were equalled  
47 by the Horse Sickness. Stephanus Erasmus' prize-winning locally-bred stallion died within hours  
48 while the locusts ate every verdant thing on his farm. In Natal, horses 'died wholesale'. Excep-  
49 tionally cold weather which, it was hoped, would 'kill the germs' quelled neither Horse Sickness  
nor the locusts. On the 16th May 1891, snow fell for the first time in Johannesburg - 'the first  
ever to whiten the streets and roofs of the City of Gold' and there was even snowballing.

48 At Irene, news reached the farm that the locusts were 6 miles away. The managers called out  
the entire staff to cut every living thing that could be dried for forage and food before omni-  
vorous swarms, already darkening the sky, descended to destroy them. They looked like clouds  
of smoke, the enchanted Theiler wrote and nearer, like a snowstorm with their transparent  
fluttering wings. Fires were lit and tins banged; but the swarms came on, the Kaffirs dancing with  
joy at unlimited food falling from the skies and sweeping them up for later roasting. Ten days  
49 later, another gluttonous swarm appeared and denuded the estate, eating even the trees. It  
would have been worse had it not been the time when the farmers habitually moved their flocks  
and herds from the dry and frozen Highveld to the lush pasturage of the Lowveld.

Theiler's spirits rose. He now heard frequently from his family and friends. With new excep-  
tionally fast steamships, the mail came quickly and regularly. In April, *Dunottar* had reached  
50 Cape Town in less than 16 days and in October the yacht-like *Scot* was to make the run in 12.  
51 Switzerland was suddenly much closer. Apart from a passing fever which the manager (whom  
Theiler called 'the linseed oil Doctor') regarded sardonically, he professed himself well and  
greatly impressed Nellmapius by singlehandedly saving a valuable cow, considered incurable.  
Of his standing with Nellmapius, he had no doubt and could confidently go forward regardless  
of hate and opposition. The staff were jealous and antagonistic but his stock stood high with the  
labour whom he treated for all manner of afflictions. His eye was on the gilded prize of a cure for  
Horse Sickness, now departed as the dry winter came. He made endless observations and notes  
on this and many cattle diseases manifest at Irene; but little could be done, particularly about  
the parasites which he found in profusion, without his microscope. Despite letters and advices  
and constant enquiries, his trunk had still not come. On the 27th May, Cape Town advised that  
its contents were not dutiable and it had been sent by train to Vryburg. Theiler took the letter to  
Nellmapius who instructed his agents to clear the trunk at the Transvaal border, have it brought  
by coach to Pretoria and thence by cart for delivery to Theiler at Irene.

52 He was cock-a-hoop and propounded wild plans. Nellmapius, now his friend, and proponent,  
approved of scientific treatment and would understand his wishing to leave to open a practice in  
Pretoria which would earn at least £40 a month. He would spend his free time in the town in-  
specting the buildings and meeting people. His English was now fluent and when his Dutch im-  
proved, he would get Government appointment. He could earn as much as £4,000 a year. He  
would make his parents proud. Theiler rattled on. To Emma too (also saving pennies from a  
niggardly governess' salary), he wrote enthusiastically of his prospects and the wealth of scienti-  
fic investigation that would come so easily and so gainfully to his hand.

Nellmapius' agents delivered the trunk to Irene on the 10th June. Only one glass slide was

broken. In a pocket of the coat which he had so badly needed in the frigid nights and mornings, he found a letter from his mother, secretly inserted before he left. It had taken four months to reach him. She had been deeply concerned about her errant son. His heart lifted as he examined all his things. There was neither time nor place to make use of his scientific equipment – it was too cold, icicles everywhere, and he was too tired. Through lack of acclimatisation, he had had gastro-enteritis but was on the whole well. Thus he wrote his family on the 18th June.

The cruelly-cold Highveld winter now gripped the estate. The farm lay fallow as frost blackened the remaining verdure. The remaining cattle were sent out to graze on the few blades of yellow grass left by the locusts but were brought in at night to be fed and stabled. Even the wild veld-trained oxen were driven in, fed and sheltered. Theiler's work was vastly increased and his free time disappeared. Each day, he had to prepare great quantities of forage and reduce mounds of maize stalks to edible proportions in the steam chaff-cutter. A dozen natives helped him, requiring constant supervision which, he said, was work enough. When the day was done, he was too tired to do more than fall on his bed ignoring even the English books that he customarily studied.

On the morning of Saturday the 20th June, routinely tending the thundering chaff-cutter, his attention was momentarily distracted as he pushed the maize stalks into its heavy revolving blades. A jerk, a sudden stab of pain and he dragged out the stump of his left arm, the hand completely severed above the wrist. His natives howled. One of them ran for the manager Kretschmar. A horse was hurriedly harnessed to a trap. Theiler looked at the trickling stump and knew his future was finished. Kretschmar bound it as best he might and drove the stricken man to Pretoria. For two and a half hours in a state of shock, he was bumped and shaken over the rough tracks until they reached the primitive Volkshospitaal outside the Staatsartillerie headquarters. A runner was sent for a doctor. On a Saturday, he might take long to come. The untrained nurses watched over Theiler, not knowing what to do. His hopes, his ambitions, his purpose in life were at an end.



## VIALS OF EVIL 1891-1893

WITH INCREASING frequency and force, the slings and arrows of outrageous fortune struck man and beast. The tragedy of individuals became common to the whole of Africa South. Against mounting menace from rampant 'Nature', resources were marshalled to promote the development of all the territories in the sub-continent. Railways were rapidly being built to exploit the land and for strategic reasons. The Cape, deep in depression through diminishing revenue and failing banks, pressed on. Kruger fished in foreign waters for the capital to build his track from Pretoria to Delagoa Bay and cease his subservience to Colonial ports. Animal transport was proving both precarious and inadequate.

1 Successful cattle farming depended on the whim of 'Nature'. Pests, diseases and developmental problems could to some extent be combatted mechanically; but basic animal losses had to be faced. On the 20th June 1891, the Natal Government instituted a Sheep and Cattle Department and increased Wiltshire's staff by one inspector. The Orange Free State did nothing; but at the Cape at least, the men in charge knew that if 'Nature' were to be subdued, 'Science' must be sponsored.

2 As Theiler at last received his microscope and equipment at Irene, Edington landed in Cape Town with materials for the most modern and complete laboratory in the southern hemisphere. Leaving almost immediately by train, he met Hutcheon at De Aar in mid-Karoo and together they made a short local survey of sheep disease before travelling to the Eastern Province. Edington then met Borthwick, his previous pupil, and the energetic knowledgeable Soga, appraising their heavy duties among multifarious diseases. Hutcheon had now to decide on the site of the Laboratory. Edington, attracted by the English Graham's Town and its central position in a stock-raising area, found in the 'Royal Engineers Yard' (a solid double-storeyed building constructed by the British Army in 1838 of local stone with a surmounting observation tower) very suitable premises with various adjustments and alterations for his purposes. He made his report, was authorised to proceed and spent the next six months in re-building, laying on water and gas, engaging staff, buying experimental animals and generally establishing an efficient research institute. His instructions were, the moment it was in operation, to investigate Horse Sickness.

3 Every kind of individual was investigating Horse Sickness or propounding 'cures' or 'remedies'. The Boers had been employing monstrous expedients for generations. The medical doctors of Pretoria, particularly G. W. S. Lingbeek (a Hollander), J. B. Knobel (a South African from Colesberg) J. W. Stroud (an English dental surgeon qualified in America) and G. B. Messum (a Scot) had been theorising and experimenting for years. Toward the middle of 1891, Dr Knobel had a chat with Kruger about it, emphasising the need for a Commission to investigate the disease. On the 6th May, he confirmed his request to the President in writing asking that he, as Superintendent of the Hospital and Dr Messum as District Surgeon, be appointed to serve on it, particularly, as he Knobel, had long worked on Horse Sickness. The President turned a deaf ear. On the 19th June 1891 (the eve of Theiler's accident), the maverick G. C. Baker actually took out an 'Octrooi' or Patent in the South African Republic for a 'middel tot voorbehoeding tegen paardenziekte' (a means of preventing Horse Sickness). Mr Pieter Roux of Ceres, Cape travelled the country administering his unspecified treatment at a price. Among all his pre-occupations, Hutcheon was preparing a homely and helpful brochure. In Pietermaritzburg and other places, the British Army veterinary surgeons attached to various regiments, discussed their own surmises.

6 At that moment, Theiler lay, conscious and in pain, in the Volkshospitaal on the southern outskirts of Pretoria. It is reasonably certain that he was not attended by the Superintendent, Dr Knobel but, in the light of subsequent events, by Dr Messum, one of the pioneering doctors and noted for his surgical skill. He was the District Surgeon and the most likely to be called in the absence of Knobel on a Saturday morning. A Scot but qualified in London with experience at Guy's and on the Continent, Messum was much valued by Kruger's Government and appointed to numerous offices, including Medical Officer to the Staatsartillerie.

7 Theiler had only one idea in his head at the time – no one in Switzerland must know of his mangled left arm and the loss of his hand, least of all his father who would certainly construe it as a further failure of his wayward son. Messum did what he could for the stump; but the coarse thrashing blades of the chaff-cutter had done severe damage and it failed to heal. Within a few weeks, Theiler, stoic and understanding, had to endure an operation. It appeared only partially successful and he faced another.

8  
9 The horror of his calamity struck all whom he had so newly met and strangers besides. Constançon came to see him and the score or so of compatriots who constituted the Pretoria Swiss community (many of whom he had met in his convivial week in Johannesburg). He was visited by Mrs James Gray of the Presbyterian Church Women's Society and more than probably by Nellmapius. Some years later, Theiler was reported as having said to his visitors – 'I have indeed lost one hand but not my courage. I do not despair.' Everyone, the Swiss particularly, were begged not to mention his accident. Only 24 years old, indominantly optimistic and courageous, Theiler faced his future resolutely.

10 Very soon he could write and it was of course to Emma in England. Legend has it that he told her he was now a broken useless man, a cripple with no career and that all arrangements between them must end. She is alleged to have replied that he needed her more than ever and took ship immediately. The engaging illusion is uncharacteristic. Both were cautious thorough thinkers, committing themselves to no course without exhaustive consideration. Theiler would have told her that he could not fully envisage the future until his wound were fully healed and an artificial hand fitted. Then he would know of what he was capable. He might still be a practising veterinary surgeon or, more likely, a research scientist devising cures for various animal diseases and, like Pasteur and others, selling them at enormous commercial profit. He felt that he was very near that position already with Horse Sickness but for the moment, could do no microscopic work. He would never be able to prepare his slides. Someone would always have to do it for him as well as the initial work on post-mortems. Letters, quickly carried by the fast new ships, passed between them. Emma agreed to wait six months until he found himself. Her knowledge of English would be perfect by then.

12 To maintain the delusion, he wrote his parents 'from Irene' where, he said, Constançon had advised him to remain. It is doubtful whether he was in fact there. Possibly ambulant, he was still under medical treatment and later wrote to Lyss that he had lain for twelve long weeks in hospital. 'God helps those who help themselves', he wrote, 'if courage is lost, all is lost.' He never lacked it. While he remained at the hospital for observation and nursing care, he also went out and read books and newspapers. His letters to his family, at first almost indecipherably written in pencil, reflected all the Pretoria and Transvaal news – the mounting of a campaign against the refractory chief Magato, the Swiss recruits to the Straatsartillerie getting £6.10s.0d. a month, the coming lighting of Pretoria's streets with electricity, the advancing railways. He begged his father to send him books on Pathological Anatomy, to subscribe for him to the Swiss Veterinary Journal, to buy a better microscope and veterinary instruments unobtainable in Pretoria, as well as chemicals and medicaments. His friend, the electrician Lauber, would soon be leaving Switzerland and was already loaded with his requests.

15 Theiler rattled on – about the inertia of the Swiss in Pretoria whereas in Johannesburg they had grandly celebrated the 600th Anniversary of the Swiss Federal Republic, about the veld fires lit to burn off the dried grass for the coming Spring, about this and that trifle to divert his people. He did not tell them that five days before his accident, the Volksraad had vetoed yet another petition (from 75 Zoutpansberg farmers) for an Agricultural Department. Replying to a question, the State President had blandly stated that nothing had been done about drafting regulations and publishing them in the *Staatscourant* as previously resolved. Kruger did not want to prejudice his election prospects with an unpopular innovation.

16 The educated invalid in the Volkshospitaal interested several of the local cognoscenti, particularly his physician Dr Messum. They had common ground. Theiler also had common ground with a young German chemist Jacques Schlesinger, then successfully conducting an analytical laboratory in Pretoria (he had certified the quality of the beer produced by a local brewery) and acting as locum tenens for a more distinguished German colleague in Johannesburg, Dr Julius Loevy. It was Loevy who had written an excited article on Koch's discovery of tuberculin which, translated into English by the then Government lithographer, Leo Weinthal, had been published in the *Cape Agricultural Journal* as Theiler made his way through Johannesburg to Pretoria. Koch's name had since suffered locally. His tuberculin, alleged to cure Leprosy, had been injected by Dr Messum into a willing sufferer and later into other patients in the inadequate Leper Asylum which he supervised. He must have discussed with Theiler that it was having no effect.

18 Pretoria held further surprises for him. A Natural History Society had been formed with Nellmapius and Weinthal (now the manager of *The Press* owned by Nellmapius) as members. In the bitter cold of July that afflicted Theiler's wounded arm, they had visited the caves at Fountains. It was dubious whether, in the class-structure of Pretoria, they would condescend to know the stocky, maimed guttural-voiced Swiss who now had no purpose in their midst. A veterinary surgeon – 'a horse doctor'! – had no status in the community.

19 Nellmapius was good to him and promised support. The Swiss (numbering about 30, exclusive of women and children) were with him to a man, feeding, housing and cherishing him. Without them, he would have starved. When he was better, Constançon, steadily decreasing in public favour, took him to his farm for two weeks (he earned his keep 'by word and deed on the farm', he wrote lest his parents think him a sponger), bringing him frequently to town to observe conditions. He noted the 'Veterinary Farriers' – J. G. Wood who ran a Veterinary Shoeing Forge in Market Street and F. S. McKittrick who had a business in Pretorius Street. There were others who had Livery Stables and baited horses for visiting farmers and travellers. They met a real need. Would he, a handicapped man purveying qualified veterinary services, be able to prove such a need for his own talents?

20 He had discussed his position thoroughly with Constançon who knew the farmers and was himself a farmer while moving in exalted circles through his consular status. Constançon encouraged him. He made elaborate plans. He was sure that his knowledge of Horse Sickness (whose season would soon start) and his suspicion that it was due to some form of septicaemia, would serve to establish him. He was beginning to know influential people and Nellmapius would help him. He would put up his plate as Veterinary Surgeon and work like a demon to justify himself to his father – and Emma.

21 In the middle of September 1891 on borrowed money since he had none of his own, Theiler put up a notice in the Grand Hotel International in Church Square, Pretoria where he rented a room and a stable in the yard for £8.10s.0d. a month, all found. 'I live like a prince', he wrote. The proprietor was a Swiss, F. Heretier, soon to become the catering manager of the Rand Club in Johannesburg. His wife cooked traditional Swiss dishes in affecting style. Nellmapius was as

good as his word and, when Theiler went to Weinthal to arrange regular advertising in *The Press* he was charged reduced rates and allowed to use Nellmapius' resounding name. On the 19th September 1891, his advertisement first appeared:

A. THEILER  
VETERINARY SURGEON  
(*State Exam, Zurich, Switzerland*)  
With local experience at Irene Estate

*References:* A. H. Nellmapius Esq and E. Constançon Esq

Orders Promptly Attended To

*Address:*

Grand Hotel International  
(late 'Strachan's')  
Church Street East  
P.O. Box 296

- 22 He had been advised that if he were to attract the attention of the dyed-in-the-wool Boers, he  
23 should advertise in the printed Minutes of a Conference called by Kruger to resolve a bitter  
Church dispute which continued for many days in August/September. His insertion (in High  
Dutch) was foolhardy to a degree:

A. THEILER  
(*Diplomaed Veterinarian, Horse Doctor of the Swiss Army*)

After experience gained from the latest epidemic of Horse Sickness on the Irene Estate, has discovered a remedy which, when administered in the first stage of the disease, is a powerful cure. With this remedy goes a description of the signs by which the disease can speedily be recognised and how they can be treated.

Price of the Remedy: Ten Shillings  
A. THEILER – VETERINARIAN  
Grand Hotel International  
Pretoria  
P.O. Box 296

- 24 The enormity of what he was doing suddenly struck him and in desperation, he wrote to Lyss –  
in a double envelope. The first contained a message covering the second: 'Inside this envelope  
is a secret which I trust you as my good friend to tell to no one except Tuller in case he comes.  
Otherwise I rely on you to tell absolutely no one, least of all my parents.' He wrote of his lost  
left hand, long hospitalisation and the possibility of another operation. I need help, he said.  
My friend must do the outside work and I will look after the clinical. He was confident of success  
but must know without delay whether Lyss would come or, if not he, then Tuller. Neither could.  
It was a blow that he could share with no one.
- 25 His way was bitterly hard. Summer smote Pretoria with savage heat and his corrugated-iron  
room in the hotel yard became unbearable. The hotel itself had a thatched roof and he took his  
meals in comparatively cool comfort; but waiting for clients who rarely appeared was almost  
insufferable. He wrote bravely that he had earned as much in his first week as in two months at

Beromunster but he failed in his hope to send £10 home every month. He had to be dressed 'like a gentleman', he said and it cost much. Money drained away from him. Constançon took him to several farms to drum up business and slowly he acquired a small clientèle, charging 10s. for the first visit and 7s.6d. for the next. His heart was rejoiced by the arrival of his electrician friend Ernst Lauber bringing news from home and sundry of his small requests. Lauber expected employment in the street lighting of Pretoria but, none offering after two weeks, he left for Johannesburg where he was quickly employed on the mines at £26 a month.

\* \* \*

26 The 'garden city' of Pretoria was at its loveliest with hedges of roses, pomegranates and oleander  
27 and water-furrows running beneath them (the State Secretary W. J. Leyds, caught a 5-foot eel  
28 outside his house). The great Government Building in Church Square whose construction materials 'had been dragged up by oxen' from the coast, was fully equipped with telephones and all but complete. In November, the State President and entourage inspected and approved it prior to formal opening. There was no public transport of any kind, not even horse-trams.

29 Among the citizens, horses abounded en masse. The Boers came to town in wagons drawn  
30 by 32 or more oxen. Neither, Theiler pronounced, knew how to care for their animals. Soon the  
31 rainy season would start with tremendous thunder storms and deluges in tropic heat, bringing  
32 the dreaded Horse Sickness. He had prepared a pamphlet in English and Dutch (translated for  
33 him by his friend H. J. L. Roarda, a student from Zurich, though he had himself now mastered  
34 the language with the help of attractive and nubile nurses). When it was printed, he would send  
it to the Government to support an application for employment and financial help in devising  
a method of inoculation. It was the recognised procedure. Dr Knobel himself used it on the  
15th December 1891, asking the Government for £100 for his researches into Horse Sickness,  
to be spent on buying horses, shooting them and removing the carcasses. Neither succeeded.

31 For three months, Theiler's advertisement also ran expensively in *De Volksstem* edited by the  
Hollander Dr F. V. Engelenburg who regarded him favourably and published his articles in  
Dutch; but the Boers were hard to convince. No one could tell them anything about animals.  
32 Gregarious and ingratiating as always, Theiler persevered. At his 'clinic' in the hotel yard, he  
33 said, he could be expected in one hour to speak German, English, Dutch and 'Kaffir'. In his  
34 first month, he claimed to have taken £20 in visits only and expected it to rise to £30 the next.  
His clients were mostly English, Hollanders and Germans. He tried again to convince Lyss  
that a partnership with him would be the road to fortune. He foresaw that when the Horse  
Sickness started, he would be unable to manage his 'growing practice'. If his researches suc-  
ceeded and he found a cure, they would be able to charge £5 or £6 per horse (a recovered horse  
was supposedly immune or 'salted' and greatly increased in value though some alleged that,  
debilitated by the disease, they were feeble and unwilling). Lyss must come at once, bringing all  
the instruments for treatment and materials for prescriptions that they would need.

34 Theiler put up a brave front but was failing. Sandoz, the Swiss brewer, offered to subsidise  
his researches but, one-handed, he could not pursue them. Lacking a horse, a cart and a 'Kaffir'  
to help him, he could not extend his practice to the surrounding farms where he might be  
needed. Worse, Heretier had left for the Rand Club and his protégé no longer found favour in  
the hotel. In a black period, he considered going to the deeply depressed Johannesburg to find  
employment with the Tramway Company. He had no money and his pride was infinitely morti-  
fied by failing to send some to his family at Christmas. Word had reached him that in Frick,  
he was considered a failure. His father, stung by the humiliation, wrote only in bitterly critical  
terms.

35 Baffled and disheartened, his fertile mind leapt from one improbable proposition to another. He would not give in. Clearly he saw that Science, payable Science, could vanquish the regular onslaughts of Nature. He turned to his new friends and together they hatched an idealistic scheme. Jacques Schlesinger in his small and rudimentary chemical laboratory, suddenly became a 'bacteriologist' and – Theiler unwisely alleged – had discovered the bacillus of Horse Sickness. He would undertake the microscopic pathological work now beyond Theiler's capacities and together they would evolve a substance to combat the bacillus. Then they would market it at a high price. Neither had any experience in the commercial field but that aspect would be managed by the versatile Dr Messum, himself a longstanding student of the disease. Even sober scientific men were beguiled by the dangling prize.

The problem was never a local affair. When Lord Randolph Churchill, calling on Kruger in Pretoria in July 1891, proceeded on his extensive safari to Mashonaland (in a specially-equipped spider bought from Nellmapius), his letters in the series commissioned by the *London Daily Graphic* dilated on the insuperable difficulty of developing new countries when the essential horses and mules were virtually massacred by Horse Sickness. The Bechuanaland Border Police lost 80% to 90% and the Chartered Company much the same in Mashonaland. (Churchill's companion, Major George Giles of the Royal Engineers, doctored the expedition's animals with a stiff dose of gin and quinine once a week and tarred their nostrils three times a week. If they showed Sickness symptoms, he forced inhalation by fixing burning sulphur under their muzzles.)

36 The letters produced considerable reaction, principally from military men confronted by the problem in Africa. Notable among them was Colonel (later Sir) Francis Duck, Inspecting Veterinary Surgeon of the British Army who had served in the Gaika-Gcaleka, the Zulu and the Transvaal (1881) Wars and the Bechuanaland Expedition. He expressed the view, once held by Hutcheon, that the disease might be caused by an element in veld pasturage. Armed with this and other information, the Paris correspondent of *The Graphic* called on Pasteur, then old and wise, to obtain his views on the possibility of a vaccine being found. Pasteur knew about Horse Sickness and adeptly fielded all questions, stating that there were great scientists in England such as Horseley who could patiently and exhaustively examine the disease. There were always young Englishmen studying at his Institute who could do so too. Ardent African and journalist as he was, Leo Weinthal published the interview in *The Press* at the end of 1891, proudly adding that Dr Schlesinger had found the bacillus and sent it to Koch in Berlin for examination and advice. No further word appeared. The Schlesinger-Theiler-Messum Syndicate had failed. Another arrow had found its mark.

37 38 They came thick and fast. Cammack in Johannesburg, fighting the same battle for professional services, now addressed the Government through the 'secretary' (H. B. Hatchwell) of his 'Transvaal Veterinary Hospital'. He asked that a committee be appointed to visit his institution where instruction could be given to farmers' sons in animal diseases, particularly Horse Sickness. The Government practised its usual masterly inactivity. Cammack however remained a competitive force.

38a 39b Until an artificial wooden hand could be attached by braces to his left arm (it was ordered for him, with a movable finger to hold an instrument against the thumb, by the chemist Loewenstein in Johannesburg from the firm H. Windler in Berlin), Theiler could neither lace his boots nor cut his food nor button his coat nor ride a horse nor examine and surgically treat an animal. He learnt to overcome his humiliating daily frustrations but the professional impediment was severe and he had no money with which to compensate for it. By the end of 1891, he was able to employ 'a Kaffir boy' at 5s. a week with food whom he trained to assist him in examinations, postmortems and other fieldwork; but he could not afford a horse and cart. He had not yet paid

his tailor's bill and there were many other clamant creditors in Pretoria and Switzerland. It was no time for Emma to come. Indomitably hopeful, he told her that sooner or later, his plan must fructify and early in 1892, when success during the Horse Sickness season might justify it, he would send her word.

40 In a desperate negligence of professional ethics, he advertised in newspapers:

H-O-R-S-E S-I-C-K-N-E-S-S  
AN INFALLIBLE CURE FOR HORSE SICKNESS  
if applied in time  
is now available for the sum of  
TEN SHILLINGS

from A. Theiler, Veterinary Surgeon, P.O. Box 296 or  
Grand Hotel International, Church Street East, Pretoria  
N.B. Instructions as to how it must be used enclosed with  
each remedy

A. THEILER

41 He had no cure, much less an 'infallible' one. Throughout Africa South early in 1892, thousands  
42 of horses and mules were dying. Edington, now securely entrenched in his magnificent laboratory  
43 at Graham's Town, had begun his research by issuing a careful questionnaire on 23 points to  
Cape farmers. Captain M. Horace Hayes F.R.C.V.S., the best known and most popular veteri-  
nary authority of his own and later times (his 'Veterinary Notes for Horse Owners', first published  
in 1877. was still steadily and regularly reprinted a century later) called on him there in January  
1892 and sympathised with his problems. 13,979 horses were to die in the Cape Colony alone  
in that year. Theiler with his speculative observations had nothing to contribute to a solution  
which every year evoked quackish cries from every kind of person.

44 The dentist Dr J. W. Stroud expressed his views on inoculation in *The Press*, calling on the  
45 Republican Government or the Agricultural Society or a society of breeders to subsidise re-  
search. Cammack joined issue a month later, writing knowledgeably and well after 14 years  
experience, and deploring the Transvaal Government's failure to assist research. A private  
association of horse-breeders would have to undertake it, he said. Then, as fatalities increased,  
46 he invaded Theiler's territory with an advertisement in *The Press* running in March 1892:

#### VETERINARY NOTICE

The undersigned, having had the medical management of  
Thirty One Thousand Horses and Mules in South Africa  
since 1878, feels justified in guaranteeing the

PREVENTION OF HORSE SICKNESS

J. CAMMACK

*Medallist, Highland and Agricultural Society of Scotland*

The Veterinary Hospital  
Johannesburg

47 At the same time at the Cape, Hutcheon (whose miserably inadequate staff was about to be  
48 increased by a German veterinarian Otto Henning) published his brochure on Horse Sickness  
and sent Borthwick to Ceres to investigate Pieter Roux's loud claims. Borthwick then rejoined  
Edington in Graham's Town to assist in thorough scientific investigation of the disease.

Combative to a degree, Theiler was undismayed and fought for his position in the Transvaal.

49 Whenever possible (mostly on the veld), his 'boy' cut open the carcasses of horses dead from the Sickness and Theiler minutely recorded his observations. He had many irons in the fire. He had noted that the owners of horses (particularly English) liked to take their mounts to a single place for all services. They expected more than shoeing from the 'veterinary farriers' then abounding. Theiler decided to employ one, a German, and thus reap a wider custom. The proposal was absurd. Earning (he said) £30 a month, he had a swarm of expenses and debts. Few of his clients paid him. If they had, he would long since have repaid his father and made his way. In his embarrassment and shame, he had ceased writing to him, confiding only in his sister Marie that he had been pulling wool over his parents' eyes. His father had been suspicious and had written sceptically about all his plans.

\* \* \*

Theiler's hope and courage were not ill-founded. Despite all the mismanagement, corruption and concession-peddling (his Swiss friend Fehr, soon to supplant Constançon as consul, had made a small fortune from a concession for salt-pans), the Transvaal Republic was rapidly advancing into the modern world of electricity, railways and industry. Magnificent buildings now lined Church Square – the Raadzaal, the Supreme Court, the National Bank and others under construction. The railway line from the Cape was now only 22 miles from Johannesburg. When it came, business would boom. In the meantime, politics suspended all progressive activity. It was known that General Joubert would oppose Kruger for the presidency early in 1893. The fact closely affected Theiler. From the outset, he had aimed at State appointment.

Through Dr Knobel, personal physician to General Joubert, the Commandant-General, and through Dr Messum, medical officer of the Staatsartillerie, he had become known to those on high and had secured entry to the Artillery Camp. He privately treated the horses of the commanding officer, Commandant H. P. N. Pretorius and those of other officers, even successfully operating on them. His particular friend and ally was the second-in-command, Captain A. Zboril, an Austrian educated at Zurich. They had much in common.

52 A strange individual actually born in the Austrian Army, Zboril bore a large scar on his skull  
53 made by a beer mug as testimony to the oats he had sown at Zurich ten years previous to Theiler. Militarily trained, he had come to the Transvaal in 1882, engaged in prospecting for gold and in 1888, joined the Rijdende (Mounted) Artillerie as it was then called, where he rapidly displayed excellent disciplinary and organisational skills. As adjutant to the heavily-bearded and aging Pretorius, he accompanied General Joubert on expeditions to Magato's country in the north and to Natal, and stood in his good graces. Zboril undertook to prosper Theiler's cause and, with Knobel and Messum also speaking well of him, all seemed set fair. In March 1892, Theiler duly submitted to General Joubert his application for employment as veterinarian to the Staatsartillerie, supported by his diplomas, and waited.

54  
55 'Christian patience!' Zboril exhorted him, remarking that Republican affairs always went at snail's pace. Further, the General, like all the Boers, was not particularly attracted by veterinarians. He had read Theiler's letter and his brochure on Horse Sickness. The papers now lay on his desk. After two months, a clerk whose horse Theiler had successfully treated, informed him that Joubert favoured the application. There was no more masterly practitioner of inactivity (later with fatal results). The Volksraad met for a 3-month session in May; but the Uitvoerende Raad (Executive Council) would be too busy to consider such applications.

Skirmishing on all fronts, Theiler abandoned the farrier project for an attack on 'Sponsziekte' or Black Quarter Evil, an historic cattle disease then prevalent in the Transvaal and



56 recently conquered by a vaccine devised in Europe. In April 1892, he begged Lyss to send him as much as 1,000 doses in addition to instruments and other material he had ordered. If the inoculations succeeded, he could easily afford to send Lyss his fare to come to join him. Then  
57 he became a member of the Agricultural Society as a pressure group likely to favour his future. General Joubert was its president.

No love was lost between Kruger and Joubert. A woolly-minded, quasi-liberal, Joubert exhibited no particular hates and was sedulously cultivated by the Uitlanders. In contrast, Kruger was a resolute politician of firm principle and concerned with the best possible administration of his fractious charge. He could not entrust it to his compatriots, rooted in their farms and incapable of bureaucracy, and was compelled to employ such Europeans as were qualified for various duties of State. They came from every country, even England, but the majority in high places were Hollanders, a position accentuated when the Netherlands Railway Company contracted to build the line to Delagoa Bay. At a time of severe economic stress and unemployment, a wave of hate long reserved for the English, began to rise among the burghers  
58 59 against all foreigners, particularly the Dutch. It militated only slightly against Theiler (who carefully noted the trend of affairs); but several official heads rolled including that of W. E. Bok, temporarily State Secretary and then member and minute clerk of the Executive Council from which he was now removed. In a new capacity, he was to influence Theiler's future.

It was a turbulent time complicated by vicious influenza which levelled the old President, now fighting for his political life against a popular adversary. As a candidate, Joubert was compelled to resign as Commandant-General. Theiler hoped that he would be elected and his Staats-artillerie friend, H. P. H. Pretorius, become Commandant-General. Things were going hardly with him but with customary optimism, he passed it off as the inevitable lot of a pioneer. In  
60 time, public opinion might slowly turn in his favour. Captain Hayes and his remarkable wife had been a feature of the Second Pretoria Agricultural Show opened in May. The world-famous authority had greatly impressed horse-owners with his published statements and his uncanny skill in subjugating wild horses. Mischievous sceptics provided an untameable bucking broncho for Mrs Hayes to ride but, a brilliant equestrienne, she kept her seat. 'As such a fine riding feat by any man, let alone a lady, had never before been seen by the assembled Boers', her proud husband wrote, 'their habitual stolidity gave way to enthusiasm and they warmly praised and cheered the Englishwoman. So pleased were they that the men of the Boer artillery which was the only corps that wore uniform, always saluted my wife in military style whenever they saw her.'

Theiler was there, 'dressed like a gentleman', chatting to everyone likely to prosper his cause, even appearing in a photograph of the official party at the Grand Stand. Both Dutch and  
61 English newspapers used the occasion to press the Government to establish a Department of  
62 Agriculture. A little later, the Volksraad rejected yet another petition from 135 Zoutpansberg farmers. Month after month, Theiler wrote urgently to Lyss asking for instruments, glass receptacles, syringes, vaccines, everything that would aid him in coming epidemics. It was all on credit – he had little money and could send only a few pounds very rarely. His friend Zboril,  
63 he wrote Marie, was now ill unto death and though he still had clients in the Staatsartillerie, his papers remained in the maw of bureaucracy.

Depression deepened during 1892. Unemployment became a dire problem, particularly in  
64 Johannesburg where as many as 20 or 30 workless men a day would knock on the doors of clergymen (there were no welfare agencies). Casting around for cheaper accommodation in  
65 July, Theiler joined a young Government-employed Swiss draughtsman, Max Schniter of Zurich, in renting for £4 a month two first-floor unfurnished rooms from the German owning Madeira House on the corner of Vermeulen and St Andries Streets – one as a bedroom and the

66 other as a 'workroom'. They paid 10s. a month for the part-time services of a 'kaffir'. Theiler put out his plate in the adjacent Phillips' Dispensary where orders might be left, and published a 'Notice of Removal'. No orders came.

They made their own furniture and played Jass at night with other lonely Swiss in their rooms to avoid expense. With all the apparatus and equipment supplied through Lyss, the 'workroom' now resembled a laboratory. Theiler had much free time. He wrote articles which *De Volksstem* published. He taught his friend Max Schniter who knew nothing about horses, to help him in his few cases, especially in throwing the animal when he had to operate. He still had intermittent work at the Artillery Camp and elsewhere but few paid. On Saturday afternoons, they roamed the Pretoria hills collecting specimens and assembling a natural history case to send to his father. Occasionally Constançon would take Theiler to his bushveld farm in the Waterberg where he was happy shooting more specimens with his rifle resting on his new artificial hand, and rambling among the unspoilt 'Kaffirs' and vegetation.

67 He neglected no opportunity to improve his 'practice'. When the vaccine for Quarter Evil (Sponsziekte) at last came, he could not persuade the Boers to allow him to inoculate their cattle. He offered to do it free but still they refused. Even members of the Volksraad said that nothing could be done about the disease which was a punishment from God. If only he could convince them, his fortune would be made.

68 He haunted the Artillery Camp and talked to everyone. He read everything he could and looked for any chance that might benefit him. Through his friends in the Government, he had access to the official Reports of other African States and to the *Cape Agricultural Journal* and the *Natal Farmers Magazine*. He knew exactly what Hutcheon, Edington and Wiltshire were doing and much else. On the 24th June 1892, he saw in the newspapers official confirmation of an outbreak of Smallpox in Swaziland. On the 28th June, the Transvaal Government closed the border to quarantine the country. It was alleged that supplies of lymph for vaccination were available. Theiler took a chance. He had everything to gain and nothing to lose.

70 With the dual purpose of reminding the Government of his existence and increasing his possible usefulness, he wrote offering to make vaccine lymph if required by the threatened Smallpox outbreak and politely requesting the return of his papers. He was dubious of success but at least his application for State employment now covered two appointments – veterinary surgeon to the Staatsartillerie and supplier of Smallpox vaccine. His father had sent him a book describing the manufacturing technique. Later, when the epidemic struck Johannesburg and the Government was forced to import vaccine, Theiler tried his hand at producing lymph from four or five calves (probably obtained from Constançon). He had no money to buy more and set up a source of supply. Meanwhile he watched thousands of pounds being spent on what he was confident he could have provided.

71 The Volksraad ceased its deliberations, the Uitvoerende Raad concluded its meetings and the country devoted itself to a prolonged and bitter process of presidential election. No one replied to Theiler's application. He returned to experiments, assisted by Dr Knobel and Schniter, designed to devise an inoculation for Horse Sickness. It seemed his best hope and he bombarded  
72 Lyss with orders for books, journals, materials for microscopic work, bacteriological equipment, stains, section-cutters, culture-incubators, refrigerators, etc, lamely offering to pay when he could. Money was everywhere scarce but he was so confident of his success as a bacteriologist that Emma had agreed to join him after completing a year in England.

Fortune dealt him a further blow. On the 3rd August 1892, Edington wrote to the Cape Agricultural Secretary, Albrecht Fischer: 'I have the honour to inform you that I am in the happy position of being able to announce to you the discovery of the microbe of Horse Sickness.' Trumpeting his success in infecting sound horses with material from diseased, Edington rashly

forecasted the early fabrication of a substance deriving from the 'microbe' which, possibly in attenuated form, could be inoculated protectively, as in Lung Sickness and Smallpox. *The Cape Agricultural Journal* of the 11th August 1892 informed the world at large of his feat. Borthwick would continue to help him in devising the magic substance.

73 Heiler struggled on, earning, he alleged, a regular £30 a month but paid most irregularly. He was not above treating 'Kaffirs' for the interest of their cases. The Smallpox, rampant in Swaziland, seemed to have been kept at bay by the quarantining of the Transvaal. In the middle of October, Veldcornet Louis Botha of Vryheid (then part of the Republic) reported that it was rapidly increasing in his district with some fatalities. The President, campaigning in his area announced that he would see for himself and, duly saluted by a commando with a feu de joie, bravely visited the dorp on the 22nd October. The old man scored an electioneering success but no word was spoken to him by Louis Botha, newly elected to the Volksraad. He was a Joubert man.

74 Both Kruger and Joubert were ceremonially welcomed back to Pretoria with triumphal arches, commandos and decorated streets at the end of their electioneering tours, closely watched by the unoccupied Heiler, now at the end of his patience with the Government. Glanders had broken out at the Artillery Camp and upon his pronouncing that it was incurable, the Commandant H. P. N. Pretorius had said that if he could not treat it, he was no use to the Rijdende Artillerie as a horse doctor. Glanders had then become as common among the cavalry horses as fleas on a dog, Heiler wrote bitterly and he was still summoned to deal with their miscellaneous diseases. He hoped and prayed that Joubert would be elected and Pretorius appointed Commandant-General. Zboril had recovered. Soon after, he had a fit in the Pretoria Club and ceased to be a force, ultimately resigning from the Staatsartillerie in suspicious circumstances despite a plea to remain signed by 800 citizens. Heiler circumspcctly remained on good terms with Pretorius.

75 Very slowly, he was making his way. The Boers' care of their cattle appalled him. They left it mostly to their 'Kaffirs' with instructions to pour down the beasts' throats all sorts of concoctions from linseed oil to paraffin and gunpowder. With Lung Sickness (causing thousands of deaths every year), the 'boys' would filter through muslin the fluid found in a dead beast's thoracic cavity and soak strips of linen in it, then cut two slits in the skin near the base of the tail of a healthy ox and thread a strip through them. The 'serum' entered the system of the ox, rendering some degree of immunity, but produced an abscess on the site, causing the tail to drop off - a disaster in a fly-infested country. Sometimes healthy oxen were forced to drink the pleural fluid of a dead comrade. Edington, working happily in his new laboratory, was manufacturing vast quantities of Lung Sickness vaccine at 1s. a tube, supplied to and gladly used by Cape farmers while Soga inoculated thousands of cattle volunteered by real Kaffirs and sent specimens of other diseases back to Edington for 'micro-examination'.

77 In the Transvaal, the farm 'boys' were cattle-midwives and castrators paying scant heed to infection. The Boers might keep a particularly watchful eye on their horses and, for any irregularity, take them to the blacksmith or some local wiseacre. With the help of some 'Afrikanerfreunde', Heiler at length succeeded in persuading the extensive cattle-owner D. J. E. Erasmus to allow him to inoculate about 4,000 of his beasts against Sponsziekte. He did so fearfully. If the vaccine Lyss had sent him were impotent or his one-handed technique clumsy and the animals not successfully immunised, he would be ruined. Erasmus was a very influential man and, Heiler wrote apprehensively, 'the Boers would consider it no joke'. He had however had several successes toward the end of the year, especially in operating on horses and castrations, in difficult births, damaged hooves, wounds and sores. Sending only £10 a time against his massive debts, he implored Lyss to supply to him a host of bacteriological requirements, urging

him always to consult Zschokke about the apparatus, stains and other essentials. His optimism soared. In six months, Emma would be with him.

\* \* \*

82 Theiler could see what was coming. Nature poured vials of evil over Africa South. Locusts infested the whole sub-continent, Smallpox crept steadily into the Transvaal, Foot-and-Mouth disease (in reality Blue Tongue) appeared everywhere, Rinderpest infected the cattle of the Northern Cape, Basutoland and elsewhere, and the perennial Horse Sickness began its seasonal slaughter. Hutcheon too had anticipated the onslaught of infectious diseases that could ruin the economy of the Cape Colony. He had induced his Government to provide him with four additional veterinary surgeons – Crowhurst, Pattison, Dixon and Hutchence. They arrived on the 10th December 1892 shortly after Hutcheon had caused the Cape Colonial Government to close its borders against animal traffic. Chaos followed. Far in the Transkei, Soga wrote gravely of the classic Cattle Plague – ‘Our new Colonial enemy – Rinderpest. Lung Sickness and Redwater are simple fools to it.’

83 Without an Agricultural Department, much less veterinary services, the Transvaal Government was powerless to deal with the coming calamity. While its leaders were completely pre-occupied with the final tensions and dramas of the presidential election and the restiveness now finding overt expression among Johannesburg’s Uitlanders, its servants did what they could. On the 24th December 1892, in tacit admission of inadequacy, they published in the *Staatscourant* Hutcheon’s official Notice on Foot-and-Mouth Disease, its symptoms and treatment. Its coming was inevitable. Introduced from the north, it infected cattle wintering in the bushveld. In the absence of any prohibitive laws, they were driven back to the summer farms and, according to Theiler’s outraged statement, Food-and-Mouth was brought to within 10 miles of Pretoria. The Boers would not listen to him; but many European farmers had allowed him to inoculate their cattle. It was a mild form of the disease, his colleague Cammack pronounced in Johannesburg.

84  
85 Not until February 1893 was the presidential election finally resolved and then only under deplorable conditions of alleged corruption and falsification. It was finally agreed that Kruger had defeated Joubert by less than 600 votes. The old policies were again entrenched. They spelt doom to Theiler’s hopes and plans. A progressive agricultural policy was essential to the survival of civilisation in Africa South. In February, Natal had managed to launch and maintain the *Natal Farmers Magazine*. In May, the Cape Government had elevated its haphazard arrangements to the full status of a Ministry of Agriculture. In July, J. B. Hellier, bald and wispily bearded with lowering white eyebrows, was appointed editor of its *Agricultural Journal* which, at 78 and long past retiring age, he raised to new heights of excellence. In June, the petition for a Transvaal Agricultural Department presented on the 10th April by no less a personage than Theiler’s enlightened friend D. J. E. Erasmus, Commandant of the Pretoria district, and his Veldcornet D. J. E. Opperman with 63 others of the Witwatersrand district, was perfunctorily rejected by the Volksraad. (The chairman of the Raad’s Petitions Committee which advised on all submissions was the respected Johannes Petrus Meijer of the large estate Klipriviersberg outside Johannesburg. He had recently been scandalised to receive from Captain Frank Rhodes, brother of Cecil, a box of ladybirds to be used on his estate for destroying Australian bug. Such expedients were considered outrageous and ungodly.)

86  
87  
88 Kruger himself was not opposed to progressive agriculture but dared not defy his burghers except on high policy when he customarily staged a tantrum if opposed. When he opened the Third Pretoria Show in the Market Square and Hall in March 1893, he urged the burghers to



*Church Street, Pretoria in 1892 in typical muddy condition exchanged seasonally for thick dust.*



*The Grand Hotel International, Church Square, Pretoria (right) in 1892 where Arnold Theiler first put up his plate.*



*The Raadzaal and Government Offices in splendid Renaissance style on Church Square, Pretoria, every item of whose construction was said to have been 'dragged up from Natal by ox-wagon'.*



*The Palace of Justice, Church Square, Pretoria in similar Renaissance style and completed some time after Theiler's arrival in the capital of the South African Republic.*

89 think further than local markets and to produce for export. It was the height of the Horse Sick-  
90 ness season and 200 carcasses were calculated to be lying in and around the town. The Agricultural Society immediately petitioned the Volksraad to place £1,000 on the Estimates to pay for a qualified doctor to investigate the disease. The Volksraad merely noted it.

91 With no money at all, Theiler was doing the work. Heartbreakingly, his special equipment  
92 was delivered too late, the instruments were not what he had ordered and some of them broke  
93 when used. He had endured further mortification. Edington, still in the same pursuit, had been  
told that Horse Sickness in the Transvaal and Natal was different from that at the Cape. With  
Borthwick, he left for the north, preceded by a request from the Cape Colonial Secretary to his  
counterpart Dr W. H. Leyds that he be accorded coöperation. Leyds instructed the Mining  
Commissioner J. L. van der Merwe to call on Edington when he arrived in Johannesburg on the  
10th February; but van der Merwe sent his newly-appointed Health Officer, Sir Drummond  
Dunbar Bart, who was unable to find any cases. Privileged to telegraph free, Edington then went  
to Pretoria where further assistance was given him; but, as it was then early in the season and  
unprecedented rains were falling, no case could be found. He then went on to Wiltshire in  
Natal with better result, returning to Graham's Town toward the end of February when he  
was instructed immediately to institute arrangements for producing Smallpox lymph vaccine.  
He ordered the latest costly equipment from Europe and was in a position to produce in bulk  
by June.

94 Unfavoured in any way and hampered by heavy handicaps, Theiler laboured in his spare time  
to prepare a paper on Horse Sickness for his venerated Professor Zschokke. (By the end of May,  
he had completed and sent it. Zschokke was pleased and wrote encouragingly. They were the  
first kind words he had had from Switzerland. His elation was pathetic.) No one had paid the  
slightest attention to his application for appointment to the Staatsartillerie or to his offer to  
make Smallpox vaccine. The epidemic was raging in Johannesburg and Dr Messum was ap-  
pointed to a special committee in Pretoria. Theiler stood on the sidelines. He had been for  
two years in Pretoria and his practice showed some sign of reality, still producing about £30  
a month of which every available penny was sent to Switzerland to pay for his research equip-  
ment. His optimism was indomitable. It was now only three months before Emma would come.

95 Conditions were exceptionally bad. What storms and floods failed to destroy, the locusts again  
ate. Everyone was in debt. Constançon was forced to sell his bushveld farm in the Waterberg.  
Rinderpest, apparently diminishing in Africa South, was flaring violently in Central Africa,  
destroying the wild animals as much as the domestic. The Imperial German Government sent a  
Veterinary Commission to East Africa. Hutcheon at the Cape watched the situation carefully –  
96 he knew the danger and caused his Government to prohibit the import of cattle from any of the  
affected regions. The South African Republic took no notice. 'The Government', Theiler later  
wrote flatly to his father, 'is rotten and all sorts of dirty affairs are coming to light . . . I too suffer  
under the crisis but we hope for the best.'

He was seldom paid and often thwarted and derided for his diagnoses but he maintained  
his professional integrity. Called to a case of 'Nieuwe Siekte', he would diagnose highly in-  
fectious Glanders, state that it was incurable and request that the animal be destroyed. Owners  
laughed at him but Theiler clove to his ethical duty. Upon one occasion, he reported a badly-  
infected horse to the Veldcornet who ordered it destroyed. Theiler was invited to do a post-  
mortem in the presence of the owner and two witnesses. Proving that the horse had Glanders,  
he was mocked for failing to grasp that it was only 'Nieuwe Ziekte'. Having invoked official  
authority, he felt obliged to justify himself and referred it to the best-recognised authority in  
Africa South, Duncan Hutcheon at the Cape. After microscopic examination of the material  
sent him, Hutcheon confirmed the diagnosis and Theiler triumphantly published his letter and an

97 account of the whole affair in *The Press*. The gathering storm of evil was soon to bring them together.

98 During May, Theiler had used the return of his friend Arnold Sturzenegger to Switzerland to reopen communication with his parents. His need was to prepare the way for his marriage to Emma, then with a family at Torquay and getting ready to leave. His carte de visite, carried by Sturzenegger, was a grisly collection of natural history objects – the skin of an iguana (or leguan, the biggest lizard) the head of a rietbok and the horns of a springbok, the skull of a Kaffir murdered in the Waterberg ('which should be valuable to an anthropologist'), copper bangles from his own 'boy' and a tin box full of snakes, lizards, a bull frog, a young leguan, a chameleon, cockroaches, locusts, a praying mantis, crabs and ants. He knew his father would be enchanted but lacked the courage to mention Emma in his covering letter. (Unknown to him, she wrote his parents on almost the same day.) Sturzenegger, he said, would give them all the news and confirm how busy he was on his Horse Sickness article for Zschokke's Swiss Veterinary Journal. Nothing is definitely known but all signs point to Sturzenegger's having told his father about his lost left hand. Thenceforward Franz wrote his struggling son in uncritical and cordial terms.

99 Now a woman of 25 years and great strength of character, Emma wrote her future mother-in-law of her impending departure 'of which Arnold will have told you', asking politely whether there was anything she might take. She well knew of family disapproval causing Arnold's flight from home. It was Franz who answered guardedly but without hostility. The Theilers were stubborn people and if Arnold had made that decision, there was nothing he could do. Emma sailed on the 3rd June 1893 and while she was at sea, Arnold, seized with compunction, wrote his family with extravagant regrets about neglecting his filial duty through pressure of work and announcing his marriage within a few months. 'The choice of my heart, as must be known to you, is Emma Jegge' and he dilated upon her virtues and her longing, as an orphan to be accepted in the Theiler family. At that moment, the choice of his heart (who was taken as an English-woman on the ship) was in great pain from an arm swollen and abscessed by a Smallpox vaccination given on board, and wondering whether she would be well enough to take the train at Cape Town for Pretoria.

100 The Smallpox epidemic had evaded control by clumsy quarantining and, while of minor incidence in Pretoria, was spreading rapidly in Johannesburg. It was a mild form which caused few fatalities but the public became increasingly alarmed. On the 26th June 1893, Arnold met his bride at Park Halt, as the Johannesburg station was called, and continued with her in the train to Pretoria (the link line had earlier unobtrusively been opened). It was a highly emotional moment when Emma first caught sight of her amputee future husband. There was little that he had not told her in letters and no strangeness between them despite long separation. There was however no end to the talking to be done. He had arranged everything. For the first week in Pretoria, she would stay with Swiss friends, the Fevriers, where he could see her every day and then she could live for nothing on the Constançon farm at Les Marais, keeping Madame Constançon company with her three small children while her husband concluded the sale of his farm in the Waterberg.

101 Emma, wearied by the depressing train journey through the Great Karroo, was much surprised by Pretoria – 'the garden of South Africa', she was told though it was already wintry cold. Short in stature, composed and purposeful, she was taken everywhere and met all the Swiss community. 'We are blissfully happy', Arnold wrote his parents, having compounded their plans and reaffirmed their faith in working together with zeal and frugality toward a better future. True to her word, Emma wrote too – shocked at the privations Arnold had endured, 'how meanly he had lived', what bad luck he had in the dilatoriness of the Government and the



brutish refusal of the Boers to utilise his skill, 'I now marvel that he did not become completely discouraged', how he had at last made a start and in summer, might improve his position. They should marry at once of course but could not afford it. Emma had already heard of a job at £4 a month and would enquire further. The cost of living in Pretoria was much higher than in Switzerland. She made no mention of his hand.

104 Arnold trod on air. The love of his life was with him – competent, resolute, assured. No longer would he face the future alone. Less than a month after her arrival – on the morning of Thursday the 19th July 1893 – a telegram was delivered to him. It came from the District Surgeon of Johannesburg, Dr Cecil Schulz asking him to come to Johannesburg for an interview with the chairman of the Smallpox Committee, J. L. van der Merwe, Mining Commissioner. He left by the next morning's train.

## SISYPHUS IN THE GOLDEN CITY 1893-1895

1 BY COMPARISON with the raucous restless Johannesburg, 'the garden city of Pretoria' was  
 2 considered 'a dull hole'. Visitors from the Rand affected to be so depressed by the deathly silence  
 3 at night, the deserted streets, lack of cabs (only jinrickshas were available) and absence of  
 audiences for entertainment that 'they never stay longer than they can possibly help'. When the  
 railway connected the two towns in September 1892, there was no necessity for the enfevered  
 inhabitants of the Golden City to remain unduly in the Capital whose unhurried tempo and  
 questionable Government pursuits were so alien to their own activities. The Randlords 'sped'  
 back and forth (with a coffee halt at Kaalfontein near Irene) and Nellmapius, J. B. Taylor, Leo  
 Weinthal and other schemers, politicians and negotiators joined them from Pretoria.

4 Incredibly, within seven years, the feral veld had incubated a sprawling fungus of shanties,  
 soft-brick houses and a few tall buildings largely constructed of wood and corrugated iron.  
 There were lighted streets, five miles of horse-tramways (which in 1893 carried 1,138,669  
 passengers and made a profit of £13,740), lively theatres, a myriad of bars and beerhalls, large  
 stores purveying every variety of imported goods (with pleasant revenue in customs dues to the  
 Republican Government) and a wildly miscellaneous population in which Germans figured  
 prominently.

Johannesburg had become a large and bustling town of 40,000 inhabitants of all races, whose  
 atmosphere was distinctly raffish. The world at large contributed to its population a continuous  
 flow of speculators, confidence tricksters, fugitives from justice, problem sons of affluent and  
 aristocratic families, thwarted professional men seeking new opportunities to utilise their training,  
 pedlars, prostitutes, merchants, artisans and pure chancers hoping to profit from what they  
 might find. Over the potentially lawless scene endemic with hooliganism presided a Special  
 Landdrost, the hoary and urbane Carl von Brandis, a longstanding German immigrant beloved  
 and respected by all. He was assisted by a Civil Landdrost (magistrate) J. F. de Beer and a criminal  
 magistrate N. van den Berg. They were very busy, despite the alleged lassitude of the 'Zarps'  
 (Zuid-Afrikaansche Republiek Politie) who, largely mounted and under the authority of Com-  
 mandant D. E. Schutte, were considered rather a joke as policemen.

5 If the future of Johannesburg lay in the hand of any single person, it was not Stephanus  
 Paulus Johannes Kruger but a little London Jew, Lionel Phillips employed by the powerful  
 financiers Julius Wernher and Alfred Beit with Rothschild support. Phillips, barely five feet in  
 height, was a singular personality who, almost entirely self-educated, had served a bitter ap-  
 prenticeship on the Diamond Fields and through sheer merit and industry, had gained the favour  
 of the ruling Kimberley clique led by Rhodes. When the time came for the diamond barons to  
 consider the upstart Wit Waters Randt gold-mining industry, they appointed three of their best  
 men to administer the properties which they had hurriedly bought - Hermann Eckstein, J. B.  
 Taylor and Lionel Phillips. By 1893, Eckstein was dead, Taylor (who lived in Pretoria in friend-  
 ship with Kruger and Nellmapius) was retiring and Lionel Phillips, fanatically industrious and  
 visionary, was not only the head of the leading firm popularly known as 'the Corner House'  
 (through the situation of its office) but also president of the Transvaal Chamber of Mines. He was  
 everywhere acknowledged as the leader of the mining industry and the 'King of Johannesburg'.

The faith that had inspired his employers needed courage to sustain. Tough, imaginative,  
 capable of transmitting his confidence and enthusiasm, Phillips was confronted by a collapsed  
 ideal. The gold which overtly lay around in outcrops for the first seekers, existed payably only

at great depth. Huge capitalisation was necessary to sink deep shafts, erect stamp-batteries and process the ore by primitive method. Few shared his confidence and that of his employers in developing the industry and during 1892/93, it sank into deep depression through lack of working capital. The slump of 1893 could have been fatal. 'Speculative business was dead, shares in the various companies were only saleable far below their value, some mines were idle for want of funds and we were confronted', said Phillips as chairman of the Chamber, 'with the disheartening spectacle of much prosperity to a few companies, none to others and a relative absence of profit to those indirectly dependent upon the industry.'

The problems that beset him were manifold. Wastage was high. The installation of the MacArthur-Forrest process of extracting gold which would largely eliminate it, had only recently been commenced. The native labour essential to mining was irregularly supplied and reluctantly rendered (the wretched emigrants from the native reserves at once took solace from hard liquor, illicitly sold, and provided unreliable service). The white miners and their families, living in isolation on lonely mines strung for 60 miles along the Reef, were bored and dissatisfied. The townsmen, exacerbated by the multitudinous restrictions and ineptitudes of the Republic Government became increasingly disaffected, combining their malaise (prompted by politicians) into a demand for the vote. Seasonal epidemics, particularly of typhoid, enteric, diphtheria and pneumonia, afflicted a population whose water supply was suspect, its sanitation primitive and its civic conditions generally deplorable. A Gezondheits Comité or Health Committee of public-spirited citizens had been formed under Government aegis and Phillips took his other problems to the State Mining Commissioner, the engaging J. L. van der Merwe (married to a Scotswoman) who in 1892 had increased his staff by a Mines Health Officer. In the paradoxical manner of the times, he was Sir Drummond Dunbar, seventh baronet of ancient lineage but without lands. No one looked askance at a Scottish aristocrat employed as a Republican servant. He was persona grata with all.

The health of the community, particularly of the black and white labour force of the mines, was universally of primary concern at a time when the golden goose was having protracted difficulty in delivering its egg. The Smallpox 'scare', as it was hopefully called, continued to hover around the whole of Africa South. By the end of 1892, it had reached the Northern Transvaal, carried, it was believed, by wandering natives. In January 1893, the prestige liner *Scot* was quarantined in Port Elizabeth with four cases including her doctor and some days later, another ship *Tartar* brought cases to Durban. Then Smallpox appeared in Johannesburg itself. On the 26th January, an English emigrant F. Hunter who had travelled on *Tartar*, was diagnosed a sufferer and rushed into isolation. Doom could well face the struggling Golden City.

So frightful a prospect galvanised both the Government and the community. The Assistant Landdrost N. van den Berg kept in constant telegraphic communication (there was no telephone line) with his superiors in Pretoria. The District Surgeon Dr Cecil Schulz and a colleague had diagnosed Smallpox but upon the patient improving, van den Berg called for further advice. There were 35 doctors of all nationalities in Johannesburg and in their manner, they divided. The Germans said the disease was only Chicken pox but the English backed Schulz (a South African of German origin) and confirmed Smallpox. Van den Berg was then empowered to spend money and ensure isolation. The wretched patient was confined to a tent guarded by Kaffirs behind the New Gaol on Hospital Hill (later The Fort), no other accommodation being available. Schulz and van den Berg demanded a 'lazaretto'. Seriously alarmed, the Government immediately sent its Public Works official, S. Wierda, to select a site for such a building and authorised the appointment of a special Smallpox Committee.

The patient, expected to expire in his tent in frigid weather, surprisingly improved and on the 30th January, the local Health Committee under its altruistic chairman, Edward Hancock, met

in emergency session. They decided to insist on a substantial building to quarantine suspected cases. Sir Drummond Dunbar, alert to the dreadful consequences among native mine labour, immediately issued a circular to all mine managements and other employers, urging hygienic measures and the isolation of all suspects. A considerable body of opinion disparaged the whole 'scare' as due to 'Kafferpokken' long known among natives, Pemphigus diagnosed by Dr L. S. Jameson during a similar outbreak six years previously in Kimberley, and plain Chickenpox.

12 Before long, yellow flags were flying outside houses in many streets in Johannesburg.

The special Smallpox Committee appointed by the Government under the chairmanship of the Mining Commissioner J. L. van der Merwe, consisted of the Government Health Commissioner, W. Eduard Bok; the Assistant Landdrost N. van den Berg; the chairman of the Health

13 Committee, Edward Hancock; the town's Health Officer, A. Bleksley; the District Surgeon, Dr C. Schulz; the chairman of the Chamber of Mines, Lionel Phillips and (a later appointment)

14 the Mines Health Officer, Dunbar. Their strategy was voluntary vaccination and strict quarantining of suspected cases of which large numbers began to appear on the mines, the isolation of victims being supposedly guaranteed by white and native guards. No native was allowed to leave without being vaccinated, lymph being imported from Europe. Dramatic emphasis of the seriousness of the situation immediately occurred when Coleman, the valet of the visiting Lord Alger-

15 non Gordon-Lennox, contracted Smallpox on the 17th February when in attendance at Height's Hotel, the most fashionable hostelry and rendezvous in town. His employer and Lady Gordon-Lennox were forced into quarantine and Coleman duly recovered.

The event intensified the 'scare' which the newspapers had been trying to deflate. Even if it were a mild variety of Smallpox, it was gaining ground, especially among natives on the mines.

16 On the 1st March, the chairman of the Chamber found it necessary himself to go to Pretoria with his colleagues van der Merwe, van den Berg and Hancock of the Smallpox Committee to discuss the situation with the Government. Phillips, having lived through the Kimberley outbreak, knew more than most.

There was still no sign of a lazaretto. Schulz was working himself to a standstill, his private

17 practice abandoned and his responsibilities so wide that he had inspanned his doctor-brother Aurel. Dunbar was losing his fight on the mines. Bleksley was continuously finding white and Kaffir cases in the town. The collection of tents on Hospital Hill intended to isolate them became

18 farcical. It was feared that the inmates would die from the early bitter cold. Suspected cases huddled with patients and unnecessarily contracted the disease. Harsh recrimination at failing to provide a lazaretto began to be directed at the Government, now accused of 'criminal neglect'.

19 The best it could do was to vote £450 to pay for ineffectual quarantine guards. The people in Pretoria trembled at the prospect of the epidemic's reaching them.

Early in April, Lionel Phillips left for a nine month visit abroad, his place on the Smallpox Committee being taken by the acting chairman of the Chamber, Carl Hanau, a firebrand speculator given to explosive opinions. It was now autumn, always a time of prosperity for Smallpox. Those concerned with its operation knew that the quarantining strategy was an utter failure.

20 The 'guards' engaged to ensure isolation were either terrified of infection, incapacitated by drink (despite the efforts of specially-appointed 'sergeants' to dragoon them and prevent de-camping) or mutinous through failure to pay their wages. The notorious inefficiency of the Administration nullified the efforts of the Smallpox Committee. Although amounts of £5,000 for

21 guards and £550 for a temporary isolation hospital were allocated, van der Merwe himself could not get the cheques from the Government. Fatalities were low but the number of cases steeply

22 increased. Despite the va-et-vient, particularly of natives, Pretoria miraculously remained untouched. The inhabitants, in a horrible winter of floods and washaways, hugged themselves with relief.

23 The situation now seriously menaced the mining industry whose leaders freely discussed in their Chamber their belief that the disease was not Smallpox at all and that they were being unnecessarily hampered. Quarantining had been ordained by the Government, yet the responsible committee was unable to obtain the funds necessary to implement it. When Dr Leyds refused to advance an urgently-needed £2,500 without detailed specifications and declared that the money should be obtained from the mines, the fiery Hanau expressed himself in committee with characteristic vehemence. His colleagues, all non-mining men, were entirely with him and on the afternoon of the same day (19th May 1893), the Smallpox Committee's deputation of van der Merwe Hanau and Hancock left by train for Pretoria to confront Leyds. Their case was irrefutable. The policy of quarantining was abandoned, the Government would immediately proclaim Compulsory Vaccination beginning with natives (by resolution Article 281 of the Executive Council of the 23rd May), and the Committee was given £5,000 to get on with the work. The regulations were gazetted on the 29th May.

24 On paper, the situation seemed to have been met. Large quantities of vaccine had been imported from Germany and England but many doctors regarded it with suspicion, preferring the primitive arm-to-arm technique. It was subsequently alleged that the imported vaccine became impotent on the journey and was useless. The ever-progressive Cape Government had foreseen the emergency and Edington had begun producing vast quantities of vaccine from calves in his laboratory in Graham's Town. To combat its viscosity (if too thick, it tended not to penetrate scarification of the skin) and to enhance its capacity to travel in great heat and other conditions, he added a proportion of two-thirds glycerine, later diminished to one half. He purveyed his product in two forms – in small tubes containing a large number of fluid doses, and on ivory points or 'needles' on which the vaccine had been dried. Such points could be rubbed on the scarified skin. Before the Transvaal Proclamation was gazetted, Bleksley had reported to the Johannesburg Health Committee that there was a shortage of vaccine although the mines held large imported supplies, and was authorised to telegraph an order to the Cape Government.

25 The Smallpox Committee continued to meet every day in Johannesburg, now without Carl Hanau who, debilitated by his multifarious duties, went on a six-week holiday to 'recruit'. It still paid 350 white guards £3 a week and 300 natives £1 (both given to intoxication upon receipt of wages) but with compulsory vaccination, they were soon dismissed. The shortage of vaccine, always of variable quality from whatever source, continued. The epidemic, so far from dwindling, now began to increase and to include some distinguished victims (although in its whole course, only 19 died). The Health Committee left the problem to its sub-committee of which its chairman was a member, pronouncing only that no European was to be vaccinated arm-to-arm from a native and that adequate calf-lymph supplies were available and being used by its two official vaccinators. Drs Cuffe and John van Niekerk.

26 These gentlemen held strong views (some of the lymph, they said, 'was little better than pure glycerine') but not as strong as those of the District Surgeon, Dr Cecil Schulz. He stated roundly that the lymph supplied by the Government was only 10% successful and some specially imported from Natal had attained only 15%. All the vaccinators had complained. He demanded a satisfactory supply and insisted that the Smallpox Committee establish a 'lymph farm' with calves to produce effective vaccine. It was a stunning proposal and the chairman J. L. van der Merwe, temporised. He asked Dunbar to investigate what it involved and the secretary E. Stahl to collect information for the next day's meeting. That night, the nascent Medical Society resolved to recommend that vaccination be made compulsory for whites as well as blacks. The need for reliable lymph would increase, especially as Smallpox notoriously intensified in winter.

31 Sir Drummond consulted Cammack who pronounced that heifer calves were the most suitable.

He then journeyed to outlying suburbs to enquire their price and found them available at 35s. to 50s. each. Their upkeep would amount to £1 per day. There would be no difficulty in establishing a 'farm'.

33 The Committee met specially on the night of Wednesday the 19th July 1893 – an historic occasion to which they had invited four doctors (Cuffe, Bourke, Lillienfeld and van Gorkum) to give their views. The discussion was violent and disputatious. Dr Cuffe with massive experience was totally disenchanted with calf lymph – it was either inactive or so virulent as to give the disease. Best was 'humanised' lymph or arm-to-arm vaccination. His colleague Bourke concurred. His Continental colleagues, van Gorkum and Lillienfeld, disagreed. From one calf in Germany, Dr van Gorkum said, 8,000 people had been vaccinated. There was always the danger of syphilis, tuberculosis and other diseases being conveyed by person-to-person vaccination. Hancock was 'dead off' lymph and van der Merwe too was strongly in favour of arm-to-arm though Hancock admitted that Johannesburg people had a prejudice against it. Schulz and van den Berg fought strenuously for the 'farm' and Hancock was converted. The medical men, 34 having cast no light on the scene, withdrew. *The Star* commented bitterly on their professional divergence.

The Committee, relieved to be alone, made small jokes before again attacking the serious business. It was agreed to ask the Government to make vaccination compulsory for whites. Then the chairman put the question: 'Shall we go in for that little farm?' (laughter). The fierce advocacy of Schulz and van den Berg and the capitulation of Hancock prevailed. Schulz had said that the total cost of trying the experiment of procuring lymph from calves over a period of about 14 days would be only about £25. There was a gentleman in Pretoria in charge of an institution already marketing such lymph, some of which he rather thought had already been supplied to them. 'Let us wire him tomorrow', the chairman said, 'to come over and make lymph.' (laughter). Schulz cannily insisted that supervision would need to be in the hands of a medical man (himself) and that the Committee would have to buy the calves and give this Pretoria gentleman a salary. It was unanimously agreed to wire to the gentleman to come to Johannesburg and have an interview with the chairman.

There were wheels within wheels but no record of how they revolved, only strong indications. The District Surgeon of Johannesburg would certainly have been in constant communication with his colleague in Pretoria. As chairman of the Pretoria Smallpox Committee, Messum may well have come frequently to Johannesburg to see how Schulz was coping with an epidemic which sooner or later, must afflict the Capital. Inevitably they would have discussed the lymph problem and Messum, loyal to his patient and friend, would have mentioned Theiler's offer to manufacture lymph and his preliminary experiments. Knobel too, might have taken a hand.

For two and a half years, Theiler had talked his way into the consciousness of effective individuals. He was in any case an outstanding figure in Pretoria – a dark stocky young man, heavily bearded, his hair en brosse and that wooden hand in its black leather glove. In the small Civil Service of the day, he was known to everyone, from clerk to State Secretary. W. E. Bok, lately demoted from secretary to the Uitvoerende Raad to Health Commissioner on the Johannesburg Health Committee, would certainly have known of him and perhaps endorsed his case when Schulz, canvassing support, invoked the help of his colleague, the magistrate van den Berg. In the manner of the times, then and ever, there was collusion behind the scenes. Theiler had been at constant pains to stage it. It had always been manifest to him that it was not what you knew but whom you knew that counted.

On only one point was he at a loss. When he received Schulz' telegram, his diploma and certificate were still in the office of the Commandant-General where they had lain for more than a

year. It took a whole day and all his influence to extract them. On Thursday the 20th May, he took the train to Johannesburg, seeking lodgings with his friends the Ritters. On Friday morning, dressed like a gentleman, he met Dr Schulz in the office of the Mining Commissioner.

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35 Bull-necked and of Teutonic aspect, Cecil Schulz came from an adventurous family. His father, a doctor (deceased early in 1891 in Durban) had emigrated to the eastern Cape Colony in 1857 as a member of the British German Legion, moving thence to Natal where he became a noted public figure and borough medical officer. He had four sons of whom three became physicians, Aurel and Cecil claiming the most public attention. Trained in Berlin, Cecil practised in Pietermaritzburg, Kimberley, Barberton and Swaziland before settling in Johannesburg in 1890 where, becoming District Surgeon, he shrewdly bought property in the main street, on Hospital Hill and in nearby country at Orange Grove. He never neglected an opportunity to earn an extra-mural penny nor fell into the trap of matrimony. Habitually dressed in a white coat and wearing leather gloves when in saddle or cart, he became a well-known character. Theiler confronted a successful and determined man, if somewhat given to self-interest.

36 Schulz' version of their discussion, given at the meeting of the Smallpox Committee that night (all the members worked at full stretch during the day and voluntarily at night) was highly coloured to suit his own book and outraged Theiler. His qualifications, Schulz said, having seen Theiler's papers, were satisfactory and he had had great experience in the growing of lymph (now in even shorter supply). A lengthy and detailed discussion followed in which, answering van den Berg, Theiler stated with transparent honesty that the better vaccine that had come from Pretoria was not his but imported. He himself had used five calves but with less success than in Switzerland though he had produced about 500 tubes in three weeks. He proposed infecting three or four calves every day, producing 100 tubes each within two or three weeks. He asked very pointedly whether the Committee wanted pure vaccine or glycerinated for preservation. Dunbar questioned whether a month would be sufficient to prove the experiment and Theiler assured the Committee that he would supply 'lots of lymph' in that time. On the motion of van den Berg, it was agreed that he be employed for one month from the following Monday (two days thence) at a salary of £50, all facilities in premises, calves, labour, etc to be supplied with the assistance of a sub-committee consisting of the chairman (van der Merwe), Hancock, Schulz and Dunbar. (Significantly, Carl Hanau was away at the time.) Theiler was in. Schulz had hinted at permanent employment.

37 No train could take him quickly enough to Pretoria to tell Emma, now haplessly installed at the Constançon's farm at Les Marais. He was in a state of euphoria, his mind leaping toward the fantastic possibilities which the situation could present – solution of his financial problems, marriage, consorting with the high and the mighty, doing them a service, earning their gratitude, State appointment, riches, fame, ultimate retirement in leisured comfort in die alte Heimat. Throughout his life, Theiler's reach was further than his grasp.

38 He had only the weekend in which to settle his affairs in Pretoria, leaving on the Sunday for Johannesburg. The break would be final. It was a condition of his employment that, like Schulz, he would be allowed to practise privately and if the position were not permanent, he proposed putting up his plate on the strength of his fame as a vaccine-producer and of all the clients he would get to know in the meantime. Somehow he found a moment to write to his parents – 'I am emigrating today to Johannesburg to stay there. I have been appointed Director of the Institute of Animal Vaccination at £50 a month – 1,250 francs!' and he could not forbear to add – 'my way is open as a result of iron energy and faith in myself'. Later he described himself as

'the Manager of the Lymph Farm'. The images evoked by these glorious appellations came nowhere near the truth.

41 Taking temporary lodgings, Theiler reported himself on Monday the 26th July 1893 at the office of the Mining Commissioner and chairman of the Smallpox Committee. He was now a temporary civil servant like the other employees of the Committee, costing the Government £500 a month in all – 'eight doctors', said van der Merwe ruefully, 'and one calf doctor!' Sir Drummond Dunbar as Health Officer for the Mines on his staff, had been detailed to provide the necessary accommodation and facilities for the immediate operation of the 'lymph farm' and together with Theiler, went into the town to search for them.

42 Dunbar was the very pattern of a Scottish gentleman. His title dated from 1697 and he could take precedence over any other sprig of the aristocracy then in South Africa. Of fortune he had none and like many another of his kind, came to the Diamond Fields in 1871 to try to find it. All his life it eluded him despite a great variety of hopeful occupations throughout the land from the Cape Colony to the Eastern Transvaal. Basically a good-hearted well-educated Scot with special sympathy for animals and mankind, Dunbar had been an inspector on the diamond mines, a gold miner, farmer, railway official, town clerk, assistant market master and, rushing to Johannesburg when the goldfields were proclaimed, secretary of the Stock Exchange. This, with his interest and experience in health and welfare matters together with the perpetual shortage of educated men, secured his appointment as Mines Health Officer to the staff of van der Merwe who, through his wife, had strong leanings toward the Scots. Besides being persona grata with everyone, Dunbar was outstandingly conscientious, community-conscious and adept at helpful contributions at committee meetings. At the time he was detailed to organise Theiler's affairs, he was 48, married with a large family and amiably known to the whole town.

43 There was no question of searching for ideal premises. The Government was about to enforce the provision of its original Proclamation for compulsory vaccination of whites and the Health Committee had already opened centres where its doctors vaccinated without charge. Supplies of imported lymph were both inadequate and bad. Theiler had no alternative but to accept what Dunbar found for him – a stable in Market Street which, thoroughly disinfected, would house his calves with space for postmortems. There was suddenly a shortage and Dunbar at first could provide him with only three heifers though more would follow. He began work the next day. Schulz spoke optimistically in committee of 'the lots of lymph' they would soon have; but, commenting on the 'bad' quality of what was currently available from overseas, van der Merwe ordered by wire 1,000 tubes from Edington in Graham's Town. Some of the doctors had stopped vaccinating as none of the imported material 'took'. It was 'tomfoolery' to continue, they said, and regarded Theiler's efforts with scepticism.

44 Great though the urgency, Theiler moved with exemplary caution, impressing Dunbar who duly reported it to the Smallpox Committee. On the first day, he allowed the frightened calves to compose themselves. On the second, he continuously took their temperatures to establish whether they were suffering from disease. On the third, all proving healthy, he infected them with a culture he had brought from Pretoria and awaited the eruption of the characteristic pustules. Much had to be organised in his unpromising premises – glass tubes and other equipment with which to handle the deadly stuff (obtained largely from the chemist Loewenstein whose manager was a Swiss, S. L. Kling), proper packaging, a table for postmortems, disposal of carcasses and other detritus, constant disinfection, fodder, water, a thousand cares. He hardly noticed the tragic death of his first proponent, Nellmapius at the age of 46, though the whole town shuddered and in Pretoria, Kruger wept at his bier, saying 'There lies the best patriot of the Transvaal'.

47 Edington had telegraphed that he was forthwith sending the 1,000 tubes 'full of strength', due on the 4th August. If they were successful, there would be no need for the 'lymph farm'. Theiler

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49 would stand or fall by his first consignment. The calves were not cooperating. The pustules failed to appear as they had in Pretoria. Then Carl Hanau came back.

50 Rampaging into the Committee's discussion, he scoffed (as the medical profession did) at the 'lymph farm' and insisted on the vast importation of vaccine from England. At least, he said, a committee of five doctors should inspect what Theiler was doing – hundreds of people might otherwise die. Dunbar snapped his fingers in derision of what such a committee might do 'meddling with calves'. Van der Merwe remarked that English lymph was bad. Hanau insisted. An order for 1,000 tubes from Germany was placed with Loewenstein and Mosenthals were told to get more from England. Within ten days of his appointment, Theiler's position was gravely precarious. Schulz himself might not be able to save him. In early August, the weather was 'vile' and people were clamouring to be vaccinated.

51 Theiler was undeterred and made studious recourse to his book. Reporters came to see him in his laboratory-stable with its protesting calves. He answered them evenly and inoculated one which 'took' on the fourth day. On the morrow – 3rd August 1893 – he would supply the Committee with 500 doses drawn from his first calf and would then inoculate three more. On the following day, the calf was killed and three doctors – Schulz, van Gorkum and Kanin – testified that it was free from disease. Dr Bourke specifically examined its lungs with the same result. Dunbar reported it all to the Committee. Hanau was confounded. Schulz proposed immediately to issue the new lymph for vaccination purposes. Hanau and Dunbar demurred. They felt it should first be tested. Schulz was instructed to use it on 20 (later 60) persons and report the results. Theiler continued producing. In the town, more yellow flags were flying.

52 Schulz had told him that if he were successful, he could become the Government Veterinary Surgeon in Johannesburg. He was missing Emma whom he had not seen for three weeks. He moved from his temporary lodging to the house of his friend, the plumber Jakob Ritter who lived on the corner of Market and Kruis Streets, close to the laboratory-stable, and rented a room from him. Ritter was president of the tottering Schweizerverein Helvetia in Johannesburg which on the 1st August had celebrated the National Day, dancing till dawn. Theiler had not attended. His days were too full and too long. At work at 6.30 in the morning in darkness, he inoculated one calf, drew serum from another, bottled and packaged it, killed and examined donor calves while supervising the whole operation and suffering constant visits from Schulz and Dunbar and newspaper reporters. In bitter cold and twilight, he returned to his lodging at 5.30 p.m., worn out but indomitably hopeful, defiant of his detractors, even vainglorious. His triumph would be at the end of August when he sent money to his parents from his first month's salary.

54 Within a few days, the Smallpox Committee heard the result of Schulz' vaccination tests with Theiler's lymph. They were 91.3% successful, as good, if not better than Edington's which gave 'splendid results'. Theiler's friends at court pressed the advantage home. Schulz hinted that Theiler might be leaving but, challenged by the canny Hanau, could provide no evidence. Van der Merwe intervened to say they would keep him as long as they needed him. Dunbar moved that he be retained for three months and a more suitable place in the country be found for his operations. The chairman clinched the issue by stating that as Mining Commissioner, he would place property on Hospital Hill at Theiler's disposal. The converted Carl Hanau proposed a sub-committee consisting of van der Merwe, Schulz and Dunbar to arrange it.

55 The newspapers gloated – SMALLPOX COMMITTEE COMING TO THEIR SENSES and SCHULZ SCORES: 'LYMPH FROM THE FARM'. Theiler was not only in but established. He spent the weekend in Pretoria with Emma, now fully accepted by his family. They would get married soon. She had spent seven miserable weeks on the Les Marais farm and a week in town with the Sandoz family whom she liked as well-born and cultured people. Now, while the Con-

stançons came briefly to Johannesburg, she was alone with the children and only raw Kaffirs for company. Arnold had given her his revolver.

56 Van der Merwe moved with extraordinary speed. The Government, terrified of the increasing outbreak and its probable invasion of Pretoria, poured money into his hands. A substantial building of brick was constructed within two weeks on Hospital Hill. On the 22nd August, the corrugated iron roof was nailed into place and Theiler, his calves and two Kaffirs transferred on 57 the following day. There was stabling for the calves (and later a cow), quarters for the Kaffirs, a forage room, a postmortem room and Theiler's bedroom. He saved on rent and food, eating some of the slaughtered calves and bartering others for different meat, and drinking the cow's 58 milk. He trained his 'boys' to wash and feed him. At the end of the month, he sent £10 to his father. His joy was all but complete. Emma would soon be coming.

Professionally, his fortunes varied. At the outset, he had nearly killed his friend Ritter's schoolboy son with a vaccination so undiluted that the boy had reacted drastically. Eighty years later, the nonagenarian Hans Ritter testified to the violent fever, the compresses frantically applied by his parents, the medicines prescribed by Theiler himself and the huge vaccination 59 scars that remained. 'He was a friendly man', the victim (who long survived him) wrote, 'when I got better, he invited me to come and visit him and see his laboratory and slides and microscope.' Now in September 1893, Theiler strayed in the opposite direction amidst furious contumely. Having bragged to his family in August that he was 'the Man of the Moment - the name 60 Theiler has become as popular in Johannesburg as in Frick - for three weeks, people have read it in the newspapers', now he had vaguely to write of 'difficulties'. The doctors had turned 61 against him to a man - his lymph was 'sterile', 'useless' (too weak, he himself said, having 62 punctiliously marked the number of the responsible calves on each tube). Hanau flayed him in 63 committee. The newspapers happily made capital of the scandal. After more recourse to his 64 book, properly-tested production was soon resumed. Schulz and Theiler rode the squall without much damage to their reputations. Their relationship was close and pregnant with plans.

Theiler had reason to be distracted. Although the epidemic showed signs of diminishing, he had been assured by Schulz of his £50 a month until the end of the year. Emma ('the darling of the Swiss community in Pretoria parce qu'elle est si gentille') and he needed each other and must 65 marry, even if it meant her working. In the middle of September while abuse rained upon him, she came to Johannesburg, staying shortly with the Ritters and then renting a room with the Heretiers, Theiler's early friends of the Grand Hotel in Pretoria. Madame Heretier occupied herself with small business while her husband organised the meals at the Rand Club. Emma 66 bought a sewing machine and commenced dress-making. Trained in Paris she was soon in demand among the ladies of the depressed town. Arnold, agnostic to the core and Emma hardly less, arranged a civil marriage through his Government friends and together they looked for a house. They found one, owned by a Swiss, Gantner, built of stone with a corrugated iron roof at the huge rent of £11.15s.0d. per month according to Arnold (Emma said £8.10s.0d.) in the least populous part of the town - on the corner of von Wielligh and Pritchard Streets, surrounded 67 by many vacant stands, a few houses and a 'Chinaman's store'. It was not far from the Ritters and about 15 minutes walk to the 'Lymph Farm' on Hospital Hill. Lodgers would help diminish the rent.

68 At 9.30 on the morning of Thursday the 26th October 1893, the 66-year old Special Landdrost, Captain Carl von Brandis united in matrimony in his office in Johannesburg in the district of the Wit Waters Randt Goldfields, Franz Arnold Theiler bachelor aged 26 of Frick, Switzerland and Emma Sophie Jegge, spinster aged 24 of Sisseln, Switzerland who duly signed his register witnessed by H. J. L. Roarda (Theiler's Pretoria friend, a Zurich student) and Walter Kumbruck, 69 the Johannesburg manager of Sandoz' Trevenna brewery. The wedding breakfast, served with

Chianti on tables decorated with roses and other flowers, was held at the Commercial Hotel owned by a Swiss, where Theiler had first lodged in 1891. The 'honeymoon' took the form of an immediate three-hour journey by horsecart to the famous Waterfall near Krugersdorp where the happy couple and two witnesses enjoyed a picnic and got stuck coming back. Exhilarated but exhausted. Arnold and Emma finally reached their house at one in the morning where two Swiss were already installed as boarders (Emma later found that they ate her out of house and home and then let the room only). At 5 of the same morning, Arnold was up and away to his clamant calves on Hospital Hill.

70 His future was still indeterminate. As the weather warmed, the Smallpox declined and his official appointment must soon come to an end. His plans were clear and Emma coöperated in them. The 4-roomed house was large enough to permit him a 'laboratory' where, as the rainy season impended, he intended bringing his continuous Horse Sickness work to successful conclusion with Emma's help. She did everything for him, he wrote proudly (but from the outset, she refused to shave him). They had no servant. Emma washed, cleaned, searched the shops for the cheapest provisions (nothing was *prepared* as in Europe, she complained, and took much longer to get ready), cooked for four, prepared laboratory cultures in agar-agar, gelatine and other substances, cut sections, recorded results and at night, desperately operated the sewing machine. In the month before their marriage, she had made nearly £8 from dress-making and now, planning to buy their own house, they needed money even more.

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73 Arnold's own income was continuously spent on pathological and bacteriological textbooks which, once more in his good graces, he implored his father to order and send. He was less concerned with his forthcoming private practice (he already had several clandestine clients) than with his researches into the killer diseases. Nothing disturbed his conviction that he alone could solve them. Zschokke's interest and encouragement were stimulating. Powerful too was the prospect of riches. He was planning to derive from an animal immune to Horse Sickness, possibly a donkey, a serum potent enough to immunise horses. Zschokke had sent him the necessary equipment.

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75 Early in November 1893, van der Merwe instructed Dunbar to prepare a report on the 'Lymph Farm'. The epidemic was 'dying out' and its closure must be considered. Dunbar submitted impressive figures. The total cost had been £626.19s.7d. of which £150 had been paid Mr Theiler for three months' service. The vaccine supplied and on hand valued at 2s.6d. a tube totalled £1,224.-12s.2d. or a credit balance of £599.12s.7d. If it had been imported at the current price of 3s.6d. a tube, it would have cost £1,100. The Republican Government was sensitive on the point. Under stress, it had imported from the Cape Colonial Government alone 9,375 tubes produced by Edington (whose laboratory it subsidised with £350 per annum as did the Natal Government), and resented its dependence on the Imperial connection.

When van der Merwe put the question of retaining Theiler, Carl Hanau with the visionary attitude typical of the concerted mining industry, at once replied that the Government might wish to continue the work as a national institution. Before abolishing the 'farm', he said, all the facts should be reported to the Government, leaving it to them to decide whether they wished to carry on with it for the benefit of the country. 'Ja!' agreed W. E. Bok, familiar with the background. Cautiously van der Merwe proposed that the town's doctors should be asked to endorse the local lymph as being as good as Edington's for submission to the Government; but Hanau would have none of it and it was resolved to forward Dunbar's report as it stood. Theiler would be retained until the Government replied. The Government did not reply; but the laudatory Press publicity was excellent for his image.

76 His friends took further action. Dunbar prepared another report embodying 'entirely favourable' medical opinion. He stated that the 'farm' had been a success medically, commercially and

politically (sic) and hoped that the Smallpox Committee would recommend to the Government the continuance of the institution on a national basis. Piling Pelion on Ossa, 'a memorial signed by a number of medical gentlemen expressing the utmost satisfaction with the work carried on at the farm' was submitted. On the motion of Hanau, the Committee agreed to send it to the Government. Theiler's vision of a national bacteriological research institute hovered ephemerally. No word came. Two months later, on the 8th December 1893, the Committee had no option but to terminate his services and abandon what he had so grandly called 'The Institute of Animal Vaccination'. He accepted £25 in lieu of a month's notice. He was free to practise and conduct his own research.

\* \* \*

78 The 'truant' Johannesburgers who had fled the town during the epidemic now returned and the 'King' himself came back. Resuming his presidency of the Chamber of Mines, Phillips put all his energies into reviving the slump-ridden industry. It was a sorely stricken town in which Theiler began work early in 1894, very different from the brash and defiant dorp, full of possibility for the veterinary surgeon, that he had visited in 1891 and 1892.

79 Then, with others, he had stood and watched the happy speculators driving home in the early evening, 'some with splendid teams and the sight was always lively. Now a tall dog-cart, spick and span, drawn by a high-stepping well-groomed horse and driven by a fashionable dame, sitting with arms akimbo high above the man at her side; now an open carriage - with a pair of fiery greys followed by a Cape cart and flanked by a span of depressed-looking mules harnessed to a buck-wagon and driven by an old-time Boer with shaggy unkempt beard, wide felt hat and velschoen all complete. Next, mounted on a mettled horse, trots a rider of the English hunting school in breeches of the latest cut, both horse and man well groomed to the last degree and after him, in direct contrast, a young farmer galloping wildly on a half-tamed colt, the rough rider sitting close to his saddle with his shoulders squared and his long legs thrust straight out while his mount snatches at its bit and tosses its shaggy head in alarm at the unaccustomed sights. And all the while, white-hooded cabs driven by coloured men sweep on in reckless haste, the drivers calling out jeeringly to stalwart Zulus running bare-foot between the shafts of light jinrickshas.'

80 Now gloom beset the town as the share market dropped and business dwindled. 'Most successful merchants', the *Mining Journal* lugubriously recorded, 'find great difficulty in keeping their trollies employed.' No goods were ordered for delivery and horses and mules stood idle in their stables. By the end of the year, conditions had worsened and 'merchants experienced great difficulty in keeping their staffs engaged'. Things went hardly with the 29 blacksmiths and farriers  
81 and the 13 livery stables that had flourished with prosperity, but worse with the veterinary surgeons who had aspired to a good livelihood in the earlier booming town. Cammack and the  
82 unqualified G. C. Baker tried to ride the storm but newcomers fell by the wayside. W. H. Stanton M.R.C.V.S. came, advertised grandly and went. James Richardson M.R.C.V.S. started  
83 practising in January 1893 from the Masonic Hotel, sought solace with Bacchus and Thespia  
84 and in July, smashed up the stalls of the Standard Theatre. He offered to pay for the damage,  
85 was prosecuted and fined, and bravely remained. Seasonally with the Horse Sickness, Pieter Roux from the Cape flitted between Pretoria and Johannesburg with his spurious 'cure', trying to induce the Transvaal, Bechuanaland and Mashonaland administrations to buy it. Significantly, sales of the new 'safety' bicycles boomed. Even Lionel Phillips, with a stableful of carriage  
86 horses, chose to ride to his office on a bicycle.

During his five months' salaried service, Theiler had collected a small clientèle; but it was

87 nonetheless the worst time to venture on his own. Some might patronise him but few would be able to pay. He was taking a great risk but his mind and his heart were on other things. From January onward, Horse Sickness would ravage the land and he must be ready with his serum and at least make observations. When winter came, the Smallpox, evidently only dormant, might recommence and the production of vaccine again fall into his hands. On the Health Committee and the expiring Smallpox Sub-Committee, Schulz was still fighting for the permanent retention of the 'Lymph Farm' by the Government, vehemently supported by Hanau and the *South African Mining Journal*, creature of the Corner House. If Schulz succeeded, he would at last have State appointment. There were even brighter portents. On the Order Paper of the May meeting of the Volksraad was legislation for the founding of an Agricultural Department with veterinary services. He had influential friends to support his candidature as State Veterinarian. It was of the utmost importance to keep abreast of the latest scientific developments, particularly bacteriological, and of every move of his rivals.

88 Edington had left his laboratory to do a six-month stint as Medical Officer of Health of the Cape Government to determine whether it were the more desirable post, serving during his term on a Leprosy Commission. The aging Hutcheon hopeless ranted against his lack of research facilities and warned his Government that the lethal Lamziekte endemic in the Northern Cape was now spreading. 'The farmers expect the Veterinary Surgeons to know all about these obscure diseases', he wrote, 'whereas these officers know only that they are different from anything they have ever met before' and then, poetically - 'Nature does not reveal her secrets to a haphazard enquirer; she must be closely questioned and her replies require to be verified by test experiments.' Theiler knew all about the Cape Agricultural Department. He subscribed to its *Journal* (full of valuable overseas information collected by Hellier) and began a private correspondence in German with Otto Henning on Hutcheon's staff.

89 He was not so knowledgeable about Natal where, under the informed direction of the new Governor, Sir Walter Hely-Hutchinson, Wiltshire had been sent overseas for six months to study animal diseases, notably Redwater (then afflicting the Colony) in the United States. Sir Walter was troubled too by another of Nature's secrets - a cattle disease that the Zulus called Nagana which killed thousands every year. The young veterinarian Frank van der Plank M.R.C.V.S. whom Wiltshire had left in charge, could hardly deal with it but Hely-Hutchinson had other resources. He required the British Army to second to him at Pietermaritzburg a medical officer whom he had known in 1888 when Lieutenant-Governor at Malta. During 1894, 90 Captain David Bruce and his wife came to Natal and Theiler knew nothing of it. He was absorbed in the study of Kitts' Bacteriologie and other works, dutifully despatched by his father, and experimenting with a gas incubator, section-cutters, various stains to reveal bacilli and other apparatus arriving every week to equip his laboratory. Emma, bent over her sewing machine, would be called away to deal with his cultures of bacteria or to mount a specimen on a slide or note a new 'microbe' excitingly revealed. She was already pregnant.

91 Even in his salaried days, Theiler had written - 'competition with English colleagues is fierce' and when, in January 1894, he publicly intruded on their field, it intensified. Cammack forestalled him with a large and expensive advertisement rendering small and insignificant Theiler's subsequent appearance, using Ritter's postbox number. He made his debut in *The Star* (at heavy cost) on the 17th January 1894 with

#### A. THEILER

##### VETERINARY SURGEON

*Diploma:* Veterinary College of Zurich and Veterinary Officer of Switzerland  
Late Consulting Veterinary Surgeon to the Artillery Camp in Pretoria and

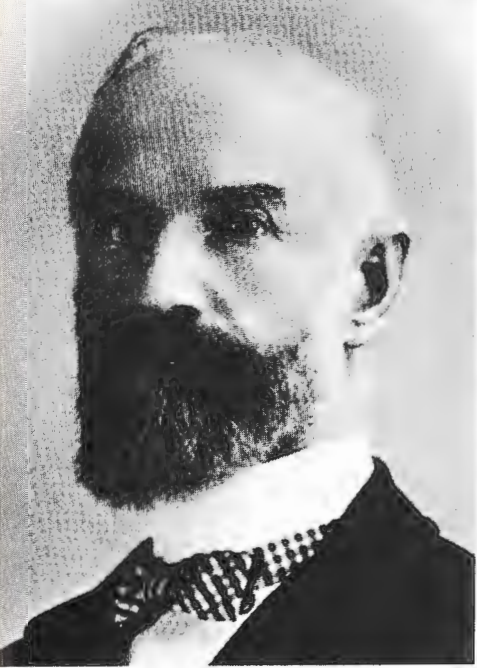
Superintendent of the Lymph Farm in Johannesburg  
Has started practice and can be consulted at his residence Van Welligh  
Street, Pritchard Street, next Commercial Hotel  
P.O. Box 1080. Orders can also be left at Loewenstein's Chemist Shop  
Monthly attendance for Large Stables, Dairy Farmers, etc by special ar-  
rangement  
Apply in English, Dutch or German

93 Emma kept his books and for the first two months, they were dismal. Commandant D. E. Schutte of the Police, his adjutant Lieutenant Heugh and Sergeant Robertson (possibly canvassed by Constable Tredoux, a compatriot) took advantage of his services at 5s. and 7/6d. a time; also the chemist Loewenstein through his compatriot S. L. Kling; his friend Heretier; Mrs van Gorkum and a few others. Theiler found it hard to press for payment from the friends who had helped him. Few offered it. In January, he made £3.12s. 6d; in February £5.13s.0d. Emma's work on the sewing machine became essential. For Theiler, the worst was not that he had failed 'to make a brilliant start' but that perversely, there were no cases of Horse Sickness in Johannesburg and he was unable to obtain the pathological material he needed (or of Redwater, then accounting for thousands of deaths in Natal and the eastern Cape). His friends in Pretoria had not forgotten him. On the 17th March, he spent precious money to go there to obtain his specimens and to inoculate 500 beasts belonging to D. J. E. Erasmus against Blackleg (Sponz- ziekte).

94  
95 Alone among the Boers, Erasmus believed in Theiler and valued his services. He was in addition a good friend and a powerful ally. As Commandant of the Pretoria district, a past member of the Volksraad and once Acting State President, and a doughty campaigner in numerous local wars, he moved in the highest circles and was much respected. His first and abiding love was farming for which he gave up all public office except his military duty. It was said of him that when he dined with the officers of the Staatsartillerie who, under German influence, affected fancy mess dress, he was 'always immaculately attired in irreproachable broadcloth'. A man of unwavering integrity, he continued to throw his great weight behind Theiler and his causes, telling him now that because of his knowledge of local cattle diseases, he had the best chance of becoming State Veterinarian. Much was moving in that direction. At that moment, farmers throughout the Transvaal, Erasmus foremost among them, were being asked to sign a petition for an Agricultural Department to support the proposed legislation. Further, a Glanders Act was being considered and Theiler's Staatsartillerie friends assured him that he would be appointed the State Veterinary Surgeon envisaged in its terms.

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100  
101 Enheartened again, Theiler began advertising in the *Standard and Diggers News* (he had a new professional rival in E. T. Perossi, 'Certificated Veterinary Surgeon' who lasted for some time) and his practice began to develop. He tried again to persuade Lyss to join him in extending it but confessed he would rather be State Veterinarian at a salary of £700/900 a year with peace and quiet and time for research. Then, with the onset of winter, Smallpox reappeared - in allegedly worse form and with the quasi-redundant Committee in disarray. Cases were increasingly reported in Pretoria.

102 All doors seemed to be opening for him. His practice greatly improved and he had 'nearly walked his legs off', according to Emma, to find a house in a more frequented area. Now private individuals, notably doctors dependent on their traps and ponies, and commercial firms like the importers Parker, Wood & Co.; Rolfe Nebel; Hyman & Cohen; and others with stables of horses and mules for their delivery trollies, increasingly consulted him. Many failed to pay. In  
103 the freezing winter, enduring the discomforts of pregnancy, Emma recorded that in March, he



*Sir Drummond Dunbar,  
7th Baronet*



*Dr Cecil Schulz*



*Dr Julius Loevy*

*The Smallpox Epidemic* – an impression by the *Illustrated London News* artist Melton Prior in 1896 of a 'Boer' watching a Government doctor vaccinating his native staff.





*Emma Sophie Jegge when she came to South Africa in 1893 to marry Arnold Theiler.*



*Brick and Corrugated-Iron House rented by the Theilers in van Wielligh Street, Johannesburg from 1893 to 1895. His plate may be seen to the right of the front door.*

*Over-loaded 'Toast-rack' Horse-tram with passengers outside in Johannesburg in the nineties when Theiler was retained to ensure the welfare of the Tramways Company's scores of horses.*





had made £13.18s.6d. and in April £29.7s.6d. The trend was hopeful. He was working very hard, aiming at a regular £50 a month.

104 At that point, circumstances compelled him to change his ground. The Government had neither built a lazaretto nor made any provision for a recrudescence of Smallpox. Its feeble reaction was to appoint a paid Smallpox Committee of three in Johannesburg. Schulz, ever alert to opportunity, took command of the situation. He offered to supply lymph 'at a price' and 105 constituted himself and Theiler a commercial manufactory despite the chemist Loewenstein being appointed the sole agent for the Cape Government's laboratory at Graham's Town. 106 (During Edington's absence as Cape M.O.H. followed by six months' leave in England, it 107 supplied 14,180 tubes of lymph to the Transvaal Republic – to the chagrin of both Government and Theiler.) Making vaccine at home in his well-equipped laboratory was less troublesome and more rewarding than tramping round the town visiting distant clients who paid irregularly. Emma helped and, if his private practice languished, Theiler did well out of lymph with a total 108 capital outlay of £8 and Schulz sharing the profits. In the first month, he made £80. It could also, with Schulz' influence, lead to other things.

109 In the meantime, prospects were shaping nicely. The cost of horses to the Staatsartillerie rose steadily out of hand and, in the estimates for the fiscal year of 1893, exceeded that of ammunition. Losses from Horse Sickness were seasonal but Glanders, as Theiler had warned, was chronic and increasing. In that year, £4,000 was required for upkeep and £1,200 for the purchase of salted horses. The high incidence throughout the land finally induced the Executive Council 110 to publish in the *Staatscourant* a law drafted by the State Attorney, Ewald Esselen for the control of Glanders which was referred for discussion to the Tweede Volksraad (a satellite body created to placate the Uitlanders). On the 11th May 1894, this energetic assembly appointed a committee of three to examine it. They resolved to consult Theiler at a fee of two guineas a day and, at the instance of the State Secretary, called on his friend the Mining Commissioner 111 to produce Theiler's credentials. Within a few days, he was in Pretoria working in the imposing Government Building for a week on the draft law.

His foot now seemed in the door. The law, if passed, made the appointment of a State Veterinarian essential. He would have to be naturalised to qualify for appointment and he objected 112 strongly to losing his Swiss citizenship. The new draft was printed and on the 11th June, Theiler 113 made further amendments. On the 14th, the Tweede Volksraad reconsidered it in a lengthy debate attended by Kruger and after further discussion, approved it for reference to the Eerste 114 Volksraad which duly enacted it on the 11th July after embarrassing opposition by some mem- 115 bers. They alleged that farmers would be 'placed at the mercy of foreign veterinary surgeons' or 'the foreigner imported from Europe'. The cap fitted. The Act was to become operative in January 1895.

116 Theiler's jubilation was tempered by several factors. The chairman of the Tweede Volksraad, W. J. Pretorius, had assured him that he would be appointed State Veterinarian in the terms of the Act; but he cavilled at naturalisation. Now it was inevitable. He consulted his Government friends in Johannesburg and rejoiced to find that he could hold dual nationality and remain Swiss. It entailed elaborate certification of his original registration in Pretoria by the Veldkornet Melt Marais, identification by his Swiss friends Jakob Ritter and Ernst Lauber, affirmation of his three years in the Transvaal before a Justice of the Peace, similar declaration of his never having been convicted of a crime, and finally his application to the State Secretary which he sub- 117 mitted to his friend J. L. van der Merwe who duly forwarded it on the 9th August. A further testimony was required in September from the Landdrost of Pretoria C. E. Schutte (distinguish- 118 ed by his handsome pair of matching greys) who knew Theiler well; but it was not until the 8th October and the payment of £2 that he received his Letter of Naturalisation signed by the State

Secretary Dr W. H. Leyds and the State Attorney Ewald Esselen. By then ugly changes had occurred.

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120 While Theiler had sat in the Government Building in Pretoria drafting himself into State appointment, General Joubert had stood on the balcony haranguing a great crowd on his forthcoming campaign against the native chief Malaboch who had refused to pay taxes and been generally recalcitrant. Enthusiasm was high. As Commandant of Pretoria, Theiler's friend D. J. E. Erasmus was marshalling the local contingent at Wonderboom. Commandos from other districts were converging on the area. The whole Staatsartillerie were en train, leaving one lieutenant and 10 men at their camp. When the combined force had reached the Blauwbergen in the Northern Transvaal, Joubert and his wife would join them, camping comfortably in their wagons and watching the artillery blast the natives from their rocks.

121 Within the letter of the law, the Republican Government had drafted ('commandeered') into its forces a number of non-citizens or Uitlanders of all nationalities without the vote, some, like the lawyer Curlewis and the gentleman-farmer R. T. N. James, at the top of the social hierarchy. Longstanding resentment erupted into furious opposition, petitions were organised and presented to the Volksraad, and appeal made to the British Government to right the situation. Hardly landed from a visit to England, the Cape Governor and High Commissioner for South Africa, Sir Henry Loch took the train to Pretoria, avoiding the inflammable Johannesburg. Kruger met him hospitably at the station and they entered his carriage together. Hooligans detached the horses, mounted one of their number on the box waving a Union Jack and dragged the carriage to the Transvaal Hotel where Sir Henry dismounted. Kruger was left with Leyds, sitting in his immobilised carriage.

122 Sober citizens rushed to protest the humiliation but the hurt was deep. 'The demonstrators have found no sympathy anywhere', wrote Theiler to his parents, noting the high increase in tension. Slowly he ceased to tell them of what he knew was happening behind the scenes. Kruger, on amiable terms with Loch, withdrew the 'commandeering' but the political temperature remained high. In October, large herds of cattle looted from Malaboch's people were driven into Pretoria for allocation to the combatant burghers, followed on the 10th (Kruger's birthday) by  
123 the Staatsartillerie riding in formal order and finally, General Joubert himself in triumphal return and welcomed by the State President.

124 With Emma proficiently manufacturing lymph by herself toward the middle of the year, Theiler had been able to return to his practice and to the fields opened by his laboratory, now remarkably equipped with diverse apparatus, recently imported when his funds improved. In addition to his own longstanding investigations of various diseases (to which he now added fowl cholera), he was always susceptible to the venal proposals of Cecil Schulz who, as District Surgeon, now urged that together they investigate Johannesburg's water supply. At some time, some company or official body would want the results and pay for them. In May/June 1894,  
125 they began examination of the flow from the Johannesburg Waterworks' hydrants. Theiler was not an analytic chemist but an aspirant bacteriologist. The survey was outside his field but Schulz wanted useful evidence when the appropriate moment arose.

Dunbar too, as Government Health Officer on the mines, could refer clients to him in the terms of the Glanders Act and a steady flow of two-guinea fees began to be recorded by Emma.

126 The Tramway Company consulted him about their horses and the number of commercial firms retaining him increased. By June 1894, his practice was a prosperous reality, he stood well with  
127 all the right people and his prospects were excellent. (The Mining Commissioner himself had written a testimonial to facilitate Theiler's appointment as veterinary surgeon to the Tramways Company.) He could therefore regard almost with equanimity that, despite Kruger's pronounced advocacy and the support of all progressive and some converted farmers, the Volksraad on the

128 11th July again rejected (by one vote – Carl Jeppe who could have reversed the decision, had been called to Johannesburg) the proposal to start a State Department of Agriculture.

129 Theiler could be patient. For the moment, he surmised, Kruger wanted to save money owing to the expensive Malaboeh war but he would come back to the attack, regardless of the flood of petitions from his backveld burghers opposing the proposal. Theiler could wait, imposing on his  
130 father in the meantime to supply all possible literature on protective inoculation against Glanders and the use of Mallein, and on the organisation of an Agricultural Department of which he knew nothing. As always, his request included more apparatus, more text-books, more scientific journals.

131 There was deep distress and unemployment in Johannesburg which worried the Health Committee. The Swiss clung together and, mindful of their National Day on the 1st August, revived the Schweizerverein Helvetia. Theiler became a member on the 19th July 1894 and was immediately elected secretary with Lauber as treasurer. Characteristically he proposed expansive celebrations but Emma intervened. At 5 a.m. on the 27th July (three weeks too early), she gave birth to a son, immediately designated Numero I by his proud papa and later named Hans  
132 without the benefit of ceremony. Emma stood it well; but the enormous duties laid on her by the exigency and drive of a young husband in the full flow of ambition, were now too much for her  
133 and they employed 'a Kaffir boy' at 15s. a week. She was essential to Arnold's laboratory work if nothing else.

Private practice was never Theiler's aim. Basically he was a teacher in his father's pattern, secondarily a researcher and only superficially a practitioner. However well he might train assistants, his one-handedness made operating difficult as well as other techniques of his profession. In a practice no different from that of any European town, he complained to a friend in  
134 Switzerland, there were no opportunities for research or even for obtaining pathological specimens. He did not mention that 'the fierce English competition' had increased by the arrival of  
135 two members of the Royal College of Veterinary Surgeons – the recently-qualified Osborne A. O'Neill and the experienced E. A. Hollingham who was long to figure in Theiler's life. They might rob him of some of his veterinary thunder but not of his influence in the local corridors of power. He expected to leave Johannesburg when the Glanders Act was fully implemented and, naturalised, he was appointed State Veterinarian. In the meantime, Schulz worked for their mutual benefit.

The new Smallpox Committee of three paid members with W. M. Struben in the chair, took office only in August and promptly ordered vaccine from Graham's Town. It then appeared to  
136 them that European lymph was a failure, Edington's was too dear and the Schulz/Theiler product was stated to have a 91% success. They accordingly renewed the contract. Theiler crowed  
137 over his 'most dangerous adversary whom he had expelled from the field'. On the Health  
138 Committee, Schulz had more difficulty.  
139

The annual epidemics of typhoid, diphtheria and dysentery again cast suspicion on the water supply (now claiming the Government's attention as inadequate to the expanding town). Schulz  
140 tried to force his and Theiler's analysis on the Committee and met violent opposition. The Committee had already received a report from the much-respected Dr Julius Loevy who had returned from Europe in November 1893 with the latest apparatus for chemical analysis and who,  
141 in fact, read his paper on the subject to the local Chemical and Metallurgical Society a few nights later. The Committee considered Theiler's report, based on his observations in May/June 1894, which Schulz suggested should be extended and mock was made of his proposal to employ a veterinary surgeon for the purpose. Such was his influence however that he secured Theiler's retention at a fee of £20 to undertake the work.

The derisory publicity in the Press may have done Theiler's image no good but he conscient-

iously performed his task with the apparatus at his disposal. On the 15th May 1895, 'BACTERIOLOGICAL EXAMINATION OF WATER taken from the Waterworks' hydrants at Johannesburg during the months of January, February, March and April 1895 by Cecil Schulz M.D. and Mr A. Thieler (sic)' was printed. Little notice was taken of it. Loevy was a towering figure in the field. Thieler sent a copy to his father inscribed to 'Herrn Thieler, Rektor in Frick - With the Author's Compliments'. He hoped it would commend him to the Government's attention.

142 His final fee was £250.

His ear was always close to the ground and he knew far more than he ever wrote his friends or family. He had become a past master at assessing and manipulating a situation. When he was formally naturalised in October 1894, his way was clear except for one factor. But for that, he would immediately have left Johannesburg for Pretoria. W. J. Pretorius, chairman of the Select Committee on the Glanders Bill which he had advised, had commended him highly to the State Secretary and proposed his appointment as State Veterinarian, duly minuted. J. L. van der Merwe (whose horses he treated), in his capacities as Mining Commissioner and chairman of the original Smallpox Committee, had provided a glowing testimonial and it seemed he could not fail - but there was no accounting for the vagaries of the Republican Government. It was even possible that the Glanders Act would not be fully implemented. Boundlessly energetic, Thieler ordered more literature and equipment and devoted his free time to reorganising the Schweizerverein, now numbering 42 members listed in his own hand (many of whose descendants - Tribelhorn, Schaerer, Oettli, Bodmer, etc. - became notable South Africans) on a military basis. Now a citizen of the Republic, Thieler could see what was coming.

Under the guise of a 'Section á Tir', it was proposed to arm members with rifles and revolvers. The new consul Fehr, enrolled as a member in July, stated that the Government would have no objection. Thieler, who wrote the Minutes in German while Charles Favre recorded them in French (the Society was strictly bilingual), was not elected to the appropriate committee and in the excitement of organising a Swiss Fête, the Section á Tir languished and was dissolved. Early in 1895, Thieler was elected president and, having ascertained from the Consul that the Government required a formal request from the Society to bear arms, energetically pursued the matter and pestered his father and others with requests. He wanted the 1889-model issued by the Swiss Military Department for purchase by his members. At the middle of 1895, he was still trying. By then, the political situation had sharply deteriorated.

In every sphere except the one after which he most hankered, the State, Thieler's affairs prospered. His practice, with a small regular income from the Tramways, was steady and included influential clients such as doctors, civil servants, the Police, numerous commercial firms and subsequently famous Johannesburg institutions such as the Nazareth Home and Marist Brothers College. It had briefly been suspended in September 1894 while he went on invitation to Natal, making many friends among the farmers and increasing his knowledge of Horse Sickness, Red-water, Anthrax and the resident plagues. Wiltshire and young van der Plank in their reorganised department struggled to cope with them and the farmers suggested that Thieler should join them. Instead, he had hurried home to deal with the new lymph contract which produced satisfactory support for his wife and son. He hated it all. With his little laboratory, full of modern equipment, he longed to investigate the cellular causes of animal diseases.

When he publicly trenched on that field, the combatants comprised Edington (the only fully-qualified bacteriologist in African South and now refreshing his knowledge in England) and competent English competitors. In November 1894, Thieler wrote a long letter to the *Standard and Diggers News* recommending phosphoric and calcarous salts as a cure for 'Stijfziekte' (Stiff Sickness) in horses. Hollingham who had been an examiner at the Melbourne Veterinary College, promptly challenged him in highly technical hypotheses on the natures of horse-diseases

152 such as Osteoporosis, Osteomalachia and Rachitis, generally discrediting Theiler's facile cure and forcing him to reply. Hollingham returned with sarcastic comment that 'he was in no need of instruction in chemistry from Mr Theiler' and demonstrated that his 'cure' was nothing new. Theiler retired from the scene. He had done himself no good with immature publicity. Osteoporosis and Osteomalachia were to remain with him until his death.

153 Professionally he was making his way with outstanding success but it was not the way he wanted. While Emma remained at home incubating interesting colonies of bacilli relating to Horse Sickness, Anthrax, Redwater, etc – the key to real riches – he would be tramping the town upon the most banale occasion, treating split hooves, prescribing calomel for colic, relieving saddlesores and abrasions and the like, sometimes going to Pretoria to inoculate cattle against Lung Sickness and other ordinary duties. It made good money but exacerbated his aspirations.

154 At the end of 1894, the town burst into a Boom and the share market rocketed. The reason, 155 Theiler stated darkly to his parents, was the arrival in the Golden City of Baron Rothschild 156 whose presence stimulated the buying of gold shares on the Berlin and Paris markets. The Yuletide jollity of the Johannesburg scene was further enhanced by Fillis's Circus, a famous institution long absent in India and Australia and now returned in great glory with Madame Fillis, a notable equestrienne, riding a magnificent chestnut horse Victory and Frank Fillis displaying among his animal oddities 'a hairless mare' of immense rarity and cost from Australia.

158 Ferdinand James, Baron de Rothschild, during his three week visit to South Africa, was taken to 'Phyllis's Circus' in Johannesburg (always a stylish and glittering occasion) and later commented on the trained wild animals and particularly 'the Australian hairless mare'. It was Fillis' prize piece, his main attraction and it went into a decline. Fillis sent for Theiler. Other horses in 159 his troupe were 'suffering from some mysterious malady'. Theiler did what he could but failed to 160 save the hairless mare. He charged Fillis £4 and said nothing to his parents about sinking so low.

161 He could not avoid telling them of the wrecking of his hopes. On the 1st January 1895, the Glanders Act came fully into operation but no State Veterinarian was gazetted. The most authoritative assurances had been given him that he would be appointed. He was on sufficiently good terms with the State Secretary, Dr W. J. Leyds that he 'would beard him in his den'. But Leyds was not in his den – he was at home suffering from 'an affected throat' which ultimately drove 162 him to Europe for specialised medical treatment. In the meantime, the Government intended 163 employing Theiler on an ad hoc basis and, at four guineas a day, sent him to various places along the Reef to investigate cases of Glanders. It was cold consolation and little comfort came from the derided water-analysis which he had then begun. Only his correspondence with Zschokke who had published his article on Quarter Evil in 1894, encouraged his love of research.

From time to time, nebulous propositions (from sources other than Schulz) were made him. 164 In July 1894, a man had offered to subsidise his experiments to derive a serum against Horse Sickness; but Theiler then preferred to await his official appointment when he could make them 165 for nothing. By December, despairing, he had saved £100 to buy his own experimental horses. He had already expended hundreds on buying his apparatus (mostly from Germany), books and journals. The annual mortality from typhoid and diphtheria exercised all responsible citizens and a doctor brought him for testing a culture in gelatine of diphtheria used for inoculation. Others 166 wanted to take advantage of his bacteriological skill. In February 1895, the founding of a bacteriological institute was mooted with support from 'some top financiers' (probably the visionaries in the Corner House, ever with their eye on a stable labour supply) and the Health 167 Committee. Its first object was to make diphtheria serum and its protagonists, certainly motivated by Schulz, invited Theiler to become the veterinary collaborator. He accepted with reservations, hoping always that his State appointment would eventuate. It seemed impossible in Johannesburg to dissipate the image of 'the horse doctor'.

The Boom continued and with it, Theiler's fortunes. Glamour, as Rothschild copiously noted, returned to the Golden City and the thoughts of the pioneers turned to matters other than mere survival. After months of struggle, J. L. van der Merwe, his subordinate Sir Drummond Dunbar and a committee of local enthusiasts succeeded in staging in March 1895 the first Agricultural Show. Theiler, Hollingham, the tenacious James Richardson and a new competitor F. A. Britten were appointed honorary veterinary surgeons. Frank van der Plank came from Natal as a judge of horses. Kruger himself arrived by train from Pretoria to open it. The atmosphere was amiable and the Show, comically chaotic, was accounted a success. The Agricultural Society enthusiastically planned the next as well as wider activities, including the issue of an Agricultural Journal. Dunbar was deputed to ask Theiler whether he would serve as co-editor. Inhibitive events overtook the proposal.

The hand of Dunbar was to be found in any enterprise of community benefit and in few was he more concerned than in alleviating the shocking cruelty to animals. Excessive use of the whip, overloading horse-trams, the torture of driven animals whose harness-sores, ulcers and open wounds were concealed by black axle-grease, torn shoulders, broken knees and other horrifying sights were commonplace in Johannesburg. The King and particularly his wife, Mrs Florence Phillips, had long been concerned and finally, in June 1895, a branch of the Society for the Prevention of Cruelty to Animals was formed with Sir Drummond in the chair. Theiler became a member and was one of several veterinary surgeons who gave evidence in cases brought to court by the inspectors of the Society (which was allocated a third of the fines imposed).

He was now firmly in the charmed circle of Government officials in positions of power. W. R. Bok, the Government Health Commissioner, van der Merwe, Dunbar, Schulz and the landdrosts were his friends. It suited their purposes to exercise influence on his behalf. Hygienic conditions in Johannesburg were on all hands deplorable. The mule-drawn 'sanitary carts' (known as 'Kruger wagons') for the removal of night soil were driven at breakneck speed by boisterous under-paid natives racing their colleagues, frequently spilling their contents at corners or overturning completely. The water supply was highly suspect. Dairies drew their water from wells into which sewage and stable effluent flowed. Infectious and contagious diseases abounded among animals. Cows with Lung Sickness and Tuberculosis were milked alongside others in dairy byres. Glandered horses wandered about the Town and were even reported as rubbing themselves against the stables of Theiler's Tramway teams. The Health Committee with Dr Schulz in the chair, listened to the reports of the new town Health Officer, Dr T. C. Visser and A. H. Bleksley, its Sanitary Inspector. On the 29th April 1895, Schulz proposed the appointment of a Veterinary Surgeon and it was agreed to call for applications stating fees required.

Six applied - E. A. Hollingham, James Richardson, F. A. Britten, Osborne O'Neill, George H. Pickwell and A. Theiler. With the exception of Theiler, they were all qualified members of the Royal College of Veterinary Surgeons. A sub-committee of three examined the applications. On the 20th May, that of the Heer Theiler was accepted, subject to his agreeing to detailed fees not exceeding two guineas a day and to appointment at the pleasure of the Committee. He did so by letter and was confirmed in the post on the 31st May, subsequently being authorised personally to order the destruction of cattle.

His friends went further. A week later, van der Merwe arranged for him to be appointed to the Mines Health Department under Dunbar. He became responsible for animal welfare on all the mines and at the same time, continued intermittently to be employed by the Government to investigate outbreaks of Glanders over a wide area. The lily was further gilded by improvement in his practice. In the middle of May 1895, he had at last been able to afford to buy a horse - 'a beautiful pony which pleases me as I can do real work with it!' In one month, he wrote triumphantly, he earned more than Peter Lyss in a year in Switzerland. But his heart was not in his work,

181 nor in the Schweizerverein Helvetia over which he dynamically presided, nor in the speculative schemes which Schulz (who had bought some property and intended employing him as a poultry and pig farmer) and others proposed. His eye was on the Volksraad then sitting in Pretoria and, at the urgent insistence of Kruger, again considering the institution of a Department of Agriculture. It would be his proper place as State Veterinarian.

182 On the 20th June 1895, twenty one petitions from the Zoutpansberg in the north to Bloemhof in the south (Pretoria's headed by his friend D. J. E. Erasmus) stood on the Order Paper. This time, Carl Jeppe was there, thunderously to support them in the face of determined opposition, some of it nettled by their annual recurrence. Theiler's member, Johannes Petrus Meijer representing the Witwatersrand Goldfields, a progressive farmer and pillar of the new Agricultural Society but a reactionary politician, spoke lengthily in opposition. He had tried all the new ideas introduced by the Cape Agricultural Department (presumably including the ladybirds), he said but could well do without them. Others were equally emphatic. Yet the progressives prevailed, and by a slight majority, resolved to appoint a commission to investigate and draft the structure and regulations of a Department. Its chairman was D. J. E. Erasmus and the members included the early proponent Dr J. J. Pronk, J. J. Enschedé (known to Theiler as an executive member of the Pretoria Agricultural Society and later first chairman of the Transvaal Agricultural Union), and his Irene estate colleague, Hans Fuchs (who in fact withdrew). The Commission took five months to make its enquiries and draft its report; but he knew he would be safe in its hands.

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185 He hankered increasingly after Pretoria. The aspect of the Golden City grew daily uglier. In the early days of the Boom, there had been an uncontrollable outbreak of lawlessness. The highest and lowest suffered burglaries. Theiler's clothes were stolen off the bed while Emma and he slept in their locked house, guarded also by their lodger, the Swiss chemist Dr Kleiner. Lynch law was mooted. As the Boom rose to hysterical heights, values grew more unrealistic. Ritter who had bought his house in 1891 for £500 was offered £5,000 for it. Theiler lamented that he could have made a fortune if he had not spent his savings on books and apparatus. Tall buildings were rising everywhere. The Tramways extended their lines. Stock brokers punched each other on the nose in the Exchange. The expected 'Crash' came in the middle of 1895 with 'doleful weeks' and 'the market in a state of deadly inactivity'. With equal suddenness, buoyancy was resumed.

186 For reasons of State, Kruger organised an exceptional ceremonial occasion. The restiveness and disaffection of the Johannesburg Uitlanders (from whom the mining magnates ostensibly held themselves aloof) was now overt. Some years before, they had organised themselves into the Transvaal National Union which now vociferously protested their legal and other disabilities. The magnates associated themselves with the politicians in Whitehall who claimed that since 1881, Britain had retained suzerainty over the Transvaal, and with the arch Empire-builder, Cecil Rhodes whose partner, friend and adviser, Alfred Beit had closely inspected the South African situation from April to July 1895. There could be no stability in the mining industry, let alone the Transvaal, while atavism ruled the roost and the wildest speculations were openly canvassed. The opening of the Pretoria-Delagoa Bay Railway in July 1895 enabled Kruger firmly to assert that he was independent of the British, that he now had his own access to the sea without requiring the use of Colonial ports and that he intended running his own country his own way. He made full use of it.

187 All the Colonial administrators were his guests – the dotard Sir Hercules Robinson (whose return to the Cape had been arranged by Rhodes); Natal's enterprising Sir Walter Hely-Hutchinson (awaiting the outcome of David Bruce's forthcoming investigations into Nagana in the wilds of Ubombo after seven months of Redwater research in Pietermaritzburg); and Sir Sydney Shippard, administrator of Bechuanaland whose arid territory had strategic im-

188 portance for Rhodes' railway to the north but no agricultural future owing to Lamziekte. Pretoria and Johannesburg, for different reasons, were extravagantly bedecked and decorated. The Capital's ceremonies over, the Governors came to Johannesburg where Phillips presided at a banquet for them and the Uitlanders wildly toasted the Queen and her representatives.

189 Stimulated by these encouraging signs and a record June production, 'great excitement and spirited dealing' on the Stock Exchange immediately heralded another Boom, admittedly transient though early in August, the sober *Mining Journal* could still report 'the intense excitement which culminated in one of the wildest maddest scenes, utterly beyond the power of anyone to describe'. By October, prices had collapsed and a Slump ensued, accentuated by Kruger's threatening as a disciplinary measure to close the drifts across the rivers on roads bringing animal-drawn transport to Johannesburg.

190 His family and friends in Switzerland could have been forgiven for thinking that at this hectic time, Theiler lost his reason. The epitome of success and making unprecedented money as 'Government Veterinary Surgeon' (which he came to be called through appearing in court cases), his practice continuously increased, his work for the Health Committee became more rewarding and the Pretoria Government kept him actively in mind, sending him on well-paid missions by coach and cart to outlying districts (Springs, Nigel, Heidelberg, etc) for Glanders outbreaks as well as commissioning him to advise whether it was desirable to offer a prize for a cure of Lung Sickness. With his star spectacularly in the ascendant, he frivelled with the Schweizerverein (organising fantastic celebration of the 604th National Day on the 1st August), gambled on the Stock Exchange (losing his money) and took time off to travel to Witfontein near Krugersdorp to stake a claim in the Mine Lottery which the Government officially staged. He also bought a camera and acquired a time-wasting hobby while writing piously of his attempts to find an immunological serum against Horse Sickness. On the 11th August 1895, he wrote baldly to his bewildered parents - 'I must now tell you that I am completely giving up my veterinary practice and will leave Johannesburg to establish myself as a farmer . . . The reasons for giving up my practice are of a purely financial and speculative nature.' His father of course was asked to send all the relative information and books on farming.

193 Thence onward, Theiler was almost too pressed to write at all but did reveal that in association with a friend (Tel Sandoz), he was starting a pig and poultry farm which would render large profits. He had already bought a property with a house on it and he gave as his reasons that through lack of clinical material, he could not pursue his researches or writings in Johannesburg but would be able to do so on a farm, and that it would be advantageous to be at hand near Pretoria if at length his State appointment eventuated. At the end of September, he sent in his notice to the Health Committee 'severing his connection as Town Veterinary Surgeon' and the members, as aware as he of the explosive nature of the times, reluctantly accepted it and resolved to invite applications for a successor. On the 21st October 1895, he hurriedly sent a postcard home: 'Everything must in future be addressed to me at Box 274, Pretoria. I am going there this week.'

194 Theiler very well knew what was happening. Keenly observant and trusted by Government servants and private clients alike, he had no difficulty in assessing the situation. 'The visitor had hardly installed himself in an hotel in Pretoria', wrote the later Viscount Bryce of his impressions of that time of tension, 'before people began to tell him that an insurrection was imminent, that arms were being imported, that Maxim guns were hidden and would be shown to him if he cared to see them. In Johannesburg, little else was talked of - not in dark corners but at the club where everybody lunches and between the acts of a play.' On the 12th October, Theiler told the Schweizerverein Helvetia that he was leaving Johannesburg and had to resign as president. He attended one more meeting on the 26th, speaking passionately against an article in the *Neue*



*Zurcher Zeitung* representing the attractions of Johannesburg (then without water through prolonged drought, crippled by influenza and full of unemployed) as a suitable place for Swiss immigrants, and demanded that it be referred to the Swiss consul who would know better.

Kruger declared a Day of Humiliation on the 3rd November in respect of the continuing drought and the on-coming locusts. The Theiler family concluded the difficult transfer of their property, laboratory and all, to a little tin house on a small holding at Les Marais north of Pretoria and about 2½ miles from Church Square.

197 On the 21st November, Lionel Phillips made his provocative speech when opening the new building of the Chamber of Mines in Johannesburg – ‘a really fire-eating speech against the Government’, Theiler told his parents though not himself a witness. ‘Now it is more the labour that is against the kingly establishment as they would rather have a bad Boer Government than a capitalist clique. It is said that things are getting strained. Yes, the big-mouthed Englishmen always want to play the master and to rule and believe that they and they alone do it properly.’

198 On Sunday the 29th December 1895, Jameson left Pitsani with a mixed force of Bechuanaland and Rhodesian (British South Africa) Police on his ride to Johannesburg. By that time, Theiler in Pretoria had ‘saddled my horse and shouldered my rifle to stand in the breach for my new Fatherland’.

## CONTINENTAL CALAMITY 1895-1896

THE TUMULT in the Transvaal which involved the whole of Africa South and attracted the attention of the world at large, tended to dim in the annals of history the considerable development in fields other than political. They were in fact of greater importance since they dealt with 'the conquest of Nature' and not the temporary aberrations of 'Man'.

Pasteur had died on the 28th September 1895, leaving a legion of disciples throughout the world. His mantle fell squarely on the shoulders of Robert Koch, now the recognised wizard of 'the new science' which compounded within it applied chemistry and other disciplines. Medical sceptics of all persuasions withdrew their early opposition. 'The thermometer and the microscope', observed *The Veterinary Record* in an editorial 'have afforded immense assistance in the diagnosis of disease and are now admitted as essential aids in everyday practice. The time has not long passed since they were looked upon as toys by many good old practitioners who felt pity and contempt for the man who used anything more than his unaided senses to diagnose a case.'

That good old practitioner, Samuel Wiltshire, sent from Natal to the United States in 1893/94 to examine advances in investigating Redwater or 'Texas Fever' which Theobald Smith and Kilborne had ascribed to ticks, flatly refused to believe it. 'As to the means by which Redwater is spread', he reported to his Government, 'I am unable to accept the theory held at Washington that the disease is conveyed by the bite of ticks.' Like many other well-intentioned speculators, he believed that the 'germ' was in the soil. 'No matter what views we hold', he wrote, 'they have yet to be subjected to the strictest scientific tests which can only be done by specially-trained Bacteriologists with well-equipped laboratories, sheds and kraals and carefully-selected animals.' Natal had none of these things and its Governor Hely-Hutchinson, had to rely on a British Army surgeon, now Major David Bruce, to compensate for them. The Cape, foresightedly equipped, now added to its advantages the appointment on the 19th July 1895 of precisely the required expert - Charles P. Lounsbury, entomologist.

The Cape had encountered an extraordinary imbroglio with its prize piece, the Graham's Town Bacteriological Institute and its justifiably self-important director, now receiving £1,000 a year. Edington had paid for the total cost of the land, buildings, equipment, staff salaries and upkeep through massive sales of vaccines for Smallpox and animal diseases. He was therefore in a commanding position, enhanced by his statement that he had found an immunising agent against Horse Sickness whose nature he would not divulge beyond ascribing the cause to a fungus. Alleging that his experimental animals were either old or deformed (able-bodied horses were prohibitively costly), Edington sought and obtained the assistance of the Cape Colonial Prime Minister, Cecil Rhodes in his private capacity in obtaining 20 able-bodied horses from Mashonaland (where Horse Sickness murderously continued) on which to test his specific. Rhodes promised him £2,000 payable by the British South Africa Chartered Company if his experiments were successful.

Since his colour-illustrations had to be printed in England, Edington's 1894 Report was not laid on the table of the House of Assembly until the 14th July 1895. By then he had so far incensed some of its members that a Select Committee, appointed on the 11th July, was investigating his Bacteriological Institute and his part in it. They had taken violent exception to two letters written by him to the Colonial Secretary on the 30th April, the one announcing his discovery of a protective vaccine against Horse Sickness ('I anticipate that the people of South Africa will

6 consider that I have rendered invaluable service to the country') and the other claiming a percentage of the profits from his vaccines. The fiery Cape politicians particularly objected to his mysteriousness over the Horse Sickness vaccine and his arrogance in asking, as a paid civil servant, for participation in profits. On the latter point, Edington was on sure ground and much evidence was led to prove the justice of his claim, locally and abroad. The esteemed Dr W. H. Ross in charge of the Leper Institution on Robben Island forthrightly informed the Committee that he received 5% commission on all paying patients. Other official doctors were similarly rewarded.

Edington had already been informed by the Cape Government that whatever he discovered or his Institute earned, was sui generis the property of the Colony; but the Select Committee went into great detail in both matters, many doctors and expert witnesses being called. Its Report, largely vindicating Edington and praising his Institute, provided illuminating insight into professional and scientific conditions of the times. The venerable Hutcheon contributed notable evidence, forthrightly stating that no professional veterinary surgeon could earn a living in private practice in the Cape Colony nor could the Government afford to station appropriate officers in needful districts.

7 Point was given his testimony toward the end of 1895 by his enforced rejection of a fellow Scot seeking employment. Charles Elias Gray M.R.C.V.S. came from Edinburgh where his father was Controller of Telegraphs, and first earned his living in that department of the Scottish Postal Service. After seven years and well beyond the usual age as Hutcheon had been, he enrolled in the Royal (Dick) Veterinary College where he shared a bench with a bright young colleague, Stewart Stockman. After qualification, he practised in England and then for seven years in the United States. Experienced and eager, nothing could be found for the mature young man at the Cape and, journeying north, he was forced to accept employment as a telegraphist for the Chartered Company in Mashonaland where he had ample opportunity to observe the ravages of Horse Sickness that Edington proposed to prevent.

8 Edington's 'discovery' (whose 'mysteriousness' he hotly repudiated, having openly discussed it in his Annual Reports), was widely publicised in the local press and overseas journals. Having unreservedly withdrawn his claim for a percentage of vaccine profits, he had now to prove the efficacy of his immunological device on the Mashonaland horses provided by Rhodes. It took many tortured months in exalted company and cut the vainglorious bacteriologist down to size.

9 Rhodes himself, active in all his capacities as chairman of De Beers and the Chartered Company as well as Cape Prime Minister, had special problems as Empire builder. His eye was on 'the all-red route' from Cape to Cairo. Its sections were falling into place. Southern Bechuanaland was annexed to the Cape in 1895 and Northern Bechuanaland remained a British Protectorate under the Christian king Khama. The Chartered Company flew the British flag over Matabeleland and Mashonaland (already called Rhodesia) and far to the north, Uganda had become a British Protectorate in 1894. Rhodes' railway would pass through Khama's country and he persuaded the British Government to transfer the Protectorate to the Chartered Company. Khama and his powerful colleague, Chief Bathoen, immediately left for England to interview 'the great white Queen' herself at Windsor Castle on the 20th November 1895. The protagonists of that drama were within weeks to be involved in a conflict far greater and more significant than the criminal and political activities which temporarily defeated Rhodes.

10 One of Queen Victoria's ladies-in-waiting recorded the scene at Windsor. The Liberal Government which had trafficked with Rhodes had been ousted and the Conservatives under Lord Salisbury now determined policy. Its officers – the Secretary for the Colonies, Joseph Chamberlain in formal levée dress and irksomely deprived of his orchid, and the Under-Secretary Lord Selborne (very recently succeeded to his father's title) – were in attendance with officials of the

Court. Selborne, it was said, adored Joe and pronounced Khama a better Christian than most and very intelligent. A State reception was staged in a drawing-room lined by Life Guards with drawn swords and the Queen presided on an improvised throne. The native chiefs presented their odoriferous gifts of leopard-skin karosses and the Queen assured them of her pleasure in having them under her rule and protection, reciprocating their gifts with bibles, framed photographs and Indian shawls. They behaved immaculately as they had at the State luncheon and withdrew to return immediately to their land, soon to become the ecological cockpit of Africa.

Other participants in the forthcoming contests were taking their places, some – such as Gray sending his telegrams from Salisbury and Theiler feeding his pigs outside Pretoria – very inconspicuously.

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12 The slump on the Johannesburg share market and the persistent drought gave Theiler good cause for his remove into the wings where he could watch the development of the proposed Department of Agriculture, now being framed by a Commission. His practice would have continued, he said, but he would not have been paid whereas cash would regularly be forthcoming from the sale of pigs, cheaply reared from the refuse of Pretoria hotels and Sandoz' brewery. His father refused to grasp why the cobbler did not stick to his last and ceased writing to him.

In the sparsely-settled fiercely hot area of Les Marais, Arnold, Emma and the baby Hans lived in their small tin house with a gay young Swiss wanderer, H. Deschler of Basle whom they had met in Johannesburg, and struggled to start their pig farm. They had virtually nothing, most of Arnold's money having been spent on the move and lost in the Crash. 60 pigs had been bought but there was nowhere to house them and no money to pay for the construction of styes. The one-handed Arnold was virtually a passenger but, labouring like Hercules, Deschler did the work and remained eternally in the Theilers' debt. It was the hardest work all three had ever done and once the pigs were installed (mostly productive sows), there ensued the dreary daily regimen of fetching the swill from the town, an hour away by cart. Soon it would rain and, his special instruments having arrived from München, Theiler would be able to get pathological material from the first cases of Horse Sickness. Aware of Edington's triumphant announcement, it was now a race for the golden guerdon.

13 The withering heat of Les Marais and lack of seasonal rain were matched by the political temperature, greatly inflamed at the end of November by Lionel Phillips' rousing speech in Johannesburg. Going daily to Pretoria, Theiler heard all the rumours, saw the covert preparations, knew of strange movements of huge troops of cattle, odd postings of the ZARPS, and the alertness of the Staatsartillerie and commandos. (Hugh Hall of the Lowveld, later a close friend and collaborator, drove more than 1,000 cattle, sheep and horses to Johannesburg at the behest of the Reform Committee, resting them on the way for a few days at the Irene Estate now owned by J. A. van der Byl only a few miles from Pretoria and evading the ZARPS posted at Halfway House to intercept them.) For all of that torrid December, tension mounted while the Theilers and Deschler with the help of two 'raw Kaffirs' tried to establish a viable proposition on the small plot of ground owned by Sandoz.

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15 Jobless and thrifty, Deschler worked willingly for board, lodging and pleasure in the coöperative manner of the Swiss. He built the pig styes and fences, creeps, troughs and other production necessities. Then he applied himself to the ovenlike tin house where Emma, again pregnant, slaved for them all in unbearable heat and Arnold tried to continue his work in a baking 'laboratory'. Deschler made raw sun-dried bricks to build inside walls to insulate it. Two fell down but

he rebuilt them and laboratory work became possible. It was more important than the comfort of the family. Far in Zululand, in his hut at Ubombo, Major David Bruce had made a discovery that would revolutionise veterinary science and had rushed to Hely-Hutchinson to report it. Not till two months later could Theiler read his hurriedly-printed account.

16 Over the New Year, the crisis ripened and burst. Jameson and his illicit force were overwhelmed on their way to Johannesburg by the long-alerted Transvaal commandos and taken to Pretoria. Tension in the two towns remained high but the vast majority of citizens were aghast at the outrage. Swiss, German and Hollander sections offered their services and did guard duty at night in Pretoria, Theiler, a naturalised burgher, 'armed himself' for such service to which he might be called. Even the English inhabitants, with some exceptions, supported the Government. Kruger acted with admirable calm and magnanimity; but everything that thereafter happened was coloured by the strain and disquiet of the imprisonment of the Jameson Raiders (subsequently delivered for judgment in England) and the detention and trial of the Johannesburg Reform Committee lasting several months. Indulgence was shown some of them who  
17 were freed on bail and the Pretoria Club came to be called 'the Rand Reformatory'; but, for the first six months of 1896, Southern Africa was almost totally preoccupied with political tension. Of Theiler's personal friends, many had come to grief including Sir Drummond Dunbar who, serving in the Caledonian Corps to help preserve law and order in Johannesburg during the irruption, blandly returned to duty in van der Merwe's office at its end, was ignominiously  
18 ejected and finally arrested.

Against this background of nerviness and instability accentuated by the tragic dynamite explosion at Braamfontein in Johannesburg, Theiler (now without Deschler who had found work in Pretoria) did the daily round of collecting the swill and working in his laboratory, helped by Emma (who also supervised the feeding of 50 large sows and 90 piglets) while an approaching menace portended continental calamity. In the tumult of the times, the presaging signs far in the north passed unnoticed. Theiler himself, deprived of Horse Sickness material by the excessively hot dry weather, found distraction in the gazetting in the *Staatscourant* of the 3rd  
19 February 1896 of the Draft Regulations for the proposed Agricultural Department which he hoped would give him State appointment. Even more absorbing was Bruce's official report.

In the courteous manner of the day, the Natal Government sent six copies to the Z.A.R. Republic whose Under-Secretary T. J. Krogh distributed them to his colleagues for Education  
20 and Mines, and to *De Volksstem* and *The Press* which reproduced the whole Report with line drawings (made by Mrs Bruce) of the micro-organisms on the 6th and 7th March. The 'Preliminary Report on the Tsetse Fly Disease or Nagana in Zululand' by Surgeon-Major David Bruce A.M.S., presented in manuscript to Sir Walter Hely-Hutchinson under date of the 12th December 1895 and hurriedly printed by the end of the month, became 'one of the classics of  
21 parasitology'. In three months at Ubombo in Zululand, living in a rough hut devoid of comforts and convenience, Bruce, with the constant assistance of his wife, had established that the tsetse fly was the carrier (not the cause) of the wasting and fatal disease Nagana, Africa's legendary 'Cattle Fever'. Equipped with a powerful microscope, he had isolated and identified wildly active micro-organisms with flailing tails 'worrying' the red corpuscles. Such flagellate microbes had long been known as 'trypanosomes' whose functions were obscure; but Bruce cautiously called his discovery a 'Haematozoon'. The species was later named after him 'Trypanosoma brucei'. Its identification opened the whole field of sero-immunology and offered the tantalising prospect of converting tropical Africa into an agriculturally productive region.

22 As soon as he could, Theiler obtained from Krogh a copy of Bruce's historic report. Bruce himself, in the excited political situation of the time, was forced to return to his regiment in Pietermaritzburg on standby duty; but in the light of his significant work, was again seconded

23 to Zululand early in 1896. He and his wife remained in the wilds of Ubombo for two years, making classic investigation of Nagana.

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Tropical Africa now bore down in terrifying manner on the whole sub-continent. Warnings had long been received of the dreaded 'Cattle Plague' which, over several years, had worked its way down from the north and ravaged Uganda, destroying vast numbers of wild animals of every kind as well as native cattle. Lugard, John Kirk and other British observers and travellers had often reported it and its erratic southward spread. The Colonial powers appeared indifferent. Rhodes, undismayed by South African disaster, urged the development of his Chartered Territory, now Rhodesia. From the Cape to Salisbury and beyond, the rough road running through the Bechuanaland Protectorate and avoiding the Transvaal, carried an interminable traffic of wagons and carts, carriages and coaches drawn by horses, mules and oxen supposedly 'salted' against disease, bringing 'civilisation' to Mittel-Afrika. Pending the construction of railways, the future of the whole sub-continent lay, not with raids or revolutions or 'Kaffir Wars' but with draught animals. Owing to Horse Sickness, there was not a horse to be seen in many areas of Southern Africa; but the ox, inoculated against Lung Sickness and other afflictions, prevailed throughout the land. The wagon and its span was the lifeline of Africa South.

24 A 'cattle disease' appeared in the Buluwayo district on the 22nd February 1896 and was reported on the 29th. It was thought to be the familiar 'Zambesi fever'. Within hours it was widespread. The Chartered Company's Acting Administrator, A. F. Duncan, sent telegram after telegram to the High Commissioner for South Africa, Sir Hercules Robinson, in Cape Town, advising him of the rapid and fatal spread of the epidemic. Robinson referred them to the Cape Government which consulted its Veterinary Surgeon. Hutcheon knew what impended and took immediate action. Merely to check his judgment, he called for a description of the disease. 25 The answer from Buluwayo confirmed it. The telegram dealt with 'the disease believed to be what is called Zambesi cattle fever'. Hutcheon knew that no one was better qualified to identify it than the telegraphist C. E. Gray. On the 18th March, Gray, now acting as Veterinary Surgeon 26 to the Chartered Company, confirmed his surmise from Buluwayo - RINDERPEST.

On the 4th March, Hutcheon urgently advised his superiors to proclaim a total prohibition on the movement of cattle from the infected areas and wholesale slaughtering of cases. For the 27 Bechuanaland Protectorate, it was too late. Its Resident Commissioner, Francis Newton, telegraphed the High Commissioner at the Cape on the 10th March, urging the isolation of Matabeleland with strong border guards and asking that 'a veterinary surgeon be sent up at once. I have no doubt that this has been done but I understand that Mr Soga of the Cape Service is now at Maritzani near here if the Cape Government could spare his services.' Soga, having 28 completed a course in bacteriology under Edington at Graham's Town, was at Maritzani to inoculate cattle belonging to Dr Thomas Smartt against Lung Sickness. Hutcheon had other uses for him but did his best for Khama whose country was rapidly ravaged by Rinderpest and 29 the livelihood of his people destroyed. He lent Otto Henning to the Imperial Government, sending him at once to Mafeking and Khama's capital Palachwe to try to stem the tide. Soon after, Hutcheon himself attended by Soga arrived at Mafeking.

Robinson, nominally in charge of all British interests in Africa South, cabled Joseph Chamberlain, secretary for the Colonies in London, informing him of the rapidly-spreading menace likely to engulf the whole sub-continent unless prompt and vigorous steps were taken. Hutcheon, 30 eye-witness of the dreadful mortality in Britain in 1865 when 500,000 cattle perished, had made it clear that only wholesale slaughtering and rigorous quarantining (the 'stamping-out policy')

31 could save his domain. Robinson told Chamberlain that by telegraphed Proclamation, he had prohibited the movement of cattle in Matabeleland and authorised slaughtering, informing the Prime Minister of the Cape Colony, J. Gordon Sprigg; the Resident Commissioner of the Bechuanaland Protectorate, Francis Newton; and the President of the South African Republic, S. J. P. Kruger.

32 Kruger acted immediately and issued a similar Proclamation on the 11th March, prohibiting the entry of cattle from Matabeleland, Mashonaland and Bechuanaland. The borders would be

33 guarded. He wanted expert advice and orders were given to ask Dr Theiler of Johannesburg to give it. The Acting State Secretary, C. van Boeschoten wired the criminal magistrate N. van den Berg in Johannesburg to secure Theiler's services and heard in reply that he was now on a

34 farm near Pretoria. Van Boeschoten traced him at Les Marais on the 12th March and Theiler  
35 came to town to meet him in his office. By order of the Executive Council of the same day, van Boeschoten commissioned Theiler to go immediately to Matabeleland to investigate the cattle disease and ascertain whether it was the infectious Rinderpest or a similar infectious disease. He would receive £4 a day as well as travelling expenses and should leave within two days at most. Theiler asked for and received £150 as travelling expenses and hurried home to Emma.

36 Van Boeschoten civilly informed Sir Hercules Robinson that the Z.A.R. Government 'has thought fit to send Mr Theiler, veterinary surgeon, to Matabeleland to institute inquiry as to the nature of the disease, trusting that there will be no objection by your Excellency thereto'. Robinson had none and advised that Theiler would receive facilities from the Acting Administrator. The Transvaal Republic was determined to play its own hand. In the meantime, Kruger and his Executive Council constantly authorised the appointment of additional guards to watch the drifts and patrol the borders of the Western Transvaal contiguous to Bechuanaland to prevent the entry of infected cattle.

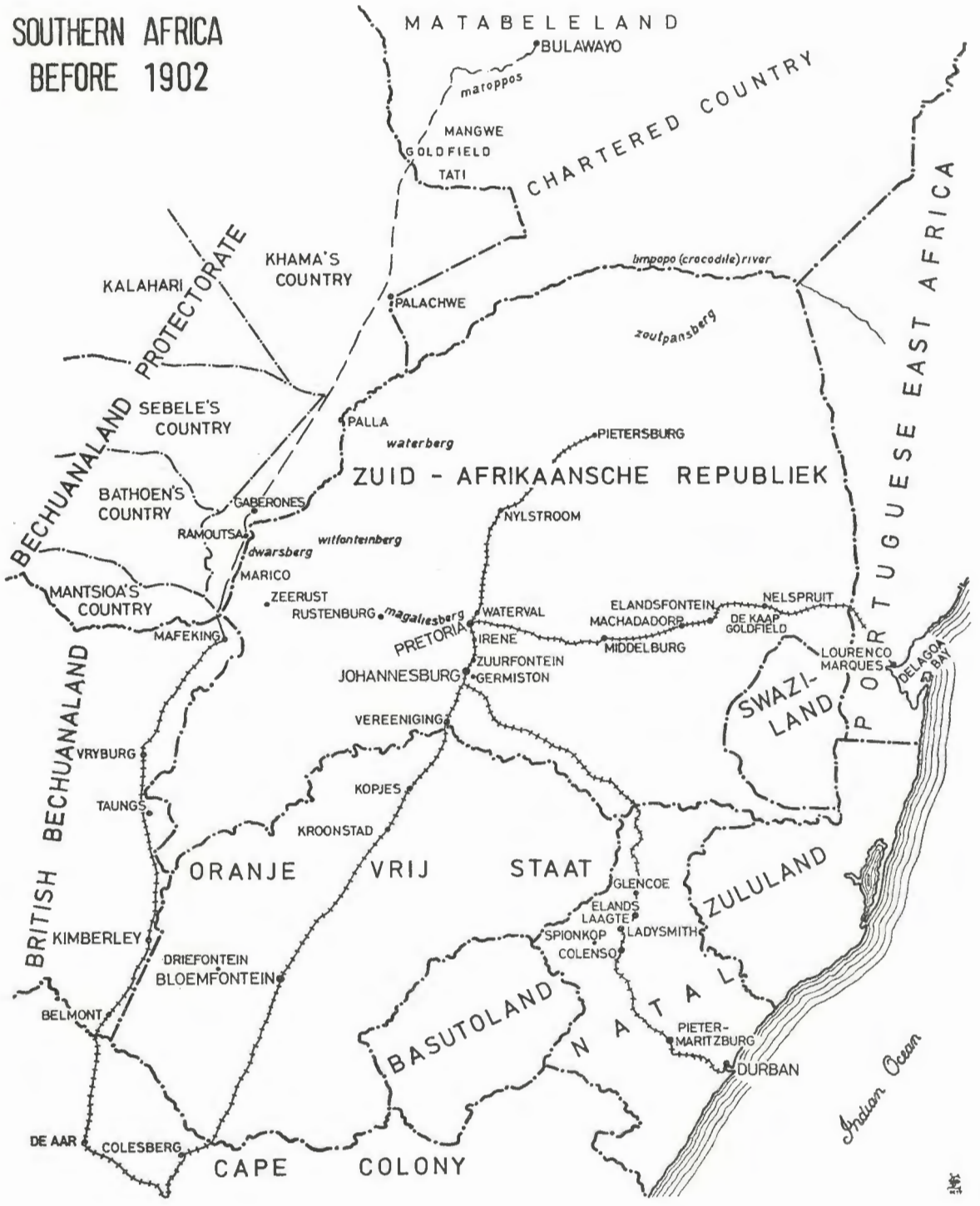
Theiler went home in a characteristic state of euphoria. The Government had intermittently used him in the past but now they had sent for him and entrusted him with an important mission. If he discharged it well, he must surely be appointed to its service in a well-paid post. The journey to Buluwayo by horse- or mule-drawn mail-coach would take 8 to 10 days. Emma would be alone with two Kaffir labourers for at least a month to manage as best she might, fetching the food every day from Pretoria for '50 big and 90 little pigs'. There was no time to arrange assistance. He had to pack carefully, anticipating his needs for postmortems and microscopic examinations, and included some glass tubes for blood samples in case he was fortunate enough to find cases of Horse Sickness. In the fierce and lengthy drought, the disease had failed to appear locally. He also took his camera.

37

38 He left at dawn on the 15th March on one of the last effective coaches. Travelling due north toward the Limpopo River at 5 to 6 miles an hour on wandering tracks deep in dust in drought-stricken bush country with little to be seen, the jolted passengers clung to their seats by day and night for 14 to 18 hours at a stretch. On the 19th, Theiler telegraphed en route that the disease whose victims lay in stinking profusion along the Matabeleland road, was indeed Rinderpest and that he was proceeding to Buluwayo. Exhausted after five hideous days of express travelling, he arrived that night in great heat and began his work on the morrow. The Administrator A. F. Duncan (acting for the imprisoned Jameson) gave him all facilities and told him of the various steps taken, including the posting of Otto Henning at Mafeking and Palachwe. Theiler met C. E. Gray and on the 21st, 22nd and 23rd March, did postmortems with him in the field in a lowering atmosphere.

39 There was no lack of cases. The famous hunter-traveller Selous had been appointed a cattle inspector to help the Administration quell the outbreak. 'One might as well have tried to stop

# SOUTHERN AFRICA BEFORE 1902

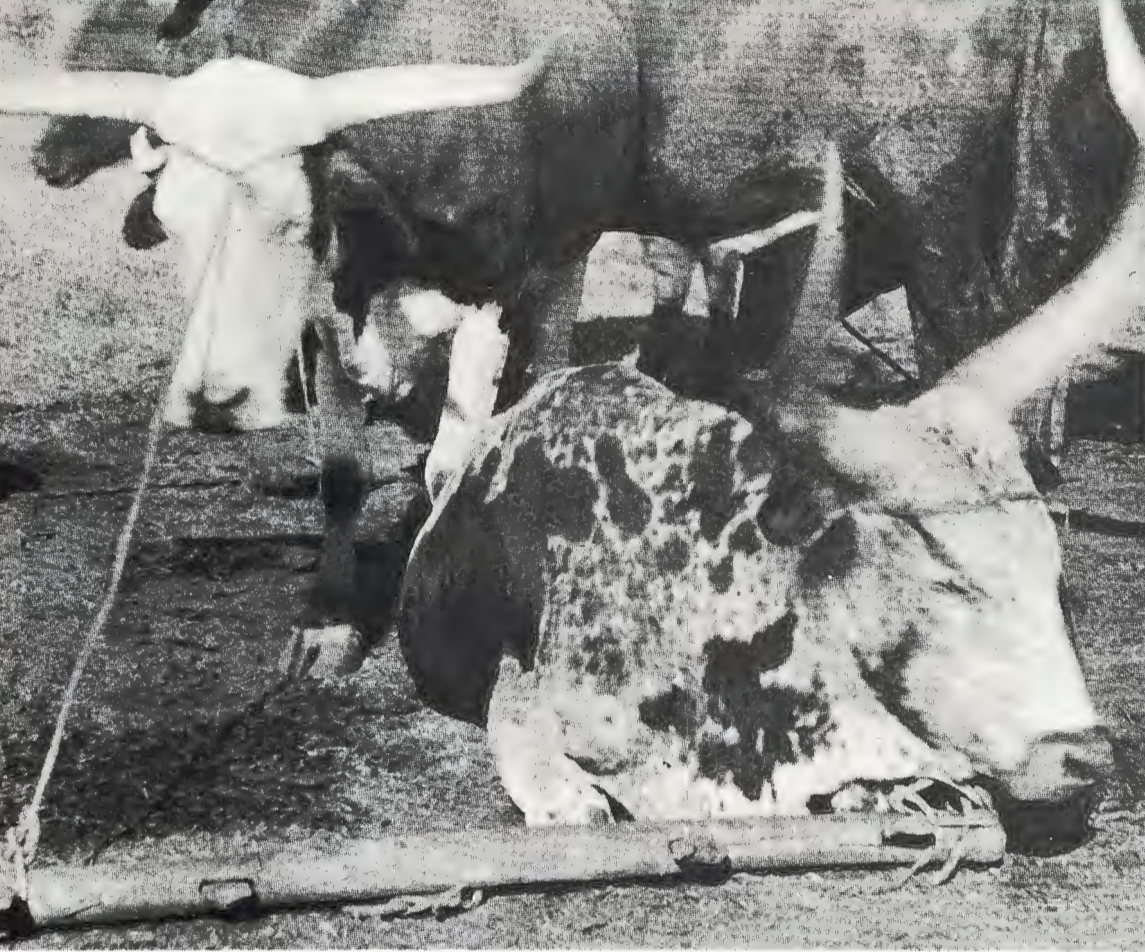




*Les Marais* – the Theilers' corrugated-iron house in the country outside Pretoria with (left) the collapsible tin shanty which served as a laboratory when Arnold was investigating Rinderpest.



*Oxen dead in their traces* photographed by Theiler when studying supposed 'cures' for Rinderpest.



*Dying oxen*, rapidly struck down by Rinderpest, photographed by Theiler when investigating the disease.

*Corpses of oxen* which lay in thousands on the roads to Rhodesia and elsewhere from 1896 onward photographed by Theiler on his epic journey to and from Buluwayo.



a rising tide on the sea-shore', he wrote, 'as prevent this dreadful disease from travelling steadily down the main roads, leaving nothing but rotting carcasses and ruined men behind it.'

40 By now, the Rinderpest had reached the Transvaal despite the police guarding the drifts across  
41 the border rivers. It was in Nylstroom in the north and in the Crocodile River area in the west.  
42 Apart from the telegraph, communication with Matabeleland had virtually ceased owing to  
43 the closing of the roads and lack of beasts. All that filtered through were the protests of its  
beleaguered inhabitants. Emma heard nothing of her husband, his letters reaching her only  
after his return. On the 24th March, he was told that the Matabele had revolted and killed a  
white man. Confusion ensued. On the 25th, he wired his Government that the cattle disease was  
indisputably Rinderpest and that strict measures must be taken. Later on the same day, as the  
situation clarified, he wired again that owing to the native rebellion, he was unable to work on  
devising a preventive and was returning via Mafeking to meet the Cape veterinarians. All horses  
were being commandeered for military purposes and Rinderpest precautions were being neg-

lected. He advised his Government to double the patrols on the Transvaal border.  
On the 26th March in an embattled Buluwayo, Theiler reached the age of 29 years in a state  
of disenchantment with Africa. Drought, locusts, the 'revolution' of the Jameson Raid, the  
terrible Dynamite Disaster, the Rinderpest and now the Matabele Rebellion together with his  
personal problems momentarily cowed his customary verve. Then his spirit of adventure super-  
44 vened and he applied his energies to withdrawing from the chaotic town (whose defences were  
organised on that day by the assembling of a formidable laager) and somehow getting back in  
45 defiance of the rampaging Matabele. He had seen Selous come in and ride off that night with  
a small troop to the scene of murder and terror. Now he sat down to write his official report  
dated the 27th March, clinically describing the disease, emphasising the impossibility of treating  
it and urging the adoption of drastic preventive measures.

All routes south were now hazardous. Theiler had intended returning eastward via Salisbury,  
Beira and by ship to Durban; but it was no longer possible nor could he return the way he had  
come. Duncan and the military advised his taking the longer and dangerous route due south  
through the notorious Mangwe Pass in the Matoppos where Matabele might at any time attack.  
46 On Friday the 27th March, he left Buluwayo in a mule-drawn coach with two men and two  
women, joined at the laagered Mangwe by an Afrikaner. By then, the mules were done and  
there were no relieving spans. They continued in moonlight with plodding oxen harnessed to the  
coach in the full expectation of attack. The coach stations on the road had been abandoned  
and the same exhausted beasts dragged the heavy vehicle on two stages of 14 miles each at  
terrifying foot-pace. The Matabele were gathered for war only 12 miles away. At noon on Sun-  
day 29th, they reached the Tati Goldfields and had 'a good dinner' with the nervy miners,  
exchanging their oxen for mules and continuing with all haste. On those last stages, Theiler for  
47 the first time saw the real ravages of Rinderpest, then advancing at the totally unexpected rate  
of 80 to 100 miles a week.

48 Many trained observers (Selous, Melton Prior and others) recorded the overall scene and  
Theiler himself, in typically laconic style. None could transmit to the visual image evoked the  
heat, the stench, the suffocation nor the groans of the stricken animals. Moving northward from  
49 Mafeking at the time was the Relief Column - 'All the way', wrote one of its officers, 'the road  
was inches deep in dust and this, disturbed by the hoofs of 60 horses, kept everyone enveloped  
in a continual cloud. When trotting, it was quite impossible to distinguish any trace of the man  
immediately in front of one. Added to this was the horrible stench from the decaying carcasses  
of dead oxen - victims of Rinderpest - which lined the roadside. It was a common occurrence  
to see the remains of whole spans, twenty or thirty, lying about within a radius of a hundred  
yards . . . The air was never entirely free from this pestilential taint. Now and again, wagons

were met – derelicts of the veld – laden with timber, furniture and cases of all kinds of merchandise, drawn up in the bush just off the road and left to look after themselves. All the trek oxen had succumbed and the transport riders had had no alternative but to abandon their loads. There was wholesale looting . . . stranded as they were with their cargoes, entirely deserted with not so much as a native in charge, is it to be wondered at that a motley crowd of men should take advantage of this opportunity? . . .’

Goods were wantonly destroyed. Luxury articles such as fine clocks were set up as shooting targets. Champagne and all forms of liquor were broached and wildly drunk. Little could be stolen. There was nothing in which to transport it. Horses and mules soon started dying from Horse Sickness. Only emaciated donkeys survived. In Rhodesia, the carrion birds disappeared.

55 Gorged on Rinderpest-infected oxen, vultures allegedly died. Farmers and transport riders were utterly ruined. A whole new class of ‘poor whites’ and tens of thousands of starving blacks burdened the administrations of every territory. The ‘all-red rail route’ to the north as well as railways elsewhere, became imperative.

51 The misery of the transport riders was heartbreaking, Theiler wrote. ‘Their wagons and oxen were all they possessed . . . Dead animals lay on the ground by the dozen and their impoverished owners stood around hopelessly. They killed the surviving animals to make biltong which is meat cut into strips and dried in the sun – an attempt to prevent approaching death from starvation.’ Shocked by the sight and stench of continental calamity, he reached Palachwe on the morning of Monday the 30th March. Otto Henning to whom he had telegraphed, awaited him. Hutcheon had been in the area only a few days before with the local Commissioner of Police, flagellating all and sundry to shoot and stop movement. Thousands of native cattle had been destroyed. An ugly atmosphere prevailed, implying a Baralong revolt similar to the disgruntled Matabele. Hutcheon was determined to keep Rinderpest out of the Cape Colony.

52 A cordon sanitaire must be imposed beyond its borders. Theiler hoped his Government was similarly guarding the Transvaal. In London, Joseph Chamberlain and Under-Secretary Selborne considered countless cables from Sir Hercules – who was to pay compensation for the tens of thousands of beasts Hutcheon was ordering shot? who would feed the starving natives? . . .

Tireless, Theiler rode into the bush with Henning to dissect Rinderpest-ridden oxen to provide material for his final report. Henning was quartered in a native hut in the King’s kraal, surrounded by a palisade of weirdly-contorted thorn-tree trunks. They chatted in German about the invincible plague and other veterinary matters. On the third day of Theiler’s stay at Palachwe the tall slender Khama in European clothes came to see them, taking ‘breakfast’ with them in his unassuming way and later leading them to his royal kraal to select beasts for experimental inoculation. He wanted Theiler to stay, especially as Newton, Commissioner for the Bechuanaland Protectorate, had arrived as his guest. In the short time since the outbreak, Khama’s people 55 were estimated to have lost 90,000 beasts. Ruin faced his country. With ‘Rinderpest raging 56 colossally’ in his own phrase. Theiler had his duties and could not accept. From Palachwe, he telegraphed confirmation to Pretoria that the plague had crossed the Transvaal border and appeared at Zeerust. He ordered the slaughtering of infected herds and payment of compensation.

57 Transport riders had therefore tried to escape to the Transvaal and had spread the disease.

On the 3rd April, he left Palachwe by coach. There were no mules or horses, only a span of infected oxen tottering under their yokes. Somehow they reached the next station and hitched a span of feeble mules, travelling day and night to reach the Crocodile River bordering on the Transvaal. Continuing along the Bechuana side, the coach reached Pala where 40 wagons were 58 stranded with all their teams dead – 720 oxen. Thence to Shoshong, capital of Secheli’s country 59 and, on the night of Sunday the 5th, Gaberones where Hutcheon and the police had shot all

60 oxen travelling south. By now, the exhausted Hutcheon had been forced to realise that the frontier of his fight had been beaten back from the Protectorate and that, to save the Cape Colony, he would have to take a new stance on the Molopo River further south.

61 As Theiler's coach lurched down the Bechuanaland border, losing a wheel here and capsizing  
62 there, Kruger's landdrosts and veldcornets in the Western Transvaal telegraphed increasing infection. Finally, shaken and dead-tired, Theiler reached Mafeking, only about 200 miles from Pretoria; but in the almost complete absence of draught animals, it was quicker and better for him to travel by train hundreds of miles southward through Vryburg and Kimberley to De Aar deep in the Cape Colony and then northward through Bloemfontein to Pretoria. During all that rail journey, he was further weakened by gastro-enteritis.

63 He arrived in Pretoria on Tuesday the 7th April after only three weeks absence, most of it spent in excruciating journeys. On the same day, he was presented to a meeting of the Executive Council with the State President in the chair and for the first time, shook the old man's hand. He needed no interpreter. They spoke in 'die egte Boeretaal' on terms of intimacy. For all his  
64 life, Theiler retained great admiration for Kruger. Far from being a peasant bumpkin, he grasped the gravity of the situation and the fact that Science alone could cope with it. Laconically Theiler recorded only that 'I told the gentlemen what I had seen and made my suggestions for legislative measures'. Outside the Transvaal, other terror-stricken men had further proposals.

\* \* \*

65 In an atmosphere taut with tension throughout South Africa in regard to the imminent trial in Pretoria of the Reform Committee for their part in the Jameson Raid, the Transvaal Government received a telegram from the Natal Government (doubtless urged by Hely-Hutchinson) seeking coöperation in combatting Rinderpest. (Natal sent similar telegrams to the other territories.) It came on the day after Theiler's return and his advice was that the Z.A.R. should indicate its anxiety to coöperate and invite a Natal veterinary surgeon to come to the Transvaal as soon as possible for collaborative discussion. Natal, so far scatheless, replied that it would send its Agricultural Secretary and Frank van der Plank (Wiltshire was about to retire) but that  
66 the Cape wanted a round-table conference at Mafeking. It was duly arranged for one day – the 17th April.

Hardly recovered from his ghastly mission, Theiler was within a week reft from his family and the squealing piglets (to which Emma had added hundreds of chickens) to catch a train on the 14th April for the devious journey via Bloemfontein, De Aar, Kimberley and Vryburg to Mafeking. Already aboard were the Natal Agricultural Secretary, C. B. Lloyd and van der Plank who had come by train and coach from Pietermaritzburg. At Bloemfontein, a Volksraad member of the Orange Free State, J. C. de Waal and J. M. Beuskes joined them. The Cape  
67 Minister of Agriculture, P. H. Faure (later Sir Pieter) was already in Mafeking where Hutcheon and Edington, meeting in Kimberley, joined him. Theiler was tremendously cock-a-hoop that  
68 he alone represented the Transvaal – 'not without pride' he wrote his stern and doubting father, 'I was the "induna" of Oom Paul'. He was then 'a beardless boy' but soon cultivated a luxuriant imperial.

In the dusty seething dorp, crippled by Rinderpest and distraught by military forces demanding provisioning for the north, Theiler met for the first time the only colleague for whom he had real veneration. Since his advent in South Africa, he had admired the detailed descriptions of animal diseases published by Hutcheon in his Annual Reports since 1881 and in the *Cape Agricultural Journal*. Now the stocky little Swiss stood before the imposing figure of a great but tired man. Hutcheon's exertions to keep Rinderpest out of the Colony all but killed him.

69 He and Soga, going about their unpleasant business of shooting infected animals, were often as much as 48 hours in the saddle and frequently threatened with death by the incensed natives. Exhausted but undismayed, he dominated the Conference, supported by his dapper colleague Edington. Across the table in the Court House, Theiler confronted his 'great enemy' with neither warmth nor respect. Engaging in many ways, Edington was a supercilious and self-important man.

70 At the outset of the proceedings, Theiler (in the same boat as the Free State delegates) had to admit that his Government had come to no decisions regarding killing cattle, paying compensation or employing 'the stamping-out policy' nor was he authorised to pledge the Z.A.R. to any course. After asking some silly questions, he said no more. The Free State delegates were appalled by the picture painted by Faure and Hutcheon, stating that the gravity of the situation was not realised by their Government. They had nothing to contribute but a fear that, returning to Bloemfontein, they would be considered to have been 'won over'. Van der Plank spoke realistically of the excessive cost of a manned vis-à-vis fenced cordon sanitaire. Edington, pressing for inter-State coöperation, tactlessly exclaimed that while other Governments were trying to stamp out the epidemic, 'the Transvaal Government are breeding the disease on the border of their own territory'. Theiler knew it was true. At that moment, the Z.A.R. had merely issued another proclamation prohibiting the trekking of infected cattle, etc.

71 Finally, compendiously composed by Edington (who sat down the next day to write an informative account of Rinderpest for publication and general information) and seconded by van der Plank, a resolution was passed endorsing the 'stamping-out policy' and calling on all  
72 Governments to coöperate, particularly in sharing costs. Hutcheon, seconded by Natal's Lloyd, successfully moved the erection of a double fence on the Transvaal border as far south as  
73 necessary. Theiler telegraphed both resolutions to his Government on the following day. The Conference closed but the three professionals continued in conclave and on the 20th April  
74 issued at Mafeking a statement outlining the true horror of Rinderpest, widely unappreciated, and the folly of administering linseed oil and other vaunted expedients. Hutcheon M.R.C.V.S. signed for the Cape, van der Plank M.R.C.V.S. for Natal and A. Theiler comically as C.V.S. (Chief Veterinary Surgeon) for the South African Republic.

The need for concerted preventive action was manifest. There was no talk whatever of devising an immunological means. It lay unspoken in the minds of Edington and Theiler. Edington, far south in the Cape Colony, had seen no cases of rampant Rinderpest. Theiler was ordered by his Government to inspect them in the recently-invaded Western Transvaal. Together they went from Mafeking (where the disease's southward move seemed to have stopped) to Malmani and the Zeerust district with its native locations infected by cattle driven from the Bechuanaland Protectorate. Theiler upbraided the native chiefs. Edington closely observed the cases. By cart with two horses, they drove south through the lush and lovely district abounding in tropical fruit down Jameson's route to Krugersdorp and thence by train to Pretoria where  
75 Edington spent two days and on the 25th April, 'had a most satisfactory interview with His Honour the State President'. He then returned to Graham's Town where his reputation shortly received a severe rebuff.

76 On the 16th May, the Chartered Company's acting secretary sent to the Agriculture Department in Cape Town the official report of Frederick May who had been entrusted with delivering the 19 Mashonaland horses which Edington claimed to have rendered immune by inoculation with his Horse Sickness serum. Starting from Graham's Town, they had reached Mafeking in good order but once on the road to Mashonaland through the Bechuanaland Protectorate, had rapidly died. Travelling rough, only three survived, 14 of the remainder succumbing to Horse Sickness and two being shot. Edington was undeterred. It was common cause, he wrote, that the

Mashonaland strain was more virulent than the Colonial. He had been successful in 'salting' local horses and would persevere. His rival, reading his report some months later, had cause for glee.

77 Emerging from the wings of the now highly dramatic scene verging on Grand Guignol was a new member of the caste – Herbert Watkins-Pitchford M.R.C.V.S., selected in England in May by the Natal Government to succeed Wiltshire as Principal Veterinary Surgeon. In July, he began his battle against Rinderpest at the end of a corridor, screened off as an 'office', in the City Hall at Pietermaritzburg and was quickly totally involved. His equipment consisted of 'one damaged microscope, a few old dilapidated instruments and some dozen bottles containing drugs', according to his superior, the Natal Commissioner of Agriculture.

\* \* \*

78 Severely shaken, the Z.A.R. Government now did everything possible to 'stamp out' the disease within its borders and prevent further infection from outside. Theiler wrote proclamation after proclamation for immediate issue. The State Secretary requested information from the neighbouring territories on outbreaks and advised them of the Transvaal's. On the 28th April 79 1896, Kruger set his hand to a lengthy Proclamation constituting Rinderpest committees in each ward of the Transvaal. Its second provision compelled the chairman of each committee to come to Pretoria for briefing by the 'Gouvernements-veearts' – the Government Veterinary Surgeon. There was no such official. Theiler had opened his own door. The moment the Proclamation was gazetted in the *Staatscourant*, he wrote to the State Secretary on the 30th April 80 applying for the appointment. His letter rattled round the secretariat in customary procrastination and on the 5th May, the Under-Secretary T. J. Krogh formally offered him appointment at £500 a year with travelling expenses, demanding an immediate answer. Theiler replied 81 on the same day that, provided the Government supplied offices and amenities appropriate to the post, he was prepared to accept it at any time. On the 11th May, the Executive Council 82 authorised his appointment as 'Gouvernements-veearts'.

83 He was given an office in the Government Building in Church Square and there he received the bearded Boers from every quarter of the Transvaal who had been chosen by their peers as heads of the many Rinderpest committees. Now he grew his own beard even longer to match their's and in his gregarious way, was soon on easy terms with them even unto the 'Oom-neef' relationship. Every morning he rode on his pony from Les Marais to town and, pending the full operation of the last Proclamation which would bring him endless visitors, he addressed the 84 Pretoria Agricultural Society; read the newspaper accounts of Kruger's opening the Volksraad with mention of the new Rinderpest regulations, later hotly debated but accepted; noted outbreaks all over the Transvaal and in Natal; and drafted an official pamphlet. His frightening 'The 85 Rinderpest – Its History, Symptoms, etc' was submitted on the 16th May and immediately printed in 2,000 copies to alert the Boers, courtesy copies being sent to the neighbouring territories. It was Theiler's first publication as Gouvernements-veearts and he proudly sent a copy 86 to his family. He continued drafting endless proclamations. In the evening, he would ride home, have his supper, read scientific journals and go to bed. Emma ran the entire small-holding – pigs, chickens and native labour – looked after the lively Hans and prepared for the next arrival 87 only a few weeks thence. Over the weekends, she helped Arnold in his 'well-equipped laboratory' where he pursued his investigations into Horse Sickness, Redwater and other diseases. With mis- 88 begotten enthusiasm, he described his existence as 'idyllic'.

The Jameson Raid trial over and the prisoners' sentences variously commuted, the Z.A.R. Government devoted itself to defending the Transvaal against manifest menaces without and

89 within. The malice of Britain would be met by seven hill-top forts to be built around Pretoria (and one in Johannesburg); the Staatsartillerie would be expanded and extensive buildings and stables provided for it; heavy and light armaments of every kind would be imported; and the Secret Service would be improved and extended. There was as yet no overt sign of Britain's belligerent intention but evidence daily increased of the murderous force within. Rinderpest raged uncontrolled throughout the Transvaal, paralysing its economy and breaking the spirit of its people. It was now that the Boer War was lost.

90 Draconian laws were inflicted. The terrible example of Bechuanaland lay alongside. 'No cattle whatever exist in the Protectorate', the officer commanding the police reported. Kruger knew that his own country was well on the same way. Animal traffic was prohibited and wholesale destruction (with minimal compensation) of infected beasts was ordered. High penalties for contravention were enacted. The farming communities were totally isolated and robbed of all income. Unable to bring their produce to market, they soon starved. Before long, there was not  
91 an animal to bring it anyway and the Government voted unprecedented sums to pay speculators offering to import mules and donkeys from Spain and South America. Distress among whites and blacks in the Northern Transvaal quickly became acute. To prevent escalating deaths from starvation, the Government supplied mealies – at a price – in an attempt to force the natives to leave their tribal lands to work on the mines for cash. The natives, like the Afrikaners, despised work with their hands. Only the possession of cattle dignified a man. Both were accounted lazy – neither were. Their mores were more powerful than their needs. When their animals died,  
92 both starved on their lands, committed incest because they could not move, deteriorated morally and physically, and broke the backbone of the nation.

Nothing stopped the Rinderpest. Theiler continued drafting proclamations, but with no staff to support him and incredulous, even recalcitrant Rinderpest committee chairmen to hamper him, could achieve no amelioration. Much was done surreptitiously. Stock-owners secretly  
93 'salted' their remaining beasts by inoculating them with the blood or other fluids from Rinderpest victims – sometimes with apparent success but of doubtful duration. Others vaunted  
94 'cures' and preventives (including Mr William Cooper and Nephew who publicly claimed that their powder containing sulphur and arsenic 'killed germs and will absolutely prevent Rinderpest'). Hutcheon – now supported by another Scotsman, William Robertson M.R.C.V.S. with  
95 experience at the Paris Pasteur Institute and therefore drafted to Edington, as well as a posse  
96 of English veterinary surgeons – listed some of the 'cures' which he was forced to test: linseed oil; salt and paraffin in combination; permanganate potassium; boiling a sick ox and dosing with the soup; quinine; sulphate of copper; and 'secret remedies' for which the proponents expected reward. Many emanated from the highest administrative authority.

97 Nothing helped. 'Days of Humiliation' were solemnly observed as the tortured Transvaal groaned under drought, locusts and Rinderpest. Cattle were dying in thousands in the native  
98 reserves while Theiler, like Hutcheon, wasted his time testing 'cures'. 15,000 cattle were stated to have died in the Waterberg district and 2,000 corpses lay in the veld around Rustenburg.  
99 The Government was spending £30,000 on buying mules to maintain transport and obviate starvation. The awful realisation began to spread that Rinderpest 'was gaining the upper hand'  
100 and that even if it were checked, the infected land, according to Cammack and others, would  
101 take at least a year to recover. Imported stock to replace losses would be particularly vulnerable.

Now a civil servant with fixed hours, Theiler made good use of his free time with Emma in his Horse Sickness experiments. Like Edington, he believed he had isolated the causative  
102 bacterium and succeeded in propagating it in culture, even reproducing the disease with it in two cases. He hoped soon to be able to produce a preventive inoculation; but his official duties removed him. He had offered to test the many vaunted 'remedies' at Makapanspoort in the



103 afflicted Waterberg district. Checking with the Nylstroom landdrost, the Secretariat was informed of a profusion of cases on tribal lands. In the Waterberg, it was reported, 'the disease is raging more fiercely than in any other district in the Republic'. It was his duty to go there to put the 'soups' and potions to the test.

104 The Government provided him with a huge and cumbersome covered wagon drawn by 10 precious mules. He loaded it with chaff and mealies for the mules; pots, pans, groceries, tinned meats and bedding for himself; his microscope and a selection of pharmaceuticals, disinfectants, 50 gallons of linseed oil and other paraphernalia recommended by quacks. He took his gun and camera and on the 20th June 1896, set off for Nylstroom and the Rinderpest-infected tribal area for an anticipated two-month stint. Emma, now near her time, remained to continue the Horse Sickness experiments and conduct their livestock enterprises.

105 With no heart for his work, Theiler applied all the fraudulent 'remedies' to cattle in the native kraals, at first regarded with suspicion and later with understanding by their owners. None was effective and ultimately they objected to 'doctoring', hoping that some at least of their animals might by chance escape. Theiler himself described his uncongenial task as a six-week hunting holiday and longed to return to his burdened and over-worked wife.

106 The ghastly certainty of a catastrophic pandemic now gripped the whole of South Africa. Hutcheon had been unable to check the disease by river or fence. It crossed all borders in a variety of ways, including 'the low Vaalpanse' as Soga called residual Bushmen (the Bakalahari) - 'human vultures' who by instinct found dead animals and bore off infected meat in all directions. Watering places where sound and infected beasts congregated to drink were fecund sources of distributed infection. Van der Plank (whose career soon ended in October 1897 in a lingering death from the bite of a puffadder) had confirmed an outbreak at Harrismith on the borders of Natal and thrown his Government into feverish exclusive measures of fencing, policing and 107 blowing up the passes across the Drakensberg giving access to Natal. Infected cattle were still driven secretly.

Belatedly Natal reorganised its Agricultural Department. On the 1st July, Herbert Watkins-Pitchford, fresh from Sandhurst in England, was appointed Principal Veterinary Surgeon without any staff, premises or facilities whatever, and instructed to combat the advancing plague. His immediate response was to demand at least four veterinary surgeons and an opportunity to 108 study the disease. By the middle of July, commended by his Government, he was in Pretoria where the Secretariat gave him a letter of introduction to the landdrost of the Waterberg, requesting all facilities so that he might place himself under Theiler's tutelage. He saw Rinderpest at its worst with cattle and antelopes dying in droves and the landdrost advising the Government to erect a fence to protect Pretoria. All three returned by coach to Pretoria on the 30th July. 109 Theiler, in heartless disregard of his wife's condition, immediately sped to Johannesburg for the National Day celebrations of the Schweizerverein Helvetia, leaving the following day for Secocoeniland in the east on the same bootless errand of testing 'cures' and trying to stop infection by natives. 110

He was away for 12 days, familiarising himself with the country, the natives and the Boers, and the folly of quacks in trying to combat a pandemic already widespread in the Transvaal and threatening to leap the borders of Natal and the Free State. Slaughter was the only possible 111 policy though Theiler secretly believed that Rinderpest would rage its way to the sea. During his absence, the heavily enceinte Emma pursued her multitudinous tasks, even in the laboratory 112 and in observations of the experimental animals outside. 'Technically', wrote Arnold to his parents, 'Emma takes my place in all my research work with pleasure and interest'. He came back from Secocoeniland on the 14th August to find that 'unbelievably but verily during my absence, she did a postmortem on a horse which I had inoculated with Horse Sickness and

collected blood and other virus in a way which I could not myself do better.' A week later, she gave birth to the desired daughter, immediately called Margherita to match the son – Hansel and Gretel or Gritli.

114 At last financially secure with a fixed salary and some saving from his reimbursement for travelling expenses, Theiler seemed near to solving the Horse Sickness problem, now doubly important through the continuous decrease in draught animals. At that moment – August 1896 – pictures appeared in local newspapers of the 'Horseless Carriage' (a Benz 'Velo') imported by the Pretoria firm of J. P. Hess & Co. which announced its arrival from Germany by ship unloading at Port Elizabeth. 'Fancy driving about in your carriage', wrote *The Press* in its caption, 'and not requiring horse, harness or groom and no forage bill at the end of the month! Let alone no trouble regarding the dreaded Horse Sickness.' When the comic machine reached Pretoria, Kruger inspected it closely but refused to ride in the noisy contraption. By then (early January 1897), the Rinderpest situation had greatly worsened. The State President and his entourage appreciated what the machine could mean to the Transvaal whose urgently-commissioned railways were crawling at a painfully slow rate of construction toward the ruined northern districts. He caused a special medal to be struck, inscribed in Dutch – 'presented to Mr J. P. Hess in commemoration of his introduction of the first Motor Car (De Eerste Motor-Kar) in South Africa'. The new era took long to develop. Steam, for every purpose, seemed to Oom Paul more practicable than petrol.

115 It was now obvious that all the proclamations and prohibitions and double-fencing has failed to stop the spread of Rinderpest infection. Natal and the Free State clung tenaciously to their barriers but it was only a question of time before they were penetrated. Hutcheon's were increasingly breached and he called for more inter-State coöperation to save the Cape. As Theiler returned from Secocoeniland, the Cape Colony invited the Z.A.R. Government to another Rinderpest Conference. Kruger called a special meeting of chairmen of all the Rinderpest committees throughout the land to hear their views and universalise their procedures. It resolved inter alia that they be authorised in their areas to employ poor whites at 6s. a day to construct emergency fences of bush until the long-awaited wire came from overseas. Then the Government appointed its delegates – T. J. Krogh, the Under-State Secretary; A. Theiler, Government Veterinary Surgeon; and Douw du Plessis, Veld Cornet for Rustenburg where Rinderpest raged. They left by roundabout train for Vryburg on the 28th August 1896.

116 This time, Theiler was not 'Oom Paul's induna'. Krogh fulfilled that rôle, ably supported by the experienced and articulate du Plessis. Theiler hardly spoke during the two-day conference opening on the 31st August. Fully representative, it was of the highest significance and altered the course of event. From the Cape came Pieter Faure, Hutcheon and R. Crosbie M.L.A.; from Natal, Lloyd and Watkins-Pitchford; from the Free State, J. C. de Waal and C. H. Wessels both members of the disbelieving but now alarmed Volksraad; from the ruined Bechuanaland Protectorate, its Resident Commissioner Newton (later Sir Francis); and from the Basutoland Protectorate, its Acting Resident Commissioner Lagden (later Sir Godfrey). The most potent delegate came on on the second day – the Imperial German Consul-General in Cape Town, Baron von Schuckmann. Speaking only to an enquiry as to what his Government was doing in German South West Africa, von Schuckmann described the effective 'stamping out' policy pursued in Germany after three infections from Russia and promised coöperation in the present instance. He was to be the means of its ultimate supposed solution.

117 The Vryburg Conference, inevitably dominated by Hutcheon, occupied itself chiefly with means of combatting the leaping infection. Mobile domestic and wild animals could still be contained by fences; but persons, particularly natives, would have compulsorily to be disinfected.

118 There emerged the horrifying fact that 'vengeance infection' was practised on tribal and other

lands by natives and whites having a grievance against their chiefs or employers or neighbours. Further, much infection was conveyed by hides and skins, wool, biltong and other animal products. Stringent disinfection regulations were resolved.

119 Almost as an afterthought, the Conference considered 'cures' and dealing with the disease at source. Hutcheon spoke at length on 'quack remedies', followed by Theiler in the richness of his recent experience. Previously silent, Watkins-Pitchford exclaimed - 'I think all the time spent in administering medicine internally for Rinderpest is not only wasted but very badly spent, the only possible hope of a remedy being in the serum treatment. I do not think any drug would check the disease when the organism is in the blood multiplying there while you are only acting on the alimentary canal.' The desultory discussion was construed as adequate to resolving finally 'that it would be of great public advantage if a series of experiments could be carried out in South Africa on the subject of Rinderpest, especially with reference to the length of time that the infection would remain on an infected farm'.

For the first time, Africa South united to combat a common crisis.

## CRESCENDO 1896-1897

1 IMMEDIATELY AFTER the Conference, Rinderpest spread with terrifying speed, making a non-  
 2 sense of all impediments and prohibitions and emphasising the need for protective immunity.  
 3 Its move was to the south where it overwhelmed Hutcheon, and to the east where it suddenly  
 appeared in the lower Transvaal at Wolmaransstad and Schweizer-Reneke. Douw du Plessis and  
 Theiler left Vryburg by private railway coach and cart to visit the area and ordered hundreds of  
 animals shot. The Schweizer-Reneke farmers begged Theiler to have the Government instruct  
 him to find a cure as all 'remedies' were useless and merely spread the disease. He included the  
 request in the report on the Conference which he and du Plessis duly presented. The Executive  
 Council immediately appointed du Plessis a special Rinderpest Commissioner at £600 a year  
 with allowances for the whole Western Transvaal from Marico in the north to Bloemhof in the  
 south. For Theiler, it had other plans.

4 In Buluwayo on the 26th March in the midst of the first devastation, he had telegraphed his  
 Government that the Matabele Rebellion prevented his devising an inoculation against Rinder-  
 pest. On his return, he had confirmed in his written report of the 10th April his readiness im-  
 mediately to proceed with the work but pointing out that owing to the danger of infection, he could  
 not do so in Pretoria but only at some place on the north-western border where sound and diseas-  
 ed animals would be available for experiment. No attention had been paid to his offer and, dis-  
 tracted and later obsessed by the prevalence of amateur 'cures', the Government continued to  
 ignore it for six months.

5 In Watkins-Pitchford however, Theiler had found a kindred soul, first in the Waterberg when  
 he had demonstrated the disease to an eager pupil and then at the Vryburg Conference when  
 Pitchford had spontaneously exclaimed that the 'serum treatment' was the only possible solution  
 to the problem. The Cape - convenor of the Conference - had become so single-mindedly  
 addicted to keeping the disease out of the Colony that it had neither considered the possibility  
 nor included Edington, the only qualified bacteriologist in South Africa, in its delegation. Theiler  
 and Pitchford were however of one mind in the matter and no doubt discussed it fully at all  
 opportunity. Upon his return to Pretoria on the 9th September, Theiler raised it persuasively  
 with his superiors. He was on a batter's wicket. Total disaster faced the Transvaal and its rulers  
 became panic-stricken. Rinderpest which had ruined the northern districts, had inexorably  
 moved southward. Carcasses were reported all around Pretoria. The 'cures' and 'inoculations'  
 which the best-intentioned and most enlightened men were trying, together with the quacks, had  
 all failed though the attempts continued. Tens of thousands of pounds were being spent on  
 food for the starving and on transport. Every day, conditions worsened. Theiler made his  
 case.

On the 13th September 1896, he wrote his parents - 'My next task is again to devote myself  
 to a series of experiments to determine whether it is possible to combat the disease with a serum  
 injection. The Government has given me unlimited credit to achieve this object. The Natal  
 Veterinary Surgeon will accompany me and be my co-worker. We shall investigate the matter  
 strictly scientifically and then publish our results. We shall take our bacteriological laboratory  
 with us into the Bush. The place of our activity this time will be the Rustenburg district (Marico)  
 where we hope at the same time to be able to hunt big game. I expect to be away for three  
 months.' It occurred to no one that two veterinary surgeons - 'horse doctors' - intended im-

personating highly-qualified bacteriologists and attacking a problem that had baffled the whole scientific world, and that the expedition in fact rode entirely on the back of Theiler's personally-acquired 'well-equipped laboratory' and prodigious private study.

6 Pending its departure, Theiler had to deal with his Government's part in the Conference resolutions (as well as an outbreak of Glanders in Johannesburg which was surrounded by the carcasses of horses and donkeys dead from Horse Sickness). The scared men on the Executive Council willingly implemented the recommendations in a Proclamation issued on the 23rd September which dealt with the disinfection of natives, hides and skins, etc and the adequate burial of carcasses (frequently the source of infection when dug up by scavengers and wild animals). In their desperation, they threw the door open to anyone purporting to have a preventive and encouraged experiment by all and sundry.

7 It fell to Theiler to plan a 'Disinfection Station' for all animal material (hides and skins were a sizeable item in the crippled agricultural economy) and to order vast quantities of Jeyes Fluid, carbolic acid and other disinfectants while carefully organising his own expedition. His specifications were very clear and detailed and he offered to train a manager for the Station. Its operation was a matter of extreme urgency but the over-burdened Krogh (who subsequently drew an extra allowance for the avalanche of Rinderpest work) and S. Wierda, head of Public Works, trafficked so conscientiously with tenders and details that the Disinfection Station at Daspoort outside Pretoria was not completed until the 9th January 1897. Built largely of corrugated iron on a site chosen by the landdrost C.E. Schutte, it became one of the most historic edifices in Africa.

9 Moving rapidly south-eastward toward the Free State and Cape, Rinderpest now produced universal chaos and bitter vituperation from republican and colonial citizens. New outbreaks in the Transvaal called Theiler away in the company of C. E. Schutte, nominally his superior. Occasionally he would meet his friend D. J. E. Erasmus at committee meetings which fearfully discussed the Boers trekking back from winter grazing in the Bushveld, the natives and whites starving in the north and the uncontrollable spread of infection. Natal was busy with its fences and, still apparently scatheless, willingly seconded Watkins-Pitchford for vital research, agreeing to share the cost equally with the Z.A.R.. Desperate, the Free State asked its colleague Republic for 'one of its veterinary surgeons' and the Z.A.R. telegraphed back that it had only one - Mr Theiler - and he was away. In common cause, Hutcheon allowed Otto Henning to leave and on the 1st November 1896, he became the Free State's first veterinary surgeon. As the epidemic swept toward the Cape Colony, public temper grew ugly. Farmers openly attacked the Prime Minister, Sir Gordon Sprigg for inertia and hankered after the dynamic leadership of Merriman. Hutcheon continued his vain fight and Edington was ordered into the arena to find a means of immunising against Rinderpest and to forget about Horse Sickness.

14 On the 1st October 1896, Theiler and Watkins-Pitchford set forth in a veritable caravanserai. Their mule-drawn trolley carried the parts of a tin shanty with a large window that could be assembled to serve as a 'laboratory'; two large tents for themselves; £50 worth of provisions to last them and their two assistants for three months; the paraphernalia of 'a whole laboratory with incubator, etc.'; bottles and jars of chemicals, medicines and stains; guns and ammunition; cameras; and other impedimenta for a prolonged sojourn in the wilderness. Theiler was voluntarily assisted by a Swiss patissier Frei who undertook to do the cooking. Pitchford's assistant was a young postal clerk, Vynor Clarens. Their route covered about 150 miles from Pretoria through Rustenburg, directly north to the eastern spur of the Witfontein mountains known as the Dwarsbergen, about 20 miles from Ramoutsa on the Bechuanaland Protectorate border - a site in the Marico district chosen by Douw du Plessis and his colleagues as suitably remote but well endowed with cases. (Its original cattle population had been 30,798 of which 16,808 had

died of Rinderpest, 4,027 had been shot and 6,766 survived.) There they outspanned with the assistance of border guards and local natives.

They appeared a singularly incongruous couple – Theiler with his swarthy complexion and continental imperial, his guttural English, slight swagger and determination to hunt for the pot in between his official duties; Watkins-Pitchford the very picture of an English vet. in breeches and gaiters with a billycock hat, clean-shaven, blue-eyed and voluble. They had however a great deal in common, being much of the same age (Pitchford was two years older), interested in military service (Theiler less than Pitchford) and wholeheartedly dedicated to the quest on which they had embarked. Both were on all hands remarkable personalities, particularly Pitchford whose versatility blossomed under new conditions.

17 The third son of a London vicar, Pitchford's first and lasting love was the British Army and all things military, particularly cavalry. At the age of 18, he was due to sail for India in the regiment in which he had enlisted when his father bought him out and directed his energies to qualifying as a veterinary surgeon. A man of dynamic enthusiasms, he then practised at Sandhurst before succumbing to the glamour of 'Colonial appointment' as the head of a department in Natal. He wrote with great facility, sang, played the organ, painted in water colours and, of conspicuous ingenuity and inventiveness, later devised many gadgets for the Army. Like Theiler, he had abandoned his wife and child in a boarding house in Pietermaritzburg where they were reasonably content. Emma, on the other hand, felt herself sinking beneath the burden of her responsibilities, alone in a tin house with a little boy and a six week old baby, for an expected three months. It would, she feared, prove too much and she would have to abandon the small-holding and move to town. She stayed.

18 As Theiler and Pitchford began inoculating sound cattle with blood serum from recovered beasts in the hope of producing immunity, Edington set forth from Graham's Town on the 8th October on a similar mission. The place selected for his experiments was the dangerous district of Taungs in the Northern Cape where, immediately after the Vryburg Conference only five weeks before, Hutcheon had been threatened with death by the infuriated natives armed with guns and firing them promiscuously. Cases of Rinderpest remained and sound cattle could be brought from Kimberley. There was however no 'accommodation' – only a railway siding.

19 Edington accordingly was provided with a saloon railway coach whose partitions he demolished, converting the interior into a small laboratory. This was shunted on to a blind line at Taungs and a fenced camp made around it. The unit arrived on the 11th October and Soga brought him his first Rinderpest-infected beast on the 14th. It was installed in another fenced camp four miles distant. Edington and his assistants, W. Robertson and J. M'Namara bivouacked in small patrol tents with native guards at hand near the siding. Their discomfort was great, the average temperature being 100° in the shade; but with Soga's continuing assistance, they devoted themselves to isolating the Rinderpest 'microbe'.

20 Its rapid southward journey accompanied by a destructive invasion of locusts now struck panic into the rulers of the Cape and Transvaal, causing them to call upon their people to prostrate themselves before the Lord. A simultaneous Day of Humiliation was proclaimed on the 16th/18th October in the whole Transvaal and Cape Colony. All shops were closed and businesses suspended. Kruger himself went to the northern Transvaal to examine the devastation, the distress and demoralisation of his people and the emaciated and dying natives.

21 The Cape Government now bent before the blast and adopted a counsel of despair. It approached Baron von Schuckmann and enquired whether he could urgently obtain the services of the great Robert Koch. It was a direct expression of no confidence in Edington but the pressure was heavy. The suggestion had come from Dr J. H. M. (later Sir Meiring) Beck, founder of the South African Medical Association who, qualifying at Edinburgh and doing post-graduate

work at Berlin and Vienna, was convinced that Koch was the country's only hope. A professional man of the highest standing at the Cape, he wrote to his colleague (and co-student of Edinburgh, Berlin and Vienna) Dr T. N. G. te Water, then Cape Colonial Secretary, urging his friend to get Koch at all costs. Te Water was very dubious but persuaded Sprigg to open negotiations.

The German Consul-General cabled his Government and by the 26th October, was able to advise Sprigg that Koch was willing but required an early answer. Before it could be sent, Koch cabled further to the Consul that he was prepared to sail on the 21st November and (ominously) that success was always doubtful in difficult and tedious scientific research. He would be attended by three others (subsequently revealed as his wife, tactlessly captioned 'Madame Koch', and an assistant, the 35-year-old Dr W. Kohlstock and his wife) and would require travelling expenses for all four, £200 for equipment and a daily rate of £10 for the whole party. Sprigg wasted no time in 'gladly accepting' the offer and 'trusting that the learned Doctor will be able to start for this country with the least possible delay'.

23 On the 3rd November, the news of coming salvation was published throughout the country and on the same day, Edington telegraphed the Cape Agricultural Department that he had isolated 'the Rinderpest microbe'. Hutcheon, shooting cattle in the De Aar district, pronounced his belief that his colleague would devise a serum treatment. Unlike Theiler, Edington could not remain single-mindedly at his task. His assistant-in-charge at the Institute, Dr R. S. Black resigned and he was forced to shuttle between Taungs and Graham's Town until the replacement  
24 Dr Purvis arrived from England. He publicly stated however that although Russian and other  
25 scientists had similarly isolated 'the fatal bacillus' but had been unable to reproduce Rinderpest with it, he would succeed.

While the Cape urgently negotiated for Koch, the Free State evolved a similar plan to import a bacteriologist and invited the coöperation and joint financial responsibility of the other territories. The Z.A.R., notwithstanding Theiler's current work, agreed; but the proposal lapsed  
26 when all were asked to share the cost of Koch. A similar drastic attempt by Natal to import the  
27 medical Dr W. J. Simpson who was dealing with Rinderpest in Calcutta, India, was likewise  
28 abandoned. By then, Watkins-Pitchford, after only three weeks' work, had returned to Pietermaritzburg to meet his four young veterinary surgeons - W. Stapley, F. A. Verney, Baxter and Webb - two arriving early in November and two at the end. He had faith in the cordon sanitaire protecting Natal and wrote portentously about 'the scientific investigation upon which I have been engaged in the Marico and which is still far from complete'. He did not mention leaving Theiler alone for six weeks on dreary experiments until he returned with Verney in the middle of December.

The desperation of the times with its mindless recourse to all or any kind of 'remedy'; the enormous State expenditure on donkeys, mules and food for the starving; the dreadful scenes which he was then witnessing in the north, caused Kruger himself to lose faith in Science and to propound a 'cure' with all the force of his position. He caused all landdrosts and district chairmen of Rinderpest Committees to circulate it:

29 'As soon as the beast becomes sick, one teaspoonful of podopyllin (a bitter yellow resin with cathartic properties deriving from a ranunculus root) must be administered in a half-bottle of water. On the following day, a piece of tobacco about three inches long must be chopped up and soaked in a bottle of water after which the water must be given to the animal. If, on the third day, the eyes of the animal are still watery, another three inches of tobacco must be cut and soaked in a bottle of water which is to be given as before. On the fourth day, a small mug of paraffin is to be administered. When the beast purges badly, a dessertspoonful of the bruised bark of the root of the incense tree must be mixed with a dessertspoonful of alum and a bottle of water and

allowed to draw for 12 hours. Then add to this a handful of flour-meal and give it to the animal. If the purging does not stop, repeat the above dose. If the animal does not eat well, repeat the paraffin oil as described above and clean the mouth out with salt.'

30 An impressive percentage of 'cures' were claimed. In the chair at a Rinderpest Conference of  
31 Landdrosts, D. J. E. Erasmus under orders propounded Kruger's prescription on the 28th  
32 October and brought half a bag of the bark of the incense tree for common use. Everybody was  
33 now encouraged to experiment and try 'remedies'. Hutcheon mocked Kruger's 'cure' (which  
emptied the chemists' shops of Podopyllin) and Theiler dined out on it until the end of his days.

34 Hutcheon had taken his stand on the Orange River and shot all suspects south of it. 2,300  
police guarded the northern frontier of the Cape Colony. All eyes were on Koch who coöperatively  
35 managed to leave earlier, sailing on the 14th November 1896 from Southampton. He had  
received, he said, no reliable information about Rinderpest at the Cape - 'nothing whatever -  
what I have to do at first is to find the real germ of the disease . . . but it may be that our scientific  
methods are not sufficiently advanced. It must not be forgotten that the germs of smallpox  
and canine rabies have not yet been found either . . . Nobody has hitherto tried to investigate  
the causes of Rinderpest so we have a perfectly new field before us.'

36 Emma retailed the news to her parents-in-law - 'The Government of the Cape Colony have  
summoned Professor Koch from Germany. They have called on the highest authority although  
they themselves have had a bacteriologist (Edington) in a well-equipped laboratory for years  
already. Nonetheless Arnold is already well ahead and should have some results before Koch  
can begin his work here. I am really excited about what the future can bring for us.' Arnold  
37 reacted more soberly - 'We shall see what Professor Koch can evolve. That a method of inoculation  
can be found here in a few months when in Russia, learned men have for years been studying  
and experimenting without producing anything, I can hardly believe.'

38 Toiling alone in the sub-tropical Bushveld with his untrained Swiss and Pitchford's unscrupulous  
Clarens, Theiler had mounted a varied battery of experiments during his 7 weeks stay. He  
had prepared a serum from sick animals, attenuated it and injected sound. Some survived and  
were 'salted' for an indeterminate period. Others died. He thought the serum was contaminated  
but could purify it only with a suction pump at home. He tried numerous variations - inoculation  
with blood mixed with carbolic acid, with dried blood, with Rinderpest and Horse Sickness sera  
mixed as the latter killed the former, and so on, also using sheep and goats as experimental  
animals. He injected 'salted' oxen with highly-infected blood to increase their immunity and  
39 derive from them a more potent serum. He rode constantly among his fenced camps to ensure  
*that his black and white assistants safeguarded the rigid conditions of experiment. He worked*  
from dawn until late at night, shooting only for the pot and having no time for his beloved  
hunting though big game abounded. The mounted police occasionally brought him letters and  
sometimes the camp was short of food.

40 Toward the middle of December, Pitchford came back after six weeks' absence, accompanied  
by F. A. Verney, the journey taking 12 days from Natal owing to the Pretoria-Marico section  
41 being undertaken by ox-wagon. Verney rendered only a month and a half's service before succumbing  
to malaria at the end of January 1897 and took no further part in the work. With Pitchford  
in charge of the experiments, Theiler could snatch ten days leave to report to Kruger in  
42 Pretoria ('the President was very satisfied with my work and extended the time to enable me to  
develop my experiments'), to make use of his laboratory and to celebrate Christmas with his  
family. He was very hopeful that his hyper-immunising serum would be effective but no one  
could know for how long.

43 Rinderpest was in Pretoria and 'doctoring' with the most improbable ingredients was done  
44 by all and sundry. (In Bechuanaland, high success had been claimed for inoculation with a



45 mixture of blood, gall and 'swelling from the fat gut of a beast that had not long been sick' – a specific later promoted by a farmer, Grobler, in the Transvaal's Waterberg.) There was also typhoid and dysentery with many deaths; but in the safety of Les Marais, the family remained well. Arnold, after ten weeks' absence, found them much changed. Restrained by Emma from 46 leaving before Christmas, he departed for Marico on Boxing Day. He intended testing his powerful serum, produced from calves like Smallpox vaccine, on a thousand cattle.

47 Both Arnold and Emma had noted in their letters abroad the unpleasant atmosphere that prevailed in the Transvaal. They wrote of 'talk of war', 'a revolution in Johannesburg' and other rumours, ascribing them to the aftermath of the Jameson Raid. The practical coöperation of the South African territories in some matters of common concern, notably Rinderpest, belied an underlying distrust and a desire unilaterally to pursue local ends. The Z.A.R. was arming fast and visibly. The Staatsartillerie had been extensively reorganised and by Order No. 771 of the Executive Council of the 1st September 1896, a Veterinary Surgeon was temporarily appointed to it. Theiler expected to fill the post when disengaged from his experiments. Great secrecy surrounded the building of the forts by French and Italian firms. The armaments would come from France and Germany. The whole orientation of the Z.A.R. was toward playing its own hand and deriving its requirements from Europe – anywhere but England, directly or indirectly. This policy, suddenly and irrationally, entered the Rinderpest field.

48 On the same day (17th November) that the Cape Governor formally advised the Z.A.R. (a contributor to costs) of Koch's setting sail, the State Secretary received a letter from the French 49 Consul in Pretoria, S. Aubert, informing him of an individual in Johannesburg friendly with a French bacteriologist and pupil of Pasteur who, noting the Rinderpest outbreak in the Transvaal, was willing to come to devise a cure as he had for other animal diseases. He required an advance of £1,000/£2,000 recoverable from the sale of the cure. The State Secretary sent for Aubert who revealed that there were really two pupils of Pasteur, one a professor. Within a week, 50 a cable had been sent asking them to come as quickly as possible. A month later, M. Jean Danysz and his assistant, Dr Jules Bordet sailed from Southampton on Boxing Day when Theiler began his return to Marico.

Koch in the meantime had landed in Cape Town on the 1st December, saluted with the pomp and deference due to a great man – a rôle he assumed with aplomb. Awaiting him was a letter 51 from Edington offering him 'all the assistance and resources at my command'; but his Bacteriological Institute at Graham's Town was of course still remote from the active Rinderpest scene. Among the Departmental officials who welcomed the aging sage (Koch was then 53, bearded and bowed from his microscopic work) was the recently-appointed Cape Medical Officer of Health, Dr George Turner who, in the absence of Hutcheon on the Rinderpest frontier at the Orange River, had been detailed to act as his cicerone.

52 In appearance, Turner was more teutonic than Koch and eleven years his senior though abounding in energy. Stocky, bull-necked and bullet-headed, his somewhat puffy face was ornamented by an up-turned Kaiser Wilhelm moustache. His manner was energetic and impatient; his knowledge of public health extremely wide; and his enthusiasm for his work unlimited, even to opposing the highest authority. The love of his life was the study and alleviation of Leprosy. Of the three days Koch spent in Cape Town, Turner purloined one to take him the choppy voyage to Robben Island to show him the Leper Institution. Turner so conveyed his 53 own ardour that Koch shortly wrote to one of his most beloved disciples at the Berlin Institute for Infectious Diseases, the 28-year old Wilhelm Kolle, to persuade him to become the director of the Cape Leprosarium – an overture which had a significant result.

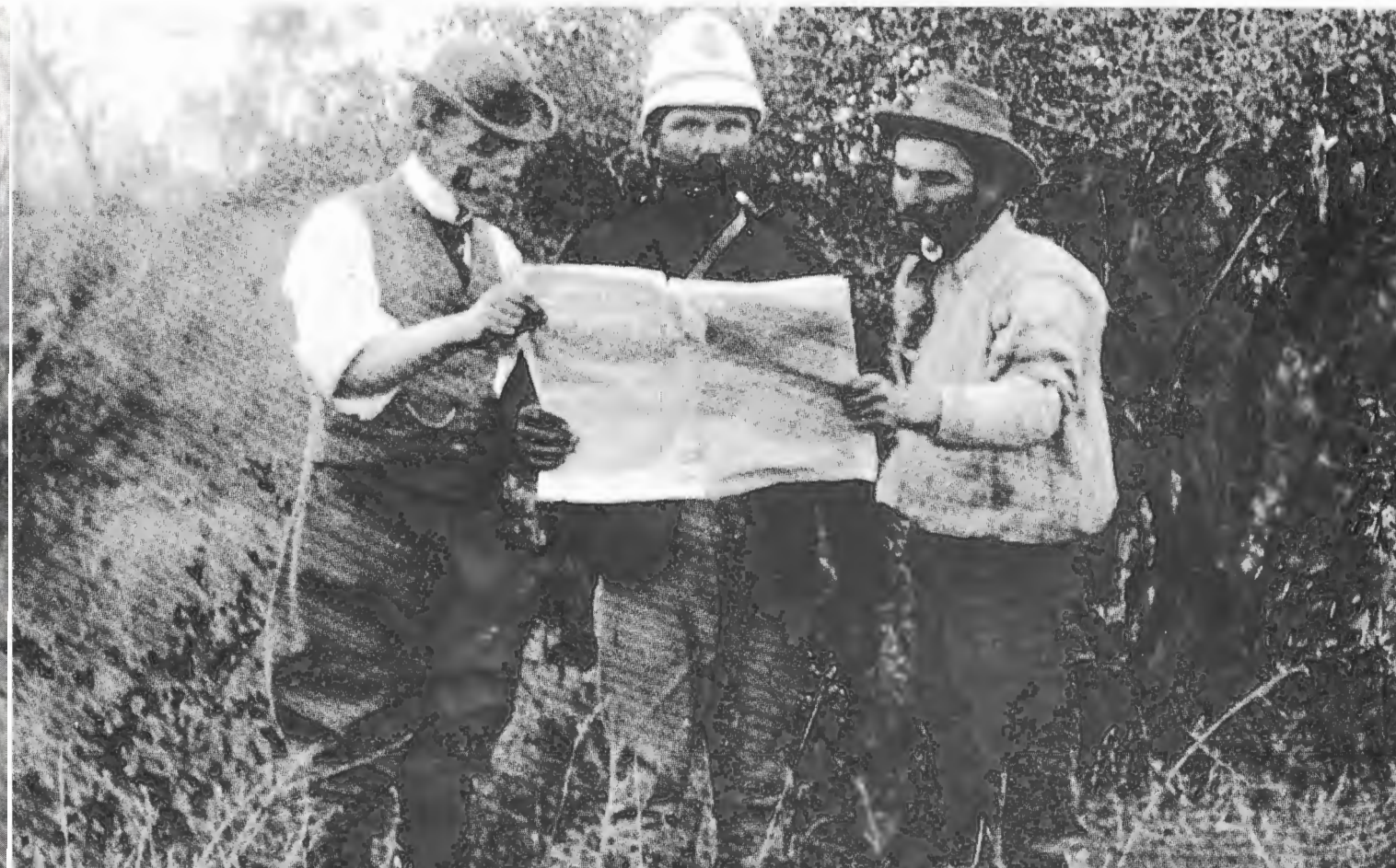
The English-trained Turner had spent a year in France studying Smallpox and other epidemic diseases on which he became an authority. He was therefore excellent company for Koch whose

- party he accompanied by train to Kimberley on the 3rd December 1896 while Hutcheon completed elaborate arrangements to accommodate the great man in work and recreation. Hutcheon had gone immediately with his problem to the De Beers Diamond Mines and within hours, they had converted the Victoria Compound, a large wood-and-iron building some miles out of town, into a commodious laboratory equipped even with outside rails for conveying carcasses for autopsy. The grounds were subsequently fenced into 'camps' for the 20 head of cattle, 10 merino sheep, 10 Cape sheep, 11 Angora goats, 10 Boer goats and other livestock required by Koch (with the exception of certain antelopes which Hutcheon was unable to find for him). The Company regretted being unable to provide living quarters but Hutcheon found 'a small charming villa in the famous Diamond City', according to Koch, in which, despite the heat, his menage was entirely happy. (Some months later, overcome by the humid heat of India and Tanganyika, he longed for 'Kimberley's wonderful climate'.)
- 54 The party arrived in Kimberley on the morning of the 5th, having been joined at De Aar by the voluble Edington. Hutcheon met the train and showed Koch his arrangements. Otto Henning, lent by the Free State because he was German-speaking (and temporarily replaced by one of Hutcheon's men) arrived in the afternoon. Beguiled by Edington's blarney, Koch agreed there and then to take the train north to Taungs with Turner, Kohlstock and Henning to see the work he was doing. The German sage was not lacking in energy. They arrived the next morning and Koch met Soga who told him that the natives of Taungs had lost 20,000 head from Rinderpest and had driven the remainder into the mountains to save them. After post-mortem examination of a suspected case, Koch gratefully received from Edington some cultures of the 'germ' and returned with his party to Kimberley, delegating to Henning the management of the Compound.
- 55 The whole sub-continent waited while the wizard worked. Hutcheon took him to the Free State and to farms near Kimberley to show him typical cases. Koch marvelled at the inoculation of garlic into the dewlap and the drenching with carbolic and petroleum as 'cures'. Methodically reporting to the Cape Government, he wrote that he had had no success in reproducing Rinderpest with Edington's cultures; but the Englishman had now injected two beasts in his presence with 'the microbe' grown in bouillon and Koch himself another. In due course, Koch declared it ineffective and devoted himself to his own researches. There was some feeling in England that a Colony had employed a German to help them and that veterinary science had been disparaged.
- 56 With Watkins-Pitchford and Verney, Theiler toiled on in the Marico with occasional recognition in the Press. He was sure now that the powerful serum would confer lasting immunity. They had devised the expedient of mixing it with the blood of a sick animal. The simultaneous injection of the 'germ' and its killer made an ox slightly off colour but it soon recovered and was thenceforward actively immune. It was necessary now to test the treatment against 'live' and not injected infection in numerous cases over a period of time. They believed that resistance to virulent blood did not prove that an animal was protected from contracting the disease from other animals. Few except the police and the district officials visited their remote camp. No one except themselves knew the significance of their work. Once a man came (Herman Eugene Schoch, later Surveyor-General of the Transvaal) who had helped to build the now-useless fence on the nearby border. He watched what they were doing and later recorded in a notebook - 'Theiler told me that they had discovered a satisfactory vaccine but that he did not wish to make it public before he had tried it out for some time so that there should be no mistake about its efficacy.'
- 57 Behind his back, the Z.A.R. was playing power politics to assert its independence of Colonial collaboration. On the 19th January 1897, M. Jean Danysz and Dr Jules Bordet arrived in Pretoria. A telegram was at once sent ordering Theiler to return immediately to assist them. On
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*The Theiler Home at Les Marais in the middle of 1896 with H. Watkins Pitchford (right), Emma holding the infant Gertrud and Margaret on the lap of a friend – taken by Arnold Theiler.*

*H. Watkins Pitchford (left) and Theiler (right) reading a newspaper brought by a Z.A.R. police guard (centre) entrusted with preventing movement of cattle. Theiler and Pitchford were scientifically investigating Rinderpest near Marico in the Rustenburg district toward the end of 1896.*





*Theiler the hunter, shooting for the pot, when testing spurious Rinderpest 'cures' in the Waterberg, rife with the disease among native cattle, in July 1897. (Note the cumbersome wagon and Theiler's ability to hold a guinea-fowl with his artificial left hand.)*



*The grand assault on Rinderpest at de Beers' Victoria Compound, Kimberley – Robert Koch (seated) with Duncan Hutcheon standing behind him; the obtrusive and unpopular Frau Koch; and Dr Kohlstock with Otto Henning standing between them.*

63 the 20th, the Executive Council voted 'the French experts' their £2,000 'to investigate cattle diseases' and, escorted by the French Consul and Veldcornet Melt Marais, they began looking for a suitable place to begin operations.

64 'The Government of the South African Republic did, it is true, coöperate with the Natal Government in making some investigations during the end of 1896 and beginning of 1897', reported C. B. Lloyd, 'but the Government did not hesitate to recall Mr Theiler, their veterinary surgeon, and his party to Pretoria at a few hours notice, just as the investigations were assuming a promising character. The Principal Veterinary Surgeon for Natal was thus left to carry on the work in the best way he could without any official recognition from the Transvaal authorities.'

65 At the end of 1897, Watkins-Pitchford was recalled and returned to Natal to combat threatened infection.

Theiler arrived in Pretoria on the 21st January 1897.

LIKE THE Irish Famine on which the general public (and Queen Victoria) turned a blind eye, the ravages of Rinderpest were never fully assessed ecologically. As much as the Jameson Raid veiled the approaching pandemic, so the Boer War obscured the changes it wrought.

Some were trifling. The shortage of meat, for instance, and the general anxiety to buy and store it when available, encouraged refrigeration and the purveying by hardware merchants of 'ice machines' and 'ice-safes'. Others were fundamental. When the lack of animals - oxen killed by Rinderpest, horses and mules by Horse Sickness, and donkeys by foot-rot - critically reduced transport and traction, mechanisation was forced upon all who could afford it. The extension of railways became vital. The bicycle business boomed. Electricity began to be applied to transport, particularly trams. The use of steam in industry was extended to agriculture.

To the 'backveld Boer' whose flocks and herds had been carefully increased over generations, the plough was of minor importance; but to the sophisticated farmers of mixed produce within reach of the omnivorous Witwatersrand, it was of the highest significance. As early as 1894, Samuel Marks, outstanding agricultural pioneer of the Transvaal, had imported two massive Fowler steam traction engines which, by means of hawsers drawing a plough back and forth, could furrow eight rows simultaneously. He used them on his Vereeniging farms to grow maize. It was a measure of the ravages of Rinderpest and the critical shortage of draught animals that in December 1896, Kruger turned his attention to this new source of agricultural power. At that time, his Government was advancing money for the purchase of tens of thousands of donkeys (at the preposterous price of £10-£12 a head - they brought their own diseases and later proliferated to the point of becoming vermin) and mules to maintain the country's economy. In devastated areas, it became commonplace to see a plough being drawn by a horse, a donkey and perhaps one surviving ox. Other teams were even more mixed.

At 6 a.m. on the 28th December 1896, His Honour and a large party of Government officials and English-speaking notabilities entrained in Pretoria for the 3½ hour journey to Vereeniging where carriages and carts awaited them to take them to one of Sammy Marks' innumerable farms an hour distant. They saw some of the operations of which the massive machines were capable - ploughing, harrowing and seeding - but not maize harvesting and bagging and other feasible phenomena.

Kruger regarded it with the closest attention, his perennial presidential opponent General Piet Joubert with him together with members of the Executive Council; the Surveyor-General Johann Rissik; Landdrost C. E. Schutte and Veldcornet Melt Marais of Pretoria; Hendrik Schoeman, a prominent farmer (and grandfather of a subsequent Minister of Agriculture); officers of the Staatsartillerie and others. 'It has been the intention of the Government for some time, in view of Rinderpest ravages, to introduce some steam-ploughs for the benefit of the farming community', Leo Weinthal wrote in his paper the next day. John Fowler & Co. were very aware of it and their representative Robinson had already sailed from England to exploit the Rinderpest situation generally. It was soon impinged on him. Travelling by cart through the Northern Cape, he was stopped at the Free State border and forced to carry his bags some distance across it to engage a local cart. The Free State was not admitting Cape infection. From Bloemfontein, he travelled to Pretoria and, expecting to be summoned at the routine hour around dawn, was accorded an unusual interview with the State President on a February afternoon in 1897.

7 'The President cross-examined me at some length with regard to the machinery turned out by my firm', Robinson reported. 'With him were six members of the Volksraad. My catalogue was handed to the President who appeared to express his satisfaction in short grunts and handed the catalogue round to each member present when the next page was opened. Evidently the members of the Raad present were farmers for they were much taken with the steam plough. They considered this to be the nearest approach to their ox-drawn ploughs. In fact, the President gave me a verbal order to send such a steam plough for his own use.' The news was published that Robinson's local agents, 'Messrs Reunert & Lenz have been favoured with an order from the State President for a Fowler steam plough'; but Kruger's progressive impulse was at that moment stilled by hope that the wizard at Kimberley had waved his wand (or his 'French savants' would wave their's) and abolished Rinderpest. The verbal order was not confirmed.

8 The worst effects of the continuing epidemic were human. The areas which bore the first vicious brunt before fences and puny regulations were imposed were Bechuanaland, the Protectorate and the Northern Cape. Of their large cattle population, the Mafeking district was left with 2,7% and Vryburg with 7,2%. The lack of cattle and game to eat the grass caused the veld to become rank and unsuitable for small stock. 'In some places not 30 miles from Vryburg', 9 the local magistrate reported, 'it is possible to ride for an hour through the veld and not see the spoor of a living animal - ox, cow or calf; horse, mule or sheep, goat or pig. The grass stands thick and high.' Khama's people in the Protectorate lost everything and like other natives elsewhere, postponed death by starvation through eating caterpillars, bark, roots and long- 10 decayed corpses dug up in desperation. The missionaries testified to it. The cost of transport had become prohibitive. Supposedly 'salted' oxen, originally £6 apiece, could now hardly be 11 had at £60. The stock farmers and transport riders, as Theiler had foreseen, became indigents. 12 The natives (wilfully murdered, as they saw it, by the white men shooting their healthy cattle) revolted in several places and in 1896/97, a 'war' broke out in the Protectorate with casualties on both sides. Distrust and intransigence long continued.

13 No 'wars' broke out in the northern and bushveld Transvaal which bore the first brunt with its western neighbours. The vials of evil abased the whole population, white and black. Not an ox was left in the Zoutpansberg and hardly a horse owing to the Sickness. Thrown back on their land, the natives cultivated their cereal crops which were totally destroyed by drought and locusts. Starvation resulted in 'lawlessness' and thievery. Thousands died and the sources of 14 labour diminished with crippling effect on industry.

15 The condition of the whites was no better. Nearly a million beasts or more than two thirds of the cattle population of the Transvaal ultimately died from Rinderpest. The wild animals too which might have been shot for food, were likewise destroyed and with them, the tsetse 16 flies. The Uitlander farmers turned to store-keeping and transport riding with donkeys. The Afrikaner stockmen, used in times of adversity to turning to their richer brethren and becoming bijwoners or quasi-tenants of small plots on their lands, now had no source of help and drifted as 'Arme Blankes' or poor whites to the towns. Churchmen spoke piteously of all. White men 17 in the north asked to be goaled for the sake of food. Natives ate disinterred carcasses buried many months before and, as manna from Heaven, the locusts which came in dense swarms. 18 Many were too weak to gather them. A relief Fund was privately started. Kruger received a deputation asking for action in relieving the famine in the north and assured its members that everything possible was being done. Totally insufficient supplies of maize were sent and shamefully exploited. Donkeys, too feeble to haul the loads drawn by horses, mules and oxen, 19 were supplied at cost on long-term repayment rarely rendered. A powerful and heartrending appeal, headed by the Dutch Reformed Church dominee, came from every denomination in

the Zoutpansberg, pleading for help for white and black, soon to be afflicted further by a lethal outbreak of malaria.

While Rinderpest continued to have its way throughout the land, the morale of the people was progressively broken. 'Nature' in drought and disease, pestilence and plague, combined with the 'scourge' to defeat the spirit of 'Man'. Only 'Science' could arrest the eroding process.

20 The Z.A.R. Government poured money into the grasping hands of its 'French experts'.  
21 Danysz had decided that their laboratory should be at Waterval, two hours ride northward from Pretoria. They required large numbers of salted and unsalted animals of all kinds. Theiler  
22 caused his experimental oxen to be brought from Marico, further embarrassing Pitchford who loyally continued to send the results of their joint experiments to his shanghaied friend. Buildings had to be erected, camps fenced, fodder supplied and a disinfection unit built. The research  
23 team was accommodated in 'Eberhard's Hotel', a tin building 400 yards distant, Mr Eberhard taking a lively interest in the proceedings (he died of jaundice in February 1899). Theiler pro-  
24 fessed himself pleased to have 'the opportunity to learn much about Bacteriology from these men which is not to be derived from bacteriological books'. He knew more than they about Rinderpest but could learn from their techniques. On the 15th February 1897, they began work on the lines Theiler and Pitchford had been pursuing, aware from Koch's Report of the 31st January that he had failed to isolate 'the fatal bacillus' and was conducting controlled investigations.

In a position of maddening frustration, Theiler was very careful, very correct, having decided that he would better prosper his cause by coöperating than obstructing. His command of French was invaluable to his two colleagues, inexperienced in sub-tropical conditions and diseases. Jean Danysz was a venal, managing and uncongenial man; but Theiler took to Jules Bordet, three years his junior. Bordet had scientific integrity. Danysz had other ends in view. They repeated Theiler's Marico experiments under his tutelage with inevitably the same result, having  
25 the grace to admit that they had not expected to find in South Africa a veterinary bacteriologist of his quality. In a servile situation rendered tolerable by being able to go home for weekends (tied to the house and children, Emma was denied even the respite of a visit to Pretoria for six months at a stretch), Theiler found self-expression in writing an account of 'Rinderpest in Sudafrica' which Zschokke published in the *Schweizer Archiv for Tierheilkunde*. He had also entered into fascinating communication with Surgeon-Major David Bruce.

Bruce was still at Ubombo studying the trypanosomes of Nagana which rivalled Rinderpest in destroying stock. It is possible that he occasionally came to Pietermaritzburg to inform Sir Walter Hely-Hutchinson of his progress and to confer with the new P. V. S. Watkins-Pitchford. These discussions resulted in Sir Walter's writing to the new British Agent in Pretoria, Conynham Greene, requesting that the Z.A.R. collaborate with Natal in a joint attack on Nagana.  
26 On the 14th February 1897, the Z.A.R. pronounced itself unable to comply and (doubtless with some satisfaction) gave as the reason that it was already employing two French experts and was unwilling to incur further costs. Theiler however maintained the connection on his own and  
27 corresponded with Bruce who sent him smears in which he saw 'the protozoa-like little fishes' devouring the red corpuscles. They inspired interesting hypotheses in his fertile mind and he sent some dogs to Natal to be infected by them.

Periodical reports came from Koch dutifully detailing his investigations along known lines. Like Theiler and Pitchford, he had achieved only 'passive' or short-term immunity with serum from a recovered ox. He was experimenting widely with sheep, goats, camels and all kinds of  
28 birds. In a coup de théâtre on the 10th February 1897, he announced the long-awaited lasting preventive and became the hero of the whole sub-continent. Theiler and Pitchford, saying nothing about it, had tried to make their anti-Rinderpest serum 'active' by subsequently



injecting the blood of an infected animal. Koch injected bile. In some mysterious way, the bile of a beast dying of Rinderpest was anti-toxic and conferred immunity when additionally injected.

29 Regardless of record, controversy on the nature of his discovery never ended. It was alleged to be entirely accidental – a happy fluke. Scoffing soon reach the point when Turner, Koch's friend and collaborator and cognisant of the thoroughness of his work, asked him pointblank whether it had been so. Koch answered – 'I was testing the virulence of the various fluids of the body and, amongst others, used gall from an animal dead of Rinderpest, fully expecting that it would communicate the disease. I injected 10 cc. into an animal which was none the worse for the experiment; on the contrary, when it was subsequently injected with Rinderpest, it resisted its action. I immediately tested the bile on six animals and obtained a similar result.' In a letter 30 to Kolle, he confided that he had had more luck than he had ever expected. The fortifying of an immunising serum with a subsequent injection of virulent blood was orthodox serum therapy (as most bacteriologists and Theiler and Pitchford knew); but 'quite new and having no connection with serum-therapy is the new method discovered by me'.

31 Theiler all but wept. 'Koch's discovery is the same as mine', he wrote, 'with this difference that he at once announced it while I wanted to await the result of further experiments. I have committed the grossest stupidity in not publishing the matter while Koch has concerned himself with ensuring that within a few days, the whole world knows.' The basis of Koch's 'discovery' remained the initial serum injection. Theiler was sceptical of the abracadabra of bile. Its 'microbes' might produce results other than enhanced immunity. 'I therefore think', he said 32 presciently, 'that Koch has been rash in making common property of his first favourable results before he had proof that it could be repeated wholesale.' Later he explained how Pitchford and he had set up an experiment 'to inoculate an animal with 10 cc. of blood, serum and gall' but no animals were then available and when they were, 'we completely forgot to inoculate with gall which we had found to be so swarming with bacteria that we simply did not believe in success – and now, there it is!' Pitchford in Natal was equally chagrined and planned to advance his claim to the earlier discovery.

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The implications of Koch's announcement were fundamental. Fences, slaughtering, quarantining, disinfection stations were now redundant. The Z.A.R.'s expansive gesture in importing Danysz and Bordet became a costly farce. Genius had triumphed. All Koch had to do was to teach inoculators how to administer his method. A demonstration was arranged in Kimberley for the 24th February.

33 Theiler and Bordet were summoned to the State Secretary's office to discuss the new situation and the constitution of the Transvaal's delegation. It consisted of Theiler; Bordet, Dr J. L. Laxton, surgeon to the Staatsartillerie; Douw du Plessis, Rinderpest Commissioner; Commandant D. J. E. Erasmus and Mr Piet Kruger, eldest son of the State President. For the first time, 34 'amateurs' were invited to join the delegation – Dr J. W. Stroud, a versatile dental practitioner who had vociferously promoted inoculation in the Press; and, significantly, three representatives of the Pretoria Agricultural Society – E. P. A. Meintjes, a miller, extensive landowner and member of the Second Volksraad; J. J. Enschede, a progressive farmer; and Michal Erasmus. They 35 left by train for Kimberley on the 21st February and put up at the Central Hotel. At other hotels 36 were the Cape's Secretary for Agriculture, Pieter Faure; Free State delegates and numerous military veterinary surgeons from Natal.

37 Despite his chagrin. Theiler was 'on all hands glad to be able to get to know this man person-

38 ally who is one of the chief founders of Bacteriology and one of the greatest authorities'. Koch was charming. Assisted by Kohlstock, he demonstrated every phase of his preventive method with animals in all stages. Theiler asked one question – would he recommend the double inoculation widespread? Koch said – No, only where the disease had appeared. Pieter Faure purred.  
39 The tough Boer delegates were convinced. D. J. E. Erasmus made straight for the Post Office on the same afternoon and telegraphed the Z.A.R. Government that his delegation had met Koch with most satisfactory results and was returning forthwith but a cable must immediately be sent ordering 500 small syringes from Europe. Typically Theiler dashed off to visit the mines  
40 and 'observe how the diamonds were extracted from the washed gravel' before the train left on the same night. The Transvaal delegation was back in Pretoria on the 26th February, its amateur members (particularly E. P. A. Meintjes who had wired the Agricultural Society from Kimberley) full of enthusiasm and ready to inoculate any amount of cattle with 'Koch's method'.

There were several impediments. 'Salted' oxen from which to produce the serum were rare.  
41 Victims did not die conveniently at hand so that their galls – 'they must be green and not yellow or brown or putrescent', Koch had firmly stated – might be extracted for further inoculation.  
42 Worse, there were no syringes. The Cape, in lesser need, gave 35 to the Transvaal. A few others  
43 were found elsewhere. Delfos Brothers in Pretoria frantically tried to manufacture them. Mr  
44 John Katz, a watchmaker-jeweller in Johannesburg, rode round the town on his bicycle buying every bicycle pump he could find. Tinkering them into practicable form as syringes, he took them to his friend Mr Ernest Collins of the silver-platers, List Bros. ('practical working jewellers – art workers in gold and silver') and, duly embellished with silver plating, they were sold to meet the crisis. There were other difficulties and a restive dissatisfied atmosphere began to arise. The finale came when Koch suddenly left.

Probably playing power politics and wishing to ingratiate himself with his grandmother (whom he had deeply offended by his Jameson Raid cable to Kruger), the Kaiser ordered Koch to leave without delay for India. The British Raj had failed to control an outbreak of bubonic plague. Koch was to go immediately to Bombay to wave his wand again. He was not unduly perturbed. His formula for preventing Rinderpest was safely in the hands of Kohlstock at Kimberley. The Cape Government had already sent Turner to learn the techniques from the master personally and he would take command of the Inoculation Station when Kohlstock left in June  
45 and Kolle came from Germany to replace him. (He had accepted Koch's suggestion that he take the Robben Island appointment and te Water, the Colonial Secretary, had formally offered it to him on Koch's recommendation but in fact he went to Kimberley.) Lacking the  
46 time even to make his farewells at the Cape, Koch left Kimberley at the end of March via Johannesburg to take ship at Durban. Inevitably, in growing disillusion, it was widely bruited  
47 that he had departed before his 'method' was fully proved. The Z.A.R. Government's share of the cost of his four month visit was £1,826.18s.2d.

These catalytic events and particularly his meeting with the great man in Kimberley at his moment of triumph, produced in Theiler the usual symptoms of euphoria. 'The next result for the Transvaal must be a huge Bacteriological Institute of which I very much hope to be the  
48 Director', he wrote, 'the two bacteriologists of the Pasteur Institute have assured me that they would recommend me to the Government for, as they say, they could hardly find a better person qualified in equal measure in Veterinary Science and Bacteriology. A fine compliment and also a splendid prospect!' His mood was not long sustained. Danysz was driving a hard bargain with  
49 the Government to continue their work for a year, primarily in perfecting their own preventive against Rinderpest and secondly in investigating Horse Sickness. Neither fish, flesh nor fowl in the arrangement, Theiler 'helped' them, never indicating how much it went against the grain.

50 Theiler and Edington knew more about Horse Sickness than anyone ever had. Theiler was confident he would find an inoculation but felt compelled to share his knowledge with 'the French experts' – 'I help them as much as I can. I should have liked to conclude this study by myself but find collaboration wiser and more efficient.' Only his long-term aim of appointment as director of a State Research Institute could justify his sacrifice.

51 At Waterval, the team mounted new experiments designed to derive a feasible inoculation against Horse Sickness. Against their will, the Frenchmen pursued Theiler's thesis that lasting immunity from Rinderpest could be achieved only with a serum and a subsequent injection of virulent blood. 'They made a mock of me until they learnt for themselves that it was so,' he wrote. He had himself successfully injected 1,000 cattle with 'Koch's method'; but throughout the sub-continent, there were cries of rage that it conferred no lasting immunity and worse, it gave the disease to healthy beasts and even produced others. Hutcheon, now staffed with 28 veterinary surgeons to combat the epidemic, sent 10 to Kimberley to learn the 'method' from 52 Kohlstock and Turner. Edington at his outstation at Taungs (later elsewhere) and at his laboratory in Graham's Town, laboured to improve on it and felt convinced that he had evolved three forms that would circumvent the dangers.

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53 So far from salvation having reached the Transvaal, worse evils came upon it. The donkeys – last bulwark against destitution – succumbed to footrot (Theiler and 'the French experts' notwithstanding) and in many areas, transport completely ceased. Anthrax appeared among mules. In the lowveld, whites and natives died in hundreds from a particularly virulent form of malaria. Johannesburg, the country's economic hope, sank into even worse slump than the post-Raid crash. Unemployment and complete destitution ensued. Going to Johannesburg to buy 54 horses for the Waterval experiments, Theiler found that his prosperous electrician friend, Ernst Lauber, had died suddenly of pneumonia and felt compelled to offer refuge and employment to his widow and two children.

Ominous moves menaced the State itself. British regiments continued to be landed at the Cape and Natal. The dodderly Sir Hercules Robinson, now Lord Rosmead, was replaced as High Commissioner for South Africa by the forceful Sir Alfred Milner. Kruger shook the quasi-democratic structure of his country by challenging his Chief Justice and maintaining that the State was above the Law. The ubiquitous Rinderpest crept insidiously onward throughout South Africa and particularly the Transvaal and was nowhere defeated. Protests and lamentations filled the entire land and the name of Koch was dragged through the mud. Sweltering 55 in Bombay, Koch heard from Kohlstock and was exceeding wrath, accusing the Cape Government officials of ignoring his technical instructions. Soon he would be back in Africa, the Kaiser 56 having ordered him to Tanganyika to investigate Malaria and Redwater (Texas Fever), then preventing exploitation of the uplands.

Theiler's precipitate translation from Marico to Waterval, leaving the layman Clarens in charge of experiments, and the hullabaloo of Koch's 'discovery' had not disturbed his faith in the line which he and Pitchford had been pursuing. He had been stopped in mid-course and it needed only to persuade the Frenchmen of the validity of his case to get on with it. Lacking a 57 line of their own, they were complaisant and sought the aid of the Z.A.R. Government in providing the most difficult requirement – a number of 'salted' oxen. Both the Government and neighbouring progressive farmers were consistently coöperative and the team was able to pursue an exceptionally wide series of tedious tests on the best conditions under which infected blood could be injected into animals, fortified by serum from 'salted' oxen, to obtain lengthy immun-

ity. Advantage could be gained from determining the correct dosage, the exact number of days intervening on dosing and exposure to infection, and a score of other points on which Theiler and Pitchford had been deprived of assuring themselves.

What emerged was a radical departure from accepted seratherapeutic theory. You bled a salted ox. Then you whisked the blood with a wire brush round a sterilised dish until it was defibrinated (the fibrin or protein material separated and sank, leaving a clear fluid). You injected a specific amount of this into a healthy animal and immediately exposed it for several days to active infection from Rinderpest victims in a kraal or enclosure, or by smearing their body material into its nostrils. Five or six days, later when the fever symptomatic of the disease usually developed, you gave it another injection of defibrinated blood. With numerous experiments on local farms, the team had assured itself of the lasting efficacy of this immunising treatment. Mortality was only 15%. Mortality from the disease was about 90%. They reported their finding to Landdrost Schutte.

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59 In the terms of a Government instruction to appoint an examining committee, he came to  
60 Waterval early in May to see for himself. The imposing grey-bearded Landdrost of Pretoria, just turned 50 but resembling a Biblical patriarch, was impressed. He called for a written report. The team submitted it on the 21st May under their three signatures. Theiler allowed himself some mild triumph. 'I have felt satisfaction', he wrote his parents, 'that the method which Pitchford and I worked out is at length coming into use and, as it seems, with very good results . . . I was the first to discover that serum does not protect against natural infection but does against infection with virulent blood. That is a phenomenon unobserved up to now . . .' To ensure that the double-injection of defibrinated blood in an animal wilfully exposed to Rinderpest infection really did immunise it, Schutte appointed himself chairman and secretary of a committee consisting of Commandant D. J. E. Erasmus, Douw du Plessis and the Landdrosts of the Witwatersrand, Aapies River and Derdepoort (both Pretoria) areas. As an officious Belgian doctor in Pretoria, Dr de Coninck had 'leaked' information on the new technique (to the annoyance of the team), there was keen anticipation and much dispute among the local medical wiseacres such as Knobel, Stroud and de Coninck. Knobel was not wanting in praise in letters to the Press for his friend of six years' standing, 'Dr' Theiler.

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62 By now, 'Koch's method' was widely discredited. While he was still in the country, the  
63 Afrikaner Bond (a widespread but reactionary political body in the Cape Colony) defeated a motion of gratitude to him and went on to recommend the abolition of the Colonial Veterinary Department. As Rinderpest swept deeper and hardly hindered into the Free State and Cape Colony, animus intensified and with it, the first factionalising. Turner and Kohlstock were Koch men. Hutcheon became an Edington man. Henning in the Free State remained a Koch man. Pitchford was a Pitchford man propounding a yet-unproved technique (Natal was still not badly affected). Few knew of developments in the north and the prospect of becoming a French man.

64  
65 The Committee went about its lengthy business of testing the claims of the Waterval team which, owing to the leakage of information on their 'preventive', they immediately put into practice. 'The Boers don't want any more to do with Dr Koch's gall inoculation and grab at  
66 our inoculation', Theiler jubilantly reported in one of his euphoric states arising from Knobel's public plaudits, 'I exerted myself to show people that in the job of Government Vet, I was no mere pill-pedlar . . . Now there will probably be a small war over the question who deserves the credit for first discovering this inoculation method. Qui vivra verra! Pitchford naturally defends his claims. I must be quiet and content with the fame which has fallen to the two Pasteur men. I think it pays me better and all will come right in the end.'

The Committee satisfactorily completed its work and on the 18th June 1897, the three scien-

68 tists presented their remarkable Report (covering 15th February–15th June) to the Z.A.R. Government. It dealt handsomely with the Theiler/Pitchford pioneering work on which the Waterval studies were based. Its most remarkable feature outside the exposition of the new technique and its success in the field witnessed by the Committee, was its urgent request to the Government to stage an ‘International Conference’ for the purpose of finally extirpating Rinderpest which otherwise might linger perpetually in Africa. The Government acted with 69 praiseworthy speed and took four notable decisions – to publish the Report (its rapid appearance in Dutch only with limited distribution for a long time prevented a large number of influential persons, particularly Hutcheon, from appreciating its significance; unlike Pitchford and Hutcheon with their Colonial *Agricultural Journals*, Theiler had no means of publishing his work except in Switzerland); to provide at once the means of implementing the new method against Rinderpest; to equip Danysz and Bordet with 6 assistants to learn and propagate the method; and to organise without delay an ‘International Conference’ from the 2nd to the 13th August. It may be supposed that in addition to its altruistic motive, the Z.A.R. Government was anxious to vaunt its triumph over its Colonial rivals in the Rinderpest campaign.

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70 At that time, xenophobia reached extraordinary heights locally and abroad, particularly in bald-headed attacks on the Cape’s employment of Koch. Feeling against ‘the German adviser’ was vitriolic throughout South Africa. Farmers whose healthy cattle had died by his ‘immunising means’ could hardly be silent. In vain did Turner and Kohlstock protest that the beasts were probably in the first stages of the disease when injected or the victims of ‘vengeance infection’ or unhygienically inoculated or poisoned by putrescent bile. The outcry continued, powerfully stimulated by prodigious efforts throughout the Colonies and indeed in the two Republics themselves, to celebrate ‘the Queen’s Record Reign’ in unprecedented manner.

71 It was widely mooted that the Z.A.R. was run by ‘foreigners’ and although the earlier antipathy against the preponderance of Hollanders in high positions had somewhat subsided, it behoved *The Press* early in July 1897 to publish the incidence of exotics in the Transvaal Civil Service (gladly supplied by the Acting State Secretary, C. van Boeschoten).

Born in Holland	– 306
England	– 107
Germany	– 66
France	– 6
Other European States	– 17
Other parts of the World	– 4
	506

The exotics, it was established, were heavily out-numbered by locals:

Born in the Republic	– 682
Cape Colony	– 478
Orange Free State	– 105
Natal	– 42
Other parts of South Africa	– 145
	1,452

72 Nonetheless, when the Pretoria newspapers continued their prolonged and vain pleas for a Department of Agriculture, it was pointedly said 'We do not want a Department of imported savants, men who would be content to sit in their offices or at most busy themselves in a laboratory and issue instructions that would not be understood by the people . . .'

73 This widespread popular hysteria was the probable cause of Theiler's playing a very careful hand. He was acutely aware of it as well as his current status as a 'horse doctor' and not a qualified bacteriologist in the sense of 'the French savants'. Even more insistently than in the past, he bombarded his father with requests to forward all his old textbooks and to order the latest works on Bacteriology, Geology, Astronomy and scientific advance, especially in French. A tireless and omnivorous student, he was determined to emerge from the Rinderpest imbroglio as a research scientist, a veterinary bacteriologist – certainly not a veterinary surgeon.

74 Bedevilled though it were by political, economic and financial difficulties and a forthcoming presidential election, the Z.A.R. Government removed every impediment to the successful staging of the Conference. Funds and facilities were made available in abundance to Jean Danysz, more entrepreneur than scientist, and he organised an occasion in keeping with the best examples overseas. There were towering hindrances. The Conference would be quadrilingual (Dutch, French, German and English) and, without any mechanical aid, must be made simultaneously intelligible to all delegates. Dutch would be the official language but interpreters would translate the speeches as they were made. Papers and minutes would be manually recorded, translated overnight and placed on delegates' desks the next morning. There would be fights – political acerbities between Colonial powers and republican representatives, and violent disagreement among the scientists. The Executive Council gave very careful thought to formalities, agenda and procedure. All were rigorously specified. Dr W. J. Leyds had again gone to Europe but the Acting State Secretary C. van Boeschoten would formally open the Conference. The chairman would be the imposing Landdrost C. E. Schutte who would welcome the delegates in a strictly factual speech detailing the reasons that brought them together.

76 In the six weeks that elapsed between the Government's decision and the opening of the Conference on the 2nd August, Rinderpest suddenly flared into raging life and blazed into Natal and through the whole Cape Colony down to the sea. Nothing stopped it. Cattle died in tens of thousands and the money poured like water into 'defences' was utterly wasted. Hutcheon and his large team, operating with Edington's new 'glycerinated bile', inoculated all they could. Pitchford, much less equipped, used his own version of his 'discovery' and saw one district after another succumb.

77 In the Transvaal, energetic activity quite foreign to the overseas conception of 'the Boers', was everywhere manifest. Danysz, Bordet and Theiler's Report, printed and circulated in Dutch, was now published in English in the Pretoria *Press*. The instructions for the new method were also printed in Dutch. Invitations to the Conference were telegraphed to all Governments, 78 followed by copies of the Report by post. An Information Centre was opened in Pretoria where Theiler's compatriot, Ernst Ruegg expounded 'the French method'. A conference of Veldcornets 79 from the whole Transvaal was summoned to learn about it. In the absence of the State President at a secret session of the Second Volksraad, the Vice-President (and a presidential candidate) General Schalk Burger took the chair. The unilingual Danysz could not read his Report but Theiler spoke for him and the following day (27th July) gave a demonstration to the Veldcornets (who were expected to operate the procedure in their districts) on 70 cattle on the State President's nearby farm on the Wonderboom road. An interested spectator was Commandant- 80 General Piet Joubert, also a candidate. Kruger, having dismissed incense bark and podopyllin, 81 had provided powerful argument in favour of Science. At the same time, the Executive Council resolved to continue to subsidise Danysz and Bordet to the amount of £14,991 in periodic

82 advances for the purpose of finding a specific against Horse Sickness. Theiler's friends in the Press used it all to continue their campaign for a Z.A.R. Department of Agriculture with its own veterinary scientists and no need to import expensive experts from overseas.

83 Some delegates (all guests of the Government) arrived early. Among them was Turner, now highly expert after coöperation with Kohlstock (who had gone to German South West Africa to defend it against Rinderpest with 'Koch's method') and the amiable young Kolle at Kimberley. They had tried, like Theiler, to produce hyper-immunisation by injecting increasingly heavy doses of virulent blood into a 'salted' animal and thus deriving a particularly powerful serum. Turner, proficient in French, had hustled off to meet Danysz and Bordet and, hearing what they had to say, immediately telegraphed the Cape Government that 'the French method' was the best in certain circumstances but Koch's in others. The Cape delegation was listed to consist of Turner and Edington; but when the Conference opened, Turner stood alone. Edington was too busy producing 'glycerinated bile' for Hutcheon's enthusiastic use. Pitchford too was an absentee owing to the rapid invasion of Natal.

84 In Turner alone, the Conference had attracted explosive material but there were others who, but for the calm chairmanship of Schutte, might have defeated its purposes. The cross-currents were powerful and bitter. Natal was represented by its Commissioner of Agriculture, C. B. Lloyed and the brilliant British Army Veterinary-Captain A. J. Haslam with experience in India who spoke with brusquerie and point. Its delegation was accompanied by A. K. Murray of the Natal Farmers' Conference. The Free State sent its Rinderpest Commissioner T. Brain and its veterinary surgeon Otto Henning. The Portuguese possessions (Mocambique and Angola) were represented by the Mayor of Lourenço Marques, Dr Mario de Nascimento whose attendance was intermittent owing to attacks of malaria; and the German (South West Africa and Tanganyika) by the German Consul in Pretoria, F. von Herff. The Z.A.R. delegates, with Danysz and Bordet in attendance, were the Landdrost of Pretoria and Mr Theiler; but as Schutte was constantly in the chair, the onus fell on Theiler. The Pretoria Agricultural Society sent the respected F. T. Nicholson who shortly founded the Transvaal Agricultural Union. Various 85 accredited individuals such as Commandant D. J. E. Erasmus and E. P. A. Meintjes also intruded remarks. All the delegates were either passionate proponents of one 'method' or another or carried some sort of chip on their shoulder, mostly in the form of fanatical loyalty to some or other scientist. Strong political bias further distinguished them. The Conference Minutes, comically translated into English, hardly reflected the tensions.

86 Including the interpreters and general secretary, Dr Tresling, there were at no time more than 20 clamant gentlemen in the large room of the new Staats Gymnasium (college) where the Conference was held. The quadrilingual Theiler (who spoke a great deal) and the trilingual Turner greatly facilitated the deliberations and were later thanked. The atmosphere was one of close and combative intimacy. On the first working morning, Turner, Haslam and Henning established their varying expertise and Theiler read a paper on the history of the epidemic. In the afternoon, the delegates were taken to Waterval where Danysz and Bordet demonstrated 'the French method'. On the following day (4th August), Watkins-Pitchford made a surprising appearance, seeking permission to participate but not as a member of the Natal delegation. He did not speak. The day (and the night when Theiler took the chair) was devoted to a critical examination of 'Koch's method'. Turner vehemently defended Koch, particularly in point of his precipitate departure for India on orders from his Emperor, and read a long telegram from Edington extolling 'glycerinated bile'. No one paid attention. The Frenchmen moved that the bile method was dangerous and it were better to discuss the use of blood. Natal enthusiastically agreed. Rinderpest had begun to ravage their Colony and Lloyd, Murray and Pitchford were thereupon forced to depart from the Conference, leaving Haslam to represent them.

87 Lloyd left a dramatic document which was read the following day. It recapitulated the Z.A.R./ Natal enterprise at Marico in 1896/97 and concluded – ‘The Congress will observe that Drs Danysz and Bordet from the time of their arrival were placed in the favourable position of having at their disposal the result of four months’ continuous and successful labour conducted by Messrs Theiler and Pitchford. I have now read the Report which has been presented to the Conference by Drs Danysz and Bordet and so far as I can see, there is but little difference between the results communicated in that Report and those obtained by Messrs Theiler and Pitchford in 1896. The latter gentlemen obtained certain results but could not take advantage of them, Mr Theiler because he was recalled by his Government and Mr Pitchford because, up to the middle of June last, there was no Rinderpest in Natal. No doubt the Congress will appreciate the labour performed by each of the experts in the case of the sero-therapy of the Rinderpest in South Africa.’

88 There was more than met the eye in the simple statement (doubtless drafted by Pitchford).  
89 There was the reward demanded by Danysz and Bordet from the Z.A.R. Government. There was the possibility of prizes. There were the million roubles offered by the Russian Government. Without doubt Watkins-Pitchford had planned the move and Theiler immediately and joyously qualified it at the Conference with circumspect reference to his French colleagues. He and Pitchford had indeed established the immunity conferred by the blood of ‘salted’ animals (as Semmer in Russia had done); but ‘several important points had to be correctly set forth. The merits connected with the method as at present applied, must no doubt be ascribed to the experimenters at Waterval.’

90 The Conference proceeded to discuss it and Theiler went home to write gleefully to his parents – ‘The two gentlemen from the Pasteur Institute did not express themselves honestly enough in regard to my previous co-worker and myself. I am now in a position to tell you that we today won a complete victory in that it was recognised by the Congress that Pitchford and I are the first experimenters to demonstrate the value of serum in combatting Rinderpest and clarified the way by which it should be done.’ Excited and stimulated as ever, he was full of the zest for work. Emma was eight months pregnant and overburdened by the responsibilities of her family and the problems of Frau Lauber; but there was peace at home (now accessible by the horse and cart on which they had spent their savings) and great prospect in the future.

91 Never more than the proverbial ‘talking shop’, the Conference gabbled on for another week in a rising temperature. Haslam was reactionary and didactic. Danysz, Bordet and Theiler pushed their method. Turner, Henning, von Herff and Brain promoted Koch’s. The great man was already on his way to Dar-es-Salaam to deal with Redwater and Malaria. When Kolle wrote him of the attacks, he replied with great fury, accusing the Cape Government of falling between the two stools of his method and the magic medium with which Edington and his supporters proposed banishing the disease without work or expense. At the Conference however, his proponents campaigned strenuously to restore his good name and, as tempers shortened, various ‘commotions’ occurred. National rivalries predominated even as, in the words of the chairman, Rinderpest was assuming ‘gigantic proportions’ throughout Southern Africa. Time ran out before the bickering became serious. It fell to Danysz to propose a course of action deriving from the discussions. Doubtless with an eye to his own occupation of the directorship, he suggested an International Experimental Station for Rinderpest and was roundly rebuffed by the delegates.

92 Votes of thanks were then proposed, Danysz delicately saluting the contribution of Koch.  
93 Turner, oldest and most outspoken of the delegates, seconded his motion in terms typical of the times but unrecorded in the Minutes – ‘It is with much pleasure that I rise in seconding the proposition of my French colleagues. After all the misrepresentation and abuse from which Professor Koch has suffered, it is indeed pleasing to hear the value of his work frankly and ungrudg-



ingly recognised by those so well able to estimate its importance and especially by those who have also conferred an incalculable benefit to South Africa in demonstrating the use of defibrinated blood and in defining when and how it may usefully be employed. I cannot help contrasting the correct and manly conduct of the Frenchmen whose services the Transvaal has been fortunate enough to retain, with that of some of my countrymen in the Cape Colony apparently because Dr Koch happened to be a German. In fact this has been openly said. Those who were instrumental in calling him to our aid in our dire necessity, have been blamed. His successes were suppressed and repeated failures magnified and published industriously in the Press. Even suggesting that Science recognised nationality which it should not, it could be accounted Dr Koch's misfortune and not his fault that he was not born a subject of Her Gracious Majesty Queen Victoria and no man must be held responsible for a matter over which he has no possible control. We easily support those disadvantages of which we are not cognisant. Let us hope that Koch is yet mentally unaware of all he has lost by being born under the German Eagle rather than the British Lion. Not satisfied with belittling Koch's work, others have not hesitated to appropriate it in its entirety and to make capital out of it.'

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The cap closely fitted Edington. Turner departed and quarrelled seriously with Hutcheon and Edington, resulting in the Cape's simultaneously promoting 'the Koch method' and 'Edington's method'. Edington ultimately received many expressions of gratitude for having 'saved' the Eastern Cape. At Kimberley, the Victoria Compound now produced vast quantities of Koch/Kohlstock/Turner/Kolle specific which, Theiler was later to pronounce, 'did more harm than good'. The Conference could be said only to have established the validity of the 'German' and 'French' methods and to have publicised the scientific work of Danysz, Bordet and Theiler. Watkins-Pitchford was not prepared to let the matter rest there.

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In the meantime, Rinderpest ran its course until it reached the sea, costing the Cape £1,196,360 and 35% of its cattle; Natal a preliminary amount of £200,000; and incalculable amounts in the Transvaal and Free State. It had had the effect of propelling veterinary science into the forefront of public consciousness and the veterinary surgeon into reluctant acceptance by farmers at large. No one could count the moral damage it did to the people, black and white, in the areas of worst infestation.

## OVER THE HILL 1897-1898

1 A TRIVIAL EVENT determined fundamental development in the economic and ecological history  
 2 of the world. On the 19th August 1897, Mr David Buchanan sat down and signed his name to a  
 letter written for him in Dutch (which he could not speak) asking the Landdrost of Pretoria  
 whether he might hire the long-derelict Disinfection Station at Daspoort at £5 a month for  
 three years. Still bruised by his Conference experience, Schutte sent it on the 30th August for  
 comment by the Head of Public Works, S. Wierda who was responsible for the building.

There lifted too over the Transvaal horizon a cloud no bigger than a man's hand which, if  
 it did not have the same world-wide influence, certainly closely affected it. Early in the century,  
 English colonial enterprise had fostered agricultural societies which, toward the end, associated  
 themselves into powerful 'Unions'. The Cape naturally led; but by 1891, the Natal Agricultural  
 Union had been formed and provided beckoning example. It was no time for the Transvaal,  
 subsequently crippled by Rinderpest, to follow.

3 In 1897, the Pretoria Agricultural Society had been prevented by the rampaging disease from  
 holding its annual Show; but it courageously persevered (Theiler was made a vice-president and  
 4 a member of the Executive Committee in November). Among its far-sighted British and Boer  
 5 members was a scholarly Methodist school-teacher F. T. Nicholson who had taught English for  
 13 years in State schools, acquiring thereby a faultless proficiency in Dutch and writing ably in  
 both for the Press. For sheer love of the land (next to his books, he cherished his garden most),  
 Nicholson drove toward forming a Transvaal Agricultural Union compounded of the societies  
 of Pretoria, Klerksdorp, Barberton, Vryheid, Johannesburg, Middelburg and Lydenburg. With  
 Pretoria represented by Nicholson, J. J. Enschede and R. T. N. James, they met on the 29th  
 6 September and, finding accord, met again on the 14th November 1897 and founded the Transvaal  
 7 Agricultural Union. At that meeting, Dr J. W. B. Gunning, a versatile Hollander qualified in  
 medicine and zoology and serving as curator of the State Museum, delivered a resounding  
 address on policy, principally advocating a State Department of Agriculture that would deal  
 inter alia with stock diseases. Only the Free State rivalled the Transvaal in reactionary attitude;  
 but now a powerful pressure group began to assault the conservative citadel of the Z.A.R. Its  
 tireless and universally-respected secretary was F. T. Nicholson.

Enheartened though he might be by these developments, Theiler was an unhappy man. Over-  
 8 whelming depression and distress debilitated the whole country, now threatened by a frightening  
 outbreak of Smallpox in Pretoria. State and voluntary relief was totally inadequate. A week  
 before his birthday in October, Kruger held another Day of Humiliation in the face of poverty,  
 depression, drought, locusts and the ubiquitous and unabated Rinderpest. The Z.A.R. treasury  
 9 was empty and, confronted by the Cape with a bill for £1,826 as its share for Koch, the Govern-  
 ment climbed down from its high horse and asked its colleague States to help pay for Danysz  
 and Bordet. They had so far cost £15,400 - expenses: £9,400; bonuses: £6,000. All replied acidly,  
 Natal stating that it considered Theiler and Pitchford to be the originators of 'the French  
 method' (Pitchford was busy establishing his case). It irked Arnold and Emma almost beyond  
 10 endurance that Danysz and Bordet should be rewarded with bonuses totalling £6,000 while  
 Arnold, the founder of their success, received 'not one red heller'.

Theiler went about his business as Gouvernements Veearts while Danysz and Bordet toyed  
 11 with Horse Sickness experiments suggested by him at Waterval. Officially he was based there to  
 assist them as he frequently did. Meanwhile Wierda had asked Schutte whether he had any ob-

12 jection to the Disinfection Station being hired and Schutte said No. While the matter received further departmental consideration, Theiler went to the wedding of Schutte's daughter. He sedulously kept in the favour of his supervisory Landdrost but he attended the festivities alone. Four days later, Emma presented him with a second daughter Gertrud on the 11th September – 13 'we hope this will be the last', they wrote. During those four days, Theiler's feelings of victimisation had been immeasurably and publicly exacerbated.

14 On the 10th and 11th September, the Volksraad debated a petition signed by 76 citizens of the Lydenburg district in the eastern Transvaal that the post of the Government Veterinary Surgeon be abolished. The Petitions Committee had recommended that it be rejected; but for two days it was hotly contested and the issue in doubt. Without mentioning his name but heavily emphasising 'the doctors whom the State has got out from Europe', members asked what use was Theiler? what had he done for Glanders among Staatsartillerie horses except order their destruction? what had he done for Rinderpest except order cattle to be shot? what animals would have been left if his advice had been followed? what remedies indeed had he discovered? he was in fact no more than a hanger-on of the French scientists. The progressive members spoke less but equally forcefully, led by the young Louis Botha and supported by General Schalk Burger (a member of the Executive Council), the English R. K. Loveday, S. Erasmus (brother of D. J. E.) and others. On the second day, Louis Botha moved that the discussion be closed and the motion 15 put. The Gouvernements Veearts was retained by 13 votes to 9, the result being applauded in the Press.

16 Three months before, Edington, Hutcheon and his troop of 'English vets' had been equally roughly handled in the Cape Parliament in discussion on a motion to reduce the Agricultural Department's vote (lost by 42 to 17) – a procedure which became an annual event and for Watkins-Pitchford too in Natal. In the Free State, Otto Henning pursued an unstable way. Reactionary opinion, heavily enhanced by nationalist sentiment, prevailed throughout Southern Africa but to a lesser extent in Natal where Watkins-Pitchford was establishing his bacteriological research laboratory at Allerton outside Pietermaritzburg, and in the Basutoland Protectorate 17 where Godfrey Lagden had successfully repulsed Rinderpest, first with the aid of H. T. Armstrong M.R.C.V.S. lent by Hutcheon and then by W. R. Davis M.R.C.V.S. appointed to his staff. Veterinary Science and particularly research had far to travel before it made its way in official and public estimation. Typically Theiler was undaunted. He always was when at home with his family.

18 The uncongeniality of his association with 'the French savants' was increasing. While he respected and liked Bordet, he suspected Danysz of purely commercial motives unrelated to the Pasteur Institute whose good name, Theiler thought and stated, he exploited and dishonoured. 19 Danysz had decided that Waterval was unsuitable for Horse Sickness experiments and, demanding the importation of animals from Basutoland and the Argentine, examined distant properties for a site for a new experimental station. He settled on ground 400 yards from the little dorp of Belfast in bleak flat veld on the Lourenço Marques railway line. Waterval was to be dismantled and transported there together with the horses. The staff, consisting of four Swiss recruited by Theiler – D. G. I. G. Schroeder, A. Brenzikofer, Alfred van Bergen and Charles Favre – would live in an hotel. Theiler would be exiled and deprived of his family for months at a stretch.

At that stage in his baulked and unhappy career, insignificant event inclined in his favour and, alert, ambitious and dynamic, he took full advantage of it. The utilisation of the abandoned Disinfection Station at Daspoort had at last received Wierda's final consideration. If Mr Buchanan and other desired to hire it, the proposition should be put out to tender; but before doing 20 so, he asked Schutte to consult Theiler. Schutte advised him on the 15th September that Theiler

- 21 was at Waterval and that he had forwarded the request of the Head of Public Works. Theiler received it on Thursday the 16th and, his mind aflame, took it home for the weekend. There were works to be consulted before he could constructively answer Wierda. Above all, he needed Edington's annual reports (though he lacked the most recent). It took him a week to frame his reply and the clerk at Waterval copied it beautifully and expansively on only 3½ sheets; but its effect was worldwide. He sent it to Schutte on Saturday the 25th and went home for the weekend to write to his parents.
- 23 Theiler began by seeking Schutte's aid in promoting his proposal which he conceived to be part of the function of the Government Veterinary Surgeon. He wanted to convert the useless Disinfection Station (built only 9 months previously) into a Vaccine Institute and he produced very convincing figures in support. The Z.A.R. and private practitioners within it had bought 18,363 tubes of various vaccines from Edington's Bacteriological Institute at Graham's Town (to which the Z.A.R. also contributed £300 a year) during 1894 and 1895 at a cost of £2,931.
- 24 (At that moment, both purchasers were spending £761 on 10,154 tubes in 1897 alone.) Theiler pronounced himself capable of producing first-class vaccine from calves (which could also render profit as meat) cheaper and better than Edington. Further, epidemics like the current Smallpox could be aborted at outset. He supported his scheme with persuasive figures, requiring only that the Disinfection Station be fenced with corrugated iron six feet high and stalls provided for calves. The problem of its disposal would fall away and it would become a State asset.
- 25 Schutte received the letter on the same Saturday and without delay, forwarded it to Wierda under cover of a memo asking him to submit it to the Government under the personal recommendation of the Landdrost of Pretoria. Simultaneously Theiler wrote his parents - 'I have today made a proposal to the Government which Mr Schutte has actively supported. As he has manifest influence with the President, it is possible that my plans may be realised. Financially I will really gain nothing; but once in operation, I will take care to produce good wares which will serve me in reputation and recommendation. This is part of a proposal to the Government that my Department should be defined and reorganised. If the Government agrees to my proposal, I will clearly have assured my position.' He was in fact deeply depressed. His scheme involved changing the mantle of 'the horse doctor' for that of the vaccine factory manager with no advance in his career as research worker in veterinary science; but, in very troubled times, it would at least promise security.
- The immediate prospect of exile at Belfast with his quarrelling colleagues (Danysz and Bordet now hardly spoke to each other) further blackened his mood; but he tried to put a face on it for his parents' sake by proposing to take time off at the new station to go to Lourenço Marques. Its mayor, Dr Nascimento, had invited him at the August Conference. Rinderpest was now
- 27 massacring untold numbers of domestic and wild animals in Portuguese East Africa and the adjacent Swaziland. It had also reached the suburbs of Cape Town. Koch in Dar-es-Salaam
- 28 (where he had had less luck) fulminated against the 'intrigues' of Hutcheon and Edington to discredit him and assured Kolle that it was as good as settled that he would return to South Africa. With his protégé and Turner, he remained on cordial terms. They claimed to have refined
- 29 his 'method' to a higher degree of efficiency. Their colleagues continued to dispute it.
- 30 Schutte, high in the Government's favour and much enlightened by the gabblings of the 'International Conference' where the complexities of veterinary science and the passions of scientists had been dramatically proclaimed, now encouraged Theiler to speak his mind and to lay before the Government the grand concept that burnt there. He authorised him to take a week off from Waterval (then in process of transition) and to occupy himself at home at Les Marais in writing a letter to the Under-State Secretary clearly defining what he meant by the



*The effect of Rinderpest – a Boer trekking with eight 'Government' donkeys and the last dying cow of his herd of 160 beasts.*



*Jules Bordet (later Nobel laureate) who joined Theiler in investigating Rinderpest at Waterval outside Pretoria in 1898, here recording results in his bedroom workroom at the primitive local inn.*



*Theiler (standing) Watching Bordet make microscopic investigation into Horse Sickness at Waterval.*



*Danysz (extreme right) supervising the dragging of the corpses of horses dead from the Sickness to the Belfast Experimental Station.*

*Free at last ! - Theiler (second left with Favre on his right) in charge of the Belfast Experimental Station after the departure of Danysz and Bordet, and now conducting his own Horse Sickness experiments with the assistance of compatriots.*



scope and functions of his 'Department'. They had often discussed them and Schutte, privy to the charmed circle, felt the moment had come.

31 Throughout his life, Theiler was distinguished by a gift of empathy. While superficially he appeared merely gregarious, in fact he was capable of projecting himself into the mind and attitudes of every kind of person (except perhaps his children who often baffled him) and adjusting his thoughts and conversation to the level he found. Now, in defining the 'Department of the Government Veterinary Surgeon' in his letter to Krogh, he put himself in the position of the fierce old reactionaries who had attacked him in the Volksraad, and of the cold shrewd Hollander civil servants who, confronted by an empty Treasury, were equally resistant to change because of its cost. His letter was as much a masterpiece of plausibility as of visionary good sense.

32 He began it by recording what he had done in the first ten months of his appointment before the helotry imposed by 'the French experts', emphasising his discovery in collaboration (sic) with Pitchford of a means of immunising against Rinderpest. He had also dealt with the horses in the Artillery Camp and the donkey disease. But, he pointed out, the functions of the Government Veterinary Surgeon were nowhere fully defined, the Glanders Act (No. 8 of 1894) being the only relevant guide to certain limited activities. He had however concluded that there were three functions – to advise the Government and general public on diseases in domestic animals; to devise cures where none existed; and to serve as horse doctor to the Staatsartillerie.

33 Through his work in different parts of the country and (cunningly) from the discussions in the Volksraad, he could grasp what was expected: the Gouvernements Veearts should be

1. head of his department and directly responsible to the State Secretary Section B (i.e. Internal Affairs with which T. J. Krogh dealt while Dr W. J. Leyds or his alter ego C. van Boeschoten dealt with Section A – Foreign Affairs);
2. concerned with diseases of domestic animals;
3. at the behest of farmers and inhabitants of the State for advice on treating animals, and of the Government to investigate unknown diseases.

34 In his logical simple way (derived, it was later said, from the peasant stock from which he was sprung), Theiler then examined the implications of these points.

Firstly an Information Office was required to combat current misapprehensions both in the old farming community (which had misunderstood the nature of Glanders and the urgency of eliminating infection by destroying animals) and in the new land-owners who needed to discuss their cattle problems. Further, good public relations should be established and information conveyed through the newspapers and the *Staatscourant*. A secretary would be required.

Secondly – and this Theiler accounted the main task of a veterinary surgeon in South Africa and pre-eminently of a Government appointee – he must be an experimenter. He gave as an example Sponsziekte (Blackleg or Quarter Evil) which wrought great destruction among calves in the Transvaal (and which he had experimentally combatted in D. J. E. Erasmus' herds in his early days). The ravages of Rinderpest, wrote Theiler pointedly, made such experimentation the more necessary. He had proved the efficacy of the Swiss inoculation against Sponsziekte. Now there must be a research institute or laboratory where all diseases could be investigated and means found to combat them. Everyone knew (even the most reactionary Boers though he did not say so) that Lung Sickness could be prevented by primitive inoculation. The laboratory could make and supply superior inoculative material.

Further, vaccine against Smallpox could be produced in bulk and here Theiler smote his superiors again with the £3,000 per annum that had gone out of the country in 1894/95 to Eding-

ton and the £300 per annum that went to his Graham's Town Laboratory. All that money, he observed heavily, could have remained in the country and neighbouring States could have added to income by becoming customers of a State Institute. Sales of vaccines could pay for the whole of the Government Veterinary Surgeon's laboratory (as he well knew they had done in Edington's pioneering case).

Cutting his cloth according to the stringent pattern imposed by adversity, Theiler proposed a total annual expenditure of less than £2,000 on a Vaccine Institute producing inoculations for Sponsziekte, Lung Sickness and Smallpox with two assistants, each with three 'Kaffir' helpers, and a supply of calves. It would no longer be necessary, he emphasised, to pay the annual £300 to the Cape Government for Edington – an exceptionally cogent point.

Then he expanded his grand concept. The vaccine factory could also serve as a Research Institute for the investigation of intractable diseases beginning with Horse Sickness. His French colleagues had been experimenting with inoculation at Waterval and if they succeeded, production of a serum would have to be undertaken. Equally urgent was the problem of Redwater which, strangely, was better resisted in Natal and the Transvaal by cattle than in the Cape Colony. The question of importing cattle to replace stock destroyed by Rinderpest was of paramount importance; but more than half of imported stock contracted Redwater and died. A form of immunity was essential and (referring to but not specifically mentioning his private researches in Johannesburg and Les Marais), he thought he had isolated the causal microbe of what seemed an infectious disease. He was convinced that animals could be 'salted' against Redwater. He touched tellingly on Heart Water, Gall Sickness and Stiff Sickness – the perennial banes of the Boers – as suitable for full investigation before moving from the known to the unknown and dwelling on the need for research.

Theiler was now on beloved and much-considered ground. He laid before the Government the simplest and cheapest manner in which the State could acquire an Experimental Station without incurring the heavy charge which Pitchford had laid on Natal in building and equipping the Allerton Laboratory. Theiler went so far as to offer the use of his private laboratory with all its instruments, apparatus, microscopes, etc immediately to get a research institute going. It would require stables, a store, quarters for the kaffirs and grazing for the experimental animals. Such accommodation could be transferred from the now obsolete Waterval experimental station and the site, with grazing, according to Theiler, chose itself. It should be near enough to Pretoria to enable him to ride to his office in town and close enough to his domicile at Les Marais between Wonderboompoort and Daspoort for him to supervise its activities. Lo, there at Daspoort was the Disinfection Station ideally placed! All that was necessary to convert it was to insulate the interior from the baking heat or penetrating cold of its corrugated iron construction by lining it with brick. That, wrote Theiler, would cost only about £50. Grazing could be arranged with the farmer on whose lands it stood.

Methodically he returned to the third supposed function of the Government Veterinary Surgeon – horse doctor to the Staatsartillerie. It was, he said, outside the compass of anyone engaged in all the other activities but could be arranged in conjunction with the unit's medical surgeon. If the horse doctor visited the Camp thrice a week, Dr J. L. Laxton (an Englishman) could maintain order in between. A special fee for this work had been allowed in the Estimates in the terms of Act No. 1 of 1896 which provided the Staatsartillerie with a 'paardenarts'.

In manly manner, Theiler now turned to his own case. He had been working for six months with the Frenchmen, not knowing whether they were staying. The Government was now fully aware that 'the French method' was based on his and Pitchford's work and their experiments at Waterval had merely proved it. He wished humbly to remark that Horse Sickness could be attacked in the same simple and inexpensive way as had been used at Marico. He implied that



he had the advantage of local knowledge and much experience in the field, instancing his work with Lung Sickness, his successful inoculation of 500 of D. J. E. Erasmus' cattle against Sponzietke, his production of Smallpox vaccine in Johannesburg in 1893 and later, and his treatment of and research into Horse Sickness, Redwater and other indigenous diseases on which he had contributed articles to overseas scientific journals (the *Schweizer Archiv fur Tierheilkunde* had in fact published nine during 1897 on Rinderpest, Bovine Tuberculosis, Black Quarter Evil, etc, the incidence of animal diseases in sub-tropical areas being virtually unknown in Europe at the time). He was impelled to mention these things in the light of the unfair treatment sustained at the hands of some members of the Volksraad. He had been accused of failings which fell outside his capacity as Gouvernements Veearts. He therefore asked that his position be clarified so that people should know for what he was responsible and what services he could provide. The establishment of a Bacteriological Institute would serve the State well in this connection. He would be glad to elucidate the matter verbally if required.

In the meantime, he would assist Danysz and Bordet at the Belfast experimental station with his private and official knowledge of Horse Sickness but would appreciate an official communication detailing his duties to the general public.

35 Krogh received the 16-page typed letter on the 6th October 1897. In his anxiety to promote  
36 his scheme and be rid of the uncongenial Frenchmen, Theiler sought the permission of Schutte  
37 a week later to inspect the Disinfection Station to assess the amount of alteration needed. In  
typical bureaucratic manner, Schutte referred it to Wierda who was in charge of the building.  
Wierda merely noted it. Caught in the Government web, the unhappy Theiler was not to know  
that Krogh had lost his letter and was in any case disinclined to open another laboratory while  
the Frenchmen were working at Belfast.

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38 Gloom suffused the times. As Theiler finished his letter on a Sunday at home, the people hum-  
bled themselves before the Lord to seek his intercession against the endless ravages of drought,  
locusts and Rinderpest. Bitter controversy still raged among the claimants to providing im-  
munity against the disease. The sense of grievance at the Frenchmen's receiving reward was  
39 exacerbated in Theiler by Pitchford's writing that the Natal Government was examining their  
joint claim with a view to making award. The Z.A.R. Government had not even considered it.  
Pitchford and the Frenchmen wrote to Turner, vaunting their success; but Turner himself was  
40 locked in serious disagreement with Edington and Hutcheon. The Cape Agricultural Secretary,  
Pieter Faure, called them into lengthy conference on the 14th October which produced much  
heat and little enlightenment. In despair, Faure cabled Koch at Dar-es-Salaam to come to the  
Cape to settle differences on the best way of using his method. Koch would very much have liked  
to come but was too involved in his Malaria and other researches and declined.

Always a filthy town with inadequate sewage- and garbage-removal, Pretoria's polluted water  
supply now produced a lethal epidemic of typhoid. The drought was broken by torrential rain  
and Theiler sat at derelict Waterval, dispirited and disconsolate at the prospect of being reft from  
his family at the cheerless Belfast station. His Government chose that moment to offer him  
provisional appointment for 6 months as 'paardenarts' at the Artillery Camp at the rate of £300  
a year with attendance thrice weekly. With the rain drumming on the iron roof of his shanty and  
the remaining horses standing dripping outside, his future became even more confused. It was  
41 doubtful whether the Government would accept his grand plan and allow him to serve as a re-  
search scientist. It was certain they wished him to become a combined Government Veterinary  
Surgeon and Artillery Horse Doctor. He wanted security for his wife and three children but,

passionately, he wanted to be a bacteriologist investigating the nature of stock diseases (he was still ordering supplies – stains, chemicals, apparatus, equipment – from Paris, Leipzig and other European sources). It was his only motive in continuing to work with the Frenchmen. Perhaps he should bite on the bullet and accept the horse doctor appointment, abandoning bacteriology. Perhaps he should give up. He must speak to Emma who had always dissuaded him in his black moods from leaving the Transvaal for home – Switzerland, she said, would be too small and narrow and confined for him. His spirits fell as fast as the rain.

42 The whole Republic was in a state of suspended animation as the three presidential candidates – Kruger, General Schalk Burger and General Piet Joubert – began touring the country. The moderates hoped for Burger (who campaigned for a Department of Agriculture with a ministerial head) but few held that Kruger could be defeated. Even the rising deaths from typhoid could not distract the Pretoria public from ‘election fever’. At Les Marais, Emma kept the family well and happy (though the pigs, ducks and turkeys died while the hens and rabbits prospered) and brought her sound common sense to bear on Arnold’s problems. The point to be clarified was his status with ‘the French doctors’. What in fact was he? The Government Veterinary 43 Surgeon or a ‘hanger-on’? On the 12th October, Theiler wrote to the State Secretary asking for a clear definition of his relationship to Danysz and Bordet. He had helped them with Rinderpest because the final technique had then to be found; but Horse Sickness was another matter, demanding original research. Was he to be merely a scientific assistant or a responsible researcher?

44 The reply was equivocal – Belfast would be under the control of Schutte; Theiler would be responsible for the installation, equipment and animals. His function would be to attend the experiments so that if any discovery were made, he would be in a position to carry it further. The Z.A.R. had decided to put an end to the French scientists. Theiler himself attended a meeting of the Executive Council and heard the members discussing him – ‘They all expressed the conviction that the Government Veterinarian should alone be in a position to conclude the experiments’. Danysz and Bordet were given their congé but two hateful months remained before their contract expired. 45

Theiler accepted the Staatsartillerie appointment but no confirmation followed. He postponed his departure to Belfast as long as he could, even finding it necessary himself to trace a missing horse. His antipathy to ‘the tyrannical and authoritarian ways of Danysz’, his contempt 46 for a traducer of the good name of the Pasteur Institute, his sense of injustice at the ‘bonus’ unfairly awarded and his horror at leaving the warm cocoon of his family for an indefinite time produced so powerful a bloc in his mind that, but for his personal involvement in the Horse Sickness experiments, he ‘would have thrown everything overboard’. He left for Belfast early in November and predictably declined into disgust and depression. No confirmation came of the Staatsartillerie appointment which would have brought him home at least once a week.

47 The country was in a sorry state. Wherever he travelled, rural ruination through Rinderpest confronted Theiler. Extreme poverty afflicted the countryfolk and conditions were worse in the towns. ‘Times are terribly bad here’, Emma wrote to his parents, ‘Thousands of unemployed wander about Johannesburg and crime increases frighteningly. The cost of living is also increasing as meat which until now was the cheapest food, is also rising in price.’ Helped by Frau Lauber to feed and occupy the five children and miscellaneous livestock, Emma spent her little leisure in keeping Arnold’s papers in order (he had himself lost heart) and copying his articles 48 for Zschokke who wanted to publish one in the *Berliner Tierartlichen Wochenschrift* (dealing with Koch’s bile injection, it appeared in 1898). Brooding morosely in the primitive ‘hotel’ in Belfast, Theiler told his father of the acrimonious debates in the Volksraad where the report of the Government’s Industrial Commission was hotly opposed for its criticism and condemnation of the monopoly system. Revival of industry was essential but the legislators havered and argued.

49 Ruination might be followed by revolution. Theiler felt miserable and insecure. Krogh, having failed to find it with Schutte, had written him directly about the whereabouts of his grand plan and Theiler had replied from Belfast that as far as he knew the Government had not dealt with it but a certain clerk would know. The file was found early in December.

50 All that was cheering was that Danysz would depart on Christmas Day but Bordet wanted to stay longer, being solely in charge of the Horse Sickness experiments while Danysz (erroneously called 'Dr') examined Pretoria's water supply. Theiler was glad, having found Bordet 'loyal and friendly - a man who knows his business'. There had been a painful scene between the three when Theiler, mortified beyond endurance by his servitude for the sake of security for his family, had attacked them for purloining the whole £6,000 'bonus' due to his initial work and discovery. They had agreed to pay him £500 (there was no mention of Pitchford) but no money changed hands: Finally Danysz gave him a promissory note on a local Swiss (brother-in-law of the Consul Fehr) who got into financial difficulties and Bordet, leaving on the 7th January 1898, 53 duly presented £250. (Theiler was correct in his estimation of Jules Bordet with whom he remained in close and fruitful connection - in 1919 in its devious way, the Nobel Committee awarded him the prize for Medicine and Physiology for his work on bacteriolysis begun in 1896 which facilitated immunisation techniques. He died in 1961 at the age of 91.)

54 At Belfast and throughout most of the country, the rain continued to teem, engendering one of the worst seasons ever known of the 'Horse Death' as it was now called, and malaria. It fell to Theiler to take the horses experimentally salted with virulent blood to the most deadly infectious area - Elandshoek on the line to Nelspruit - to test their resistance. He was enchanted by the lush lovely mountainous country - 'As I came through the tunnel from Waterval Boven and rode on the cog-wheel railway to Waterval Onder, I thought I was in Switzerland! The line runs in daring curves under vertical cliffs with rushing water toward the valley.' He was less enchanted by the visit to Belfast in heavy rain of President Kruger, ostensibly on his annual 'inspection' but actually electioneering. Theiler minded the toadying of the local populace at the banquet given him. No one doubted that the old man would win.

57 Schutte called Theiler back to Pretoria in time for Christmas and told him of developments. Krogh had found his grand plan and dismantled it into three Memoranda - Provisional Regulations for the Government Veterinary Surgeon (which prohibited private practice); A General Explanation (which fixed his various emoluments and allowed him a secretary); and a Statement of Costs for the Veterinary Department including the laboratory or incipient Vaccine Institute. 58 They had been submitted to the Executive Council which had agreed to them in principle and had authorised Krogh to arrange with the Treasurer-General to include the cost in the Budget Estimate for 1898. Only the Volksraad could approve the expenditure on Theiler's scheme and for some weeks, his future would remain undetermined. In the meantime, residual funds amounting to £2,000 were available from the Danysz-Bordet vote and he was instructed to continue the Horse Sickness experiments at Belfast. He hoped to make the money last for six months. Light was appearing on the horizon and the Theiler family traditionally celebrated 60 Christmas except that, in blazing heat, the tree was a candle-lit acacia. Frau Lauber then departed and Emma alone ran the complicated menage while Arnold, now king of his own castle, reigned at Belfast.

61 The sun seemed at last to be shining. In the middle of January 1898 Krogh sent for him to discuss his proposals - the modification of the Disinfection Station, the staff he required, the probable date on which he could start operations, the amount he would need to carry him through 1898 - all contingent on the Volksraad's assent. The signs were propitious. Theiler 62 estimated a total of £1,945 and on the 20th January, confirmed part of their discussion in a letter applying for the appointment of a secretary at £200 and a vaccine-producing assistant at

£180 per annum from the 1st June. He recommended as secretary one of his compatriots at Belfast, Charles Favre who was proficient in English, French and German and later evinced versatile talents but not as secretary.

63 The march of his plans was exhilarating. A further small stimulus to his morale came from the decision of the Executive Council on the same day to extend his naturalisation to full voting rights. It was a privilege accorded on application to all those who had declared themselves for the Republic during the Jameson Raid. Theiler was now an enfranchised burgher committed to his new country. The certificate, signed by Dr Leyds himself on the 31st January, came too late to enable him to vote in the presidential election. He was back at Belfast and not in his own 'wyk', Pretoria. Kruger, then 73, was returned resoundingly with 12,864 votes, scarcely challenged by Schalk Burger (3,814) and the aged General Joubert (2,009). At the same time, production of gold by the recovering mining industry soared to record heights. Misleadingly, all seemed set fair.

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65 For Theiler, after years of delay and disappointment, events suddenly moved quickly. Krogh put his Department's proposal to the Volksraad early in March and secured immediate agreement. The lease of the Belfast property from a mining company would expire at the end of the month. The experimental station there would be dismantled and work on the conversion of the Daspoort Disinfection Station would immediately begin. Schutte sent at once for Theiler and together with Public Works officials, they inspected Daspoort and determined alterations and improvements. Schutte would return with him to Belfast to supervise the transport of equipment and the closing of the station.

66 Theiler exulted. 'What should I have been in Switzerland at this time? A good-for-nothing such as the dear people of Frick have so gladly seen in me! What will they now have to say about it? You must not be silent,' he exhorted his parents, 'but tell in public places about the new successes of "Arnold".' They lay some long time in the future. Tenders were issued for building, reconstructing, fencing, asphaltting the floors of the stables, laying on water and a dozen other requirements grinding their way through formal Government procedure. Theiler claimed advances on his budget to lay in laboratory stocks, particularly for Smallpox vaccination and – joyous respite from his own enormous outlays – to buy scientific books and journals from overseas and pay his subscriptions to the Cape and Natal Agricultural Journals. He had also to feed and keep his experimental horses and attendants. Otherwise, for the interim period he remained the Gouvernements Veearts responsible to Schutte, with miscellaneous and distant duties.

69 He lived again in the little corrugated iron house at Les Marais with the makeshift laboratory brought from Marico, happy in the presence of his family among the prosperous poultry and the already tall eucalyptus trees he and Emma had planted, together with a large vegetable garden. They lived off their little piece of land and heard with horror of the distress up north. Malaria and Horse Sickness were completing the ruination of Rinderpest. The railway was creeping slowly toward Pietersburg but it would be more than a year before it brought succour to a population cut to its knees. Poverty ruled and pride went by the board. When a contractor employed by the Government to erect a telegraph line to Spelonken 65 miles in length, offered 3s. for each hole dug for a pole, 'it was accepted by the poor burghers with such avidity that they worked night and day and covered the whole distance within a few weeks'.

Theiler himself had not done badly during the time of his travail. His salary was £500 a year and £1 a day allowance if he were away on duty. Much was wasted in the 'hotels' at Waterval and Belfast which Emma compensated by the sale of produce from their place; but now he was

- 71 sent hither and yon. At the end of March, he went to Komatipoort only 60 miles from Delagoa Bay and was appalled by the sere and feeble inhabitants and the cemetery crowded by fever victims. Hardly back, he was on the train as far as Belfast and thence on horseback to Ermelo, 72 all on Horse Sickness business. He returned in time to hear Kruger open the revived Pretoria 73 Agricultural Show with plaudits and promise of assistance. Among his colleagues on the Society's committee, he might well strut around the grounds. They all knew how his 'Department' 74 was developing, busy with builders and artisans, and the newspapers commented on its progress. Then he was off to Lydenburg to inspect his 'salted' horses, fearful that the dreaded 'aanmaning' or recurrence might have appeared. Edington, he knew, had returned to the same problem.
- 75 The success of 'staking all on one card' as he put it, was like oil to a flame. Now 31, Theiler 76 found nothing too arduous. He drove by cart 60 miles into the Lowveld to station one of his Swiss assistants at his experimental horse camp. He made a distant inspection at Zeerust, travelling by train to Potchefstroom and thence by coach. He got to know the land and its peoples as never before. Speaking the local 'taal', he easily made friends with the farmers. (Emma had 77 greater difficulty - 'I speak the Boer language fairly fluently', she wrote, 'but something goes 78 terribly wrong with the High Dutch because I have no opportunity to speak it. The two languages stand in relation to each other as Schwizerdutch does to Hoch-deutsch.') 79
- In Pretoria, Theiler busied himself on a Transvaal Agricultural Union committee engaged in launching an Agricultural Journal which would place him on all fours with Hutcheon, Edington and Watkins-Pitchford with their excellent monthly departmental publications. His collaborator was the dynamic Dr Gunning, director of the State Museum, and he begged his father to send 80 geological and palaeontological objects for him so that, improving their liaison, he might 'approach a wider circle of Transvaal savants and be able to gain entry into their company'. The myth of Theiler's 'intellectual isolation' in Pretoria was ill-founded. Physical difficulties and a lower status prevented his knowing the scholarly John M'Fadyean and F. T. Nicholson 81 or Gunning himself or the new young State Attorney J. C. Smuts appointed on the 8th June 1898 at the age of 28 as a man of brilliant scholarship and attainment. He contented himself with assembling 35 Pretoria Swiss and forming the Schweizerverein Alpina with himself as president which, apart from reunions, proposed engaging in the 'Shoots' beloved by the Swiss. Father 82 again, himself an addict, had to arrange the supply of guns and cartridges.
- Nor was Theiler idle in his own interests. Duty occasionally took him to the Artillery Camp where he enquired after his Letter of Appointment. No one knew but, persona grata as he was 83 he searched and found it. The letter continued its wanderings and it was not until the 1st August 84 1898 that it was duly signed in the quavering hand of the State President and the newly-appointed State Secretary, the scholarly judge F. W. Reitz previously president of the Orange Free State who had replaced Leyds and his alter ego C. van Boeschoten (both having returned to Europe, Leyds as plenipotentiary for the Z.A.R.). Theiler then became the officially-appointed Veterinary Surgeon to the Staatsartillerie.

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- Meanwhile the dry cold winter had banished the summer rains conducive to the 'Horse Death' and brought the Smallpox. Theiler had ordered prototype lymph from Switzerland in good time 85 had successfully tried it on his children and then begun production at home. The epidemic 86 was menacing and Schutte, chairman of the local committee, enforced the dormant edict of compulsory vaccination. Daspoort was progressing but by no means ready for operation. Theiler could not even employ his secretary and wrote all his official letters at home. Now he and Emma returned to their Johannesburg routine of countless calves and tubes of vaccine

deriving from them. As the epidemic spread far beyond the borders of the Transvaal the demand grew huge.

87 Other troubles afflicted the Z.A.R.. As a quid pro quo for Kruger's recalling 'the Banjaland Trek' in 1891 when Boers intended settling in Mashonaland to balk Rhodes' plans, the British Government had consented to the Transvaal's making a protectorate of Swaziland. Its paramount chief – a dissolute young man, Bunu – became increasingly intractable and when suspected of murdering one of his indunas, fled to Zululand under British protection, leaving his country in uproar. The Z.A.R. mobilised its corps of Vrywilligers (volunteers), alerted the Staatsartillerie and piled arms and ammunition – 'whole cases of guns and revolvers stand around in corners attracting dust, dirt and thieves without anyone worrying about them', wrote 88 Emma who heard all the rumours. By June, the need to discipline the Swazis had reached the 89 point when Theiler himself thought that he would be compelled to join the 2,000 Boers and two batteries of Staatsartillerie leaving to control the country. Instead, while Louis Botha, Volksraad member for Vryheid, was preparing to issue summons on Bunu, Theiler was borne off in 90 the opposite direction on military service.

The Malaboch War and their losses through Rinderpest had not quelled the spirit of the Zoutpansberg tribesmen and the Z.A.R. was compelled to maintain a series of forts manned 91 by the Staatsartillerie throughout the area. Glanders had appeared among their horses at Fort 92 Schutte (previously Fort Hendrina). On the 18th June 1898, Theiler accompanied Schutte by train on the Pietersburg line as far as it went and thence by cart to the fort to investigate. They were away 10 days and upon their return, Theiler entered into occupation of his Daspoort 93 Laboratory and grandiloquently became the self-styled 'Chief of the Bacteriological Institute of the South African Republic'. He was in fact still the Gouvernements Veearts at £500 a year.

By no means fully equipped, Daspoort (as it came to be called) was a wondrous place – the 94 first laboratory devoted to health in the Transvaal – 'a splendid thing and a stimulus to new work', its delighted incumbent exclaimed. In planning it, he had failed to take account of the virulence and extent of the Smallpox epidemic. Yellow flags were flying in many streets of Pre- 95 toria and some of the main thoroughfares were devoid of pedestrians. The demand for lymph 96 from all quarters (even Bunu in Swaziland) was inexhaustible and neither staff nor equipment were adequate. Always the obedient bureaucrat with prompt attention to departmental memos, methods, filing and financial authorities, Theiler was now compelled to take urgent action and either seek post hoc authority or artlessly announce that it had been given him verbally. He had 97 dismissed the four Swiss who had worked with him at Waterval and Belfast; but now he re-employed them – A. Brenzikofer and Alfred von Bergen from the 1st July and Charles Favre and D. G. I. G. Schroeder subsequently. He ordered alterations and extensions to the building at a cost of £217 which even Schutte at first refused to approve, and constantly applied for advances on his budget, notably to pay for thousands of tubes for the vaccine which he began by 98 producing at 1,000 a day and later 40,000 a week. He had reason to believe that they would pay for his excesses.

As long as the cold weather lasted and Smallpox accordingly prospered, Theiler and his Swiss assistants were singlemindedly devoted to producing vaccine. Overworked and distracted, his thoughts hardly had time to dwell on the continuing sequelae of the Rinderpest which still 99 recurred in most of Africa. An exhausted Dr Turner had left Kimberley on 3-months overseas leave while the Chartered Company occupied the Station to make serum for Rhodesia and Kolle 100 investigated Leprosy on Robben Island. The Rinderpest had broken other men but now Hutcheon collapsed and Soga who had played a unique rôle and ruined his health, took recurrent sick leave and finally resigned. On many occasions, both had barely escaped with their lives 101 from tribesmen infuriated by the slaughter of cattle. Now such circumstance killed Haslam.

Soon after the Pretoria 'International Conference', he had been detailed from Natal to East Africa, meeting Koch in Zanzibar in June 1898. Koch, according to the veterinary historian Sir Frederick Smith, 'was so struck by Haslam's ability that he urged the Governor to send him into the interior to investigate an outbreak of Cattle Plague then raging'. Haslam duly went to Kenya where, as in Uganda, the P.V.S. Robert Stordy was compelled to slaughter native cattle in menacing conditions. On such an errand, Haslam was killed by the Wakikuyu on the 17th July 1898 only 50 miles from Nairobi. (The British exacted a dreadful vengeance, killing 100 Wakikuyu on a punitive expedition.)

102 More closely related to Theiler was a tragic event of a different character. Only five years after its opening, Pietermaritzburg's splendid Town Hall was destroyed by fire on the 12th June 1898, the townsfolk urbanely regarding the scene from afar in the belief that Fillis' Circus in the adjacent Market Square was staging a pyrotechnical stunt. Watkins-Pitchford's office, still in a corridor of the building under the grand title of 'Mining and Agricultural Department' was incinerated together with all his records including those of the Marico experiments on Rinderpest. It was to embitter his life and relationship with Theiler until its end.

103 Theiler had now attained the highest point of his career. He had proved indispensable in a crisis. He was important, well-known, appreciated. With the help of his compatriots (notably Tel Sandoz, Jules Perrin, W. Braunschweiler, F. T. Mauchle, L. Weber and E. Lutz, the Town Engineer), he could aspire to waving the Swiss flag on National Day (the 1st August, also marking his official appointment to the Staatsartillerie) and know that the highest in the land would honour it. As president of the infant Schweizerverein Alpina, he received the State Secretary F. W. Reitz representing the Z.A.R., the Swiss Consul C. Fehr, the Commandant (S. P. E. Trichardt) and officers of the Staatsartillerie and sundry Government and town officials at the beflagged and decorated Caledonian Hall at 8 p.m. where the local Swiss presented gymnastics, wrestling and tableaux vivants. The company numbering about 150 then adjourned to the Central Hotel for a banquet where the Government Assayer and Director of the Mint, Jules Perrin, already venerable, proposed the toast of the two republics in a long speech in French. The State Secretary (sitting on Theiler's left with the Swiss Consul on his right) felicitously replied in his academic manner in Dutch. A ball followed and Theiler went home, glowing with pride. The Swiss had made their first successful démarche a month before excitement seized Pretoria over the abdication of Queen Emma and the accession of Queen Wilhelmina of Holland.

104 Winking at the brim though it were, Theiler's beaker was not yet full. The ancient Hellier, still editor of the *Cape Agricultural Journal*, had published on the 18th August the first notification of the staging of the 7th International Veterinary Conference at Baden-Baden in August 1899. 'Without a glimmer of a thought of taking part', Theiler wrote to Baden-Baden registering himself as a delegate but hardly allowing himself to hope. If his star shone truly, he might be able to persuade his Government to send him as a delegate. After eight years, he could see his family again. He could come in triumph and perhaps few would notice his lost left hand. His star shone truly and high State occasion prospered his cause.

105 With little overt except mounting unrest in Johannesburg, the trend of political event moved inexorably toward confrontation of the Z.A.R. with the Colonial power. It was a time for fraternal rapprochement and Kruger invited his colleague of the Orange Free State to visit the Transvaal. President M. T. Steyn arrived in Pretoria on the 20th September for informal discussion. A day or two later, Kruger sent him to Daspoort to inspect his Government's latest innovation. Theiler conducted his distinguished guest and entourage around his laboratory and recorded the visit in a photograph. (Always a stickler for the dress appropriate to an English gentleman, he sported upon this occasion a tweed suit and billy-cock bowler.) 'Steyn', he wrote in his cock-a-hoop manner, 'paid a great compliment to my success. He felt he had already

known my name for a long time. That did not much surprise me as I have a good name wide-spread.'

106 The Pretoria *Press* shortly published a letter written on that day by Dr T. Mulock Bentley, district surgeon at Vrede in the Free State, extolling 'the good lymph turned out by Dr Theiler' and castigating Edington's 'as worse than useless' while Natal's was 'inactive through age'.

107 'There is no doubt whatever' wrote the good doctor who never met Theiler, 'that the lymph manufactured in Pretoria is excellent and trustworthy and we can thank Dr Theiler for his promptness in delivering the vaccine as the main cause of checking what threatened to be a very serious epidemic.'



## INTO THE WORLD 1898-1899

1 SUCCESS HAD its disadvantages. The Government had openhandedly indulged Theiler - 'I can complain about nothing as everything which I had until now to request, I have obtained and my laboratory could in time become a centre of real research work.' In his dual capacity as civil Veterinary Surgeon and military Horse Doctor, he could also be ordered north to the 'war' being conducted against Magato or east to the threatened military action against the Swazis in both of which the Staatsartillerie were engaged. It was his constant fear until Smallpox assumed overwhelming proportions and nothing could be more important. Theiler's white staff rose to 10 of whom 8 were Swiss. Tens of thousands of tubes of vaccine were produced, 2 packed and despatched. Early in October 1898, he presented the 100,000th tube in a cased silver box to Landdrost Schutte who used the occasion to speak appreciatively of his work. While the winter lasted, the output reached 135,000 tubes delivered widespread but with the onset of warm weather, production sharply dwindled and Theiler could devote himself to his private affairs.

Contrarily, Emma was enceinte again and bending before the blast of three exceptionally lively toddlers. Hans the eldest, aged four, had always been 'like quicksilver' and now Margaret took after him. On Arnold's combined salary of £500 plus £300 with allowances, they could afford a nurse and on the 1st October, a Swiss factotum Mathilda Sprehn was engaged. Her family had immigrated during the Diamond Rush and, later ruined by Rinderpest, had come to Pretoria where Arnold had employed one of her brothers at Daspoort. Mathilda greatly lightened Emma's load.

Affluence and security after years of grinding poverty and an indeterminate future, released other desires. In a move that shocked his father, Arnold bought a building plot for £275 on bare veld near his laboratory at Daspoort and commissioned the building, not of a corrugated iron shanty, but of a solid brick house on stone foundations costing £900. His parents infuriated 3 Emma by considering it culpable extravagance. The strong bond between the Swiss which had saved Theiler from starvation and failure in his first dreadful years in Pretoria, was equally marked in him. No Swiss was ever turned from his door and even in his impoverished days in 4 Johannesburg, there had been 'always a good table and a cool drink' for the many despairing compatriots who gladly called. At the moment when he was himself successful, economic conditions were disastrous and men of every nationality including Transvalers loitered about the streets and bars of Pretoria hoping for work. He did what he could to help his fellows, warmly supported by Emma who had a keen sense of obligation, even to lending them money from his small savings. He had lent £50 to the very man pledged to pay him £250 on Danyz's promissory note and had stood surety for £160 for another Swiss who had failed to make good. By the same token, the building of the house (which would eliminate the journeys between Les Marais and Daspoort by horse or by cart) was enabled by a loan from Tel Sandoz of £700 at 7% repayable 5 in three years. To diminish his indebtedness, Theiler planned to sell his painfully collected library of technical works to the Z.A.R. Government as soon as his bookseller Sauerlander furnished the invoices. They were too long in coming.

The house was not so much a symbol of success as an urgent necessity. Work then being very scarce and much labour available, it was completed in less than three months. The family moved from Les Marais over the New Year in heat and dust at a time excruciating for Emma. Three weeks later, she gave birth to a second son on the 30th January 1899. 'Arnold says he must be 6 called Max', she wrote submissively, having endured the same authoritarianism thrice before.

The household now consisted of seven – parents, four children and the indispensable Mathilda. The baby would rival his father in worldwide renown.

7 It was contrary to Theiler's nature to engage in anything half-heartedly and now, arrivé in a professional (but not a social) sense, he played as hard as he worked. As president of the Schweizerverein Alpina, he organised innumerable occasions – picnics at Sandoz' farm La Solitude at Derdepoort with national dress, sports, wrestling, gymnastics, much beer and music; al fresco sausage feasts; wild paper-chases on horseback; shooting competitions with revolvers and carbines; and the like. He imported the cartridges himself via Lourenço Marques and made a small profit on retailing them. At Les Marais, Theiler had been happy to entertain a young man of superior type – Wilhelm Kollmann, son of the professor of Anatomy at Basle, who, a student of agriculture, was gaining practical experience close at hand on the farm of Frikkie Eloff, son-in-law of Paul Kruger. They proposed collaborating in a book on South African livestock and saw much of each other, sometimes practicing revolver shooting together. Convivial to a degree, Theiler enjoyed company of any kind and his dwelling at all times never lacked visitors, great though the burden on Emma.

8 As Kruger sat on his stoep on the 10th October 1898 receiving congratulations on his 74th birthday from friends and officials (including for the first time the youthful State Attorney J. C. Smuts and his wife Isie), Theiler was supervising the first Swiss Prize Shoot which was so successful as to demand repetition (he won the third prize). He found time to resume relations with his family at Frick – with his beloved sister Marie who had drifted out of his consciousness and was now getting married, and with his brother Alfred, a college student of 17 for whom he continued to feel responsible. He worried about Alfred's health and whether he was learning to play the violin for which he had offered to pay, or needed a bicycle. He even wrote painstakingly in excellent English (for practice) to Alfred, giving brotherly advice on the dangers of compulsory drinking in student societies, the need for exercise to maintain a strong and healthy body, and other wise counsels. He wrote from bitter experience, trying to protect Alfred from his own near-disaster.

9 There was ample evidence of moral ruin around him. The cancerous effect of the Government's giving aid to the holy afflicted burghers instead of promoting relief schemes or otherwise making them work for it, had become a feature of Pretoria and the Transvaal at large. Loud and clear from the pulpit of the Capital's Dutch Reformed Church on Sunday the 2nd October 1898 came the voice of the much-revered Ds H. S. Bosman, courageously dragging the Republic's skeleton out of its cupboard and dangling it before a shocked public. He spoke of the 300 brothels in Johannesburg and its 1,500 prostitutes, the majority of whom were daughters of Africander parents. 'They arrived at that state through aimlessly parading the streets, reluctant to earn a respectable and honourable living . . . There were many cafés in Pretoria whose counters were a mere farce – an excuse or a "blindfold" for what was perpetrated behind them . . . If you apply for a girl for domestic service', he went on, 'her mother would say "Is my child a kaffir?"'

10 The people were strangers to the maxim that labour was elevating and ennobling and no degradation, Bosman pronounced. The burghers commonly referred to as 'indigent' were in possession of the free use of their limbs – healthy hands and legs – and the awful mistake of continuing to give to them was now apparent. Before the Post Office, the Government Buildings and Landdrost's Court, clusters of the so-called poor whites were daily seen, killing time. Assuming the attitude of millionaires, they bitterly complained of the hardness of the times. 'Our own people give one the impression that they are constantly labouring under severe attacks of rheumatism. They drag themselves along rather than walk. They are neither diligent, manly, willing, nor alert', and, Ds Bosman repeated, foreigners gladly take the jobs which they could have had.

11 In all the sizeable towns of the Transvaal, peripheral 'Burghersdorps' or shanty towns of indigent burghers had appeared. The most their inhabitants would do in conformity with their white dignity was a little transport work with donkey carts. Ds Bosman's advice was that they should go back to the land and work with their hands; but that was 'kaffir work' and no one  
12 accepted it. Soon after, the Volksraad again rejected the proposed Department of Agriculture. It was a sobering scene; but as much as it inspired Theiler to deliver a cordial lecture to Alfred, it rejoiced his heart to know himself secure.

13 The confidence of his superiors, particularly Schutte, and the success of his laboratory sent Theiler's ambitions vaulting again into the empyrean. His passion was to keep abreast of scientific developments and to qualify for the title which the newspapers already gave him - 'State  
14 Bacteriologist'. Since the days of Danysz and Bordet, the Government had paid for 'certain  
15 instruments' for him; but now he needed more sophisticated equipment such as a Blood Corpuscle Counter and other bacteriological aids. Through Watkins-Pitchford with whom he maintained correspondence, he remained in communication with Major David Bruce and his work on Nagana. The Rinderpest, in destroying immeasurable numbers of wild animals, had diminished the menace of tsetse flies which had fed on them and now, lacking a profusion of hosts, they slowly disappeared. Theiler was fascinated by a cattle disease whose causative trypanosome was conveyed by an intervening insect. Tropical diseases of that kind were almost unknown in Europe and Zschokke and his colleagues would be interested. Bruce had sent him specimens and as soon as the Smallpox pressure lessened, he returned to his experiments with  
16 Horse Sickness and Nagana.

The destruction of oxen had re-enhanced the importance of the horse, particularly to military authorities throughout Southern Africa. Theiler thought he was tantalisingly near a solution of the Sickness with serum-therapy but always was thwarted. Not so Edington who pursued the same paths with undaunted optimism and chronic impetuosity. On the 8th November 1898, he  
17 telegraphed Cape Town - 'I have much pleasure in announcing that as a result of my investigations into Horse Sickness, I have at length been able to produce an attenuated virus which can be preserved and kept for long periods unaltered'. It was, he claimed, effective in all but a few  
18 cases and, duly interviewed by the Press, was reported as stating 'it will make Horse Sickness a  
19 thing of the past'. His rivals elsewhere were openly sceptical. Pitchford, invoking the name of Theiler who frequently wrote to him and was then dealing with his 269th experimental horse, published his doubts. A thorough experimenter in all diseases (the broken Hutcheon had somehow written in his own hand to advise him where to get cattle completely free from Redwater for  
20 his longstanding investigation in which Theiler too was engaged), Pitchford felt that additional talent should be addressed to the problem and applied to the British Army for the services of Surgeon-Major Bruce. With thousands of horses and oxen in its cavalry and transport sections, it was in the Army's interest to second him. Bruce began work with Pitchford at Allerton in December 1898. The Natal Government had voted two sums - £2,000 and £750 - to subsidise their investigations of both diseases.

\* \* \*

It was typical of Theiler that while converting Daspoort from the production of Smallpox lymph to Quarter Evil (Sponsziekte) inoculation and continuing his Redwater, Nagana and Horse Sickness experiments, he should keep an alert eye on scientific journals and the topical Press. He had noted the incidence of Bubonic Plague in Madagascar and Mauritius which maintained a regular traffic with South African ports. It was part of his desire for recognition as 'State

22 Bacteriologist' that on the 5th December 1898, he wrote to the State Secretary suggesting that in view of a possible epidemic, he should be sent at once to the Pasteur Institute in Paris to study the manufacture of a vaccine against Plague. Passing note was taken, Pretoria being preoccupied with the triumphal return of General Joubert and his forces from the Magato war in the north and with looming problems as the political situation moved toward climax. Theiler's request  
23 might have been met had not the medical profession intervened and persuaded the Government that it was their affair. There was however some public concern when cases appeared in Portuguese East Africa and the Pretoria Press published an apprehensive leader; but according to  
24 subsequent editorial comment, the Government was apparently satisfied that Theiler could deal with anything that might eventuate. His warning had been ignored and his hopes frustrated. Nonetheless he conscientiously studied all scientific literature on the subject and planned to prepare himself for other possible bacteriological invasions.

It was a difficult time for him. To help convert his vaccine factory into a research institute, he had only lay assistants, all Swiss, some with a little knowledge of experimental techniques gained at Waterval and Belfast. In the time intervening on his qualifying at Zurich, these techniques had been widely and finely developed. He had himself to master them and the concomitant apparatus before he could train his staff reliably to operate them and faithfully record results. At the end of the year with Emma about to give birth, they were moving into the new house which had no water supply beyond rain-water tanks. Daspoort itself stood in a bog and was highly unhygienic until the Government laid a pipeline, with a sideline to the house, which enabled the stables and postmortem room at least to be sluiced.

Theiler (playing enthusiastically on holidays and weekends with the members of the Schweizerverein) worked long hours – from 7 in the morning until 1 p.m. when he went home for lunch, and from 2 in the afternoon until 6. At night, he generally went back to the laboratory after supper to assure himself that everything was in order. It angered Emma that his parents,  
25 sublimely unknowing, criticised him as an irresponsible playboy. She herself marvelled that he maintained his courage and energy. He was entirely alone in his efforts in matters beyond the support of Schutte and a distant benevolent Government. He envied Pitchford, now assisted by the brilliant Bruce operating the latest techniques in investigating Horse Sickness – observing periods of incubation, postmortem appearances, qualitative blood counts, specific gravities and general microscopic work. Pitchford had written him of his distinguished colleague's remarkable exactness of method and powers of trained observation; but it was Theiler who had the experience – over many years privately and finally with Bordet at Belfast. Pitchford asked if they might  
26 consult him and in the paradoxical camaraderie of bellicose times, both Governments agreed. Significantly, neither investigator wished recourse to the politically-congenial Edington.

27 On the 17th January 1899, Bruce and Pitchford arrived in Pretoria and called on Theiler at Daspoort. For the first time, Theiler met the man whom he had learnt to revere – a typical English military officer in A.V.S. major's uniform, thick-set, jowly and direct in approach and manner. Theiler admired Bruce's methods and his work on Malta Fever and Nagana. Bruce, looking at what he had done with Horse Sickness, was impressed. As scientists, they took to each other  
28 warmly. Pitchford, standing on the sidelines, recorded the rencontrement – 'Mr Theiler received us with great kindness and interest and placed before us without reserve the bulky records of the work already done in this disease by himself and his colleagues. These records – the temperature charts alone, when joined, being over a mile in length – showed the great and indefatigable efforts which had been made by these scientists, the results of whose work, while exciting our admiration and praise, filled us with the gravest apprehension for our own success in the same field. The amount of work undertaken was enormous but the deductions almost *nil*.'

The results of Pitchford's own work on Horse Sickness had been destroyed in the Town Hall

29 fire; but with Bruce's help, he hoped to make a new attack and greater progress. Hardly had they returned to Pietermaritzburg after three days at Daspoort than Bruce was reclaimed by the Army in ominous circumstances.

30 In the sphere of Science, all was amity. At that moment with the Black Death menacing the whole of Southern Africa, the Z.A.R. convened an Inter-State Conference of medical officers. The Cape sent its Colonial Secretary Dr T. N. te Water and (in the absence of Dr George Turner M.O.H.) Dr A. J. Gregory; Natal was represented by Dr J. Hyslop; the Free State by Dr A. E. W. Ramsbottom; Portuguese East Africa by Dr Maartens; and the Transvaal by Pretoria's M.O.H. Dr Gordon Messum. They conferred happily and went their ways. But in the sphere of Inter-State political relations, matters were fast moving toward crisis and every English military man was ordered to action stations. Bruce and his lady were lost to research and concerned only with coming conflict. In the stress of event, the Z.A.R. Secretariat for Foreign Affairs paid no attention when the Imperial German Consul in Pretoria on the 23rd January 1899 formally advised the staging of the 7th International Veterinary Conference in Baden-Baden in August and enquired whether a delegate would be sent. Theiler was concerned with the arrival of Max and making abject apologies to Schutte for incurring unauthorised expenditure on his laboratory.

31  
32  
33 Routinely at work on Monday the 13th February, a message reached him to come at once to Pretoria to see the State Secretary. Reitz received him personally in his office in the great Government Building and told him that the District Surgeon at Middelburg on the Delagoa Bay line had reported two suspected cases of Bubonic Plaque in 'koolies' (Indian labourers). He was to go immediately to investigate them and to report as soon as possible. Apart from the danger of a general epidemic, Reitz had his eye on the gold mining industry, now struggling out of its long depression with high output and a boom in its shares. The empty coffers of the Republic would be replenished and prosperity return to the land; but all would be lost if Plague interfered with native mine labour.

34 Theiler left by train the following day and was met at Middelburg by the District Surgeon, Dr Pittet who had been a fellow student for the short time he had been at Berne. They had resumed acquaintance in Johannesburg in 1895 when Theiler was elected president of the Schweizerverein Helvetia. Together with many Swiss immigrants, Pittet - 'a really charming man', Theiler had written - had come to the Transvaal in search of employment. Now they rejoiced together and combined their professional skills. One of the koolies had died and after his post-mortem, Pittet had made cultures in agar-agar which revealed a bacterium he was unable to identify. Despite his studies of scientific literature, Theiler was not prepared to pronounce either one way or another so they injected the suspected virus into rats and guinea pigs. While it did its work, Theiler went to the nearby Kaapmuiden to examine another koolie supposed to be suffering from Plague. On his return to Middelburg, the rats and guinea pigs showed no symptoms and he and Pittet agreed that the koolies had not died from Bubonic Plague. Meanwhile a 'scare' had become widespread and numerous quasi-experts with experience of Plague in the East had made weighty pronouncements.

35  
36 Returning to Pretoria on the 24th February, Theiler made a careful report to Reitz stating that although the bacilli in the blood of the deceased Indian to some extent resembled the bubo bacillus, as far as his opinion gained in reading up the subject went, they were not identical. It had forcibly been impressed on him that if he were indeed to be 'the State Bacteriologist' as the newspapers freely called him, he should have a collection of cultures of various disease-bacilli both for reference and for manufacturing vaccines. He had already bought some directly from the Pasteur Institute in Paris but now he asked his father, for the sake of speed in delivery, to order a long list of others including Bubonic Plaque. This last, he said, could be 'dead' to

avoid the danger of infection as he wished only to see how it looked; but the others must be living so that he could cultivate and work with them.

38 The same idea simultaneously struck the visionary 'Corner House' mining magnates in Johannesburg. Relieved at their escape from Plague (for which they had specially arranged the importation of an expert, Dr Honebrook who arrived too late to pronounce on it), they remained fearful of future assaults on their labour. In a curious scheme, they approached their colleagues with a proposal to found a Bacteriological Institute.

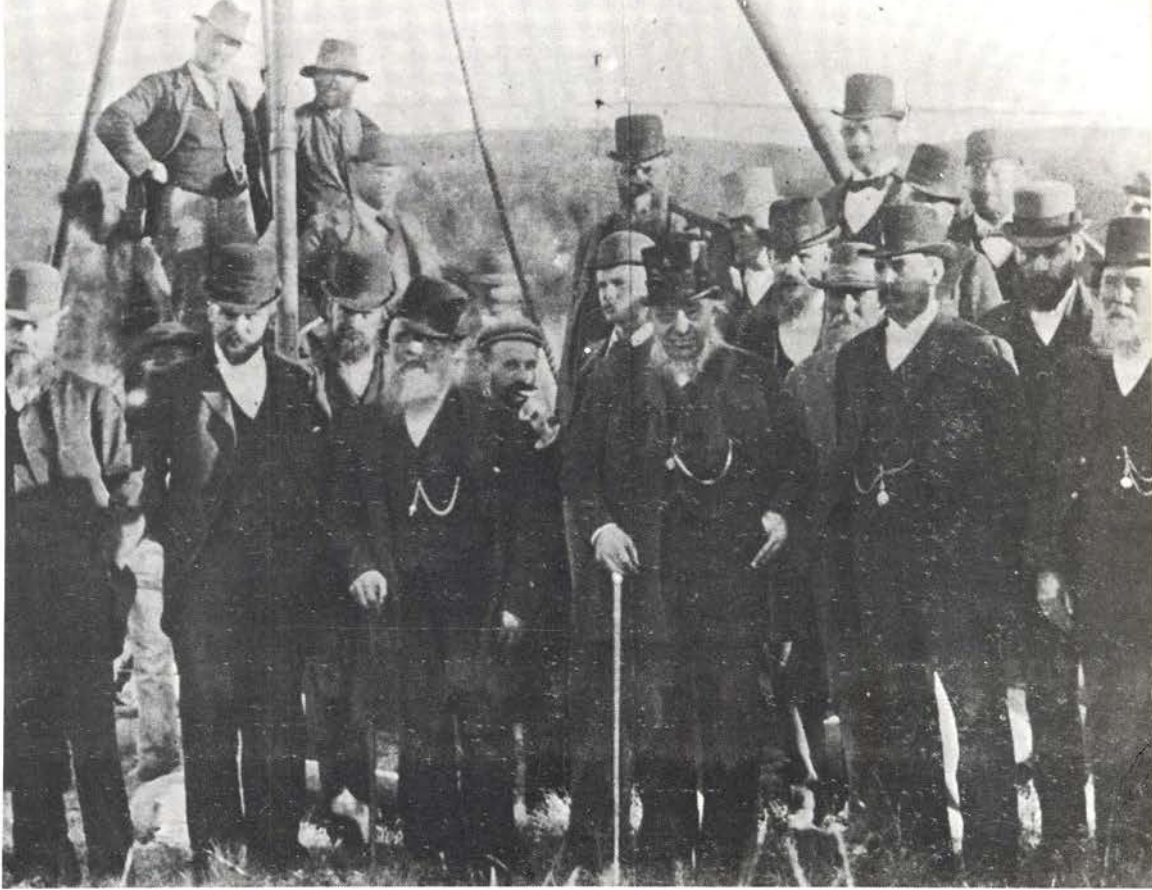
39 The proponents of the MacArthur-Forrest process by which the mining industry had been saved in 1893 through improved extraction of gold, brought suit against it in 1895/96 for infringement of patent. The Chamber of Mines called on its constituent members to defray the cost of its successful defence at what came to be called 'the Cyanide Case'. At its end, a considerable sum remained which, invested at  $4\frac{3}{4}\%$ , amounted to £16,400 in 1899. Its sole trustee was Percy Fitzpatrick, a partner of H. Eckstein & Co. (the Corner House) who conceived the idea of founding a Bacteriological Institute. He caused letters to be written on the 4th March 1899 to the contributing companies, asking their consent to the sum being devoted to that end (most of them had long since written off their donations). The case he presented was cogent - the threat of Bubonic Plague had been very near; Pneumonia, Typhoid and Dysentery were chronic and fatal; Malaria was endemic in certain areas; Smallpox had been spread throughout the mines by vaccination with defective lymph; and in livestock, severe losses were suffered through Horse Sickness, Lung Sickness, Redwater, Nagana and many other diseases. The Corner House proposed that 'a first-class European bacteriologist' be imported to combat these diseases in an institution whose work would benefit South Africa as a whole. It was duly reported in the Press.

40 In turbulent times, the Corner House stoutly persisted with its plan, even persuading President Kruger to obtain a contribution from the new Pretoria Town Board which would match a grant promised by the Johannesburg Town Board. By then, his Gouvernements Veearts was not available for consultation. Kruger would certainly have been attracted by the £16,400 offered by the Mines without charge on the State. Events overtook a visionary proposal; but the Corner House never lost its enthusiasm for the investigation of human diseases and in time was instrumental in founding the South African Institute of Medical Research.

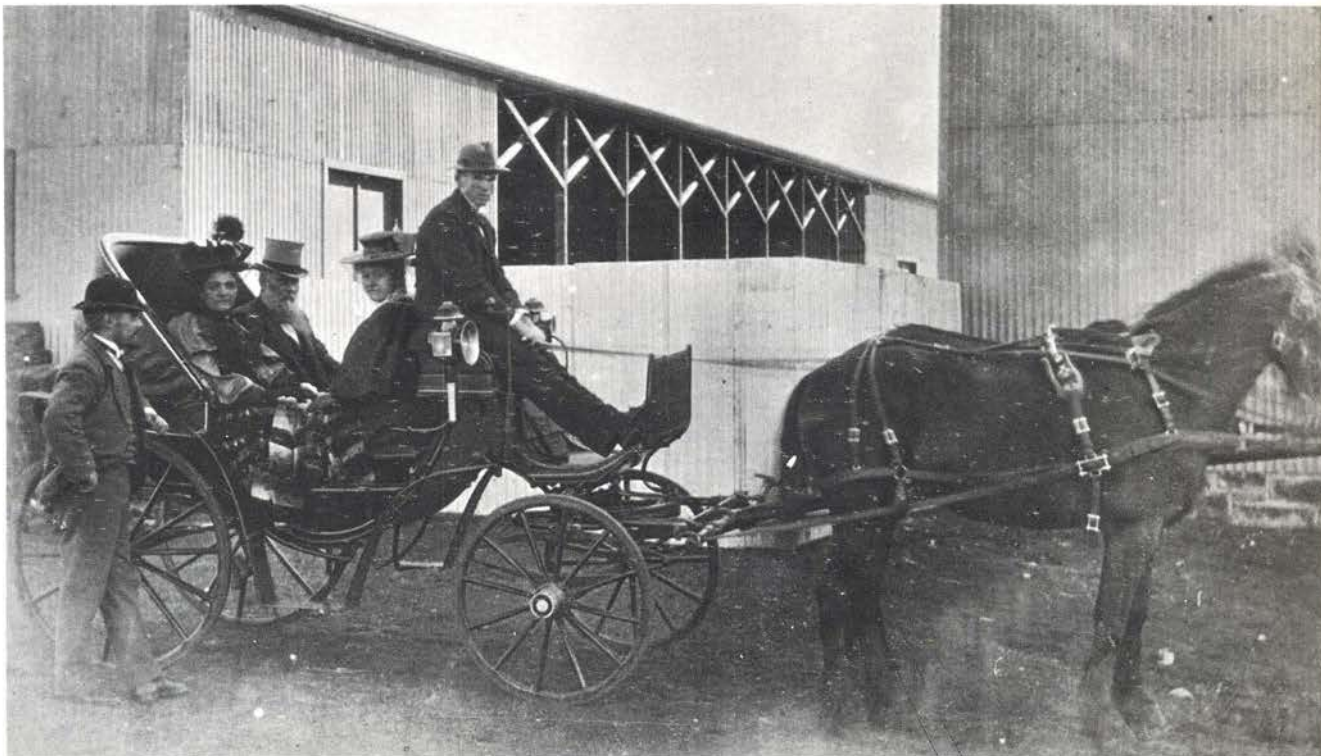
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Kruger had developed a considerable respect for the wonders of 'Science' and if he were unable to convey it to his burghers in the Volksraad who regularly defeated the motion for the establishment of an Agricultural Department, he had learnt to make good use of his Gouvernements Veearts. After the Plague scare, he referred a peculiar problem to Theiler. The winter would again bring the locusts to ravage an already stricken land. For years, enthusiastic reports had been coming from the Southern African States as far as Rhodesia about a method of destroying them. Theiler had read at length about it in the local Agricultural Journals and departmental reports.

42 Early in 1896, Mr Arnold Cooper J. P., F.R.M.S. of Theddon near the rural hamlet of Richmond in Natal whom Edington recognised as 'taking a most lively interest in all branches of microscopy', had received some dead locusts sent by a neighbouring farmer. Cooper 'made some investigations which proved that the fungus disease from which they had died was infectious and that gave me hope that it might be artificially cultivated.' He immediately repaired to 'that true friend of Science', Sir Walter Hely-Hutchinson, Governor of Natal, at Pietermaritzburg who arranged with the Prime Minister that he be sent to Cape Town to consult



*President Kruger at the height of the Rinderpest (May 1897) with Louis Botha on his left and Lucas Meyer behind (between them) when manifesting his interest in science and technology by attending a demonstration of breaking rock with diamond drills.*



*Landdrost Schutte with his wife and daughter visit the Daspoort Laboratory which was in his charge (Theiler on left) in 1899.*



*Theiler (centre) Celebrating the roof-wetting of his first house in 1898.*

*The completed Theiler house at Daspoort early in 1899 before the trees and garden were planted. Emma who had shortly before given birth to Max, stands on the stoep with Gertrud, Hans and Margaret.*





scientific works not available in Natal. The Cape Government sent him to Graham's Town to explore the possibility of cultivating the fungus. Edington who had investigated disease-producing fungi in salmon and trout for the British Fishery Board, was familiar with the situation and instructed his medical assistant, Dr Sinclair Black, to pursue the matter during his own short absence. Cooper also had the assistance of the renowned botanist/mycologist Dr Selmar Schonland, director of the Albany Museum in Graham's Town. After a fortnight's work during which Edington returned, they found they could easily cultivate the fungus in various cultures and the Bacteriological Institute then commenced supplying the spores in vast quantities, at first locally and then throughout the world. Later Watkins-Pitchford did likewise at Allerton in Natal.

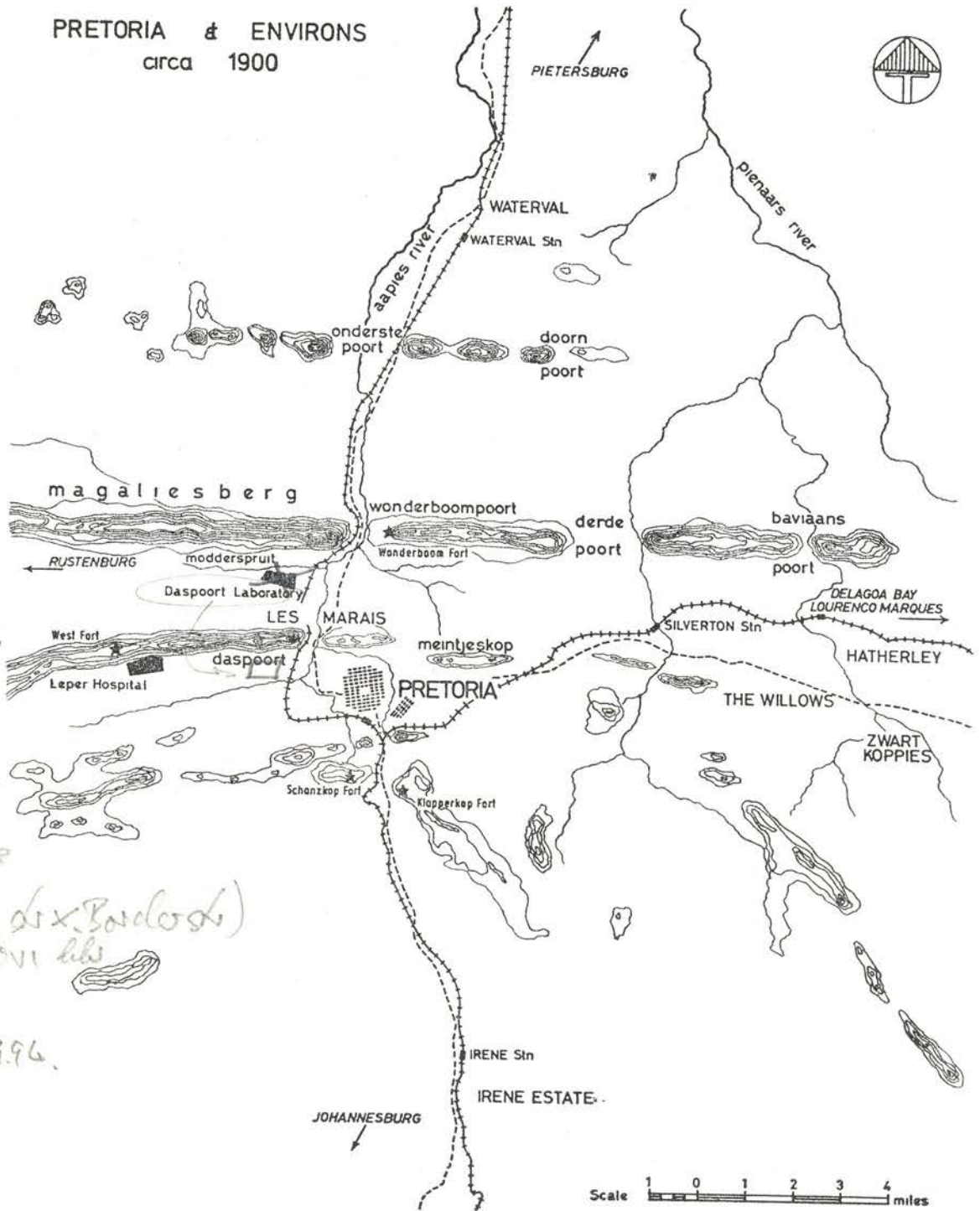
Great division of opinion arose over its efficacy. It transpired that unless the air were damp or misty, the spores failed to incubate and to infect swarms. On the other hand, favourable conditions produced wholesale destruction. Some scoffers ascribed the masses of dead locusts adhering to bushes to being in reality the discarded skins of crysales; but, waving such a bush at farmers' meetings, Edington could disprove it and extol the success of the fungus locally and abroad. Soga's medical-missionary brother, Dr William Anderson Soga used it successfully in the Transkei though the natives themselves had difficulty in learning the proper procedures. The Cape Entomologist, Charles Lounsbury, guardedly believed that it affected only the red-winged locust and not the brown; but in the absence of any other weapon against the eighth plague, it continued enthusiastically to be used. In 1899, the Resident Commissioner in Basutoland, Godfrey Lagden, testified to its eliminating swarms and in that year, Edington alone supplied 19,043 tubes of 'locust fungus'.

Kruger knew of these reports and under pressure from the Transvaal Agricultural Union (which at its quarterly meeting in December 1898 had urged the Government to take action), contemplated using the fungus in the Transvaal. He wished however to assure himself that the releasing of such a lethal means would not also poison animals and birds. With the 'voetgangers' or flightless infant locusts already infesting the purlieu of Pretoria, he referred the question to Theiler early in March 1899. The Gouvernements Vecarts and his staff were then to be seen capering about the veld around Daspoort catching 'hoppers' and carefully placing them in labelled boxes. Theiler then infected them with the fungus and hopefully awaited their death so that he could feed them to animals and birds.

It put him in mind of his father's hives of bees and the destruction of swarms by a similar fungus or 'Faulbrut'. Agile as ever, he thought of the white ants which could level a house in the Transvaal and were indeed manacing his own abode. 'In many places', he wrote, 'they make building almost impossible. I remember the "Faulbrut" of bees at home. If I recollect correctly, it is a bacterial disease, perhaps also a disease due to fungus. In either case, one could cultivate it artificially and I could make experiments. As White Ants in any case make honeycomb nests, it might be possible to infiltrate the young grubs with the fungus and exterminate them. With this aim, Father must find me in whatever circumstances some "Faulbrut". The best would be to dry some at room temperature and send it to me in a bottle. I would then try to get a pure culture.'

His ideas and activities were illimitable but his Government fell out of step. His constant appointment of additional temporary assistants without authority was questioned and even Schutte could not save him. The utmost penury faced the Transvaal whose resources had largely been spent on armaments and defence. Fort Daspoortrand on a spur commanding the Pretoria-Rustenburg road (delivered by the contractors to the Government on the 11th November 1898) now glowered above the Leper Asylum. The political situation in Johannesburg was extremely ugly and, Theiler reported, 'people complain always about the bad times and many Swiss plan to leave shortly owing to unemployment'. The Government bought farms to re-settle the 'poor

PRETORIA & ENVIRONS  
circa 1900



a series of articles in the "Botanica" 1952-1960 puts in at the site where presently the best Botanic woodlot (from Willoughby & x. Boudier's) see Ref. in OVI file St. Vogel OVI 26 496.

burghers' and get them out of the towns and more money went on other relief schemes. Every penny was watched; but Theiler, showing signs of the obduracy that in later life hardened into downright defiance of bureaucracy, fought for his laboratory and the men to staff it. Without 56 assistants, he said, he could not deal with the charges laid on him by the Government in respect of investigations into Bubonic Plague and locust fungus, the making of vaccine for Sponsziekte and, owing to a recrudescence of the disease, the production of lymph for Smallpox.

As if in the form of a circus, there now intruded on the distressed scene the visit of Bunu, King Ngwane V of the Swazis whose regiments had assisted the Republic in the war against Magato. He had formally been fined £500 for his murders and was now brought to the Transvaal with an entourage of naked savages as a gesture of goodwill by his protecting power (which no doubt desired to secure his allegiance in impending trouble after having been given asylum by 57 the British during his own). The dipsomaniac Bunu, attired as a Colonial gentleman in a smart knickerbocker suit, arrived early in April with his bear-leader Commandant Matthys Grobler and 40 traditionally ungarbed indunas. The party, dashing about the Capital in hansom cabs and spending money lavishly on whisky and gewgaws, provided the citizens with daily excitement. Bunu refused to be photographed but Theiler, officially present as Paardenarts when the Staatsartillerie staged an impressive show of force, covertly snapped him. Ten heavy Maxims and two Creusot siege guns were fired with massive destructive effect for his benefit; but the sole impression they made on him was the desire himself to fire one of the cannon which he was allowed to do. It was later revealed that one of his indunas who had been to England, had told him that the whole affair could be put in a corner of Woolwich Arsenal. Bunu departed amidst alcoholic fumes and was dead within eight months at the age of 23.

During this noisy nine-days wonder, the representations of the Imperial German Consul which had remained unattended for three months, finally reached the Executive Council chaired 58 by the progressive General Schalk Burger. On the 11th April 1899, the Council resolved to send the Gouvernements Veearts, Mr A. Theiler, as its representative to the Baden-Baden International Veterinary Conference in August with all expenses paid on submission of receipts. Caught completely unawares, Theiler was astounded to receive the official letter on the 13th 59 April - 'I have it in black and white!' he exclaimed, still incredulous, and pored over the contents. It was signed by the Under-Secretary for Foreign Affairs, a typical product of nepotism, 60 Pieter Gert Wessel Grobler, grand-nephew of Paul Kruger, who had begun his civil service career as a clerk and in 1898, received his high appointment at the age of 26. A man of versatile talents, eagerness to learn and pronounced linguistic ability, Grobler was to have much to do with the dapper thickset Swiss who soon confronted him.

The letter contained two documents handwritten in German detailing the agenda of the Congress and the scientists in charge of the various sections. Its work would be almost entirely confined to European domestic animals; but the magic names of Bang of Copenhagen, Hutyra of Budapesth, Leblanc of Paris, Stubbe of Brussels, Ostertag of Berlin and many others with whom he was familiar from his tireless study of scientific journals, captivated Theiler's imagination with excited anticipation. The most must be made of the opportunity. He must discuss it with Emma. Should she come with him and show their brood of four children including the three-month old Max to his aging parents? Who would run the laboratory in his absence? Should he go to the Congress only and come back as soon as possible or should he try to persuade the Government to send him earlier to extend his studies at various institutions?

61 Some of the problems were quickly solved. Emma decided that the children were too young to travel overseas and, fully cognisant of the troubled times, elected to stay with Mathilda in the house at Daspoort. It was a wrenching decision - they had longed to take their family to Switzerland where now it was spring. Schutte would continue to supervise the laboratory and Schroeder

would run it along the lines he knew. In anything untoward, there was a fully-qualified man available in the person of James Francis Scott whose M.R.C.V.S. certificate, dated the 23rd May 1895, had been signed by some of the luminaries of the College – A. E. Mettam who had taught him Anatomy; Stewart Stockman, a bright young professor of Pathology; and Fred Smith, one of many Fellows serving as examiners. In the middle of 1898, Scott had applied to the State Secretary for a licence 'to practise as a veterinary surgeon and act as deputy or assistant to Dr Theiler'. His application had been referred to Theiler who had approved it and Scott, duly licenced, began practice in Johannesburg where they occasionally met. He would be suitable as a technical adviser in matters beyond the scope of Schutte and he could also serve as Paardenarts to the Staatsartillerie.

In his careful manner, Theiler took the weekend to consider the implications of Grobler's letter and on Monday the 17th April, sent his reply by hand. He gracefully thanked for the honour which he gladly accepted, offering to discharge it to the best of his knowledge and ability. Then he referred to his letter of the 5th December 1898, remarking the danger of Bubonic Plague and asking to be sent to the Pasteur Institute to learn to prepare serum against it. The danger, he said, was still urgent and 'we have seen that there are no experts in the Z.A.R. to combat it unless I am sent to Europe'. Further, he could use the opportunity to bring himself up-to-date as Bacteriologist, a position which he alone fulfilled, and in all new discoveries in the making of different sera offered by the various bacteriological institutes. Bearing in mind that the universities would be closed from July to October for the summer vacation, he asked to be allowed to leave in the middle of May for two months' study before the Congress. He promised to undertake the work in the cheapest manner and asked for the soonest possible decision in principle as advanced booking was essential on the packed ships. He signed his name with a huge and exultant flourish.

The Government did not keep him waiting. With Kruger himself in the chair, the Executive Council on the very next day (18th April) took his request 'into serious consideration in consultation with the Under-Secretary (Grobler)' and gave the necessary authority with all expenses paid for an absence of not more than four months. Theiler was officially advised on the 22nd April and a frenzy of correspondence and arrangement ensued. He planned to leave on the mail-ship *Briton* on the 17th May and asked for an advance of £250 which was immediately given him. Complicated financial arrangements would have to be made to provide for Emma and the family during his four-month absence. In one letter after another on the 24th April, he asked the State Secretary for letters of credence and of introduction to the various institutes he proposed visiting such as the Institut Pasteur in Paris and the Institut Vaccinale at Lancy. He formally advised that the administrative work at Daspoort would be done by his secretary Schroeder and the technical by his assistant Charles Favre. He confirmed the arrangement by which J. F. Scott M.R.C.V.S. of Johannesburg would attend the Staatsartillerie horses and keep an eye on Daspoort. He wrote ecstatically to his family, asking his father to meet him at Basle, accompanied by the gay adventurer Deschler, now returned to Switzerland after travelling round the world, who had helped him on his way in difficult days at Les Marais.

Cruelly, with little more than a fortnight for a thousand preparations (including the tailoring of dress suits and other expensive appurtenances appropriate to an international conference), the Z.A.R. Government sent him to Natal to coöperate with the Plague expert, Dr Honebrook imported by the Chamber of Mines. Natal was deep in preparations for war and Watkins-Pitchford, divided between his veterinary and beloved Army duties (he founded a Voluntary Veterinary Corps) was no candidate to represent it at Baden-Baden. On the 5th May, the Natal Colonial Secretary ingenuously telegraphed the Z.A.R. State Secretary asking that Theiler be allowed to represent the Colony. Grobler the next day replied that his Government 'gladly complied' and

72 awaited a letter of credential. It was immediately sent under date 8th May and with proper diplo-  
73 matic courtesy, the Z.A.R. informed the German Consul accordingly. The Imperial German  
74 Government in Berlin was thereupon informed of the fact and its Foreign Office requested to  
afford Dr Theiler assistance in his study of bacteriology and animal diseases.

75 Theiler's own Government gave him a letter of introduction, beautifully beribboned with the  
Vierkleur (the four colours of the national flag) to the Imperial German Department of Health as  
well as the requested letters to the chairman of the Organising Committee of the Congress and  
76 the director of the Institut Pasteur. The French Consul, Aubert and the British Agent, Conyng-  
ham Greene (whose wife Lady Lily Greene, served as his secretary) also provided him with  
commendation.

Theiler was tremendously proud of representing Natal and went to Reitz' office to inspect the  
correspondence. 'I have found confidence in South Africa, haven't I?' he quizzed his parents  
77 meaningfully in his last letter before sailing. He left Pretoria by train for Cape Town on the night  
of Saturday the 13th May 1899 and embarked on the mailship *Briton* on the 17th. Preceding him  
78 by two weeks was a letter to his parents from their daughter-in-law, written in haste while Arnold  
was in Natal:

'The purpose of my letter is to beg Father to tell the family, relatives and friends about  
Arnold's accident 8 years ago so as to spare him many vexatious questions which would be  
painful to him and remind him of the saddest time of his life. It would be a pity thus to ruin a  
short well-earned holiday which should give him the courage and drive for further work. I know  
what I am asking Father is not easy but the joy of the reunion soon should help toward it.'

## HORSE DOCTOR AT WAR 1899-1900

1 THE UTTER INEVITABILITY of war (daily headlined as 'The Situation') paradoxically co-existed with 'life as usual'. While Joseph Chamberlain was considering the petition signed by 20,000 Johannesburg Uitlanders for the redress of their disabilities and British troops massed in Natal, Pretoria appeared to pursue its even way. On the 8th May 1899, the Transvaal Agricultural Union, already a powerful body, held its first Annual Congress and recorded a high degree of coöperation on all hands. The Z.A.R. Government had asked it to report on the granting of a concession for the importation of steam-ploughs and other important matters. Its president, Johann Zulch de Villiers, Burgomaster of Johannesburg and its vice-president, Dr J. W. B. Gunning had been 'most hospitably' entertained in Cape Town at the Annual Congress of the South African Agricultural Union of which de Villiers had been made a vice-president. Gunning had even gone to Graham's Town to see the Bacteriological Institute where Edington had treated him 'with the greatest kindness and courtesy'. He had then made rapport in the Free State.

2 Under this gloss which obtained equally in other fields, there were energetic preparations for war. Apart from the accumulation of troops from England and India, mostly in Natal, the British Army's Principal Veterinary Officer, Colonel Matthews was already in the country, laying in medical and other stores and establishing Remount Stations. In Natal, he was assisted by Watkins-Pitchford, already on quasi-military service with his staff, and at the Cape by the partly-recovered Hutcheon and his men. The Cape, with many Afrikaners in its Government, was not 'British' in the sense of Natal and Hutcheon's department continued to serve only as civilians. As the weeks went by, there was feverish purchasing throughout Southern Africa of horses, mules and oxen. No war could be waged without mounted forces and draught animals. Officers on furlough on their way to England told Theiler travelling with them in the middle of May that it would quickly be over and that the British Army 'would walk into Pretoria'. 3 When he landed at Southampton on the 2nd June, the newspapers implied imminent hostilities. Reaching Switzerland the next day, the message was much the same.

4 The eyes of the world were on Bloemfontein where Kruger, accompanied by his young State Attorney J. C. Smuts, confronted Britain's representative Sir Alfred Milner across a conference table. For the first week in June, the old man, urged to temporise by Smuts, tried to find a via media with a cold austere satrap whose mind was increasingly revealed as closed to anything but total submission. At the week's end, Kruger threw in his hand and returned to Pretoria. The world at large echoed the sentiment of Southern Africa - 'the only solution of the situation is by force of arms'.

5 In the Z.A.R., tension was accentuated. The great exodus from Johannesburg which had begun earlier, now increased. In Pretoria, the Uitlander inhabitants began to sell up and there was continuous auction of furniture, riding horses and household effects. The emotional challenge of the failed conference was reflected on the 19th June by a huge meeting of burghers at Paardekraal near Krugersdorp where the Commandant-General Piet Joubert was enthusiastically welcomed at the site commemorating the outbreak of the first Anglo-Boer War in 1880 when the Republic had regained its independence. Military preparations were now as apparent in the Transvaal as in Natal and the Cape. European newspapers were full of news of the fast-developing crisis. To hearten his men at Daspoort, Theiler sent them a bawdy postcard.

He was fully aware of 'the situation' and, reading reports from the foreign Press reproduced

6 in Pretoria newspapers, Emma could gauge how well-informed he would be. Wherever he was, in almost continuous travelling, she could hear from him in little more than three weeks as long as the Cape route remained open. He had gone first to Frick for only a few days to be reunited with his family and to continue his quasi-paternal relationship with his brother Alfred, 15 years his junior; then via Neuchâtel (calling on Tel Sandoz at his home) to Paris to make arrangements at the Institut Pasteur for his study of new techniques. It had been good to be welcomed and to see Bordet again. He would begin his work there at the end of June; but in the meantime, there were similar enquiries at the Universities of Berne and Zurich (where Zschokke claimed him), friends to be seen, relatives visited, old connections re-established. He was seldom more than a day or two in any given place in the beloved homeland before returning to Paris on the 29th June.

7 In a manner becoming to an official representative of the Z.A.R. Government (for which the French had much sympathy) and bearing its letter of commendation, Theiler was warmly welcomed at the Institut Pasteur and wherever he went. He spent three weeks in Paris watching research procedures and techniques for manufacturing vaccines, and visiting the purveyors of the most advanced laboratory equipment, notably the firm of Cogit with which he subsequently dealt. His friendship with Bordet gave him easy entrée and many names in his scientific journals became vital personalities, such as Edouard Nocard of the Alfort Veterinary College outside Paris. His time, he said, was most valuably spent and his departure delayed by the interest of the work he was watching. Emma's letters were always forwarded to him and he wrote her constantly.

8 The four Swiss running the Daspoort Laboratory and maintaining his long-term experiments frequently consulted her. Schroeder, nominally in charge, foresaw difficulties. The Smallpox and other vaccines which they continued to produce in bulk, were all supplied without charge and the Laboratory had no income beyond Theiler's modest estimated budget. By August, there remained only £545 and Schroeder applied to Schutte for further finance to maintain their work until the end of the year. None was forthcoming. The Government's attention was elsewhere. It was issuing new Mauser rifles to the burghers in place of their old Martini-Henrys and buying horses and oxen galore in every quarter. Comically – if it had not also been tragic – the British were also buying horses in the Orange Free State and assembling huge reserves at Pietermaritzburg. The shops remained open in Pretoria and the Government packed its stores with goods of every kind against the time when supplies might be cut. The British agent Conynham Greene and his wife moved freely about the town as before; but Kruger preached in the Dopper Church and Days of Humiliation were held, pleading for intercession.

9 By the 19th July, Theiler was back in Switzerland conferring with his scientific and personal friends – Zschokke in Zurich, Sandoz at Le Locle, Rubele in Berne, others in Basle, Glarus and elsewhere in the little country so easily traversed. He was all the time 'bringing himself up to date' and telling Emma of the wide field expanding before him. In the first week in August, he and the Swiss delegation crossed the Rhine to attend the Conference at Baden-Baden. x

10 The International Veterinary Conference was, unsurprisingly, the invention of a Scotsman – Professor John Gamgee of Edinburgh. He found no support among his own people but the idea attracted German scientists who in 1863, organised the first Congress at Hamburg attended by about 100 and only two Englishmen. At the second held in Vienna in 1865, the attendance rose to 160 with five English. 180 attended the third in Zurich in 1867 and 310 the fourth at Brussels, for the first time under Royal patronage. Attendance rose to 635 for the fifth in 1889 in Paris while Theiler was still a carousing student shortly to qualify, and the sixth was held again in Switzerland in Berne in 1895. Moderately successful in Johannesburg by then, he had had wild thoughts of attending it. The 670 delegates still included only a small number of English who

generally considered it a distinctly Continental innovation and were, as a profession, congenitally apathetic toward such excursions.

11 By 1899, there had been a change of heart (probably concomitant with great scientific developments, particularly in bacteriology) and no less than a thousand delegates foregathered at Baden-Baden (where, for the first time, English was one of the official languages), coming literally from all parts of the world including Canada, Australia and the United States. Professor John M'Fadyean, principal of the Royal College of Veterinary Surgeons, led a distinguished delegation of his colleagues. Among Colonials, Orientals and Continentals, Theiler was a nonentity – at best, a curiosity. The Grand Duke Friedrich cast regal glamour on the scene; the usual concerts, balls, banquets and excursions were organised and the city of Baden-Baden devoted itself to cherishing its guests. The proceedings were almost entirely concerned with practical problems affecting 'the international cattle trade' and preventing the diseases that vitiated it. There were no reports on current research; but Theiler met the men engaged on it throughout the world.

12 At the official farewell banquet on the 12th August, he sat at the same long table as his new friend, the 50-year old Nocard, director of the Alfort Veterinary College who, a favourite and first veterinary pupil of Pasteur, was doing notable work on 'the microbial maladies of animals' including Glanders, Pleuro-pneumonia, Tuberculosis, diseases due to trypanosomes and other projects dear to Theiler's own heart. Others with him were Robert Ostertag of Berlin, Jenné of Holland, Tokishige of Japan, Fotheringham of Boston, U.S.A. and, on the practical side, Duncan McEachem, Chief Veterinary Officer of Canada, Alix Cope of London, Roumanian, German and Swiss delegates.

13 In the five days of the Congress, Theiler had met Kitt of München whose text-books on Bacteriology he had feverishly ordered with the utmost urgency through his father; Leclainche of Toulouse; Perroncito of Turin and other luminaries whose names he had noted many weeks before in Pretoria. Fluent in German, French, Dutch and English, talking to such men (himself unique among them) was as the breath of life to him. In the manner of such occasions, letters and reports were promised, invitations extended to visit institutions, coöperation offered on mutual problems. In five hectic days, Theiler took his measure against the current world of veterinary and bacteriological science and found himself not wanting but frustrated by no commission to speak. In the international field, Africa and its animal diseases had no existence, let alone a proponent. Then he went on to keep his numerous assignments in Germany – Heidelberg, Köln, Bremen, Berlin (with Koch absent on his long tour of research into Malaria in Italy, Java and the Pacific Islands), Dresden, München (to have further talks with Kitt), Jena for equipment from Zeiss, and all other institutions fulfilling his commissions from his Government.

14 As he travelled, the German newspapers hammered the certainty of war. At the height of his success, his career seemed ruined and he wrote depressingly to Emma; but his tour proved so heady an experience that he proposed delaying his return though his four months' leave was near its end. Early in September, he was back in Switzerland, finding time to buy a miniature hay-wain or go-cart for his children, toys, dolls, boxes for botanising, Swiss chocolate and – a gift from his father – jars of honey. His cases would also contain all the apparatus he had bought, the most modern microscopes, bacteriological specimens, various cultures, even the bee fungus which his father had found. He had long earnest talks with Alfred about his future. When he had finished at the Aarau High School, he must go to the University at Zurich. Having had a new one made in Berlin, Arnold confided into his father's care his old artificial left-hand to serve as a model should he need replacement. All ships to South Africa were packed to the gun-  
17 whales but he must get back. He was unable to leave Switzerland until the 22nd September.



Emma in the seat of war worried about him. His time was up and he had not, as far as she knew, asked for an extension. He might lose his job. There was now a general exodus from Pretoria. The foreigners remaining organised themselves into units – a German Corps, a German Navy Society, a Swiss Security Corps and others. The Staatsartillerie practised marksmanship in the veld and two batteries left for Volksrust on the Natal border. With the wholesale flight of native and white labour, the gold mines and Johannesburg itself were coming to a stop. The cost of food rose steeply. Emma providently bought provisions and later took up the floorboards to conceal supplies for three months so that if thieves rifled the kitchen and pantry, the family could still subsist. She wrote her parents-in-law that she could no longer send a monthly financial contribution – salaries might not be paid and they would need money. Prudent and thrifty, she was saving all she could (it amounted to £200 when Arnold came back and they were able to dig a well). If the English won, Arnold would lose his job; but, she noted, ‘they have certainly chosen a bad time as summer is now coming with its terrible storms and flooded rivers, together with malaria and Horse Sickness’.

She planned to have the house spick and span for Arnold’s return but before taking down the curtains, oiling the floors and cleaning every nook and cranny, she presciently sent a postcard to Southampton and a long letter to Madeira, confident that he would somehow be on the mailship *Norman* leaving three weeks thence on the 23rd September. She wanted him to know that all was not well in the Laboratory. The staff, lacking authority, were at daggers drawn. Scott who should have been paardenarts to the Staatsartillerie, was ‘lazy and negligent’ and no use at all, being dismissed at the end of September. Two of Theiler’s Swiss would have to take his place and the others might soon be impressed to fight with the commandos. The Republic had no army – only commandos drawn from specific areas whose members had no uniforms, rode their own horses, took their own food and knew no discipline. The sole organised uniformed disciplined forces were the Staatsartillerie with its heavy Creusot guns, howitzers and maxims, and the Mounted Police.

When Theiler crossed the Channel on the 23rd September, the British Cabinet had met. ‘I have the impression from the reports in English newspapers that the English have it in mind to start a war’, he told his parents in a valedictory letter. His troubles immediately began and even his Swiss London friend, C. Ecuyer could not help him. The British Customs, confronted by a swarthy foreigner carrying Z.A.R. papers and loaded with numerous heavy cases, suspected gun-running and broke them open. All was settled in time for him to board the *Norman* at Southampton. He shared a cabin with a German from South West Africa and found an old friend of Johannesburg days, the Mining Commissioner, J. L. van der Merwe as well as other acquaintances returning hurriedly to their businesses.

He regarded coldly the numerous swaggering English officers on board. They let it be known that the Transvaal artillery should not be under-estimated as young men who rode about on horses knew very well how to estimate distance and possessed good French quick-firing canons as well as Krupp batteries. They looked pityingly at Theiler; but before the voyage was over, he felt sorry for them, knowing that ‘either sickness or bullets will cause them to remain forever in Africa’. There were also correspondents of the big London illustrated papers including the disarmingly rotund, bald-headed and bespectacled Melton Prior of the *Illustrated London News* who had covered the first Anglo-Boer War and himself brought the peace terms from the English to the Boers in 1881. Theiler listened to the stocky middle-aged little man holding forth in the Saloon Bar, knowledgeably pronouncing that the English had decided on war. They never met again but came dangerously close.

At Madeira, Theiler wrote his parents in Frick and bought the famous wicker chairs for his family in Pretoria. After reading Emma’s letter, there was much on his mind. The dissension

and dispersal of his staff and the chaos in his laboratory were severe blows to a man re-inspired by new ideas, equipment and energy. He would soon restore order, he felt sure and, indomitably optimistic, spent all possible time at sea drafting a 'work plan' for the future. To Theiler, work was an end in itself, a holy obligation never to be foresworn. War or no war, he knew what he must do.

X In the confusion of docking at Cape Town, his compatriot Jean Dietschi, now a waiter at the Mount Nelson Hotel, emerged from the crowd and helped him disembark. Well in advance. Emma had arranged it. It was Tuesday the 10th October, the 75th birthday of President Kruger, the day on which his ultimatum to Britain to remove her massed forces from Natal would expire. Theiler caught the last train to the north while the bridges still stood. No freight was allowed and he carried only hand-luggage while his baggage and packing cases disappeared in the confusion and chaos at the Cape. He arrived in Pretoria on Friday the 12th October 1899 with hostilities already in progress and the bridge across the Orange River allegedly destroyed. X Communication with the outside world through Durban and Cape Town came suddenly to an end. British warships hovered outside Delagoa Bay, restrained for diplomatic reasons from imposing blockade but attentively watching the traffic from Europe that now would come through the Suez Canal and unload at Lourenço Marques the cargoes destined for the Z.A.R.

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Pretoria was eerily quiet. The English newspapers, *The Press* and its recent rival the *Pretoria News* (reporting County cricket matches to the last) had ceased publication; but the Dutch *De Volksstem* continued, with a special edition in English, as well as the *Deutsche Zeitung* which the Theilers sometimes sent to Switzerland. British subjects were put over the border but some were allowed to remain – ministers of religion, and the staffs of various businesses, stores and banks. Many houses and shops stood empty; but the main stores remained open and a number of smaller shops. Life went on as usual with few people in the streets.

24 Theiler's homecoming was marred by chagrin that he came empty-handed, carrying only his  
25 valises. Everything had grown – the children, the trees, the grass in Spring. He went at once to  
26 his laboratory where Favre alone remained in charge, longing to join his compatriots on the  
27 Natal front and rendering occasional service to the horses of the residual Staatsartillerie.  
Schroeder, von Bergen and Otto Meyer had been impressed into the Pretoria Commando and  
Kollmann was with the Aapies River Commando – non-belligerently, he asserted, and only on  
ambulance duty. All that Theiler had struggled to attain – his new knowledge, his plans, his  
laboratory – had become pointless.

28 On the 17th October, he wrote two formal letters – one to the State Secretary advising his  
return and the detention of his baggage with all his records and equipment, and graciously  
29 thanking for the great honour done him. The second was to Landdrost Schutte, now riding  
continually about his enormous district administering a thousand affairs and checking on spies  
and disloyalty. Theiler confirmed his resumption of control of the Daspoort Laboratory and  
asked that the Auditor-General be told of the inaccessibility of his cases containing the receipts  
for £200 which he now claimed for general expenses on his mission. He was closing the labora-  
tory owing to his assistants being commandeered and all experimentation becoming impossible.

30 He had 'offered his services to the Commandant-General'. He had in fact twice telegraphed  
31 General Piet Joubert sitting among his commandos in the hot hills of Natal in the purlieu of  
Ladysmith. Humiliatingly, no answer came. Joubert had never liked him. He was important  
32 to no one. Emma rejoiced. It was the sixth anniversary of their marriage and he had spent at  
least 2½ years of it away from his home.

33 The Boer forces struck quickly. Even as Fitzpatrick, busybody 'expert' on South African affairs, confirmed in London his discussion with Milner on the post-war rehabilitation that would soon be necessary (Chamberlain, Selborne and Milner were all planning post-war reconstruction, confident of an early end), the might of the British Army suffered debasing blows in Natal and the Northern Cape. The effect was to stalemate its drive to the Transvaal and to shut up in Ladysmith an effective force together with essential officers including the Principal Veterinary Surgeon Colonel Matthews (with his henchman Watkins-Pitchford), Surgeon-Major Bruce and a host of war correspondents. Inept military action similarly resulted in the sieges of Kimberley and Mafeking in the Cape. One of the contributing factors was a disastrous action on the 10th November at Belmont outside Kimberley where, Theiler sadly noted, Lieutenant Wood who five months previously had talked on the ship of 'walking into Pretoria', was killed. Only three weeks after the outbreak of war, thousands of British prisoners were brought to a surprised and unprepared Pretoria and quartered on the race course. (They were shortly joined, Theiler observed by Lord Randolph Churchill's son, captured on the 15th November.) At the same time, Boer casualties arrived.

34  
35 Of security measures, there seemed none. Theiler's staff in the field in Natal wrote him expansively of the number and disposition of their guns, military movements, various actions with casualty figures, documents found on the dead and every detail that came to their notice. He himself, having no specific duties, wandered about the town talking to everybody, visiting the wounded (his friend Lieutenant Mike du Toit of the Staatsartillerie had had his leg smashed in two places by a shell), hearing all that was known – in a Capital untroubled by military censors – from civil servants, his colleagues at the Artillery Camp and the British prisoners themselves. He wrote long letters to his father, full of the accusations made by both sides regarding the use of dum-dum bullets, firing on truce flags and ambulances bearing the Red Cross, killing surrendering troops, and so forth, together with detailed descriptions of military actions and dispositions. They were published in the *Schweizer Freie Press* and completely changed in character when Theiler obtained information at first hand.

36 This was a new kind of war between a highly home-trained army under discipline and inept direction, and loose accumulations of indignant men ostensibly organised into commandos drawn from various areas and exhilarated by early success into a false sense of superiority. The British had hardly deployed their innovations in the way of observation balloons, powerful searchlights, heliographing over great distances, employing road steam-locomotives for traction, and other devices; but their officers now wore khaki with unpolished buttons and their swords were purposely tarnished. They also had official motion picture war correspondents.

37 'Science' too exhibited its progress. On the 16th November 1899, the shattered leg of Theiler's friend, Mike du Toit, was exposed to 'Röntgen Rays' in the Pretoria Hospital to assist the surgeon in re-setting the bones. On the same day, Marconi's installation at The Needles broadcast to him on the ship in which he was returning from America, the latest despatches on the South African War which the captain printed for the passengers. When 40 miles from Southampton, he received: 'Ladysmith, Kimberley and Mafeking holding out well. No big battle. 15,000 men recently landed. At Ladysmith, no more killed. Boer bombardment at Kimberley effected the destruction of ONE TIN POT. It was auctioned for £200. It is felt that period of anxiety and strain is over and that our turn has come.' It was the first time that news had been radioed.

38  
39 Theiler himself had not neglected his scientific obligations and maintained certain cultures in the deserted laboratory, notably bacteria which had arrived from Berlin and Zurich before his return. Still expecting to be called up, he was practicing revolver-shooting on horseback – a difficult enterprise with one hand; but, in between talking to all and sundry, was planning the effective continuance of his researches. All the cultures which he had obtained from Bordet

and others had probably been destroyed by the British in confiscating his baggage. He had left a standing order with the Bacteriological Institutes at Lausanne and Lancy for breeding-lymph which he specially needed as cases of Smallpox continued to occur. Now they must be sent via  
41 Naples and Lourenço Marques. His father too must send him more bee fungus via the Suez route. At some time he would use it; but now he roamed about the town, gathering every detail of news about the war and the Republic's part in it for long letters intended for publication in the *Schweizer Freie Press*. The activities of the local Swiss were of special interest and he sought out the oldest – Perrin, the Master of the State Mint.

42 Jules Alfred Perrin of Cortaillod, Neuchâtel was by training an assayer who served in the Swiss Army but joined the first wave of emigrants to South Africa when the Diamond Fields were opened in 1871. He left Kimberley for Pretoria in 1873 at the call of the impractical President Burgers who wanted to establish a Mint, but remained merely an assayer, later wandering off to the Eastern Transvaal goldfields as digger and farmer. In 1893, he returned to Pretoria as Government Assayer and inaugurator of the State Mint. A man deeply versed in Science, he told Theiler that the Government had no intention of 'killing the hen that laid the golden egg' (as the British feared) but continued to operate some of the gold mines near the defunct Johannesburg. All the gold mined was sent to him at the Mint where seven Swiss worked with him.  
43 'We have had for a long time enough gold', Theiler reported, 'Herr Perrin showed me no less than 120 tons of it.'

Six weeks after his return, his orders came – he was to report to Major J. F. Wolmarans, senior officer of the Staatsartillerie headed by Commandant S. P. E. Trichardt, at some point  
44 on the periphery of Ladysmith. All was tumult. 'My second homeland is threatened by mighty England', he wrote dramatically, 'Until now I have been released from taking active part but now my duty calls me to the battlefield. To withdraw from this duty would not be seemly after being treated well by the Government in good times. The oath of allegiance binds also for unhappy times. As a man of honour and a good Swiss, I want to discharge my duty.' Ladysmith would soon fall. Deserters told of 'unbearable conditions'. The water supply was polluted. Typhoid must be raging. He had no idea how long he would be in the field but he hoped his local responsibilities would bring him often to Pretoria. As 'Horse Doctor' to the Staatsartillerie, he would enjoy no immunity like the doctors working with the Red Cross, and he would go  
45 armed and his men too – 'not that I have any murderous thoughts at all', he wrote his parents, hinting that had he had two hands, it might have been otherwise, 'being as I now am, I will try to serve Justice and Freedom to the best of my knowledge and conscience.'

With only two or three days to organise a most complicated mission, Theiler was hard put  
46 to arrange his affairs. The Government provided six mules and a wagon (to be stocked with medicines, instruments and dressings for thousands of horses as well as food and other paraphernalia), an orderly D. T. Botha, two native servants, a tent, a riding horse and the services of Favre who at last achieved his ambition to go to the front. Concerned and considerate as  
47 ever, Emma put in the wagon a small case of provisions so that Arnold should never suffer from hunger.

She had never feared being left alone in the house with Mathilda and the children though  
48 thunderous rain on the tin roof and gale-force winds that sometimes nearly removed it had often made her anxious. There were voluntary police patrols in Pretoria which came as far as their property. Distant from shops and now that the laboratory was closed, from any kind of company, she was always fully occupied with maintaining the household and four effervescent toddlers. Now Arnold laid a further obligation on her. The precious imported bacteria could not be allowed to die. She must maintain them too and, skilled as she was in broths and cultures and general laboratory work, renew them when necessary. Before leaving Europe, Arnold had

written to Bordet asking him to send fresh supplies as soon as he read that war had been declared. They would be arriving soon to replace those now ruined in Arnold's lost baggage. 49 'A small laboratory' including an incubator was transported from Daspoort to the house and Emma entered into her occupation as surrogate Gouvernements Veearts, even receiving terse 50 messages later from the incumbent in the field, dispelling any hope of relief – 'You will therefore have to conduct those affairs of our Station transferred to you as at present'. They kept her very busy.

There was now a great va-et-vient along the Daspoort road through Wonderboom to Water-  
val where Arnold had laboured with Danysz and Bordet. Faced with a growing mass of British  
prisoners for whom the race course was inadequate for the rank-and-file and the Staats Model  
51 School for the officers, the Government instructed Wierda to convert the partially-dismantled  
Experiment Station into a fenced and fortified camp with watch-towers and searchlights. He  
designed a large village of three 'streets' pointedly entitled Ladysmith, Dundee and Kimberley  
and here, from the 1st December 1899 onward, all ranks were incarcerated. Later many distin-  
52 guished Pretoria citizens, including Dr J. W. B. Gunning, served as guards at a special camp for  
officers constructed on the side of a hill in full view of the Theiler house. Emma who had noted  
53 the escape of Winston Churchill from the Staats Model School on the 13th December 1899,  
was diverted at night by its powerful searchlights. Its inmates called it 'The Birdcage'.

\* \* \*

Arnold had trucked his cumbersome equipage of wagon, animals and servants at dawn on the  
27th November. Two days later, the erratic train arrived at a siding before the general depôt  
at Elandslaagte in Natal and the whole unit was unloaded into the veld. Theiler took to his  
horse and, met by his whilom Swiss assistants now on active service, rode to the base of Bulwana  
Hill where presently his camp was established. A bearded and sunburnt Major Wolmarans  
visited him that night and Theiler told him of sympathy throughout Europe for the Republic's  
cause.

54 The following day (30th November), he rode up the broad steep hill, taking four hours to  
reach the top. To the noise of continuous bombardment by British artillery and naval guns  
encircling Ladysmith to which Wolmarans' unit of the Staatsartillerie replied from the summit,  
he surveyed a scene of fantasy. Below him lay the beleaguered town where every movement,  
every building, even every particular individual (Bennett Burleigh of the *Daily Telegraph* had  
55 to dye his white horse with boiled Condyl's Fluid to render it less conspicuous) was clearly  
visible by telescope. A relationship of almost cordial intimacy had already arisen between the  
56 besiegers and the besieged. Behind him and to the right and left between the hills were the laagers  
of the Boer commandos, lying in beautifully green and verdant country where their horses and  
cattle placidly grazed. But for an occasional British observation balloon, the rare crack of rifle  
shots and the intermittent noise of bombardment, the scene of battle wore the air of a gigantic  
picnic.

Theiler's postal address became 3rd Battery – Major J. F. Wolmarans, Hoofdlaager, Lady-  
smith and there Emma's letters regularly reached him. His duties were occasionally to inspect  
and maintain the health of the horses of the fighting forces which surrounded the town, with  
artillery batteries on every hill. Horse Sickness was feared but never eventuated. There emerged  
57 instead on the lower ground a plague of flies feeding on detritus and dead animals which pre-  
sented an almost intolerable human health hazard. To a man trained at the Thun Military  
Academy in Switzerland, the conduct of the war was unbelievable. No watches were set, no  
sentries posted, no security measures enforced. Sitting on their hills, the burghers held that

advancing British could be seen long before they could attack. The night would take care of itself. In such circumstances, the British, using local troops, made a brilliant and costly night attack on the 11th December on Lombard's Kop to disable its guns and all but dispossessed the sleeping Pretoria commando while smashing a Howitzer and damaging a heavy Creusot gun. Theiler and Kollmann watched it from the adjacent Bulwana Hill and shook their heads.

58 For reasons of which he was not advised, Theiler was ordered to transfer his unwieldy camp from the base to the top of the hill. 16 mules were needed to drag his wagon over rocks and gullies in constant danger of capsizing to a site slightly below the summit where the 15.5 Creusot

59 siege gun called 'Long Tom' by the victims below (others were known as 'Puffing Billy' and 'Weary Willy' from the noise of their shells in flight) was mounted with supporting artillery. 60 It had taken 48 oxen and hundreds of helping hands to get it there in defiance of the advice of Dutch and German engineers. With Theiler were his Swiss assistants, now joined by the ad-

61 venturous Deschler from home who acted as cook. They lived hardly with little water and sleeping in their clothes. The futility of his position deeply irked Theiler but he consoled himself with the thought that he was being used as a congenial companion to Wolmarans rather than horse doctor and the rôle, so far from doing him harm, might in the end prosper his career.

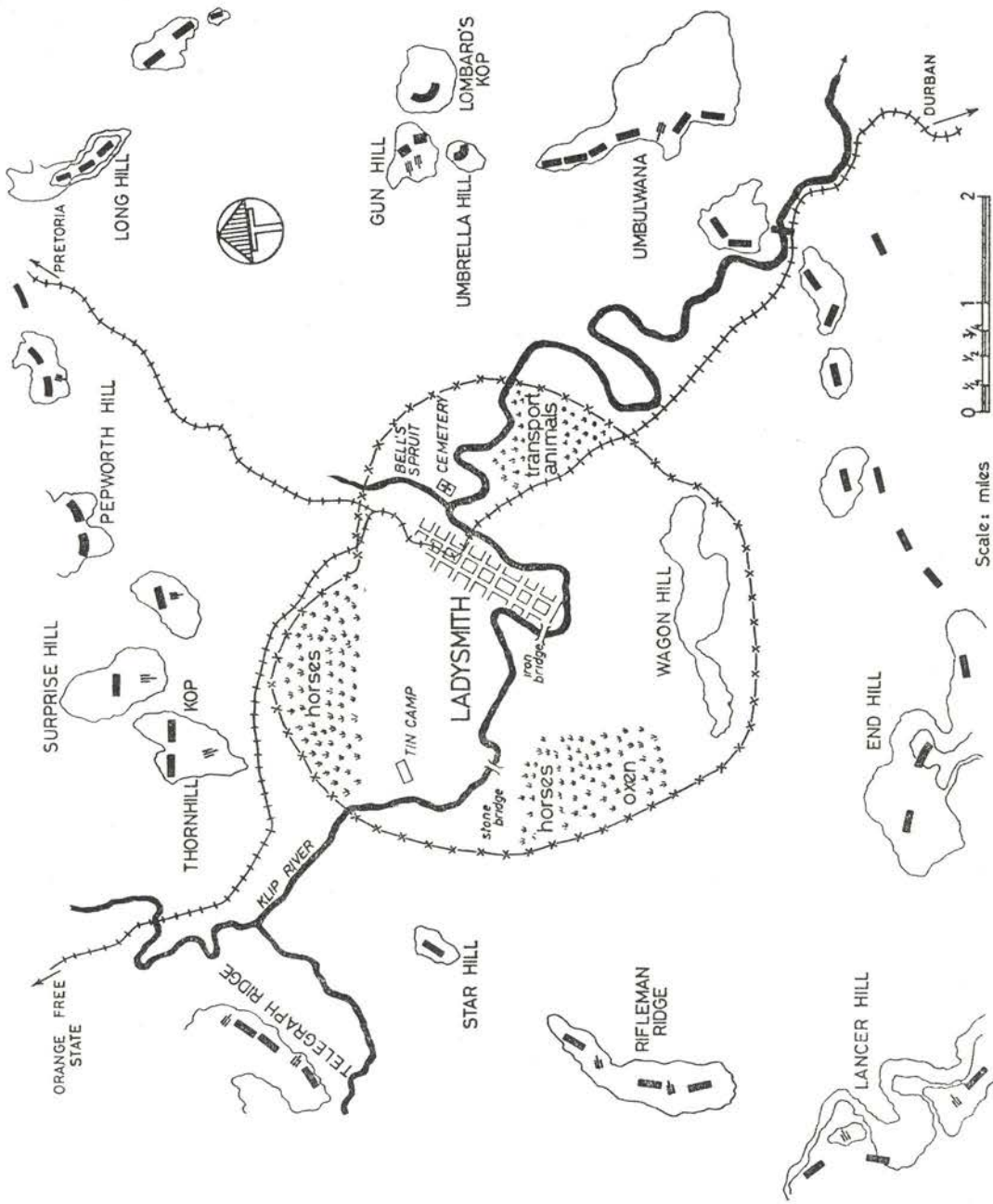
Within three weeks of arriving in Natal, disillusion had completely dissipated the glorious sentiments he had at first expressed. An exceptionally meticulous and observant recorder, Theiler now saw the moral and physical deterioration of the burghers through years of ruination by Rinderpest, drought, locusts and pestilences which had abased the economy and broken their fighting spirit. The war had come as a Godsend to the impoverished denizens of the many 'Burghersdorps'. They had flocked to enlist and, palpably not fighting material, were the least

62 suitable 'to go on commando'. With the war not two months old, Theiler wrote of 'those who mutilate themselves to be able to go home' and who fled from conflict and otherwise showed no sign of patriotism. The white-bearded Joubert, confused and dilatory, provided no leadership and, while there were excellent candidates (such as Louis Botha), none could usurp him. The professional army represented by the Staatsartillerie (of which J. F. Wolmarans was a brave and brilliant commander) and the Mounted Police had no solid support from the shifty system of commando service with its total lack of discipline and enforcement of orders.

Theiler was confounded by the random martial expression of his 'new homeland' and yearned 63 to get back to his laboratory. Emma wrote that Kruger had told his Mint Master, Jules Perrin that England was in a position to wage war for two years. At that moment, the British Army received an order consonant with the ineptness of its command which prolonged it even further and set Theiler on his true path.

Enormous numbers of horses and mules were being imported to South Africa by the Army from England, Ireland, Italy, Germany, Hungary and other European countries (and later Canada, Australia, the Argentine etc.). Apart from those which immediately introduced Strangles, Mange, Equine Influenza and Glanders, they were given little opportunity to acclimatise themselves and were rushed to the various fronts. There they joined manger-fed cavalry horses (many with docked tails and martyred by flies) which in speed and endurance were expected to excel the tough Boer ponies bred and trained to fend for themselves.

In the interests of economy, the Army ordered a reduction in feeding rations which was to be compensated by grazing. The effect on horses was disastrous. 'English horses used to manger-feeding', wrote their careful chronicler F. Smith, then an Army Veterinary Major with the 13th 64 Hussars at Colenso; 'were as helpless on the veldt as the townbred soldier. They did not know what was expected of them. When they had purchased a little experience, the grazing had been eaten up by mules and herds of oxen.' With Colonel Matthews incommunicado in Ladysmith with troubles of his own, the Acting Principal Veterinary Officer formally protested on the 15th



SIEGE OF LADYSMITH 1899/1900

Boer Forces



Perimeter of British Defences

December 1899 that the reduced rations of grain and hay represented a starvation diet. He was independently supported by a commanding officer in the field, Lord Methuen who had seen the result and demanded that the Commander-in-Chief be told that with such feeding, horses could not give efficient service. No heed was paid to either and the result was calamitous to both campaign and country.

65 Idle and frustrated, Theiler sat with his Swiss below the far brow of Bulwana Hill overlooking the town of Colenso in the intermittent din of Long Tom's firing and the bursting of shells from the British naval guns. They had the range but the horses grazing behind the hill no longer even raised their heads when a shell exploded among them. At night the British searchlight at Chieveley behind Colenso about 20 kilometres distant, was so strong that 'when it throws its light upon us, we can very well read a newspaper and its light so to speak puts our's out'. Before them from the front lay Ladysmith where, they knew, typhoid and dysentery were rife and food and fodder rapidly running out.

66 Unbeknown to Theiler, there laboured heroically among the suffering besieged Surgeon-Major David Bruce (who later was himself incapacitated by typhoid) in charge of increasingly large hospitals where his lady worked alongside, serving as theatre sister when he and others operated on the wounded (she was later awarded the Royal Red Cross and Service Medals); 67 the British P.V.O. Colonel Matthews with Captains Raymond and Newson and four Army veterinarians; Major H. Watkins-Pitchford and Lieutenants W. M. Power, J. R. Byrne, C. H. Cordy and S. T. Amos of his veterinary staff; and, in the Imperial Light Horse raised in Johannesburg (its men had stormed Lombards Kop) Theiler's colleagues E. A. Hollingham M.R.C.V.S. and W. Pye. There were also his shipboard acquaintances among the 18 immured war correspondents including Melton Prior. In the supposed relieving force unsuccessfully driving toward Ladysmith was his Marico colleague C. F. Verney. Securely entrenched at Colenso (where 68 Theiler rode to watch the operations), the Boers beat off attacks and elsewhere had spectacular success, resulting in thousands of prisoners being delivered to an overburdened Pretoria.

69 Theiler tried to be busy by riding from time to time to the various positions to inspect horses without any need of his care. It was not yet the season for the Sickness though he had noted cases among captured English horses. He had hoped for interesting war wounds on which he could practise surgery; but cases were few and most were despatched with a coup de grace. Glanders, being a stable disease, was hardly present; but there were infestations of 'Brandziekte' (a form of eczema) and – massively – of ticks. Horses suffered occasionally from heat-stroke (the burghers poured cold water over them), saddle sores, laryngitis and because of the appalling plague of flies, conjunctivitis or inflamed eyes. A few had shot wounds and Theiler began a study of the effect of soft-nosed bullets. Apart from the interest of his intense observation now increasingly condemnatory, he and his staff were plainly bored and extremely uncomfortable in their exposed bivouac on top of the hill.

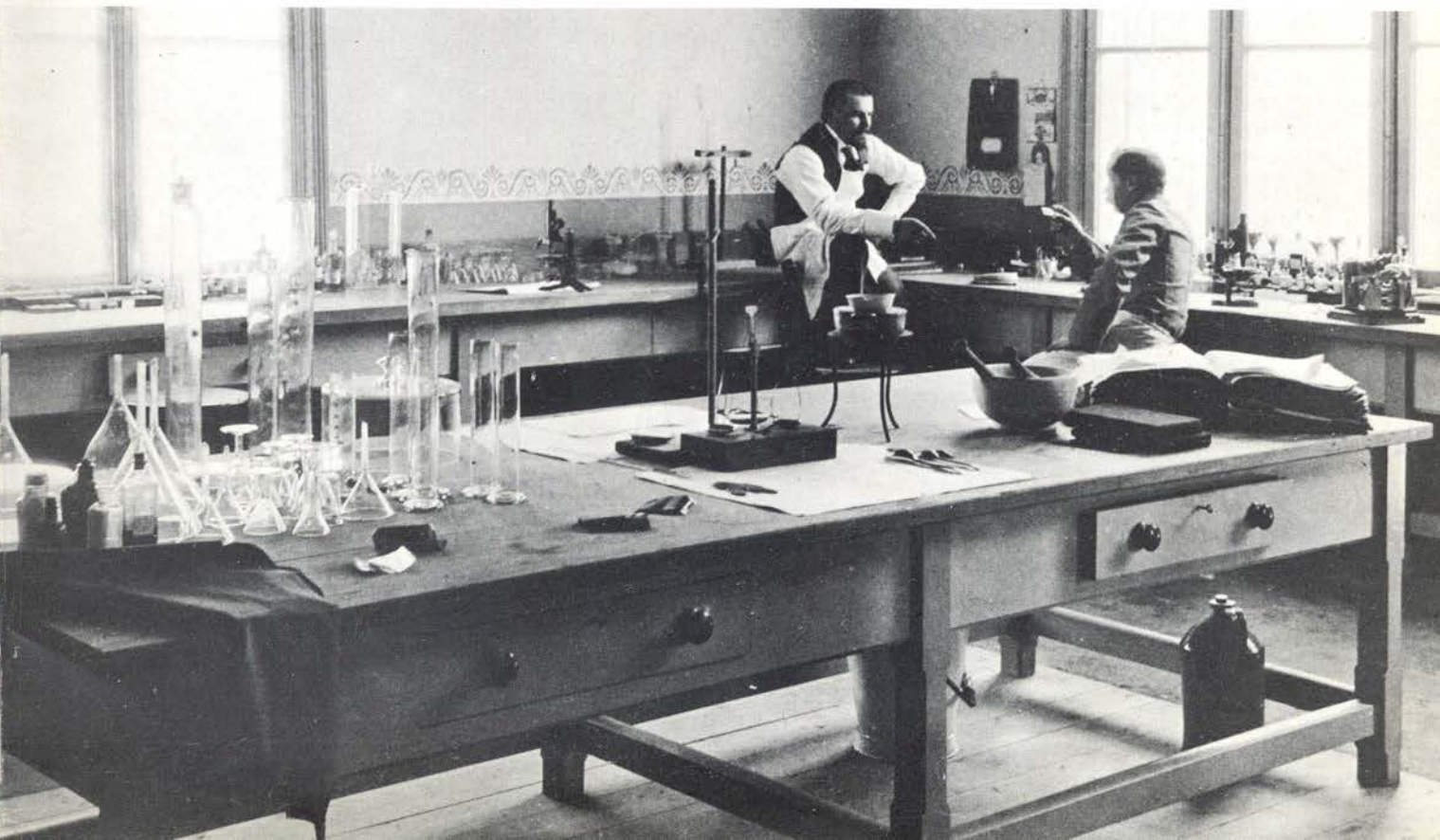
70 With Christmas, the opera bouffe complexion of the whole scene was emphasised. The Swiss celebrated with 'Christmas dinner', what passed for a 'tree' and the antics of the joker Deschler, the party being attended by Major Wolmarans and Lieutenant Wiehmann, all duly photographed for their families at home. The Boers (or their foreign friends) fired into Ladysmith 71 shell-casings inscribed 'With the Compliments of the Season' containing plum puddings which were received with mystification and amusement. By then, all the cattle had been eaten and horses were being slaughtered. Conditions in the town were appalling but, convinced though they were that 'Tommy Atkins would come as a prisoner to Pretoria', the Boers had no reason to expect its fall. Atkins had shown extraordinary bravery and stubbornness in storming Platrand and other aggressive sorties. There was always evidence that his spirits were high. Theiler 72 himself told how, with both sides extensively using the heliograph, exchanges were sometimes

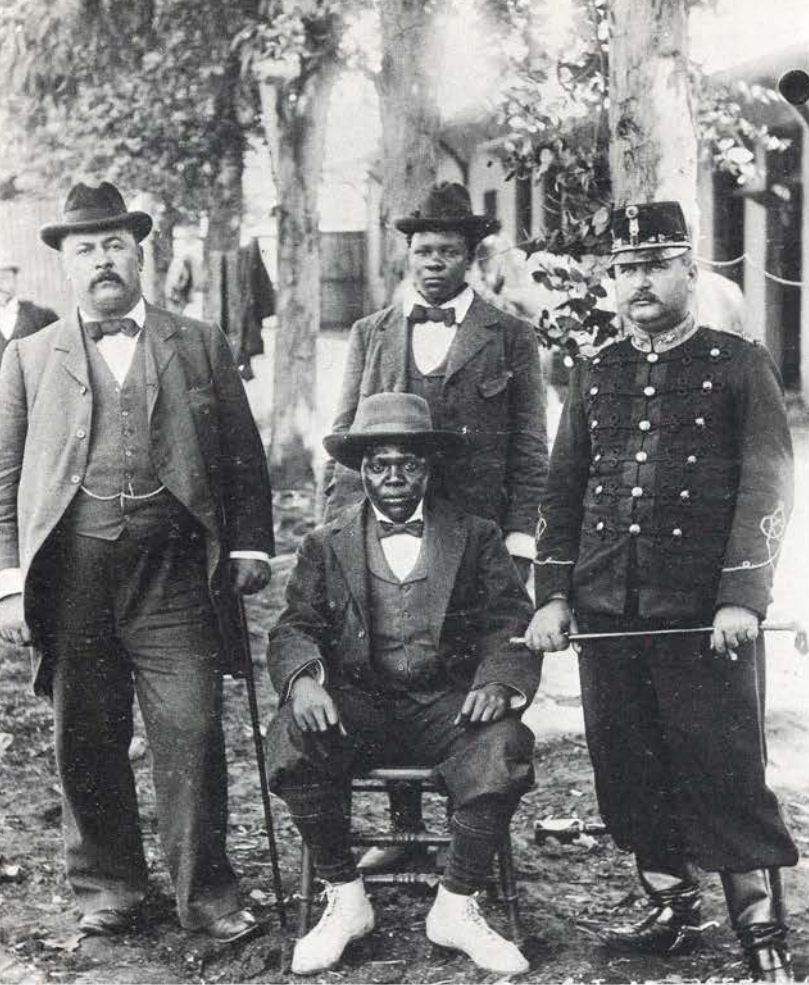




*Daspoort Disinfection Station*, built of wood and corrugated-iron and standing on boggy ground, which became in July 1898 the Z.A.R. Government Bacteriological Laboratory directed by Arnold Theiler.

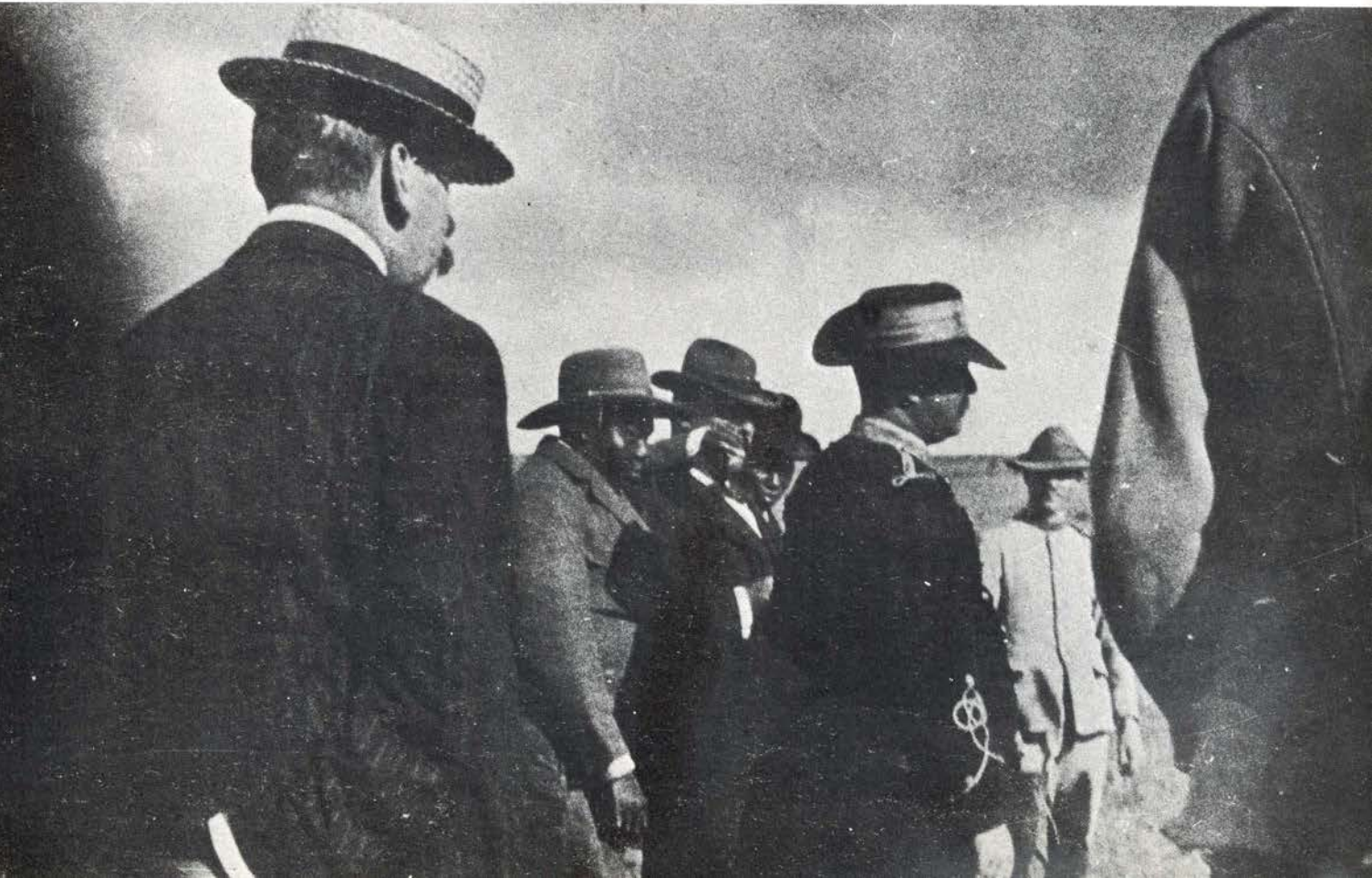
*Government Veterinarian Theiler* (wearing his famous white apron) in the Daspoort Laboratory with Charles Favre in 1899.





*Swazi King Ngwane V (Bunu) with his bear-leader Commandant Matthys Grobler, his brother Lomwazi and an officer (Erasmus) of the Staatsartillerie in Pretoria early in 1899. Apart from this official picture, Bunu refused to be photographed.*

*Theiler's secret snapshot of Bunu with his arm familiarly on Commandant Grobler's shoulder at the Staatsartillerie's show of force.*



made. When Ladysmith heliographed Colenso for help, the Boers intercepted the signal and replied 'We are coming tomorrow' to which Colenso flashed back 'Be damned!'.

73 Theiler and his Swiss did guard-duty for the big gun and were exposed to shell fire. Their nights were often sleepless and their days without water for washing. It struck him that 'this kind of life suits a great number of the Boers – the class of *bijwoner* or poor farmers who hardly have enough to live on. They find everything supplied, – meat, clothing, etc. I am sorry for these people because after the war, they will again have to do uncongenial work and I am convinced that they will bring the Government down . . .' In fact they achieved it before the war ended.

74 On the 10th January 1900, Lord Roberts landed in Cape Town as Commander-in-Chief replacing the stymied Buller. He ordered numerous radical changes which took time to have effect. An immediate priority was the reorganisation of Army Transport and its servicing by tens of thousands of oxen, then particularly prone to Lung Sickness. Southern Africa could not be conquered by a series of dashes. It must be solidly and reliably plodded through with no risk of a break in supplies. Major Frederick Smith was withdrawn from Colenso to see to it with the assistance of Hutcheon and his staff at the Cape. Before Roberts could change the order of battle, the pace of the horse was finally defeated. It was, as Theiler had frequently noted, the pace of Boer warfare. In conflicts with natives, the Boers rode up on their ponies, fired their roers and withdrew to reload. In later wars, they tethered their horses behind a hill, hid among rocks, ambushed and fired upon orderly forces and, depending upon the result, either regained their mounts and escaped or came down for the capture. The sieges of Kimberley, Mafeking and Ladysmith were quite foreign to their manner and subdued their dash and spirit. Elsewhere the old commando tactics were devastating to the English. They made it possible for 'each man to be his own general' and to obey the orders of a commandant because he agreed with him.

\* \* \*

75 Early in January 1900, Theiler accompanied by Kollmann and Otto Meyer returned to Pretoria on two weeks' leave to attend to his local obligations. In two long letters to his parents (subsequently published in the *Schweizer Freie Press* under the title of 'Boer Camp near Ladysmith'), he expressed his deep disillusion with the capacity of his confrères to wage war and the integrity of their intentions. At that time, they were conceited with success. To have humbled mighty England whom no European nation would dare challenge, went to their heads. Such braggadocio also went to Emma's head – 'Who repairs the railway lines for them and who organises the colossal railway traffic to the various war areas? The Hollander. Who organises the postal service to the camps? the telegraph service (which connected all the camps to Pretoria)? The Hollander likewise. Who casts their gun-shells and repairs their big guns for them? "A few Frenchmen". Who makes the munitions for their Mausers? "A few Germans" . . .'; but nothing either she or Arnold could write abroad would change the sentimental glorification of 'the Boers' which possessed all Europe.

76 Theiler 'arranged things' in his laboratory and contemplated taking some of it into the field. He had found the ennui intolerable on top of Bulwana and proposed making researches on active service. All was well at home but the Auditor-General constantly harassed him to account for the £200 he claimed for expenses, ignoring the impounded receipts. His father must write to Jean Dietschi in Cape Town to enquire about his cases and at least ensure that they were dry and safe. Emma was saving all she could and economising on the now costly foodstuffs. 'It would not be surprising', she wrote, 'if through cares and anxiety, I soon went grey!' The Government itself was breaking into locked and barricaded chemists, outfitters, drapers and boot shops to 'commandeer' their contents.

An English offensive had already started in Natal when Theiler left Pretoria on the 22nd January 1900. He had been re-posted to another hilltop near Colenso where Wolmarans and his battery had taken station and the veterinary wagon had already been brought by his assistants. The battle of Spionkop was nearing its appalling end with Favre in the final assault and capture of English prisoners. Louis Botha's strategies had triumphed. Riding a few days later with Wolmarans round the senseless British positions, Theiler commented – 'It was sad to see the dead English soldiers, still unburied, lying around in an advanced stage of decomposition.' To Emma he wrote that it was a gruesome sight that he would never forget. Scorching heat by day, bitter cold by night and the withering fire of the burghers in their favourite fight among rocks, had massacred the bravest. At the end of it all, Botha, Wolmarans and a secretary making their report in Wolmarans' tent, were found with their heads on the table in exhausted sleep. Dr F. V. Engelenburg, editor of *De Volksstem* recorded it and, himself a witness of the Natal battlefield at the end of 1899, displayed photographs of the English dead at Spionkop in the windows of his office in Pretoria. They brought no solace to Emma.

She knew that Arnold was in the thick of heavy fighting as the British drove toward relieving Ladysmith (while other forces pushed on toward Kimberley). He and his men were now plagued by the myriad flies which they had escaped on Bulwana Hill. It was the season for Horse Sickness and, Emma reflected bitterly, the Boers would mock him again for having no panacea. His disenchantment would deepen and he would lose the will to work. His aims and ambitions were now in her hands – his orders for lymph and cultures from abroad were arriving as well as letters from his new renowned friends, Kitt of München and Nocard of Alfort. It was gratifying for her to know that 'such people interest themselves in Arnold'. To her manifold duties (Schroeder was now back at the laboratory and frequently requiring her advice), she added the copying of two immensely long letters written on the 11th and 16th February by Arnold describing the Battle of the Tugela and 'the explosion of the war situation' of which he had already warned her. They were duly published in Switzerland.

In the fury of Buller's artillery assault, he was frequently under fire. Wolmarans now took his orders from the State Attorney J. C. Smuts who had temporarily forsaken his Pretoria office. Always in attendance, Theiler had ridden with Wolmarans to call on Smuts and Schalk Burger and later on Louis Botha where he received an order to see the Commandant-General Joubert at the main camp near Ladysmith. With Otto Meyer, he rode all day to reach Joubert who ordered him to inspect all the English horses captured by the burghers, kept apart in a camp two hours distant. There were so many that an English trick to infect the Boer horses with Glanders was suspected. (English horse and ox transport was in fact afflicted with Glanders and Lung-Sickness by the burghers abandoning infected animals – an accepted device of war.) Making his examination next day, Theiler found none and rode back, dead-tired. He was now 6 hours daily in the saddle, often without food or sleep, in hideous heat and plagued by 'the millions of flies almost as troublesome as the English'.

The British attack intensified and General Botha, commanding in the area, made his headquarters in Wolmarans' tent. 'He sat coolly there', Theiler wrote, 'every inch a soldier, and precisely gave his orders, made his dispositions and encouraged his men to coöperate energetically as soon as the first shot fell. We received orders to saddle up. There was no thought of sleeping. Everybody felt the seriousness of the situation.' The carnage among the attacking English, seeking to command the Tugela crossing, had been horrifying, reminding Theiler again of the casualties of Spionkop which he had described in the moving detail also recorded by J. C. Smuts – 'The rocks were blue from the impact of bullets, the ground red from floods of blood. The bodies looked terrible – almost all were shot in the head and the facial features were frightfully disfigured. One had the impression that they had died a horrible death.', Theiler wrote.

94 'This view of horrors will remain with me forever. I know now what war means.' Encamped on a farm serving as an ambulance station, he now saw the horror of the British wounded.

95a In Ladysmith, there was carnage of another sort. The inhabitants, civil and military, died in great number from malnutrition, typhoid, dysentery and shrapnel. The survivors depended on the butchering of horses. It fell to Watkins-Pitchford, a tottering victim of dysentery, to supervise their selection and death. Soldiers cut steaks from the quivering corpses of cavalry horses shot in battle on the periphery of the town; but within it, only staggering wrecks remained. Like Theiler, Pitchford wrote a daily chronicle to his wife but, unlike his friend whose letters were eagerly published in Switzerland, Pitchford's 'Besieged in Ladysmith' was not published until 1964 in South Africa.

95b As the British offensive developed on the Tugela heights early in February, the cavalry awaiting consolidation and establishment of supplies, remained inactive except for patrols at Modder River in the Northern Cape. The underfed horses grazed on ravaged ground and developed sand colic and laminitis. Large numbers of others became unfit for service, mostly from defective saddles, through 'sore backs which became a veritable epizootic'. Nonetheless while 96 Theiler performed his duties (as 'Horse Doctor and State Veterinary Surgeon - fortunately 97 diseases and wounds occur seldom among the horses') on all parts of the chaotic Natal front, the British swept north and relieved Kimberley on the 15th February. On the 18th, they surrounded Cronje and his forces at Paardeberg and forced his surrender. The cavalry by then was approaching exhaustion; but, while Buller made his last drive on Ladysmith, Roberts was determined to traverse the comparatively short distance to Bloemfontein and capture the Free State capital.

The 27th February was the anniversary of Amajuba - the day on which the Boers had destroyed the British forces apparently impregably encamped on top of a mountain in 1881, thereby winning the First War of Independence in conditions humiliating to the British Army. The thought of vengeance was in many minds but most among the burghers in Natal. At dusk on the 28th, Lord Dundonald and his cavalry rode into Ladysmith and relieved the siege. The first to grasp Pitchford's hand was his colleague Verney. Their mutual colleague Theiler was lost in the rout in the hills. Fatally, Joubert had allowed the initiative to slip from his trembling fingers.

98 Disaster loomed on every front. The old President, barely returned from an arduous rallying mission to the Natal front and accompanied by Piet Grobler, Frikkie Eloff and his physician Dr Heymans, courageously hurried to Bloemfontein to confer with his ally, President Steyn. On the 5th March, they cabled the British prime minister, Lord Salisbury, proposing peace. They hoped that General Christiaan de Wet would oppose Roberts' advance at the Modder River and that Louis Botha, newly-appointed Acting Commandant-General, would hold the British forces from his new base in the Biggarsberg in Natal. Together the two men tried to hearten their dispirited forces at a new line intended to block the British progress to Bloemfontein.

99 During all this time, Emma had had no word from Arnold - previously in close and quick communication through the Staatsartillerie despatch lines and telegraph service. She knew that Kimberley was relieved, that a great offensive was taking place in Natal though the papers published no news, and that everywhere the British seemed to be prevailing. The tension grew too much. Arnold's last letter was dated the 16th February. It was now the 5th March. She instructed Schroeder to telegraph from the Laboratory to the Staatsartillerie camp in Natal, asking that he be recalled. There was no reply. On the 6th, she asked the Artillery Headquarters to telegraph to the same effect. No answer came. On the 7th, she herself telegraphed into the void. That night, Theiler and Favre walked into the house.

## A COUNTRY CORRUPTED 1900

THEILER HAD a great deal to say. The letters in which he had told some of it were delivered long after his return to Pretoria. During the dreadful days in the Natal hills, he had ridden from laager to laager inspecting the horses and from battery to battery where his Staatsartillerie colleagues bravely but vainly tried to stop the British advance. Joubert, 'in a bad mood', detained him to hear his eye-witness account of one of the fierce actions. With Wolmarans, he had fractionally missed death from flying shrapnel. All the commandants were now known to him – Lucas Meyer, Ben Viljoen, Louis Botha 'friendly and in good spirits as usual'. Among the Free State forces, he had found Otto Henning engaged in similar duties. Much had been discussed between them on the night they spent in Theiler's tent. He was making voluminous notes on sick and wounded horses with the intention of writing an account for the *Schweizer Archiv für Tierheilkunde*.

1 The perpetual noise of gunfire, the crash of bursting shells, the clouds of dust from military movements, the smoke and din of battle had suddenly ceased on Sunday the 26th February. Without the knowledge or consent of their commanders, both sides had agreed on a cease-fire until 6 p.m. 'Boers and British left their trenches and met half-way to speak to each other. On this day, the British buried their numerous dead and should have built stronger entrenchments. An English officer said that Cronje had been captured. Another stated that up till now, they had merely been playing but next week they would fight in earnest. For the whole day, both sides told each other all sorts of stories. On the stroke of 6 in the evening, they began to shoot at each other and for the whole night through, we heard the salvoes of the English . . .' Two days later, Ladysmith had been relieved and the great rout began.

2 From the 13th March to the 7th April, Theiler at home wrote a 60-page letter to his parents describing his experiences in the chaotic flight from Natal when, leaderless and demoralised, the burghers thought only of escaping from Buller's putsch. Louis Botha tried to rally them but only the best of his untrained fighting material and the professional artillery remained firm. The rest pushed and shoved their way along the escape route and through two narrow poorts, Theiler and his wagon with them, until they reached a safe distance from the English onslaught. Horror, bitterness and disillusion were instinct in his factual account; but, as soon as his letter had been taken to Switzerland by his friend Kollmann, remorse and a sense of loyalty overcame him. He cabled his father to suppress its publication or at least amend it. His previous letters had appeared in the Swiss Press and had been reproduced in the larger German newspapers. They had been widely read. A Swiss woman living in Russia wrote him about them. Now he felt he was telling too much and implying that the forces which employed him had fled instead of retreated. In time, Theiler's truthful letters were treated with incredulity in a Europe besotted with emotionalism.

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3 In Pretoria he was immediately preoccupied with his many duties. Routinely, he had to reactivate the Daspoort Laboratory with its Swiss assistants to meet a demand for Lung Sickness and other vaccines. Work at the Artillery Camp was also more demanding than he had expected. At the same time, he clung to the vision of a research institute which Baden-Baden had not only encouraged but his co-delegates made possible by active coöperation. Nocard and Kitt had sent

4 the cultures he required; Zschokke would arrange for Silberschmid in Zurich to supply others; the Bacteriological Institutes at Berne and Lausanne were supplying lymph regularly once a month. 'I am anxious soon to resume my scientific work', he wrote and sent his father a long list of requirements to be despatched 'as soon as Peace is concluded' which he would signalise in a cable with the single word 'Yes'.

5 Nor did he neglect his duties as president of the Schweizerverein Alpina. A fund was inaugurated to help the dependents of the many serving Swiss. The willing Kollmann undertook to be its agent in Europe and to raise all the money he could. (One of the means he took was the sale of postcards showing the Swiss at war in South Africa, duly endorsed by the Alpina Society, which became rare items of Africana.) Perversely Theiler continued to be pestered by the Auditor-General through Schutte for the receipts he could not supply. He needed the money for his family, he wrote as he was 'on commando' and could at any time be ordered into action. Worthily to represent the Republic and Natal at Baden-Baden, he had had to maintain a high standard in clothes, travelling, accommodation and other things for some of which there were no receipts. He began to feel unjustly treated.

7 The illusion of 'Peace' was fast disappearing. Endangered by capture in the Free State (only the exhaustion of the British cavalry horses prevented it), the plucky President and his sjambok-wielding colleague Steyn failed to stimulate general resistance to the British advance on Bloemfontein. Kruger returned baffled to Pretoria and Roberts occupied the Free State capital – at an ecological cost that was to cripple South Africa for years to come. Virtually paralysed, his army could undertake no major operation for at least six weeks and apart from minor suppressive actions (some disastrous), remained quiescent pending recovery and the establishment of transport and supply lines.

8 'The wreck of an army lies scattered in and about Bloemfontein. I say the wreck of an army for what is an army without horses and draught animals?', wrote the correspondent of the London *Times*. The British cavalry had ridden their mounts to death, the commissariat had flogged their oxen into uselessness and the carnage was completed by wounds, diseases, the biting cold of winter and the seasonal firing of the veld into blackened wastes. 'The reckless waste of animal life and disregard of suffering was quite unimaginable', it was stated; but many war correspondents and observers tried to convey the enormity of the scene.

10 The Kimberley-Bloemfontein road was lined with the stinking carcasses of horses and oxen which clouds of vultures failed to demolish. 'More pathetic than the sight of the dead horses' wrote Charles E. Hands of the *Daily Mail* 'was the sight of the living ones. There were horses that had been hit, horses that had been broken down with over-work and under-feeding; horses with hideous saddle-sores hidden by clustering mounds of flies; horses abandoned for every conceivable defect; some horses for whom death had loosened their rider's control, big English horses, unshod Boer ponies, most of them with hip-bones that projected so far as to suggest dislocation; and all along by the side of the Modder River where they found grazing and water, they were wandering about, helpless, forlorn, abandoned creatures who looked at you dubiously as though they feared you were bringing them more of glorious warfare . . .'

12 'Nothing in my experience', wrote the American correspondent Julian Ralph, 'compares with the sight of the hundreds upon hundreds of dead and dying horses on this 100 miles of war's promenade. To see them tattered by shell and then ripped open by vultures, often before they were cold in death, was enough to distress the most impassive. For some reason, hundreds had dragged themselves to the main road and then had died in the track of waggons or by its side. But the worst horror was the last battlefield, only 24 hours after the fight at Driefontein. Not nearly all the horses were yet dead and as I came up beside the prostrate body of a beautiful steed, it would slowly and painfully lift its head and turn upon me a pair of the most

pleading, woe-stricken eyes full of hunger to know what I could do for it . . . ' He could do nothing and went on, passing the stumbling wrecks which fell from weakness as the vultures watched.

13 In the action at Driefontein, the cavalry horses – each carrying the weight of two men in rider and equipment – had managed only a slow trot and then come to a standstill from weakness. 'On the 13th March, Bloemfontein formally surrendered. The condition of the cavalry horses was now piteous. They swayed in the ranks from sheer muscular weakness and exhaustion and, apart from considerations of forage, it was evident they had reached the limit of their resistance and that the Army would have to be remounted. In a month, the Cavalry Division had ceased to exist.' Frederick Smith who witnessed the scene, continued: 'They were living skeletons covered with a tightly-drawn skin through which projected all the unshrinkable parts of the frame . . . When tied up in batches, they leant against each other and the centres collapsed under the pressure. There were hundreds of such cases . . . The majority were past all chance of recovery within a reasonable time, if ever. Food appeared to do them little good. Corn did harm for it could not be digested. Scores died daily. A cold or wet night settled for ever the fate of the weakest . . . These wrecks of war, this flotsam and jetsam of human passions and strife, these helpless victims of a policy of the grossest cruelty and gravest injustice were dying by hundreds, anywhere and everywhere. In camps, in the streets of the town, in any water supply, and bodies could be found in every donga. The air was poisoned by their decomposition . . .' Water supplies were contaminated, diseases were disseminated, an era of toxication and infection afflicted the whole country. Wherever the forces went, human and animal health grievously suffered. The land itself grew rank and barren.

14 Opportunist commandos in the Free State caught detachments of the English at a disadvantage and from Thaba Nchu, Reddersburg, Dewetsdorp and other actions, hundreds of prisoners arrived in Pretoria. At 11 o'clock on the night of the 27th March 1900, the church bells tolled for the sudden death of General Joubert, a feeble Commandant-General but a revered national figure. The captive British officers at Waterval sent an address of condolence to his widow and a wreath to his State funeral. Theiler reflected on the obstinate old man whom he had often officially encountered – 'it was not easy to communicate scientific veterinary views to him who had all his life farmed cattle and horses and who considered his opinion to rate equally with that of a diplomaed Swiss veterinary surgeon!' Soon after, Louis Botha was formally appointed Acting Commandant-General and charged with organising the defence of the Transvaal. Vast swarms of locusts were devouring the only country that had not yet felt the scourge of war.

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17 Pretoria was in an uneasy state of equanimity and tension. Much reduced in population, there were still pedestrians and traffic in the streets – stopped in their tracks by the sight and sound of  
18 Dr de Coninck's new automobile. There was much Government and military activity. The  
19 competent and intrepid Major Wolmarans had been given command of the artillery in the forces that Botha was assembling to counter Roberts' forthcoming move toward the Transvaal. Every-  
20 one knew that high event was planned for the Queen's birthday on the 24th May and that  
21 aggression could soon be expected. Theiler found time to visit the railway workshops where the Republic's 'secret weapon' was being prepared. It was a 15.5 cm Creusot gun (Long Tom) mounted on a truck. He watched its first firing tests. The heavy recoil threw the gun back as much as a metre so that the gun would have to be relaid at every shot. By jamming iron wedges under the truck's wheels and locking a heavy munitions truck behind it, the difficulty was overcome.

A further false confidence came from increasing support from overseas. Men from all over the world (largely undisciplined adventurers) had joined the various commandos, including a man of military experience and stature, the Comte de Villebois-Mareuil who, after service in Natal



and the Free State, commanded his own force of Uitlanders in defence of the Transvaal. (He was killed on reconnaissance at Boshof on the 5th April.) Soon after his return to Pretoria, Theiler had welcomed an impressive Swiss Red Cross unit which added to the large number of Swiss already in the field. He took its three doctors – Jacques de Montmollin, René Koenig and P. A. Suter (of the Swiss Artillery) – to the State Secretary F. W. Reitz and devoted himself to helping them. At that time of confusion, they could not be posted to any particular field or even to the local hospitals owing to a plethora of doctors. They kicked their heels in an hotel until the influx of prisoners from the Free State rendered their services acceptable at Waterval where, visiting them on the 1st April, Theiler noted the primitive conditions endured by sufferers from typhoid, dysentery and malaria. The Government had in mind that de Montmollin and Koenig should run the Johannesburg General Hospital and Suter take an ambulance to the Villebois-Mareuil commando. Theiler went to elaborate trouble to help them. All their unwanted equipment was stored in his laboratory and when Suter's unit consisting of an ambulance wagon, trolley, tents, provisions and 10 mules, left for the Free State, Theiler detailed Otto Meyer (fluent in Hoch- and Schwizerdutch which Suter spoke, Dutch, English and 'Kaffir') to accompany him.

Theiler himself was heavily occupied. Wolmarans had implied that he would not be required in the desultory engagements in the Free State and he applied himself to exceptional duties as 'horse doctor'. Many wounded animals had arrived from the various fronts and the Horse Death was raging as well as Lung Sickness and other diseases. The laboratory was still producing, with difficulty, Smallpox vaccine. He was also constantly pestered by private individuals. There could be no thought of research in such circumstances except to continue his 'literary work' on 'The Horse in War'. His duties took him on the 24th April to Johannesburg where, standing in the street talking to his unpopular colleague J. F. Scott, he was deafened by the explosion that largely destroyed the Begbie Foundry where several Swiss worked to produce munitions. Rushing to the site of the disaster, presumed to be the work of British saboteurs (all the British were then expelled from Johannesburg), Theiler later wrote a graphic eye-witness account. He was due to dine at Park Station with Drs de Montmollin and Koenig, then in charge of the Johannesburg Hospital, but they were fully occupied with the heavy casualties.

It was no secret that Roberts had completed his preparations for the invasion of the Transvaal. Troops had massed at Bloemfontein; thousands of oxen had been bought for transport (Melton Prior's conveyance for the campaign was a tented horse-wagon drawn by four oxen); food, fodder, ammunition and medical supplies had been accumulated; and careful measures taken to keep the mounted troops in the saddle. At the beginning of May, Roberts' strategies began to develop. Theiler was told by Wolmarans to re-assemble his unit in readiness for service on the western front where the English were thought to be intent on relieving Mafeking. By the 3rd May, von Bergen and his orderly D. T. Botha had retrieved his wagon and mules and he began to re-stock it. It was now bitterly cold and Emma made him a canvas sleeping-bag lined with a woollen blanket and a rolled-up mattress. They discussed whether she should leave with the children and escape to Switzerland. Emma was against it. Their main asset, the house, would have to be abandoned and she could not leave Arnold to combat future difficulties alone. He would need her more than ever.

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His unit entrained on the 13th May, his staff consisting of his orderly D. T. Botha, Favre and an unattached Swiss Braunschweiler who, if not as gay as the frivolous Deschler, brought his guitar and a gift for song. Theiler noted everything for another lengthy letter. He thought now that

32 there was nothing he did not know about the Boers (as he proclaimed all his life without ever fathoming their inscrutable character) and would best be able to explain their behaviour and actions to the disbelieving Swiss. Leaving his laboratory and the hard but rewarding work of tending artillery horses had cost him dearly; but in his sometimes sanctimonious manner, he affirmed that 'a sense of duty which I acquired as a Swiss soldier does not allow me to withdraw even from the great danger in which we always are'. A republican by birth and upbringing, he never wavered from his belief that the cause of the Z.A.R. was just. Its citizens were another matter.

In one of the most famous marches in military history, the British Army was already far advanced on the 300-mile trek from Bloemfontein to Pretoria, Its strategies completely outwitted the commandos assembled by Botha to defend the railway. Wherever they took their stand, the central force confronted them while cavalry wings on either side forced their retreat by threatening to cut off their rear. The bridges they blew up were repaired 'with wonderful speed', Theiler noted, and the British were again upon them. Moving south, he saw at Vereeniging on the Vaal River which marked the Republic's border, the first fighting men fleeing from the defeat at Kroonstad, being urged back to the front by Schalk Burger, Hendrik Schoeman and other leaders. Botha intended making a stand on the Rhenoster River. The burghers continued abandoning their commandos and riding hard for home.

33 Like the Long Tom, Theiler's wagon remained on its truck when the train reached Kopjes in the Free State, site of Botha's proposed stand. His tents were pitched alongside and he rode with Wolmarans along one line of positions that would harass the British if they approached the railway. The scouts reported that they had not moved from Kroonstad. Then they were stated to be on the march and action might be expected on the 18th or 20th May. On the morning of Monday the 20th, Theiler lay in his tent with a feverish cold when the order came to return to Vereeniging without a shot being fired. 'At first I did not believe the message but was soon convinced of its truth as already the horse commandos were retreating everywhere. I sent the wagon and the mules back with my orderly. We loaded our horses on to the awaiting train and soon we all went, in the company of Generals Schalk Burger and Botha, back to the Vaal. On the right and left of the railway line, the commandos rode closely packed in thick clouds of dust. We spoke only of retiring.'

34 The British had temporarily ignored the railway and made an enveloping advance on all sides. During all this time, Roberts in the field was in close communication with Milner in Cape Town on how the conquered territories should be administered and who should control the Transvaal from Pretoria which would shortly be entered. They had reached easy unanimity on the proposed civil and military staff.

As the retreat from Kopjes began, Theiler's heart lifted at the sight of the Swiss flag on Suter's ambulance, also in flight to the Vaal. Suter was with the Wakkerstroom Commando which, arriving in Vereeniging, was posted home to Natal for further duty. A year later, Oberleutnant Dr.med. P. A. Suter, Artz der Schweizerischen Feldbatterie 29 and field doctor under General de la Rey and Assistant-Commandant-General Christian Botha (elder brother of Louis) published a copiously detailed and illustrated book 'Unter dem Schweizerischen Roten Kreuz in Burenkriege'. By then, Theiler had fallen out with the assertive Swiss whom he had sent on his way.

Botha now took his stand on the Vaal River and deployed his remaining resources including the Long Tom accordingly. All the Staatsartillerie batteries were concentrated at Vereeniging and Theiler rode among them, checking their horses. He noticed that of the mass of horses of the burghers on commando, half or even more were used as pack animals. There was little if any wagon transport. War Councils were held every day. 'It was decided to die on the banks of the

Vaal rather than let one Englishman set foot on Transvaal soil.' On the 19th May, Botha and all the Vecht-kommandante rode off on reconnaissance to locate the positions of the commandos awaiting the English – far in the rear, it was thought, after the headlong retreat of the Boers.

With Wolmarans, Theiler went to the telegraph post connected with the Artillery Camp in Pretoria and exchanged messages with Mike du Toit who asked about the English. They replied that they were nowhere in sight. They returned to their tents to find a report that 'the English were on the opposite bank of the Vaal River and at the same moment, their cannon thundered from a westerly direction. We packed up, inspanned, mounted our horses and watched how the iron railway bridge over the Vaal was blown up. A violent detonation and the iron structure lifted in the air and plunged with an enormous crash into the depths. We again went to the telegraph post to inform General Botha that the enemy was coming. Rifle fire could then be clearly heard.' The English were not confronting them across the river. They were over it and on all sides, even behind them.

The fearful flight began again. The burghers everywhere fired the long tinder-dry yellow grass and dense clouds of smoke obscured the invaders and the pursued. Theiler told his orderly to take the wagon ahead while he rode among the burghers, listening to their vituperation against their generals. At night, he and his men found the wagon at Meyerton station in freezing cold and comforted themselves with a round of grog and Braunschweiler's singing in hellish circumstances. 'The whole area as far as the eye could see was a lake of fire, leaping and darting flames on all sides, the horizon edged with glowing light, the zenith a purple lustre. It was a beautiful sight! Tired as we were, we held ourselves upright in the saddle with bad jokes and singing.' At 2 in the morning, they reached Klipriviersberg station and rolled themselves in their blankets.

Swiss in heart and mind, Theiler had given himself to the Z.A.R. and its cause. On the following day (Sunday), he faced the ultimate disillusion. 'Rumours swirled through the air that there would be a War Council. Then we saw the whole company of Generals and Commandants sitting in the grass and – this was evidently the most important – a photograph was being taken. Truly, they allowed themselves to be photographed! It would have been laughable were it not the tragic truth!' The plan then made was to stand and fight; but the English were gone ahead and there was nothing at which Long Tom could fire. On the coldest night of the war, the frost was finger-thick on Theiler's blankets. In the morning, it was again retreat. No one thought of the English Tommies, many without great-coats and on route-march rations, who in arctic conditions had out-marched, out-ridden and out-maneuvred them.

Theiler and his unit were ordered to follow General Botha's wagon with Wolmarans and his valiant artillerymen skirmishing on the flank. They arrived in the afternoon at the Rietfontein Mine beyond Elandsfontein (Germiston) a few miles outside Johannesburg on the junction railway line to Pretoria, where the Long Tom stood in its truck at a siding. For the first time, Theiler heard that his orders were to follow Botha to Pretoria. They were confirmed by Wolmarans' adjutant; but, rebelliously and for his own reasons, Theiler decided to ride in the darkness to Johannesburg and find Wolmarans. Braunschweiler would go with the wagon to Pretoria.

The British were already on the outskirts of the eerily empty town with its boarded-up shops and business premises. Panic had infected the few remaining inhabitants and there was general lawlessness and thievery, particularly of horses. In the chaos and gloom, his small party rode through the dark streets and Theiler's veld-trained pony, unaccustomed to asphalt, came down heavily on its knees. Somehow he found his way to Swiss acquaintances who were ready at a price to house him, Favre and the orderly and to stable their horses. The British were expected on the following day. Preparing to leave early in the morning, Theiler found his horse completely lame. He sent Botha back to Rietfontein to fetch a horse from the entrained wagon but the British were already in possession. There was no alternative but to spend the whole of Tuesday

the 29th May in Johannesburg, tending his pony. Toward evening, Wolmarans and his battery rode through the town in retreat. That night, with gunfire all around them, Theiler and his compatriots celebrated their einigkeits with song and drink, swore to stick together in tragic times and to amalgamate the Helvetia Society in Johannesburg with the Alpina Schweizerverein in Pretoria. As aliens on a foreign but attractive soil, it was, he said, most moving.

35 Alone in Pretoria, Emma knew the worst. Wolmarans and his 3rd Battery, she had heard, had returned to Pretoria on the same day. Any moment she expected Arnold to arrive on the train with his wagon. 'The Boers do not wish to be trapped in Pretoria – they will defend the town as long as maybe from the forts outside and then withdraw, leaving Pretoria to the enemy', she wrote his parents on the night that he drank with his friends 36 miles away. She was quite calm. The last stalwarts were leaving Pretoria, Kruger with them on his way to Machadodorp. A Committee of Citizens was formed to prepare for surrender.

36 The pony recovered sufficiently for Botha, lighter than Theiler, to mount it and they rode precariously northward along the old Pretoria road on the 30th May. There was artillery action as they passed the Geldenhuis Estate and sundry burghers firing from the small kopjes. Theiler asked the commandant what the 'plan' now was but he merely shrugged his shoulders. His men had captured an English officer and a 'lord'. As the commando mounted and moved off, Theiler sidled up on his horse alongside 'the son of an English duke' and fluently engaged in lively discussion. He did not then know that it was Lord Cecil Manners, son of the Duke of Rutland and uncle of Diana Manners (who became Lady Duff Cooper and later Viscountess Norwich) who was representing the *Morning Post*. 'All will be over soon', Theiler reported him as saying, 'All will soon be forgotten as England will adapt her politics accordingly.'

37 (Manners was taken to the officers' prisoner-of-war camp at Daspoort but, as a non-combatant newspaper correspondent, was quickly released on parole. He joined at the Grand Hotel in Pretoria another titled colleague James Fraser H. St Clair Erskine, Earl of Rosslyn representing the *Daily Mail* and *The Sphere* and similarly paroled after capture in the Free State early in April. Rosslyn, like Emma and other alert persons in the town, had learned that Pretoria would be only perfunctorily defended and that the British prisoners would therefore soon be released. Through Lourenço Marques on the 30th May, he managed twice to cable accordingly to the *Daily Mail* a week before the British Army appeared, thus achieving an unparalleled journalistic coup. Manners, dealing less gloriously with his assignment, later in life developed a spy complex and, finding life unendurable at the age of 80, threw himself under a train.)

38 The retiring commando was also making for Pretoria, intent on dispersal; but Theiler, Favre and Botha broke away at a trot and reached the Capital before darkness fell at 5 in the afternoon of the same day. To the south east of the town, firing could already be heard from guns at Zuurfontein (Modderfontein) as the British advanced along the line from Elandsfontein. They rode through the confused and tumultuous streets to Daspoort and cries of joy and relief from Emma and Mathilda. Theiler had been away for only 16 days and their world had collapsed. Braunschweiler awaited him with the news that the entrained wagon, packed with veterinary supplies, had got as far as Irene when disaffected burghers, announcing that 'it had to do with Uitlanders' had wrecked it and strewn its contents over the veld. He had somehow got their baggage on to another truck and safely brought it home.

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39 Exhausted and dispirited, Theiler had the foundering horses stabled and tended at the laboratory before finding his own first night's rest. The next morning he rode at once to the Artillery Camp and reported the loss of his wagon to Wolmarans, requesting his further orders. He was told:

'Be ready to set out at the first signal'. A Horse Doctor in the field without supplies would be pointless; but there was no hope of his re-equipping his unit. Anarchy ruled and every man held a revolver in his hand. The Government was gone, leaving worthless promissory notes; the Citizens' Committee was preparing for surrender; General Botha, fighting all the way, had not yet asserted himself; hundreds of fleeing, looting burghers passed through the streets.

40 On the final day of May prior to the Easter weekend, the last vestiges of order vanished. Theiler watched and recorded - 'Pretoria was by all tokens completely lawless. The English could come at any hour. Everything was on the brink. Early in the morning, people stormed the Government Warehouse and helped themselves to the remaining provisions. It was a moment to make psychological studies! Whoever knew that they could plunder came and plundered. Nobody bothered any more about class distinctions. Those who had the most and biggest wagons, took the most away. Flour, Sugar, Coffee, Soap, Candles, Meat Products and much else. The poor people of course came off worst. They could only take as much as they could carry. It was infectious! All who had hands took, went, came again and took again! Men, women, children, Kaffirs, Hottentots, Ladies, Gentlemen, everybody went to the Warehouse and helped themselves. Women became like hyenas. The image of the predatory animal stared out of their eyes and the conventions of civilised humanity were lost. When the Government Warehouse was empty, the mob went to private warehouses. Toward one o'clock, the panic reached its height. Suddenly there was noised through the bye-ways 'The English are here!' The weapon-carrying burghers took to their heels. The waves of people in the crowd hurried away. But the Kaffirs, Hottentots and Bastards hurried to the place where the Khakis would come in.' (It was a false alarm.)

Theiler left the town and stood guard over his laboratory at Daspoort. He carried a revolver at all times. Looting was the order of the day and no horse was safe. At first, receipts were given to the owners of appropriated animals but soon they were simply taken and the owners sjambokked for demurring. Certain that they would be seized, Theiler's orderly made off with two of his commando horses. Those that remained were his own - 'my private possession for which I had had to pay hard cash.' One of his assistants ran to his house to tell him that von Bergen guarding the stables was being kicked and beaten by three burghers, one purporting to be a Veldcornet. Theiler ran to the laboratory where a Mauser-bearing friend had disconcerted the raiders. One of them shot at a member of his staff. Infuriated, Theiler charged at him, drew his revolver and fired, forgetting the safety-catch; but the raiders fled. 'My sympathy for "the noble pious Boers" has now reached zero', he said. The next day, Favre was beaten up by a desperate Boer needing a horse. Others followed and finally Theiler obtained written confirmation from Louis Botha's adjutant that his horses were not to be commandeered. Then two 'generals' came and put him under arrest for 'saving horses for the British' but Theiler talked them out of it. 'Give me an order that I need not go on commando and you can have my horses', he said. With Botha now rallying the burghers to resist the advancing British, they did not dare.

On Easter Monday the 4th June, with cannon fire clearly audible, Theiler early rode to town and renewed his offer of service to Major Wolmarans at the Artillery Camp. No one there could explain the noise of firing. Wolmarans intended finding a wagon which he should again equip and join the commandos. 'Come tomorrow', he said. 'I went home', Theiler wrote, 'had my horse saddled and held myself ready to leave if the order came. I received no order and so it happened that I stayed at home. Neither did the Government leave me, as Government Veterinary Surgeon, any instructions nor did I receive orders from my military superiors as to what I should do in all eventuality and therefore I decided to await the development of events in Pretoria and to hand over the Laboratory entrusted to me to the English if they came.' Even more powerful in his mind was the thought that the burgher command and his Staatsartillerie col-

leagues had removed their families to safety (Kruger's wife Tant' Gezina and Louis Botha's English-speaking wife remained in Pretoria) whereas his family in their isolated house would be exposed to the greatest danger from looting lawless combatants. He must stay to guard them.

There was for him now no shred of security. Kruger and his Government had abandoned the Capital on the 29th May, taking the gold that sustained the Republic's credit. Salary cheques had been issued but the banks refused to cash them. Theiler suffered along with the infuriated body of civil servants. On the same fateful Easter Monday that he reaffirmed his availability to Wolmarans, worse befell them all. The State Attorney J. C. Smuts invaded the preserve of Jules Perrin and caused to be removed from the Mint all the uncoined gold which was carried away to an unknown destination. With it went Theiler's last hope of recovering the £200 which the State owed him for overseas expenses. He and his family faced destitution.

They stood outside the house at Daspoort on that day, watching the noisy war – to the huge delight of the children. A British balloon which maintained surveillance over the area, rose again above the hills to check all movement. Botha had disposed his dwindling forces along the low hills south of Pretoria where the Schanzkop and Klapperkop forts should have commanded approaches; but their guns had been dismantled and borne off for future action elsewhere. The Theilers could trace the British bombardment from the little spurts made by shrapnel and the dust clouds raised by shells. They could clearly hear in the crisp cold winter air every shot that was fired – all morning and into the afternoon. At 4 p.m. the commandos had begun their rapid withdrawal, galloping furiously through Daspoort past the laboratory. Theiler had never seen them go so fast. This time, they were by no means a spent force. The British varied their cannonade, always avoiding the town; but the watching family was never in danger – the nearest shell fell a kilometre away. Night suddenly came in complete and ghostly silence.

When he lost his hand, Theiler might well have become a newspaper correspondent. His devotion to Science robbed the world of an exceptionally accurate observer and a vivid writer with all the instincts of a true journalist. He used his talents now. On the morning of the 5th June, the first 'Khakis' (probably from Hutton's Mounted Infantry which had seized Fort Daspoortrand without opposition) appeared at his door and asked the way to Pretoria. The British had occupied it at midnight. Theiler saddled up to see what was toward. Masses of Roberts' encircling troops were now pouring into the town, among them from the north the remaining British prisoners from Waterval (hundreds of whom had been treacherously removed by train by the retreating commandos and condemned to an even more rigorous restraint). Theiler rode gloomily into the town. He knew that at 2 p.m., Roberts would formally possess it in the name of the Queen and, as both Swiss and burgher, he was sick at heart. 'In the whole war where I endured a hundred dangers, nothing has affected me more than the events of the last few days . . . They were sad sad times and I am glad that they are at last over, dark though my personal future now is.'

He told of the ceremony in the huge square before the Government Building where he had conversed with Kruger, waited on the Executive Council and taken his instructions from the State Secretaries Dr J. W. Leyds, C. van Boeschoten and F. W. Reitz. It was full of Khakis now and the square was lined with them – thousands of tired troops who, through sheer weight of numbers, superior organisation and equipment and, let it be admitted, courage and endurance, had seized the Capital of the South African Republic. Theiler and the Pretoria Swiss grouped themselves together among the few listless townfolk and watched the military ceremony. Lord Roberts with Kitchener on his left and followed by his general staff, trotted on to the square, drums and fifes played a march, and to the hurrahs of the troops, Lady Roberts' tiny silk Union Jack (only three by two feet) fluttered almost invisibly up the massive façade of the huge build-

ing. The soldiers waved their helmets, the released English officers congregated in a corner exulted and the townsfolk made no sign. 'God save the Queen' was movingly sung.

'We were a few Swiss together', Theiler wrote, 'who found it very very humbling and for a moment, we completely forgot that it was the Boer flag that had gone. We simply thought that here and now, a Republic had been borne to the grave. That was to us all very sad. Is it now really the Republic that has gone down or is it only Kruger's oligarchy? Time will tell.' In their hearts, all of them feared for Switzerland and Theiler hoped that his truthful letters describing corrupt organisation and undisciplined armed forces would be marked and noted through publication in the Swiss Press.

They stayed for the three-hour Parade of Troops which incredibly had been organised within a few hours of the entry into Pretoria. 'It was after all not to be expected', Theiler wrote, 'that these troops who had come the distance of 400 English miles from the Orange River here on foot, who had always slept in the field and perhaps been unable to wash their bodies, should be dressed for the drawing room. Further, they had been for days long before in battle and had had no opportunity for cleaning up. One could see that they were extraordinarily tired but nonetheless they marched smartly. Soldierliness from any quarter pleasantly impresses us Swiss who from home onward, are used to a soldier's life.' And he went on to describe each unit as it passed, noting particularly 'the Grenadier Guards who made an outstandingly good impression, almost unexceptionally of tall strong stature', 'the great long naval guns on wooden carriages drawn by 36 oxen', the various regiments, the kilted Highlanders with their bagpipes, the long baggage train and finally, 'the enormous mass of ambulances'. He felt that Lord Roberts had succeeded in his purpose of impressing the populace – though the Parade was only part of the British Army.

41 On that same day (6th June), Roberts issued a proclamation ordering the surrender of arms, guaranteeing security of person and property with penalties for looting and vandalism, and offering an Oath of Neutrality to the remaining population. No troops were quartered in town. They were encamped on the periphery and only administrative officers occupied the Government Building. Day after day, Theiler called there on the Provost Marshal (Major Poore, a famous Hampshire bat who soon inaugurated cricket matches), carrying a *carte d'entrée* which 42 someone finally endorsed 'has been waiting many days to take the oath of neutrality'. Day after day, he and his Swiss friends tried to establish that the weapons they dutifully surrendered (Theiler his revolver and Swiss carbine, the *Schweizerverein Alpina* all their rifles – 'it was one of the hardest things we ever did and it was for us almost as sad to our spirits as a funeral') were for their private protection and should be returned. The documents they hopefully tendered were bandied from pillar to post without reaching the appropriate official.

43 Milner remained in Cape Town but the careful plans made jointly with Lord Roberts and confirmed while the advance on Pretoria was being made, now came into operation. In the Government Building there now sat Sir John Maxwell as Military Governor of Pretoria and the Transvaal. Roberts himself, while continuing to command the campaign was assisted by George Fiddes as political adviser, Johannes W. Wessels as legal adviser and Emrys Evans as financial adviser. Within days, a *Transvaal Government Gazette* was published advising innumerable regulations – Martial Law, curfew, censorship, the opening of the Town Market and other information. With all their genius for organisation, the British could not prevent initial chaos and confusion, steep increases in the price of foodstuffs, and proliferation of disease in man and beast. The war, close at hand, was by no means over.

In all the hubbub of activity, Theiler had no part. His career was ruined and no portent illumined the future. His most valuable scientific property – the fruits of his European visit – had probably been destroyed in their cases at Cape Town. The Daspoort Laboratory came to a

standstill. There was no one to pay his Swiss assistants and they must find their livelihood elsewhere. While Emma's savings and the provisions hidden under the floor lasted, they could survive but not for long.

44 Soon after the occupation, General French's forces, active in the north to prevent destruction of the Pietersburg railway line, entered Pretoria along the Daspoort road, taking three hours to pass the Theiler house. The English soldiers frequently called, politely asking to buy bread, flour and eggs (then being sold at 5s. a dozen). Theiler's seven experimental sheep were commandeered without compensation. Everything was in military hands. On the level ground at Daspoort, a chaotic Military Veterinary Hospital had been opened on the 9th June under the command of Lieutenant Shore (previously a prisoner) of the Army Veterinary Department. Theiler's empty stables were used to quarter horses. Botha was still fighting valorously only 15 miles away at Donker Hoek (Diamond Hill) but without hope. Everything remained unsettled.

45 There was little Theiler could do except watch over his laboratory and write a long letter to his parents recounting recent events. His Swiss medical colleagues, Drs de Montmollin and Koenig who were leaving Johannesburg for Cape Town to travel via Delagoa Bay to rejoin the Boers, would post it somewhere. Nothing was coming to Pretoria - no letters, no newspapers (*De Volksstem* had ceased publication on the 4th June), no sign of the outside world. 'Despite personal freedom not being particularly restricted, one feels like a bird in a cage', he wrote. At least, he and his family were not molested. It was being a very bad time but they were well. With military censorship, he would not be able to write openly again.



## SHUTTLECOCK 1900-1901

THE PROFLIGACY with which the British Army used its resources was based on the belief that it would speedily terminate the war. Roberts' advance sowed dragon's teeth. Armed men sprang from the soil, the war was not ended and the profligacy produced pollution and contamination creating a more savage conflict than could ever be resolved by force of arms.

1 Shortly after its occupation, Pretoria was menaced by aggressive commandos in the west (where Baden-Powell, 'the hero of Mafeking', lost many horses dislodging them) and in the north where an attempt was made to attack the town from Onderstepoort, a few miles from Daspoort, with the same cavalry losses. They occurred also in the south. Determined men continued defiant. Roberts was compelled to initiate his 'scorched earth' policy by authorising the burning of farm-houses and other draconian measures. (The farmstead of Theiler's friend, 2 D. J. E. Erasmus at nearby Pienaarsrivier was burnt to the ground by General Paget.)

3 The dragon's teeth he had sown elsewhere produced a host of enemies other than guerillas which the Army was incapable of combatting. Immediately after it had left Kroonstad, for example, the local medical officer of health attempted to remove the carcasses of horses from the Valsch Rivier feeding the dam which supplied the town's water. Within the first month, he extracted 700. Then he lost count. Conditions around Pretoria were similar. Three months after 4 its occupation, one of its best known physicians, Dr J. A. Kay, wrote 'What is sadly needed in and around Pretoria is a scavenger corps to bury dead animals. Within four miles of Pretoria, I saw 60 and within 100 yards of the main road, 7 dead mules and horses lying in a small stream which is most certainly used for drinking by our troops. All over the veld as well as on the road, dead horses and cattle are plentiful.' Typhoid, dysentery and enteric abounded with high mortality.

5 The Army Veterinary Corps was totally inadequate to demand and was severely criticised by Roberts himself. Its director and principal assistants had been confined in Ladysmith when most needed and Hutcheon had had to post his civilian veterinarians to Army depôts with consequent 6 deterioration in animal care in his Colony. By the middle of 1900, about 185,000 horses alone 7 had been shipped to South Africa. A year later, it was calculated that 125,000 horses and mules had been supplied by a single dealer from Kansas, U.S.A. among others. Captain Horace 8 Hayes, that unexampled equine expert, himself conducted consignments. On one voyage to Port Elizabeth lasting 31 days, he landed 470 horses which had stood for the entire journey. Many of them immediately contracted laminitis on the two-mile walk to their camp. When horses were taken off a ship and put straight to work by the Army, he said 'they went all to pieces and there was a terrible mortality'. Their average life in South Africa was six weeks which greatly protracted the war. They brought and disseminated a large number of diseases and, unsalted and unacclimatised, contracted old and new local afflictions.

9 The exigencies of war had the further effect of nullifying the few legislative measures against stock diseases. Scab (Brandziekte), the scourge of Cape sheep, quickly resumed its hold 'in the presence of roving patrols who paralysed the efforts of the sheep inspectors appointed in the terms of the Scab Act'. Under Martial Law, captured infected sheep were sold by auction and distributed widespread. Materials for dipping were no longer available and, when obtained under difficulty, could not be transported nor men found to use them. Much the same obtained in the case of infectious Lung Sickness in oxen. 'Commandeering' by combatants on both sides further ensured the uninhibited proliferation of disease. 'Brigandage' as it was later called,

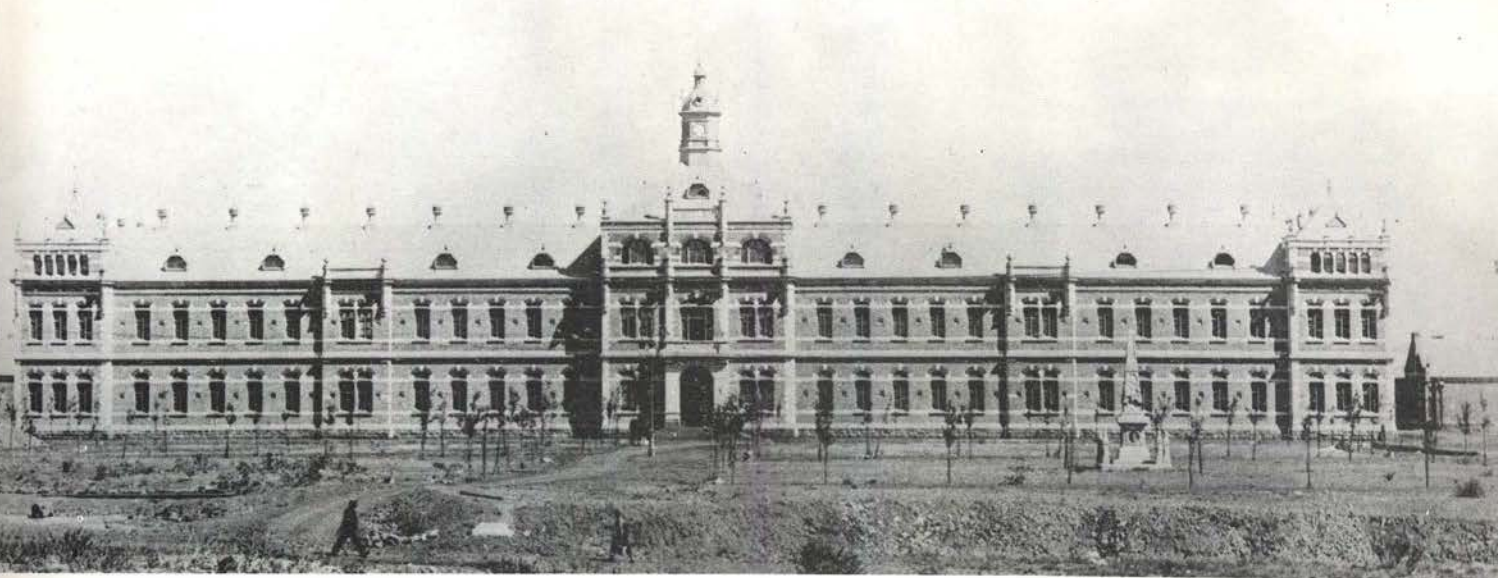
became the order of the day throughout the land and made stock control impossible. The whole of Southern Africa had become an incubus of lethal dangers to man and beast.

10 The Army's attempt to control conditions in Pretoria resulted in an endless spate of permits  
11 and passes. At first spies moved freely in the town and, by devious means, local inhabitants  
12 purveyed information to the highly mobile commandos. The official system reached ludicrous  
proportions, permits being needed virtually to cross the street or move furniture from one house  
to another. Theiler had immediately to obtain one to retain possession of his two personally-  
owned horses. 'One had', said one indignant lady, 'to go to the Military Governor to  
breathe.'

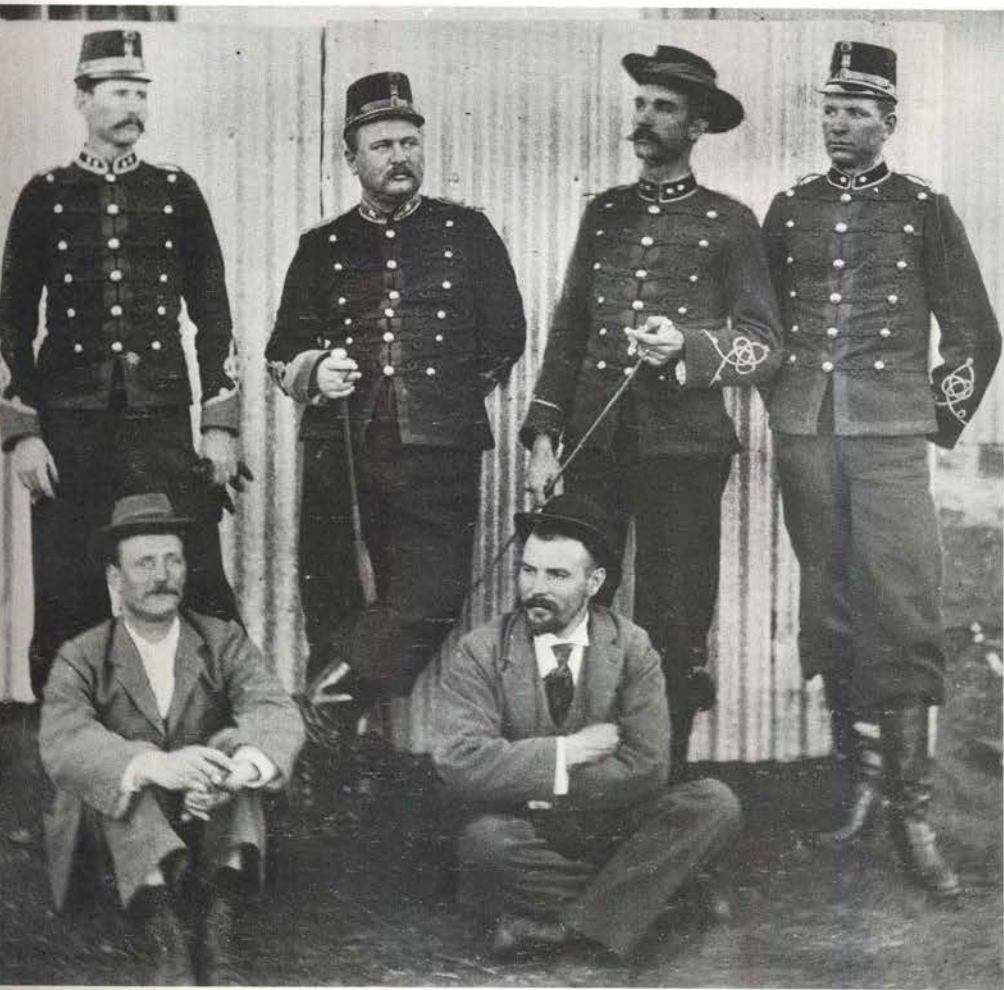
To find his way through this thicket of difficulties and somehow to obtain freedom of move-  
ment, Theiler came to town to interview the responsible officers. The Tommies had taken the  
13 Vierkleur that flew over Schutte's Magistrate's Office (it was returned to the Transvaal Province  
by the Inverness Town Council in 1974 with an appropriate exchange of politesses) and only  
military men conducted affairs. They looked at him askance, aware of his connection with the  
Staatsartillerie and his commando service but baffled by the swarthy foreigner 'dressed like an  
English gentleman', with his little billycock hat. Theiler made himself known and in his habitual-  
ly gregarious manner, talked to everyone. The provisions Emma had stored under the floor  
14 would soon be exhausted and he needed private practice. He was astonished and gratified by the  
'gentlemanliness' of the English and they by his command of the English language and his  
enormous scientific knowledge.

Apart from the Royal Army Medical and Veterinary Corps, Pretoria now abounded with  
15 scientific men. The Hollander Dr Gunning, quickly restored to his museum and zoological  
garden, was confounded to find a tall British private in battle-stained uniform enquiring after  
'flies'. After careful overtures suitable to the level of an ordinary Tommy, Gunning discovered  
that he was addressing Professor E. E. Austen of the British Museum, the reigning authority on  
16 tsetse flies. Theiler too made the acquaintance of Major Fred. Smith, previously a professor at  
the Royal Army Veterinary College and examiner for the R.C.V.S. who now struggled to pro-  
duce order in the 'sick lines' at Daspoort where daily scores of afflicted and debilitated horses  
arrived on foot from various battlefields. Smith was one among many who knew what Theiler  
was about; but it had no place in the rigid order of the British Army. When the Principal Veteri-  
ary Officer Colonel Matthews arrived to take charge toward the middle of July (Smith was pro-  
17 moted to officer-in-charge of the Free State with his headquarters at Kroonstad), Theiler de-  
18 lighted further in 'scientific conversation'. In the meantime, though he could move fairly freely,  
he had time on his hands. His house was surrounded by tented encampments and, locked in it  
every night during the curfew hours of 7 p.m. to 6.30 a.m., he spent many hours with Emma  
19 putting his massive collection of notes and observations in order and planning a series of mono-  
graphs. For the whole of June 1900, he professed himself 'unemployed'; but during daylight,  
he actively made himself known in circles appreciative of his scientific work.

Concerned primarily with maintaining order in his sprawling demesne, the Military Governor  
20 General Maxwell, appointed on the 14th June a Commissioner of Police with seven officers to  
help him organise what came to be known as the Transvaal Constabulary. Lieutenant-Colonel  
21 F. Ivor Maxse of the Coldstream Guards was the very prototype of the British military officer  
(and did not fade away until the age of 96 in 1958). Well-born and married only a few months to  
a daughter of Viscount Leconfield, he already had a distinguished Army record and impressed  
Theiler on sight. Maxwell intended for them both a rôle that would engage his major problem –  
the health of man and beast. The Army Veterinary Corps was openly incapable of dealing with  
the enormous mortality of horses from disease, let alone wounds, and desperate measures were  
necessary. With an equal disdain of the Medical Corps and its failure to diminish similar loss



*The Staatsartillerie Headquarters in Pretoria where Theiler served as Paardenarts or Horse Doctor.*



*Officers of the Staatsartillerie with Theiler seated on right and his friend, Lieutenant Mike du Toit standing on extreme left.*



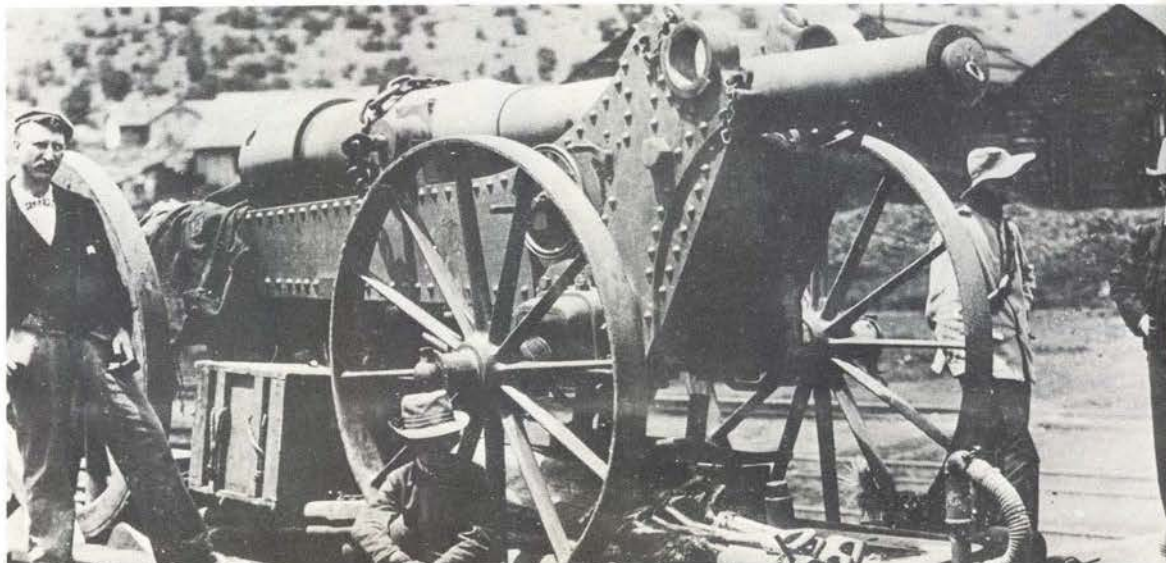
*Preparing for the Baden-Baden Conference in 1899 – Theiler in a newly-tailored dress suit (with ungloved hand).*

*Ladysmith, Natal overlooked by Bulwana Hill whence the Staatsartillerie continuously bombarded it with a Creusot big gun nicknamed 'Long Tom'*



*Shrapnel bursting on war correspondents Nevison (right), Melton Prior (centre) and a servant when riding outside Ladysmith.*

*A Long Tom of the type dragged to the summit of Bulwana Hill by forty eight oxen and hundreds of men.*



22 from typhoid, enteric and dysentery among soldiers and the resident population, Maxwell, with the consent of Lord Roberts, entered into a conspiracy with Sir Alfred Milner, still in Cape Town, for the services of Dr George Turner, the over-age Medical Officer of Health of the Cape Colonial Government. That took longer than the veterinary aspect but finally dovetailed into it.

23 Colonel Maxse and his men quickly organised the Transvaal Police, purloining from the Army one of the numerous veterinarians from Canada, Australia, New Zealand and other parts of the Empire whose varied experiences fascinated Theiler in conversation at the Daspoort 'sick lines'. C. J. Sanderson M.R.C.V.S. had joined the New Zealand Mounted Rifles as a veterinary lieutenant and distinguished himself in South Africa by keeping his regiment mounted. He was appointed to the Transvaal Constabulary as Veterinary Officer with wider duties than merely maintaining its horses in good health.

24 In the last days of June 1900, there had been significant consultations between General Maxwell and Colonel Maxse. Their problem had been less the large number of Mange- and Glanders-ridden horses that wandered about and the huge mortality from known diseases (including the Horse Death) as the mounting losses from unknown causes. The Army had 'occupied' and inspected Theiler's Daspoort laboratory, principally concerned with manufacturing vaccines, immediately upon arrival. Theiler himself has made no secret of his pre-war activities and his longstanding experimentation with stock diseases. Now they sent for him with a view to his urgently grappling with the unknown fatal diseases which were costing the British Government hundreds of thousands of pounds and protracting hostilities indefinitely. Theiler confidently  
25 confronted 'the English gentlemen' - Maxwell, Maxse, Fred Smith and others concerned with the  
26 situation. The result was his provisional appointment as 'Bacteriologist' to the Transvaal Constabulary from the 1st July 1900 under instruction to investigate horse diseases with the assistance of Sanderson. All possible facilities were to be placed at his disposal in re-opening his laboratory for research work.

His joy was hardly diminished by the fact that the salary was less than the £800 gained by his two Republican appointments. It offered temporary present security and possible future prospect. Further, he was wanted, urgently needed and trusted to do the very work which had become his life's ambition and for which he had beggared himself to be equipped. He confided  
27 one small impediment to Colonel Maxse - his confiscated cases in Cape Town containing the most modern microscopes, sophisticated glass apparatus and other aids to the advanced work he was expected to do. Maxse exerted influence and after three months, all the impounded cases were delivered except the most important - the box containing the microscopes. Its loss was a severe blow. Of the others, all the Zurich glassware was smashed but Cogit's from Paris was almost intact.

The children were enchanted with their toys and particularly the little hay-wain which they  
28 used to collect cow-pats for fuel. (There was none in and around Pretoria and soldiers demolished paling fences, furniture, wooden shacks and anything available for their winter cooking fires.) All enjoyed the honey of Theiler père and Arnold and Emma waxed sentimental over the  
29 Fricktalerkirsch and begged to be supplied with more. Owing to strict military censorship, they had not yet heard from Switzerland. Everything sent them was impounded at the Cape. Theiler himself could not write freely to his parents. He told them he had never worked so hard, that  
30 all was well and that he was being fairly treated. His 'English' syndrome had so far developed that by November, he gave his address as 'Arnold Theiler Esquire, Veterinary Bacteriologist to the Transvaal Colonie, P.O. Box 585, Pretoria, Transvaal, via Southampton'.

\* \* \*

Life was suddenly glorious. He was a man again. Accompanied by Sanderson, he was persona grata at the Army 'sick lines' and could closely inspect the extraordinary variety of horses from all parts of the world. Later he would write about them for his military veterinary colleagues at Thun. He hobnobbed from a position of stature with the equally various Army veterinary surgeons, learning much. They were baffled by the on-coming Horse Sickness and unknown lethal fevers. Theiler, helped on all hands, immediately went into action and mounted investigatory experiments on a large scale with horses of every kind and origin. He was principally concerned with what he subsequently defined as Equine Malaria; but there were other mysterious diseases. Sanderson later recounted how Theiler's microscope revealed a bacillus similar to that of human typhoid and how he had had to obtain a specimen from the spleen of a man dead from enteric fever for comparison. Theiler found the same bacillus in it. They were exciting over-worked times and it was not until the 1st October 1900 that he got Charles Favre officially appointed as his Assistant Bacteriologist.

Much remained irksome. The silence from abroad was total. No scientific journals reached him, no letters, no news. Dietschi sometimes sent him newspapers from Cape Town to keep him au fait with the war. He worried about his family and particularly Marie who had had twins, one of whom had died. Maxwell had let him send an official cable to his father at the end of July - 'Theiler telegraphs all lymph to be sent via Southampton Cape Town' and he was allowed to add 'mir gut' (I'm all right). He also wrote, very guardedly, not knowing whether his letters would pass the censor Lord Stanley and his staff, or go on their way at all. Other letters he entrusted to Drs de Montmollin and Koenig and later Braunschweiler who were returning to Switzerland. He wrote that his future was bright, 'perhaps brighter than it has ever been' and that he was surprised at the Boers' continued resistance. (When his long letters describing the retreats were published in Switzerland, there was uproar but Theiler stuck to his guns, claiming that the Boers were not brave and that only 10% of their fighting men, obstinate and hopeful of intervention, remained in the field.) He worked with single-minded devotion in his laboratory; but the nights, closed to all movement by the 12-hour curfew, were long. He occupied them with preparing précis of his years of investigation of Horse Sickness, Equine Malaria and Nagana (which Bruce had stimulated), thinking that the publication of articles in foreign scientific journals would interest his new friends and add to his stature.

He was not alone in his work. The disaster of the British cavalry, specially important in the guerilla scene, had become every investigator's concern. Even before it happened, Edington had sent his deputy W. Robertson (on leave in England in August 1899) to Professor John M'Fadyean, principal of the R.C.V.S., with a blood-specimen from a case of Horse Sickness for his own experimentation which he began in October. Flattered, M'Fadyean paid high tribute to Edington 'to whom we owe all our present knowledge' and pontificated on the results of his experiments in the *Journal of Comparative Pathology and Therapeutics* (which he edited) without casting much light on the disease. He also spoke to it at a meeting of the Pathological Society in London in May under the chairmanship of Lord Lister. Robertson returned to the Cape in February 1900 when Edington, organising an Army Ambulance, was prevented from continuing his work by enormous demands from the military for Lung Sickness vaccine and Mallein for Glanders, as well as the complete unavailability of horses for experiment. War conditions reduced his health and in August 1900, he left for England on six months leave, putting Robertson in charge of the Institute. As far as the outside world knew, he remained the reigning authority on Horse Sickness, a belief substantiated by the publication in the *Journal of Comparative Pathology* in September and December 1900 of his 'South African Horse Sickness - Its Pathology and Methods of Protective Inoculation', subsequently issued as an abstract. It described numerous experiments in great detail. He claimed now, not to immunise horses but to give them

some degree of protection by infecting them with a recoverable dose of the disease. Theiler had been following the same line for years but lacked the encomium of publication in a scientific journal.

41 Watkins-Pitchford too, debilitated and drained by the siege and the demands of the subsequent guerilla operations, was compelled to take six months sick leave in August 1900. On the voyage to England, he wrote a long account of his own work on Horse Sickness which was published serially in the *Natal Agricultural Journal* and, upon his return in January 1901, resumed the attack. It remained one of the most tantalising of the scientific conundra of Africa.

42 The conspiracy to get George Turner to the Transvaal to deal with human diseases at length succeeded in the face of hot opposition from the Cape Government. He was lent for three months only from the 1st August 1900, hearing with dismay from the German Consul as he left Cape Town that his old adversary Rinderpest had reappeared in South West Africa. Few knew better than Turner what that could mean. He arranged with Milner that J. W. Phillips, his lay-assistant at the Kimberley Serum Station and, when it closed, his bacteriological assistant in Cape Town, be recalled from Egypt (where he had been sent to produce Rinderpest serum) and posted to the Leprosy Hospital in Pretoria on standby. Phillips arrived in January 1901.

43 Turner, now 52 but more vigorous than men half his age, was provisionally appointed Transvaal Medical Officer of Health on the 9th August 1900 – to the undisguised hostility of the Royal Army Medical Corps (and later Lord Kitchener) which considered his activity redundant and a reflection on their competence. The appalling conditions in Pretoria only briefly occupied him before Lord Roberts sent him to the Eastern Transvaal to ascertain whether troops could be stationed there in the prevalence of deadly malaria. The susceptibility of British soldiers to tropical diseases was protracting the war even further and during 1901, the Army was compelled to appoint a Commission to investigate dysentery and enteric in Army camps. Lieutenant-45 Colonel David Bruce served on it, the British Parliament receiving its report in 1902. (Many 46 years later, Emma maintained that during this service, Bruce had helped to prosper Theiler's cause. Certainly their friendship flourished.)

A further means of terminating the war and curtailing its cost to the British taxpayer, germinated in the fertile mind of 'the hero of Mafeking', now attached to Roberts' staff. Lawlessness, pillaging and general disorder had begun to prevail over most of Southern Africa. The guerilla bands, Boer and military, batted on all they could find and the rural population, sinking into greater depths of distress and want, were compelled to join them in unlawful activities. The reality of the 'conquered republics', now annexed by Britain, was ugly with suffering and disorganisation but the resources of the British Army could not be squandered on civilian control. What was needed was a Police Force. Major-General Baden-Powell was entrusted with devising it and spent three weeks in Cape Town making his plans in consultation with Milner (who 47 showed the utmost reluctance in moving his headquarters to the Transvaal). The new force was to consist of 6,000 mounted men. Inevitably horses, not men, were the major problem. At the end of September, Baden-Powell reported himself and his plans to Roberts in Pretoria.

In such circumstances, Theiler became the cynosure of military and administrative attention. 48 There were then more than 2,000 horses in the Daspoort 'sick lines' in the care of Army veterinarians and a growing number of oxen and other animals impounded on suspicion of contagious disease which fell to Sanderson's duty as Veterinary Surgeon to the Transvaal Constabulary. 49 Overburdened, he frequently consulted Theiler who regretted distraction from his work as 'Bacteriologist' where he was simultaneously staging experiments on several animal diseases, particularly equine.

50 The Daspoort Laboratory, an oasis of science in the rough urgency of war, fascinated the many scientifically-trained officers in the British Army. Theiler, equally beguiled by unwonted

interest, beamingly welcomed veterinary surgeons, physicians, bacteriologists, and knowledgeable amateurs such as the handsome wastrel, Prince Francis of Teck, brother of Prince Alexander (who, active in the Matabele Rebellion, had risen high in military service and received the D.S.O. for his part in the current war). Prince Francis took a particular interest officially in the branding of Horses; but, 'full of brains', privately understood and appreciated what Theiler was doing. A quarter of a century later, Prince Alexander and his lady brought an even greater appreciation.

Major-General Sir John Maxwell himself came to inspect the laboratory and its works; also General Charles Tucker, commander of the 7th Division and now in occupation of the Staats-artillerie Barracks; and, forebodingly, the volatile little 'hero of Mafeking' intent on his Constabulary plans. In Theiler, Baden-Powell saw the solution of at least one of the problems with which his assignment bristled. Great changes were imminent. When Milner visited Pretoria on the 15th October, the belief in early peace still flourished. Lord Roberts would soon leave for England to become Commander-in-Chief of the British Army and the steely Lord Kitchener would conclude the campaign in South Africa. The restoration of civil life would become imperative. On the 22nd October 1900 by Proclamation No. 24, Lord Roberts established the South African Constabulary to preserve order and prevent crimes, under the orders of Sir Alfred Milner as High Commissioner and with Baden-Powell as Inspector-General. It was to come into operation by June 1901.

A huge task of organisation was involved in raising 6,000 men, horses, equipment and supplies. Baden-Powell threw himself into it. Even before the end of 1900, Kitchener demanded Constabulary services. By that time, its men (rascals and gentlemen enlisted from all over the world) had earned a reputation surpassing Brabant's Horse (known as the 'Brabanditti') and Maxwell was compelled to issue an official notice that his Government would not be responsible for or recognise debts contracted by them. Persons who contracted debts with them did so at their own risk. At their Headquarters at Zuurfontein, the railway station for the Modderfontein dynamite factory, they 'appropriated' indiscriminately – even a locomotive and trucks. Their Inspector-General was similarly disposed. First he took Sanderson from Maxse's Transvaal Constabulary; then he coveted Theiler.

Theiler was 'working very hard. I don't think I have ever worked so hard in my life. I am in the process of recording for publication my earlier investigations into Horse Death, Tsetse, Malaria, etc. I consider them my best work so far but the new investigations which I now have in process, indicate even more valuable results. The journey to Europe indeed did me good!' He was still much irked by Martial Law with its multitudinous passes and permits and restrictions on movement. Emma had her own difficulties, particularly with food and its high cost (they could no longer save). The proximity of military camps with their primitive (often absent) sanitation producing continuous pervading smells and swarms of flies, repulsive in themselves, was a hazard to the health of the children. She lacked many household essentials. Now she ran out of thread for sewing and mending and begged her in-laws to send some.

After five months of silence, they at last had four letters from home released from the Cape in October. Braunschweiler (who then went to the U.S.A. to settle in Ohio) had called and given the parents news – Kollmann also, busily engaged in raising money to succour Arnold's local Swiss. Long-delayed scientific journals were also delivered. They had much to write in reply.

Arnold ordered through his father hundreds of glass slides (he sometimes used 50 a day) and special glass vessels from Cogit in Paris. He still wanted the bee fungus to go on with his experiments – locusts continued coming in gigantic swarms. Hans, they wrote proudly, was going

to school at the imposing Loreto Convent. Now 6 years old, he had long shown inherited tendencies and, even as a toddler, had enthusiastically collected beetles and butterflies and lizards



on the kopjes when walking with his father. His early classes were principally to learn English before attending a Government school and he imparted his new knowledge vociferously to his younger sisters.

65 While Emma laboriously copied the three scientific monographs during the long hot summer nights, Arnold collected his campaign- and later notes and began the writing of a work on 'The Horse at War' for his Thun mentor Colonel Potterat, his officer-instructors and the students with whom he had completed his military-veterinary training in 1890. It was finished, copied and sent on the 26th January 1901 and was duly published in the *Schweiz Monatschrift für Offiziere aller Waffen* and subsequently issued as an illustrated abstract. Under the title of 'Aus Transvaal', it remains an illuminating account of a vital aspect of the first year of war.

66 He attached the highest importance to his 'best work'. On the 6th December 1900, he sent the three monographs to Zschokke at Zurich University intending that he should publish 'Die Tsetse Krankheit' in the *Schweizer Archiv für Tierheilkunde* and allocate 'Die Sudafrikaansche Pferdesterbe' elsewhere. Professor Kitt in München was to have 'Malaria in Horses' - 'Eine contagiöse Stomatitis der Pferde in Süd-Afrika' - for publication in his *Deutsche Monatschrift für Tierheilkunde*. Carried away by Theiler's novel work in tropical animal diseases, Zschokke had other designs on 'Malaria in Horses'; but owing to current war conditions, its author long remained unaware.

\* \* \*

Tending all his life to oscillate between high elation and depression, Theiler was now increasingly susceptible to the frustrating effect of restrictions. He could not get the apparatus and equipment he needed, he had lost communication with the leading bacteriologists who had stimulated him in Europe and whose published works were not reaching him, the military denied him the horses he wanted for his experiments, he needed a pass or permit for any variation from staying at home. Even Emma tended uncharacteristically to bend before the blast and share in the weltschmerz which often afflicted him. 'We are as shut up here as if the town were besieged', she wrote, 'the end of the war is further than ever . . . vegetables and fruit are seldom available . . . eggs 7s. a dozen . . . If one comes two days later to a shop which has received stocks, it is completely sold out. Terrific heat and no rain! Typhoid afflicts the English and also the civilians. We are having no rosy time and there is reason enough to be discouraged. Arnold is as disenchanted with Africa as never before.'

68 There were few distractions. In November 1900, Otto Henning came from Bloemfontein to stay a few days. He had been with 'the bravest of Boers, the soul of the resisters', General Christiaan Rudolph de Wet who kept the war going. Henning had fallen ill at Klerksdorp and, serving as a non-combatant medical orderly, had been glad to go to Bloemfontein and accept employment at the Military Veterinary Hospital and Remount Station at Abraham Fischer's farm run by Veterinary-Captain L. J. Blenkinsop and Lieutenant Sawyer. Henning did his work well, wrote beautiful copperplate reports and was well treated by the English in their desperate search for more horses; but he hankered after higher things and had come hopefully to Pretoria. His information was correct. There was a demand for veterinary expertise; but the eye of Baden-Powell was on Theiler. Henning returned disappointed to Bloemfontein and was subsequently appointed to the Free State branch of the Constabulary under Sanderson with whom he had difficulties.

Theiler now had very little reliable knowledge of how events were developing. Jean Dietschi sometimes sent him newspapers and undertook small commissions such as supplying cigarettes

70 and tobacco to Theiler's orderly Botha, 'a faithful servant' whom he had found in the prisoner-of-war camp at Green Point. Roberts had left Cape Town for England on the 11th December 1900 (Dietschi took historic photographs of him at the Mount Nelson Hotel) and Kitchener was now in full command. Though appointed Governor of the Transvaal and Orange River Colony (to which the Free State had reverted), Milner remained at the Cape. When he assumed his new offices, Sir Walter Hely-Hutchinson would come from Natal to administer the Cape and Sir Henry Macallum would govern Natal. In satisfactorily conquering Southern Africa, the British made no progress. They had no effective means of combatting the new era of 'brigandage'. They had no competent horses.

71 Sir Frederick Smith put it pellucidly - 'The earlier organised British columns consisting of a small number of mounted men, incomparable infantry and heavy guns pulled by oxen, together with miles of transport, patrolled the country from point to point laying waste the track on its route, blowing up farmhouses, capturing stock, destroying crops and doing no good so far as bringing the enemy to book was concerned. As the *Times History* admirably expresses it - "the British walked where they liked and the Boers rode where they pleased and under such conditions, the campaign might have continued for ten years." ' Mobility was essential and horses were the only means of providing it; but those imported died quickly from strange diseases (many of them now were 'screws' and rejects from an exhausted overseas market) and the local product was carefully safeguarded by the people, the few 'remounts' commandeered being totally inadequate to the need. In a fierce debate in the British Parliament early in 1901 on a supplementary estimate of £3,000,000 for transport, remounts, provisions and other supplies for the Army in South Africa, it was stated that about £6,000,000 had already been spent on horses. One member read a letter from an officer at the front - 'We want at least another 1,000,000 horses, not skin- or hair-trunks but horses. Up to date, the consumption of horse flesh (including those presently in use) has reached the enormous total of 250,000.'

72 Baden-Powell typically was clever - he bought 7,000 cobs for his Constabulary from Australia and gave the captains of the transports a £1 bonus for every horse landed in good condition. He tried to acclimatise them at a farm in Natal but he was not clever enough. The need for his force was so great that early in December 1900, Kitchener ordered its increase to 10,000. By 73 then, Theiler already knew that he would probably be seconded to Zuurfontein to deal with 74 disease in the Constabulary's imported cobs. Still in the grip of weltschmerz, he was not 75 enthusiastic. He had never wanted to be a veterinary surgeon but his career as scientist seemed stalemated. Milner, he had been told by his high-level military friends, had approved his present appointment which was no longer provisional. He hoped to remain 'Bacteriologist' but, it had been hinted, he might be drafted to other duties under other aegis. He could not write freely to say what they were.

76 Baden-Powell had calculated without Africa's eternal incubus of lethal epidemics. By January 1901, Theiler could write - 'Never before has the Horse Death arrived so early or demanded such terrible sacrifices. Lung Sickness also rages frightfully among cattle and typhoid had claimed many victims in Pretoria.' By the end of the month, faced by the ruination of his Constabulary plans, Baden-Powell had obtained permission to send for him. It came in the form of 77 a letter dated the 1st February from Sanderson P.V.O. for the Constabulary, offering him 78 appointment as 'Bacteriologist' for two years at £700 a year with forage for two horses and 79 rations for one European and one native servant. Theiler knew of its coming and had discussed it with Emma. He was at the time profoundly disillusioned - 'Without excitement, life is altogether too monotonous. I should today be ready to go to the Sudan or China, so bored am I here with this sitting still and this enforced idleness.' Emma thought little of the proposition. Ener- vated and depressed, she did not want to leave their home and live in cantonments on the High-

veld. They talked about it over the weekend and on Monday the 5th February, Theiler went to Zuurfontein and breakfasted with Baden-Powell.

80 The dynamic little man wanted him to be a laboratory hand manufacturing vaccines and Mal-  
81 lein against the endemic Glanders. He was to transfer his laboratory to Zuurfontein and devote  
82 himself to preserving the health of the Constabulary horses, particularly in view of the raging  
Horse Sickness. Theiler inspected the premises and went back to Pretoria the following day.  
The decision did not lie with him. It lay with Maxwell who in the meantime, had asked his  
M.O.H. George Turner (for whose return the Cape Government constantly clamoured owing  
to the spreading of Bubonic Plague) to report on the proposal. Turner, with the concurrence of  
the Controller of the Treasury, Emrys Evans, considered it too costly and suggested that the  
Daspoort Laboratory be enlarged to permit research into human as well as animal diseases.  
This was a novel but not unexpected turn. Maxwell summoned Baden-Powell, Turner and  
Theiler to his office on the 6th February for a joint meeting. Baden-Powell spoke with great  
urgency; Turner, obstinate as a mule in his own field, stood his ground. Theiler, disinclined,  
nonetheless felt that his prospects might be enhanced when peace came if he served as Consta-  
bulary Veterinary Bacteriologist now. Maxwell reserved judgment. A man of distinguished  
ability, known for his work as a military governor in Egypt, he had a visionary approach un-  
usual in the Army.

83 Theiler, appalled at Baden-Powell's losses from Horse Sickness, immediately applied himself  
to writing an article in English on the Horse Death for his personnel and others. 'The study of  
this disease must again properly be taken in hand. It is urgently necessary to find something to  
combat it. This year, animals are dying in heaps. I do not remember a similarly early outbreak,'  
84 Baden-Powell fumed at the delay and told Sanderson to write Theiler again, offering the Con-  
stabulary appointment. Theiler took the letter to Maxwell's secretary, Major A. R. Hoskins  
85 (by now a friend - he gave the Theiler children a riding pony when the military retired in favour  
of civil administration) and successfully requested an immediate interview. Maxwell told him  
86 that the extension of the Daspoort Bacteriological Institute was under consideration by Milner  
and he had been recommended as its head. (The hand of Turner, well in with Milner, was clearly  
visible.) While he, Maxwell, had no objection to Theiler's joining the S.A.C., he recommended  
his staying at his post until Milner had made a decision. Theiler answered Sanderson on the  
15th February, deleting from his heavily-corrected draft in his own hand what Maxwell had  
told him. He declined the appointment, indicating that he could not leave his laboratory while  
conditions for investigating the Horse Death were so favourable and offering all possible  
coöperation.

\* \* \*

Milner whose 'Kindergarten' to undertake the civil administration of the Transvaal was now  
arriving, kept a sharp eye on the new Colony and the means of restoring a shattered country.  
Maxwell and Turner were in close communication with him. Turner had been instructed to  
report directly to him on the suitability of Zuurfontein for the transference of Theiler's Das-  
poort laboratory. Turner now conceded that the site (on a railway) was better and healthier but  
reaffirmed that whatever money was available should be spent on improving and extending  
87 Daspoort. Maxwell sent a copy of his report to Baden-Powell. Milner in Cape Town received  
the original at the same time as a letter which was to determine Theiler's career.

88 It came from Sir Marshall Clarke, Resident Commissioner in Rhodesia who enclosed a letter  
addressed to him by Stewart Stockman, the eminent professor of Bacteriology and Pathology  
at the Royal (Dick) Veterinary College in Edinburgh. Stockman proposed a Veterinary College

for Southern Africa. Clarke had discussed it with Captain Arthur Lawley, Administrator of Rhodesia, who considered that His Majesty's Government should establish such a School in Pretoria for the benefit of the whole sub-continent. Clarke added that Stockman seemed the ideal person to institute such a project but had in fact refused appointment to the British Ministry of Agriculture as he had volunteered for service in South Africa. In the event, he was  
89 posted to the Indian Civil Veterinary Department where he gained first-hand experience of Rinderpest and tropical cattle diseases. Milner made a note of the name. Ravaged and unsettled by Boer and British guerilla bands, South Africa was still in no state for such developments. In 'reconstruction', Stockman could have a place.

Baden-Powell, in equal standing with Turner in Milner's good graces, had lost the battle for Theiler. He seemed to accept it but was unable to refrain from writing to Maxwell on the  
90 15th February - 'We are losing at Zuurfontein £54 to £112 and more daily in horse flesh from horse-sickness, poison, glanders, etc so there are urgent reasons for a veterinary laboratory . . . If our improvised laboratory is of any use, it can doubtless be absorbed afterwards in the General  
91 Bacteriological Institute when that comes to be formed.' Maxwell sent the letter, written in B-P.'s own hand to Theiler, strongly advising him that if he considered appointment to 'the improvised laboratory', he should have the conditions 'made clear before you commit yourself to any engagement'. The South African Constabulary did not enjoy the best reputation (all its  
92 confidential records were officially destroyed by a directive of the 30th December 1907.)

But Baden-Powell was not yet done. On the 19th February in a 'Clear the Line' telegram, Maxwell felt compelled to advise the incipient Transvaal civil administration in Cape Town -  
93 'Theiler has been informed by General Baden-Powell that unless he accepts appointment as Bacteriologist for the S.A.C., appointment will be filled. If the High Commissioner has not authorised a separate Bacteriological establishment at Zuurfontein, upon this pretext this appointment might prejudice this question.' Maxwell then wrote in his own huge hand a four-page confirmatory report to George Fiddes who had recently arrived from England to assume duty as Secretary to the Transvaal Administration. The basic issue of a Bacteriological Institute for human and animal diseases had become of the highest importance. The initial outbreak of  
94 Bubonic Plague at King William's Town had not been quelled and had reached Cape Town. The Cape Government, incensed by the neglected expiry of its M.O.H.'s three-month 'loan' to the Transvaal, had made repeated demands for his return. The Imperial authorities refused  
95 to surrender George Turner despite, they said, 'his duties bringing him into conflict with the R.A.M.C. who give him little or no support and disparage him whenever possible'. The availability of Turner and Theiler with their bacteriological expertise and a laboratory at hand, had become an essential feature in the general war situation. Milner accordingly formally offered  
96 Turner the Transvaal M.O.H. appointment at £1,500 a year which he accepted on the 28th February, his permanent transfer from the embittered Cape being confirmed in April.

97 'I understand from Dr Theiler', Maxwell wrote to Fiddes, 'that it is not his wish to associate himself with veterinary work. Though holding veterinary diplomas, he had devoted himself to the study of Bacteriology and is an acknowledged authority in South Africa. He is, I may say, the only expert in the Transvaal. There is no dividing line between Human and Veterinary bacteriology - it is one science. Any researches into specific diseases in both can be carried out at Daspoort with no further expense. In view of a possible outbreak of plague, it is absolutely necessary that the services of an expert bacteriologist should be at hand and work under the direction of the Medical Officer of Health. Is it wise to change now (to Zuurfontein) before H. E. the High Commissioner has had an opportunity of entering into the question? Dr Theiler is usefully employed where he is . . . Should it become necessary to make any plague investigations, the centre of the South African Constabulary Headquarters seems to be an undesirable place to

conduct them.' He went on to suggest that it were better to leave matters standing and to consider later an all-purpose Bacteriological Institute. 'If such an Institute were decided on, Dr Theiler's services should be secured. In the meanwhile, I recommend that Dr Theiler remain where he now is.'

98  
99 It was a triumph for the personal policy Theiler had pursued since the loss of his hand; but now he sat fuming futilely in his house – no letters, no newspapers, no books, no journals (he had expansively ordered German and French scientific periodicals presumably at his new Military Government's expense), no news of Zschokke's having received his manuscripts or what he had done with them. The Military Censor was probably slitting everything open and laboriously reading the foreign languages.

100 Pretoria was suddenly unusually tense. Though Theiler was persona grata with the highest military authorities (he was now issued with a special pass signed by Maxwell permitting him to move, mounted or otherwise, through guards and anywhere within the outpost lines), he dared not write his parents that Kitchener was meeting Commandant-General Louis Botha at Middelburg, now a large Army depôt, at Kitchener's own request and arranged personally by Mrs  
101 Botha. The war was costing Britain £2½ millions a month and more than two thirds of the Army  
102 was not in active combat but guarding communications and supplies. Botha could not hope to win it but the success of his unpredictable guerillas, depending entirely on their horses, could ensure favourable conditions of peace.

Milner at last left Cape Town to survey his new demesne and was inspecting the institution of civil government in Bloemfontein (where Sir Hamilton Goold-Adams was Lieutenant-Governor) when Botha and Kitchener met on the 28th February 1901. Then he came to Pretoria to hear the result of the conference. It had been cordial but abortive. The war went on. Civil administration was inaugurated in the Transvaal and Milner returned to the Cape where, in common with Natal, some vestiges of orderly existence remained in a land paralysed from end to end by the brutalities of conflict. On the 8th May, he sailed for England, becoming a peer on the way.

## THE VANE CHANGES 1901-1902

THE RAPACITY of the British Army aided by the South African Constabulary was now in full spate and even Milner deplored its activities. Kitchener's excoriating policy, designed to deprive the guerillas of support, supplies and domestic comfort, entailed the collection in 'Cattle Preservation Stations' or 'Protection Camps' of everything on four feet. These concentrations were also intended to supply remounts, transport oxen and slaughter stock; but, on land  
 1 grazed flat, they died in thousands of starvation and disease. Writing from Johannesburg be-  
 2 fore his departure, Milner confided in Fiddes: 'I am very anxious about the stock question; but I can assure you that the difficulty which we have here, great as it is, is small compared with the colossal disaster which threatens us in the Orange River Colony unless we can either induce the Military to temper their zeal for capturing cattle and sheep with a little discretion, or else push out our Constabulary posts so fast as to increase enormously the area of protected grazing before the winter.' Kitchener invited an equally 'colossal disaster' with the 'Protection Camps' (later known as Refugee or Concentration Camps) wished upon him by Botha for the dispossessed human inhabitants. The despoliation countrywide of human and natural resources was approaching completion. In 1901, the ultimate disaster appeared.

Wide though the waste and disorganisation, the South African scene presented prospects for opportunists. The rag, tag and bobtail joined the Constabulary or became civil inspectors of one sort or another. Some of the burghers joined the 'National Scouts' and were reviled by their  
 3 countrymen. Some of their women became prostitutes in Pretoria, Theiler several times noted. Many men of all nations made fortunes out of supplying produce and commodities of all kinds.  
 4 Some, of better intent, struggled to restore the livestock industry. Joseph Baynes, a progressive Natal farmer, specially imported cattle from Queensland, Australia at the end of 1900 because they were supposed to be free of Redwater. Most of them died after infecting his own cattle with Lung Sickness. The Natal Government tried the same experiment with similar result.  
 5 Baynes was undaunted and early in 1901, built his first dipping tank, using a difficult formula from Queensland successfully to protect his cattle against ticks. Hutcheon was sent to England in June 1901 by the Cape Government to buy stud stock and thence to the United States to study agricultural departments and veterinary laboratories, J. D. Borthwick taking charge of his department. Farmers who could produce any kind of food or fodder did well. Over all the dismaying scene hung the magic word 'reconstruction'. Milner was going to England to arrange its reality.

It was common property that the first steps had been taken in the Orange River Colony and Transvaal. Soon 'Repatriation Departments' would be started for destitute burghers who had taken the oath of neutrality. Veterinary services would be needed. The Transvaal had only a 'bacteriologist' at Daspoort. Watkins-Pitchford who had returned on the 2nd January 1901 to Natal, caught the opportunist fever. He had heard of Turner's appointment as Transvaal M.O.H. and concluded that a similar veterinary appointment would be made.

Early in March, he wrote directly to Milner, enclosing testimonials and offering his services, wildly claiming to have 'probably a more extensive experience of animal diseases in South Africa than any other worker' (Hutcheon, Edington and Theiler were vastly his superior).  
 6 Fiddes' publicised activities then struck him and on the 22nd March, he presumed on their shipboard acquaintance to write directly to him with the same intent, modestly averring that he merely wished to be on all fours with other competitors. Fiddes answered that he must make

7 formal application and on the 4th April, Pitchford duly requested the 'Imperial Government of the Transvaal' to appoint him 'Director of the Veterinary Department' at a salary of about £1,000 per annum. He was indeed a good shot and good horseman and had had a few weeks' Transvaal experience in the Waterberg and Rustenburg districts but was principally motivated by 'statements that the Civil Veterinary and Stock Administration would be undertaken by the Veterinary Officer (Sanderson) on General Baden-Powell's staff in addition to his regimental duties' which, Pitchford declared, was impossible.

8 Fiddes consulted George Turner who, in a memo of the 14th April made two familiar points: a general Bacteriological Institute serving both the Transvaal and Orange River Colony was essential and should come under the *Health* Department. 'I know Mr Watkins-Pitchford who is a good man and I would also like to draw your attention to Mr Theiler who I know personally to be a most highly qualified veterinary surgeon and bacteriologist.' Pitchford remained at his Natal post and Theiler at his. They maintained close correspondence as previously, Pitchford having succeeded in his campaign to get the Natal Government to appoint a Commission to examine the claim made at the 1897 Rinderpest Conference that he and Theiler were the joint discoverers of the immunising serum. At the moment when he was applying for the Transvaal appointment, he was writing to Theiler to ask him to give evidence and also to contribute an article on Horse Sickness to the *Natal Agricultural Journal*.

9  
10 Theiler had been enduring endless frustration and vexation. His father's letters and the supplies he ordered reached him either within a month or not at all. He was in urgent need of specialised glassware (flasks, verres protectifs, etc) for vaccine and lymph production and his experiments in general; but neither Cogit in Paris nor German suppliers promptly delivered. When consignments came, they were either broken or the wrong type or in short supply. He was irritated by emotional criticism of his campaign articles in the Pro-Boer Swiss Press (Kipling too was blackguarded by the *Tribunal de Genève* on the 11th January 1901 for fictitiously attending and describing the murder of a civilian). He resented uninformed comment on his eye-witness accounts and his specialised knowledge of 'the Boers'.

11 All at once early in March, letters, books and journals posted months before reached him from Europe. He was astonished and gratified to find that Zschokke had considered his paper on Malaria in Horses suitable for submission to the University of Berne as a dissertation for a doctorate in Veterinary Medicine. (The Berne and Zurich Veterinary Schools had been elevated only the year before to faculties competent to award degrees.) Theiler had intended it only as an article for a veterinary journal; but his father's and Zschokke's fortuitous enthusiasm might well prosper his cause. When it came to confirming his appointment or qualifying for another, a doctorate would be very valuable. His happy thoughts dwindled into abject despair and finally disgust. There followed academic quibbles amounting to criticism that he had not presented his thesis in optima forma - its language and syntax were defective and he had omitted references.

12 It had been intended merely as an article and Emma defended him furiously. After weeks of vituperation during which he urgently hoped that he might 'graduate' in time to influence permanent appointment, Theiler was taken away and Emma was left to level the last of his difficulties.

13 In the meantime, his father did everything possible, Alfred copied the article in a beautiful hand and Zschokke of Zurich coöperated with Quillebeau of Berne to ensure its award.

14 On the 3rd March 1901, dread word came from German South West Africa that Rinderpest (which Turner had known to hover as early as June 1900) had become epidemic. British soldiers  
15 guarded the drifts across the Orange River. The local veterans knew that nothing would stop its course. Edington, returning at that moment from his six-month furlough, could speculate on again becoming a glycerinated-bile factory, his Horse Sickness and other work in abeyance

16 through lack of experimental animals. Hutcheon's department would be hamstrung – after  
17 supplying improved serum to Egypt (which Phillips had administered in loco), the Kimberley  
Experimental Station had been closed. Foresightedly, Turner had secured the return of Phillips  
who had arrived in Cape Town but had not yet assumed his intended appointment to the Pre-  
toria Leprosarium where Turner himself spent all of his free time.

18 Towards the end of May, Kitchener sent for Turner. A disease had broken out among cattle  
19 near Maseru in Basutoland whose nature he wished him to ascertain. Turner said he was not a  
veterinarian though familiar with Rinderpest but would be unable to diagnose anything other.  
He must therefore take Theiler. Kitchener agreed and facilitated the issue of a host of permits  
to enable their journey by train to Bloemfontein, by coach to Maseru and thereafter by Cape-  
cart and four mules, all under the Army's surveillance and reporting at all outposts for searching.

20 Nobody doubted that the cases were Rinderpest. Turner went at once to Fiddes and told him  
to write to Phillips in Cape Town, appointing him lay-assistant at the Pretoria Leper Hospital  
at £500 a year. It was duly gazetted as operative from 1st June. Phillips left almost immediately  
and had an adventurous four-day train journey harassed by de Wet and his commando and  
21 passing 'miles of sheep and cattle' being herded into the 'Preservation Camps'. One flock of  
sheep, he wrote, was 10 miles long. Other travellers at the time had the same experience. J. A.  
van der Byl, returning to his Irene Estate from the Cape, also taking four days and nights  
owing to 'very active Boers', wrote his daughter – 'It was distressing to see the numbers of dead  
horses, cattle and sheep on the way. They could be counted in tens of thousands and those still  
alive are kept close to the railway line in order to be guarded by the soldiers and they too are  
in such miserable condition that I feel certain more than half will join the Majority before the  
winter is over.' The village of Irene was 'a tented field' and about 6,000 women and children  
lived in squalor in a 'Refugee Camp' while their marauding men brazenly swept off cattle,  
sheep and donkeys belonging to it.

22 Turner and Theiler left for Maseru on the 17th May 1901, Theiler rejoicing in his first ex-  
23 cursión from Pretoria in exactly a year of confinement and frustration. He was happy too to  
24 have modern equipment with him. The lost case of microscopes had at last been found a month  
before with its contents 'in the best condition'. Immersed in misery and disgust over the  
quibbling and criticism of his 'thesis' (he had threatened to cable renouncing the doctorate –  
'I have regarded it as a bauble (klimbimb). A bauble it will remain to me.'), he had 'still lacked  
the true wish to work'. Now he was wanted, in the company of a distinguished colleague,  
travelling to a new and fascinating land. Hardly had he left than Emma received a cable from  
his father confirming the award by the Faculty of Veterinary Medicine of the University of  
25 Berne of the degree of Doctor of Veterinary Medicine on Arnold Theiler for his dissertation on  
'The Malaria of Horses'. (It had been published in Zurich on the 24th May.) The message came  
on the 29th May and Emma got it to him with all despatch. Theiler was elated. At least he need  
no longer be embarrassed by being called 'doctor'. At best it might profit his future. Remem-  
26 bering 1897/98, Emma foresaw starvation for South Africa but, writing home, could not men-  
tion the menace of Rinderpest to the British military effort.

27 Army veterinary surgeons were detailed to assist Turner and Theiler as they left Bloemfontein  
by coach on their way to Basutoland in the keen cold of mid-winter. A mere 38 miles further at  
Thaba Nchu in the old Free State, they found cases of Rinderpest. Proceeding to Maseru  
(capital of 'the Switzerland of South Africa' where, at 5,000 feet, snow on the Drakensberg  
produced bitter cold), they conferred in the British Residency (Lagden was away) with Lieu-  
tenant-Colonel Thomas Flintoff A.V.S. who had served in the war with the 2nd Life Guards.  
There was no mistaking the prevalence of Rinderpest in the Orange River Colony and Basuto-  
land.



The P.V.O. Colonel Matthews had told Turner that it had been introduced by refugee Boer women, a view Turner derided, believing from its simultaneous appearance at Mafeking that it had spread eastward from German South West Africa. They all knew what should be done but there was no means of doing it. When the Kimberley Station closed in 1898, Turner had taken to Cape Town a small supply of serum. He now sent for it but the immediate need was urgent. There was no alternative but to revert to Koch's quick original method of injecting bile from a diseased ox into a healthy animal temporarily to immunise it. Theiler, Turner and Flintoff laboured 28 urgently to initiate the method and to teach the Basuto to use it. Demeaning work though it were to the new Doctor of Veterinary Medicine, it taught Theiler much, particularly in plumbing 29 the singular character of George Turner.

After about ten days, Turner returned to Pretoria to report to Fiddes and Kitchener, leaving Theiler (living in the Residency) in charge of both tuition and inoculation. Kitchener instructed Turner immediately to establish a serum station in Pretoria – a process that technically could not take less than three months during which the old Koch method would have to be continued. Facilities were available at Theiler's Daspoort Laboratory and Turner immediately arranged 30 for the appointment to it at an increment of £100 a year of J. W. Phillips, now officiating at the Leper Hospital. He was to be officer-in-charge of the new Rinderpest Station under the Department of Health headed by Turner. None knew nor practised better than he the processes of production.

Turner then dashed to Cape Town to obtain equipment and serum from Hutcheon's department. At that moment, Rinderpest appeared at Hanover in the Cape and, so far from gaining material to start his Station at Daspoort, Turner had great difficulty in obtaining 500 doses and only on promise of return when it reached production. He had himself produced this serum in Kimberley in 1898 and was consequently delighted by its continued potency when, sending some to Maseru, Theiler successfully immunised 1,400 Army oxen with it. Turner then 31 returned to Pretoria to engage manifold difficulties, principally the impossibility under current conditions of obtaining able-bodied oxen to serve as factories. He had also to arrange the building of sheds and a destructor at Daspoort as well as fencing where, surprisingly, he had willing 32 and rapid coöperation from the Public Works Department. More extensions would soon be needed.

Theiler, involuntarily, was enjoying the recruitment of his resources and purging from his mind the hurt and hate of the doctorate contretemps. He had written Emma the required references (one from the veteran military bacteriologist Alphonse Laveran and others from German, French and Italian sources) and she forwarded them to his father who continued to rejoice in arranging his son's supplies – anthrax vaccine from the Institut Pasteur, despatches from the Swiss Serum Institute, more flasks from Cogit, journals, books. Emma had received a letter from Amsterdam from Arnold's early lay-assistant Schroeder who had read of his doctorate in a Dutch newspaper. His 'Horse Death' was appearing in two parts in the *Deutsche Tierärztliche Wochenschrift*. Zschokke would probably publish 'The Tsetse Disease – Nagana' in the 33 *Schweizer Archiv für Tierheilkunde*. Printed copies of his Dissertation were being sent to scientists and influential persons in Switzerland and beyond. His name would soon be widespread 34 in Europe and he would reap some compensation for the lack of a professional journal locally which he could have sent overseas.

Never out of saddle or cart, stimulated by the crisp frigid air and heroic scenery, Theiler worked with Flintoff and others to save Basutoland and the Orange River Colony from the Cattle Plague. He and his pupils, black and white, inoculated 3,000 cattle around Maseru and carried the gospel to the British Army and wherever burghers were back on their farms. It was all interim activity until Turner could get the laboratory going and produce refined serum.

35 Turner wrote him repeatedly for samples of virulent Rinderpest blood but it deteriorated on the long cart-coach-train journey lasting as much as 8 days. In July, Turner told Theiler to return, bringing live virus with him.

36 Refreshed though he were in mind and body, Theiler had certain arrières pensées. Pitchford had written him again, asking him personally to give evidence to the Commission appointed by the Natal Government on the 25th June. Under orders in Basutoland, he could not go to Pietermaritzburg. He surmised that Turner felt he was making common cause with Pitchford and that he was losing his urge for research. He wondered too why he was kept so long away from Pretoria when he had not been engaged to deal with either Basutoland or the Orange River Colony. He began to have doubts. He was afraid that his authority at the new Serum Station at Daspoort would be restricted. Phillips had once operated the Kimberley Station for three months without supervision and might have developed authoritarian ideas. He rejoiced when, after nearly two months in the field, he was required to return. Emma must make him a special dinner and invite half a dozen of the leading local Swiss. The Boers blew up a bridge in front of his train which entailed only a short delay and on the 17th July, he was back with his family at Daspoort.

37 Official courtesies were exchanged. 'I cannot allow Dr Theiler to leave Basutoland', wrote H. C. Sloley, the Acting Resident Commissioner to the Transvaal Secretary Fiddes, 'without placing on record my appreciation of the courtesy with which he ever has been ready to assist us with his advice during his stay though he has, in accordance with his instructions, been principally occupied with the experimental treatment of cattle in the neighbouring district (sic) of the Orange River Colony. Dr Theiler has given zealous and skilful attention to the outbreak of Rinderpest in Basutoland and his services have been most valuable to this Government.' Fiddes sent the letter to Turner, requesting that he communicate it to Theiler. As M.O.H., Turner had the right to reply directly. Doubtless impressed by Theiler's new academic distinction, he did so in kind - and revealingly. 'It is with great pleasure that I am forwarding to my colleague Dr Theiler your very courteous appreciation of his services. Allow me to thank you for having so promptly recognised the work of my colleague. I am exceedingly fortunate in being associated with a man so thoroughly well grounded in his profession who has received a scientific education and who does not spare himself in carrying out his duty.' Theiler was pleased. He was sickening for one of his habitual states of euphoria.

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40 His laboratory was at last coming into its own. Veterinary duties still fell to him but diminished after the 20th July when Captain J. M. Christy M.R.C.V.S. was appointed to Turner's staff. From his carefully-accumulated store of cultures, Theiler was able to deal with a wide variety of human and animal diseases. In August, Kitchener had to cope with threatened Smallpox and enacted compulsory vaccination for native labour. Theiler was ready for it. He also began the production of diphtheria serum and foresaw involvement in Turner's dedicated investigation of Leprosy. Serum for Bovine Pleuro-Pneumonia (Lung Sickness) and Mallein for Glanders (the main scourges of the British Army) were in constant production while Theiler supervised Phillips' expert manipulation of Rinderspest serum to ensure its quality. (Phillips' diary of the time records the bravado of the Boers who hovered fearlessly in the vicinity of Pretoria and occasionally sniped at him or threatened to steal his horse as he rode into town). Daspoort had become a busy immunisation factory with too few buildings and assistants; but, overloaded by work and eagerly supported by Turner, Theiler continued his tantalising Horse Sickness experiments and 'all kinds of other investigations'.

44 'Now I have more opportunity to achieve something scientific than ever before', he wrote and burdened his father with more requests. Some – textbooks, journals and apparatus – were for his own edification but others were in the general interest. Production of Rinderpest serum depended on the blood standing for 48 hours in a special glass vessel to allow the serum to separate. The number of these fragile flasks which Theiler had ordered, inevitably diminished and he besought his father to expedite more from Cogit. At one stage, only nine remained with no sign, under war conditions, of others arriving. Both Turner and Theiler, already exacerbated by the Army's refusal to provide oxen, were distraught.

45 Since transference as 'Bacteriologist' to the Health Department, Theiler's salary had risen to £900 and he was at last able to discharge his accounts overseas. Much was facilitated by his paying money into the Welfare Fund of the Schweizerverein Alpina in Pretoria equalling amounts collected by Kollmann in Switzerland who then paid them in francs to his father. He intended discharging his obligations to Professors Zschokke, Quillebeau and Kitt in typically esoteric manner but it was not until December 1901 that he was able to send them 'interesting pathological specimens' including Rinderpest and part of the lung of a horse dead from the Sickness. They were taken by a friend in bottles without labels lest the Customs impound them as 'pestilences'.

46 'The will to work' was now back in full force with a mounting sense of accomplishment verging on ecstasy. His articles were appearing in journals of the highest repute in Europe, Pitchford would shortly publish his contribution on 'Horse Sickness' in the *Natal Agricultural Journal*. He was doing what he wanted to do with his superior's full support and understanding. There was indeed a small disappointment – his Dissertation on Horse Malaria describing the causative trypanosome had been anticipated by Laveran to whom he had sent smears through his friend Nocard. Laveran had published a work on trypanosomes and had called the Equine Malaria variety 'piroplasma equi'. Theiler noted keenly that Laveran had worked with frogs.

47 Otherwise all marched excellently. His staff was augmented by his ex-orderly D. T. Botha as Lymph Packer and by his previous lay-assistant Alfred von Bergen as Lymph Maker. In the grip of euphoria, he wrote a long letter to Alfred, then 19 and a scholar at the Aarau High School with leanings towards Natural Science as became a son of Franz Theiler. Arnold implored him to get on with his studies (which they had discussed in 1899), take a degree at the University of Zurich and then work with Nocard in Paris and John M'Fadyean in London (to learn English) so that he could join him for a trial year in his laboratory. Alfred tended toward zoology and Arnold tempted him with wonderful opportunities and a great future in South Africa. He also asked Alfred to send his school books on Mathematics, Chemistry, Physics and Natural Science as he himself had forgotten so much. Obsessed with the shining future, he wrote with convincing persuasiveness; but events and Alfred's inclinations nullified his plan.

49  
50 Lord Milner landed in Cape Town on the 27th August 1901 and, staying briefly with the new Cape Governor, Sir Walter Hely-Hutchinson, traversed the ravaged land to establish his headquarters at an American mining engineer's manor 'Sunnyside' in Johannesburg with a direct telephone line to Pretoria. His 'Kindergarten' was already gathering around him – the Honourable Hugh A. Wyndham and John Buchan as private secretaries (Buchan was later allocated Refugee Camps and Agricultural Resettlement); Patrick Duncan, Milner's previous secretary in the English Department of Inland Revenue, as Treasurer for the Transvaal; Lionel Hitchens, Geoffrey Robinson, Lord Basil Blackwood and many other eager high-spirited young men knowing no language but their own and some Latin and Greek with perhaps a smattering of French. To them was entrusted the hydra-headed problem of a despoiled land and a demoralised people.

There was still no sign of peace; but to some, like Theiler, the future held infinite promise. To

51 others, like Emma who had lived restrictedly and tediously for more than a year under Martial Law, hope was less feasible than despair. To the ruined local inhabitants, there was not even hope, only sullen resignation in a land drifting beyond the brutal usages of war into the chaos created by Nature.

52 By October, the Rinderpest had reached Pretoria. Theiler was desperately trying – as he and others has so futilely done before – to isolate the causative bacillus. He was using a new method of intraperitoneal culture and was at first optimistic. But for the serum poured out by Borthwick (acting for Hutcheon, absent overseas) at the new Cape stations at Aliwal North and Kimberley, and by Turner, Theiler and Phillips at Daspoort, the British Army's drive to corner the guerillas might have been halted. Its transport oxen were essential. Rinderpest (which had reached no  
53 further than the Northern Cape) first seriously affected them in August 1901. Of a strength of 95,700 oxen in that month, 16,200 or 17% died. In September, of 86,700, 16,300 or roughly 18%; in October, 17%; and in November and December, about 12%. During those five months, 65,700 Army oxen died. No one could calculate the loss in beasts equally essential to agriculture practised by whites and blacks whose remaining animals had been commandeered. Only a  
54 bucolic story survives to illustrate the exigency of the times in the most favoured area of Southern Africa.

At the Cape, Sir Walter Hely-Hutchinson liked to hunt small game on nearby farms, his party generally being accompanied by one or more of the local Afrikaner farmers. On one such occasion at precisely this period, he was joined by Fanie Cilliers at Hermon beyond Paarl and as they rode to the hunting ground, enquired about farming conditions after recent good rains. Fanie hedged and when pushed, spoke his mind in English about the military commandeering almost all their mules and horses so that they could not plough. 'Not at all?' exclaimed Sir Walter.

'Well, no, Guv'nor – 'n boer maak 'n plan – a farmer makes a plan, as we say. I have managed to put in about a third of my usual crop by training and inspanning six of my dry cows and six young heifers before one double-furrow plough.'

'But can such a ragged team effectively pull a heavy plough, Cilliers?'

'Well Guv'nor, hardly. But I have also got two big bulls, Blouberg and Tafelberg and I have trained them under the yoke too.'

'But surely, Cilliers, two bulls can't pull a plough by themselves, can they?'

'That's right, Guv'nor. But here again is a case where a farmer makes a plan. I put the two bulls at the rear of the team with the cows and heifers in front and by God, Guv'nor, you should have seen how that plough turned up the soil!'

Delighted, Sir Walter reined his horse, collected his party of A.D.C.'s, officers and guests and made Cilliers repeat the earthy story. It became a standing joke on subsequent expeditions. (When the war was over, Sir Walter saw to it that Cilliers had special pick at the sale of military mules and horses.)

\* \* \*

55 The Cape suffered least; but progressively northward, conditions worsened to utter penury. On his way to Johannesburg, Milner had examined an incipient Department of Agriculture at Bloemfontein, carefully nurtured by the horse-loving Gool-Adams. Trees had been planted, a Land Board for repatriated burghers formed, 150 British farmers settled and other steps taken. The Transvaal was in far worse pass but Milner had already made his plans in England. Little could be done until Kitchener could conclude the war. There was as yet no sign, no chance to institute 'reconstruction'.



*Surgeon-Major David Bruce R.A.M.C. before acquiring the Ladysmith medal with seven bars for his services during the Siege and numerous other distinctions.*



*Mrs Bruce whose work in the besieged Ladysmith was acknowledged by the award of the R.R.C. and service medals.*



*Butchering horses for food, their selection being one of the duties of H. Watkins-Pitchford who may have figured in this scene drawn by Melton Prior.*



Disfigured and bloated bodies seen and described by Theiler some days after the Battle of Spionkop.

Slaughter of Cavalry horses was compelled by Lord Roberts' drive to capture Bloemfontein. Over-loaded, exhausted and starving, they were beyond the point of recovery and were shot by the Army - in this instance at Winburg in the Orange Free State, 1,500 cavalry mounts being killed.



Herabgegeben vom Hilliskomite Basel zu Gunsten des Schweizer Vereins „Alpina“ in Pretoria.



Postcard of a Boer Commando issued for sale by a committee in Basle, Switzerland with the help of Theiler's friend Kollmann to raise money for the Schweizerverein Alpina in Pretoria which he had founded and which assisted distressed Swiss during the Boer War. Kollmann signed and sent the card to Theiler.

La Guerre Anglo Boer

How do you do my boy, how do you do?  
 Gausend Dank für Ihren Brief  
 Ich danke Sie  
 Un Commando  
 Oupa Jan

56 It was part of this policy that Theiler was now encouraged to devote himself to purely scientific investigation. He mounted a battery of different experiments, his staff was progressively increased (in October, B. Porta as Laboratory Superintendent and later specially in charge of Horse Sickness experiments; in November, P. R. Ferreira as Inoculatory Assistant), his access to overseas sources was facilitated. Turner knew of what he was capable – he knew his past record, particularly with Rinderpest, and he had read his last three papers which consolidated his ten years' experience and work on Horse Sickness and Malaria, and Nagana. 'The Tsetse Fly Sickness' was indeed almost autobiographical. Theiler began it with a study of early sources including Livingstone's 'Missionary Travels' which he had read as a boy and the 'Fly Belt' map published by Fred Jeppe in 1877 at which he had marvelled when first in Pretoria. He owed his interest in the subject, he wrote, to David Bruce whose infinitely thorough investigations he described. He himself had repeated and extended them, subjecting the easily-stained trypanosome to every kind of test, consulting all the current published works, writing to the leading investigators overseas some of whom he had met in 1899, describing in terse muscular terms every aspect of the disease and incidence in various animals, leaving no detail unexplained or unaccounted for. Turner, like everyone else who later read Theiler's reports, wondered at their exhaustiveness and the thoroughness with which he devised experiments of wide variety to test every possible contingency in the subject he was studying. He marvelled too at the simplicity of his language and the directness of his attack, so different from the wordy effusions of Edington and the thin content of Pitchford's accounts written principally for farmers.

57 Given free rein, Theiler explored many blind alleys and recorded many inconclusive results, notably with the elusive Rinderpest 'microbe' and the cause of the Horse Death. 'I apparently spend much time on negative results', he wrote, 'but the enterprises on which I am now engaged are the most delicate which I have ever undertaken and require much patience and endurance.' Emma shared in them. She was more than his left hand. He taught von Bergen to cut 58 fine sections for microscopic work with the Microtome that his father had obtained for him but Emma was his expert laboratory assistant.

Arnold was collecting mosquitoes to breed for experiment – 'I am preparing myself really actively to find the insect this year which, according to my hypothesis, is the carrier of the Horse Death. From now on, I will collect all possible insects which are equipped with a blood-sucking 59 eating organ.' He sent a collection of mosquitoes to the British Museum for checking and later another, being gratified to receive a reply from the appropriate officer, Theobald saying that they 60 included three new varieties of Anopheles and Culex. He was also finely examining the activity of a bacillus in the intestines of the louse-fly associated with pigeons. Emma dissected them for him. The onset of the summer rains and the proliferation of flies meant further disaster to the 61 British Army – the Horse Death would hamper it again. Daspoort could hardly meet its demands for Rinderpest serum.

Theiler's appetite for more textbooks, more laboratory equipment, more esoteric apparatus, more chemicals became insatiable. He wrote his father weekly with exigent demands. During the long hot summer nights, he and Emma varied their activities by studying Italian for future use on their travels, Algebra, Logarithms and elementary mathematics which they felt they ought to know, and Chemistry, Physics, Geology and any science which might relate to their work. Martial Law was ineffably irksome but compulsory leisure could at least be made profitable.

62 Theiler's stature stood high. The Natal Government Commission on the source of the Rinderpest serum treatment now completed its report. The fire in the Pietermaritzburg Town Hall had destroyed all Pitchford's papers but in evidence, he had produced his letters to his wife at the time. They proved that Theiler and he had 'produced a curative serum' in December 1896

and that he had written to Lloyd, Commissioner for Agriculture, on the 19th that they had 'discovered a process by which undoubted immunity could be conferred'. Lloyd gave supporting evidence. Koch had pulled the bile rabbit out of his hat only in February 1897. He had reported his findings but Theiler and Pitchford had not. The Commission nonetheless found in their favour and recommended that its Report be laid on the table of the Natal Parliament and that copies be sent to the Royal College of Veterinary Surgeons in London. It ended with highly laudatory comment on Pitchford's services (see Appendix A).

63 The implication of a suitable award was never accepted either by Natal or the R.C.V.S. which vacuously acknowledged the Report with the comment that 'the Council has no knowledge of the matter referred to'. Pitchford had cause to be bitter. His philosophy in the face of  
64 injustice or reverse was to forget it - 'the more you stir it, the more it stinks', he often said; but the memory of being unjustly deprived of recognition stayed with him. For the moment, it  
65 was blurred by his appointment at the same time (October 1901) as Government Bacteriologist and Director of the Veterinary Department of Natal, S. B. Woollatt being appointed Principal Veterinary Officer. Like Theiler, he could now concentrate on research but, unlike him, had the status and dignity of a Director of a Government Department.

As the year neared its end, Kitchener's harsh measures slowly tortured the last evidence of defiance into extinction. Theiler saw old friends being brought in as prisoners, including his venerable 'baas', the landdrost Schutte who, driving top-hatted, silkily-bearded and immaculate behind his matching greys, had supported and helped him in his struggle as Gouvernements  
66 Veearts. The old man was now 'very depressed', Theiler said, though glad to be removed from the rigours of campaign life. He had failed to surrender before the prescribed date of the 15th September when amnesty was offered and would now be banished to a camp in the Bermudas or Ceylon or St Helena. Other servants of the Z.A.R. had fared better. Theiler's close colleague  
67 in Johannesburg, Sir Drummond Dunbar, was appointed 'Issuer of Liquor Permits' and early in 1902, issued one to him 'under authority of the Military Governor to purchase any liquors he may require - in reasonable quantities - against a written order without reference to this office'. In Johannesburg, the British had made their erstwhile servant, Captain Carl von Brandis who had married Arnold and Emma, a popular but failing Registrar of Births and Deaths (he died in June 1903). Of the enemy aliens, few were more favoured than Arnold Theiler.

68 His experiments on the etiology of Rinderpest were, as he had surmised, a failure and he now began 'a penetrating study of its pathological anatomy'. Phillips continued with the production of serum on a vast scale as the disease spread in the Transvaal. On the 3rd December 1901,  
69 to protect Bechuanaland, Milner prohibited the traffic of cattle across its border. Every day, Theiler's ex-orderly Botha wandered along the banks of the Aapies River and among stagnant  
70 pools, collecting the larvae of winged insects in glass jars. They were sorted and classified and clumsily mounted until Theiler père could send the 'insect pins' ordered many weeks before. Theiler found their investigation a fascinating and promising field.

\* \* \*

The mail due in the middle of December failed to arrive, the *Dunottar Castle* bringing it being greatly delayed by a broken propellor shaft. When it came, it brought a letter from Marie and her husband Carl Mettauier telling Theiler that his father had died on the 19th November. He had been writing weekly to and receiving letters from a dead man. They had not brusquely cabled, wishing to break the news gently.

The shock was great but not entirely unexpected. Franz had complained of headaches and dizziness. At 68, he was still officiating at the Frick School, resentful of the short breaks which



71 his condition imposed. His doctor had been reassuring. He still went willingly about Arnold's business, arranging his supplies, ordering his books, circulating his Dissertation. Less than a week before his death, he had written a long letter confirming many and complicated commissions. Denying cause for his family's concern, he had died suddenly in the night of a heart attack.

72 Arnold and Emma could take some comfort from the fact that six weeks before, photographs of their family had given him pleasure. He had been proud too of Arnold's doctorate.

Arnold's immediate thought was for his young brother. He wrote the Mettauers that he would pay for his education at the Aarau High School and at the University of Zurich where he wished to train as a teacher. Then he wrote a tender moving letter to Alfred saying inter alia that it was their father's one wish that he would live long enough to see Alfred established in his life's work. He, Arnold, wished to take their father's place and promised all help. In the event, it was Alfred who took Franz' place. His death would have meant the severing of an artery had not Arnold nolens volens visited upon Alfred the multitudinous requests which for ten years had efficiently been met by his father. Preoccupied though he were by his studies, Alfred tried to fulfil them.

73 His elder brother was a hero to him. (Fifty years later, with the assistance of the family, he caused all the letters written to his parents by Arnold – which were almost indecipherable – and Emma to be collected and typed for binding in two volumes, one publishable and the other 'unpublishable' domestic extracts, to record his brother's courageous struggle to make his way between 1891 and 1901. Later his son, Alfred II, collected those written by Arnold to his father which were zealously transcribed and typed by the family.)

Writing sometimes to his mother and sister Marie and desultorily to his brother who would soon enrol as a student at Zurich University, Theiler went on with his deep researches. Much more was possible with his new microscopes. Tirelessly examining blood smears from every kind of sick animal, his attention was arrested late in 1901 by the familiar trypanosome of Nagana with its oval body and single flailing tail. Others might have passed it as a known agent of the disease but typically, Theiler looked again at this specimen. There was something different about it, he observed – it was consistently larger than the Nagana trypanosome. Typically too, he injected it into horses, dogs, goats, rabbits, guinea pigs and calves. None reacted except the calves which became enfevered and revealed the trypanosome in their blood. It produced acute pernicious anaemia. He thought it might be Bovine Malaria. He sent a smear to his friend Lieutenant-Colonel David Bruce, now in England, and went on with similar researches.

74

75 The war dragged devastatingly on. The Queen had died and Theiler, in the annexed Transvaal, had legally become a British subject. Turner had been trying to clear the Augean stable of the Refugee Camps and Theiler saw little of him. A 'Women's Commission' had been appointed in England to investigate them and would soon arrive to begin their horrifying work. Milner sat in Sunnyside, planning the 'reconstruction' that must surely soon be needed. He had made many far-sighted preparations. During his nine-month service in Cairo in 1889/90, he had been impressed by the work of a civil engineer, William Willcocks. By 1899, Willcocks had published voluminous tomes on irrigation in Egypt and the utilisation of water in making a desert country agriculturally viable. Milner employed him to examine the same situation in South Africa.

76 Willcocks presented his report to him in Johannesburg on the 6th November 1901 and according to one Milner biographer (Wrench), it determined much of his agricultural policy.

77 In 'Irrigation in South Africa', Willcocks naturally posited that widespread irrigation would be the solution to all post-war regeneration problems. He recommended that the mining industry subsidise Agriculture and, conscious of the ethnic refusal of the burghers to engage in manual labour (by no means shared by the exemplary British settlers Milner intended importing), proposed that the 'poor white – arme burgher' problem be solved by a back-to-the-land non-pastoral agriculture in which they could retain their dignity. Generations came and went before

78 this proposal could be implemented; but Milner was determined to lay its foundations in every aspect. 'The farm is the fundamental fact of life', the British erroneously propounded (in fact, more food is produced per cultivated acre of water than of land) and the policy of 'reconstruction' was based on that premise. The extraordinary latitude shown to Theiler, happily occupied with pure research in his laboratory and only occasionally distracted by checking the quality of Phillips' Rinderpest serum, was proof of its sincerity.

He was pursuing his hypothesis that if blood-sucking insects were not the cause of various animal diseases, they might be the intermediary hosts as in the case of the tsetse fly and Nagana.

79 He longed for a zoologist to help him and wrote Alfred that his invitation to join him upon qualification was very real. Theiler surmised that some sort of mosquito or fly was the carrier of the Horse Death and that ticks were the carriers of Equine Malaria. He took ticks from an afflicted horse and bred them for testing on sound horses. It was only one of his manifold experiments on the scourges of South African agriculture and transport.

80 The confining strictures of Martial Law and the intransigent obstruction of the military in refusing to supply experimental and serum-productive animals (angrily reported by Turner to his superiors) affected Theiler less than the new climate of encouragement. The British had confidence in him. Overseas, his work were circulating among the scientific elect on the Continent. In England, Bruce provided a meritorious accolade. On the 27th February 1902, he read to a meeting of the Royal Society in London a 'Note on the Discovery of a New Trypanosome'. It was the unusually large one sent him by Theiler some weeks before which he suspected of being the cause of Bovine Malaria. Bruce described his work on it and concluded - 'As this discovery seems to me to be an interesting one and as Dr Theiler deserves great credit for the observation, I would propose that this trypanosoma be named after the discoverer *Trypanosoma Theileri*.'

81 Within hours, *The Veterinary Record* in London had published a translated digest of his  
82 'The Tsetse Sickness' taken from the *Schweizer Archiv für Tierheilkunde* and *The Lancet* had  
83 reproduced Bruce's 'Note'. On the 4th April, the Royal Society recorded it in its *Proceedings*.  
84 Theiler himself was now among the scientific elect in the land of his employers. He could not  
forbear from reporting his 'small success' to Alfred - 'You can read Bruce's communication',  
he wrote, 'in the *Proceedings of the Royal Society* which will certainly be in the Zurich University  
Library'. His triumph was only beginning. Others everywhere read the *Proceedings* which  
were reproduced in newspapers in England and abroad. He received congratulations from Eng-  
land and Germany. The great Laveran wrote him from Paris asking for further information  
on *Trypanosoma Theileri* and fresh specimens. John M'Fadyean translated his paper on Equine  
85 Malaria and published it in the *Journal of Comparative Pathology and Therapeutics* in two parts.  
It was all highly stimulating and he planned another paper on 'Equine Malaria and its Sequelae',  
a treatise on diseases produced by piroplasmas through ticks, another collection of mosquitoes  
86 for the British Museum. His euphoria for once was well founded.

Current circumstances supported it. Early in April, under British guarantee, Botha met his  
fighting colleagues at Klerksdorp to discuss an end to hostilities. They proceeded to Pretoria  
for further discussion. The whole world waited. England's anxiety was heightened by the hope  
of concluding one of the costliest conflicts in its history in time for the forthcoming coronation  
of King Edward VII. Botha and Kitchener greatly admired each other but neither could facilely  
arrange terms for capitulation. During April and May, negotiations continued. The end was  
inevitable and Milner accelerated his 'reconstruction' arrangements. On the 26th April 1902,  
87 Frank Braybrooke Smith was appointed by the Colonial Office in London as Agricultural Ad-  
viser to His Excellency Lord Milner at £1,500 per annum.

88 On the 16th May, sixty Boer delegates met as the guests of the British Government at Ver-

89 eeniging for discussion of the conditions under which they would surrender. While they were in  
session, F. B. Smith arrived in Pretoria and reported himself for duty to the Transvaal civil  
administration. He was instructed immediately to prepare a report on Agriculture in the  
90 Transvaal and Orange River Colony (of which he had no knowledge whatever). On the 28th  
91 May, Generals Botha, de la Rey, Hertzog and de Wet conferred with Milner and Kitchener in  
Pretoria where all the Coronation festivities had suddenly been suspended (except for children)  
by reports of King Edward's illness. On the 31st May, the Treaty of Vereeniging was signed  
in the afternoon by the Boer delegates and taken to Pretoria for signature by their leaders and  
Milner and Kitchener. The war was over. Reconstruction could begin. On the 5th June, Milner  
92 and members of his Kindergarten returned to Johannesburg – 'Not a human being in sight nine-  
tenths of the 35 miles – nothing but partridges, buck and burnt veldt.'

## DASPOORT AND THE 'RECONSTRUCTION' 1902-1903

1 PEACE BROUGHT no surcease. The appalling forces unleashed by War and Nature continued unabated. Fred Smith, soon to become Principal Veterinary Officer of the Army, calculated that 326,073 horses and 51,399 mules had died during the War and continued dying from numerous diseases. Rinderpest maintained its slaughter of cattle. Redwater, Lung Sickness and other murrains remained rampant. Human diseases proliferated equally.

2 'The whole country in which fighting has taken place is poisoned', the 'Ladies Commission' reported, 'Horses, mules and oxen are killed during battle and their carcasses are left to putrefy, poisoning earth, air and water. Thousands of other beasts are infected; rinderpest, horse sickness and every kind of disease claim their victims; the sick beasts crawl to the nearest stream and die on its brink and the water supplies of a whole country become tainted; or they die in the open country, the dust returns to the earth and the dust storms for which South Africa is famous scatter disease-laden particles over the length and breadth of the land . . . But this is not the only way in which War swells the death rate among non-combatants. Ordinary industries such as the production of foodstuffs and the rearing of cattle are brought to a standstill all over the theatre of War with the consequence that in some districts, no fresh meat, no fresh milk and no fruit or vegetables are obtainable for love or money. Over nearly the whole extent of the Orange River Colony and the Transvaal, fresh meat is poor, thin and comparatively innutritious. Sheep sometimes weighed as little as 11 lbs and were considered really good if they weighed 25 lbs. Fresh vegetables were at famine prices: Potatoes 3d. each, cabbages 5s. each, eggs 7s.6d. a dozen were not uncommon prices. Fresh milk was so scarce that the whole supply had to be commandeered for the hospitals and sometimes there was none even for the hospitals.'

3 A week after the signing of the Treaty, a Military Thanksgiving Service for the Restoration of Peace was held in Pretoria. As a man of stature among the authorities, Dr Theiler and his wife were allocated platform seats for the lengthy proceedings. It were better to have held a Day of Humiliation for the wreckage that had been wrought. On the 21st June 1902, Theiler  
4 attended the inauguration in the Raadzaal of Lord Milner (who was careful not to sit in Kruger's great chair) as Governor of the Transvaal Crown Colony, the nominated Executive Council then taking the oath of office in his presence. (Milner was thereupon advanced by the new  
5 King on the advice of the Prime Minister, Lord Salisbury, to Viscount Milner of St James -  
6 his lodgings in London - and the Cape.) On the 26th, a service celebrating the Coronation of King Edward VIIth was held in Church Square which the Theilers also attended and, due deference having been paid to ceremony, 'reconstruction' began in earnest.

7 F. B. Smith, urgently and zealously compiling his agricultural report for Milner, had been to see Theiler as Daspoort, inspected his laboratory and assimilated the significance of his work. Smith was peculiarly qualified to do so. A born bureaucrat of unprepossessing mien with a falsetto voice belying a modish heavy russet moustache sprouting from his nostrils, he had graduated from Downing College, Cambridge, then renowned for promoting scientific agriculture. A year younger than Theiler, he came from a farming family and by 1895, had become vice-principal of the South Eastern Agricultural College at Wye in Kent where he was Professor of Agriculture and Lecturer in Rural Economics. In 1900 to improve his knowledge of agricultural organisation, he had extensively toured Canada and the United States, recording his observations in a published work 'Agriculture in the New World' which sufficiently impressed

competent authorities to recommend him to the Colonial Office. He combined an exceptionally orderly mind with remarkable drive and vision which ideally fitted him for a virgin field. At no time had the Transvaal owned even the rudiments of a Department of Agriculture. It was the more surprising that he should find there a highly sophisticated bacteriological laboratory specialising in sera-therapeutics for animal diseases under the aegis of the Medical Officer of Health. Continuing his rapid survey, Smith noted it particularly.

8 Theiler was now fully reaping the benefit of the facilities ironically conferred on him by the Z.A.R. Government. The long-lost modern microscopes had revealed new expanses of the unseen world and *Trypanosoma Theileri* which Bruce had saluted, was only one example of a piroplasmic life that now continuously claimed his attention. Alfred, pursuing his zoological studies at Zurich, had acquired his first microscope on the advice of his Botany professor, Carl Schröter. Arnold offered him mature counsel on its use, begging him never to look through it without recording what he had seen. 'But your professors will tell you', he wrote, 'I myself have learnt about microscopic work by myself and had no one who could take me by the hand.' It was indeed phenomenal that a scientific crony of men of the stature of Nocard, Laveran, Bruce, Lignières and other world-wide investigators should be a one-handed self-taught bacteriologist working in a bog-bound tin-shanty. (He now asked Alfred to send him a new artificial hand according to the pattern left at Frick in 1899 and later, a gross of the black leather glove that covered it.)

9 The basic urgent inter-dependent problems were what the British called 'repatriation' or putting the people back on the land and 'restocking'. Theiler was essential to both. It had painfully been realised that the original idea of importing pedigree stock must fail. Apart from breeding services in rarified conditions, they quickly died from local diseases. Hutcheon had bought stud horses and cattle overseas and now Borthwick was sent to Spain to buy Catalan jacks to breed mules; but the idea of replacing local herds with imported pedigree animals had perforce to be abandoned except in the case of cattle from countries with similar conditions such as East Africa, Madagascar, Australia, Texas and the Argentine. The Imperial Government immediately initiated such a policy and was rewarded by a notable increase in Redwater, killing tens of thousands of cattle, and the appearance of mysterious new diseases.

10 Since his arrival in South Africa, Theiler had continuously studied Redwater. Now it was possible for him to see its causative piroplasma known to be due to the bite of ticks. Without benefit of an entomologist, he had long been examining ticks. Edington too had for years been investigating Redwater, particularly in its incidence after inoculation against Rinderpest and its association with other cattle diseases in the Eastern Cape. Early in 1902, a peculiar form of the disease afflicted Rhodesia. C. V. Gray telegraphed Edington for advice and later sent smears. They contributed little to his understanding. Gray then appealed to the Cape Government and in April 1902, Edington's deputy W. Robertson was sent to Salisbury to assist in the elusive diagnosis. With memories of Rinderpest, Natal became alarmed and early in June, sent Watkins-Pitchford to Rhodesia to examine the situation and to contribute his considerable experience to the problem. In August, Hutcheon arrived in Salisbury from the Cape to add his advice to the consortium of experts trying to deal with a disease run riot and a mortality of 90%. Rhodesia was being depopulated of cattle and a danger worse than Rinderpest now menaced the whole of Southern Africa. In September, the Cape Government ordered Edington (who had been investigating cattle diseases in Mauritius) to Bulawayo and, pursuant on one of his private theories, he asserted that the fatal epidemic was a combination of Red Water and Veld Sickness. 14 The Chartered Company then lost its head and sent for Koch (who had investigated Redwater at Dar-es-Salaam in 1897/98 and had identified the round- or oval-shaped bacillus, *piroplasma bigeminum* which Smith and Kilborne had shown in 1892 to be the cause of the disease). The 15

Company finally induced its colleague Governments to share the cost. A counsel of despair was fully justifiable. Rhodesia was already ruined.

16 Theiler himself had gone there to join the concert of experts. From the first days of Peace, his time had been completely occupied. F. B. Smith had properly demanded from Turner an account of the work of his 'bacteriologist' and Theiler has spent many days compiling what he called his First Annual Report. It was, he confided to Alfred to whom he now hardly had time to write, over 250 pages long. Under Turner, his work had boundlessly proliferated and he badly needed assistance, looking anxiously at Alfred and proffering advice on all hands, particularly on his student friends. Struck by his own 'social position', Arnold urged Alfred to remember that 'in every way – in his speech, his clothes, his manner and way of eating – one recognises the gentleman'. As the new calamity enveloped his time and attention, it was almost the last of his homilies.

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18 The Rinderpest bogy had supposedly reappeared in the Eastern Transvaal where the Administration was now sending 'repatriation cattle' to assist in the resumption of stock farming in districts previously densely populated with cattle. On the 12th June 1902, a bottle of 'Rinderpest blood' was sent from the area; but upon examination, Theiler found that the animal had in fact been afflicted with what was then thought to be 'a virulent form of Redwater'. Ten days later, oxen required for his Rinderpest-serum Station were purchased at Nelspruit in the same area and sent to Daspoort. Again he found them infected with 'Redwater'. Early in July, the same diagnosis obtained for a further consignment of oxen from the Elands River Valley whence, as from other parts of the Eastern Transvaal, reports now reached him that a mysterious and fatal disease had taken the place of Rinderpest.

19 Watkins-Pitchford was now confabulating with Gray and Robertson in Rhodesia; but Theiler took other counsel at the high level he had attained. He sent smears to Laveran in Paris and to Ligni eres who had made a special study of Redwater (tristezza) in the Argentine. They could find nothing new and confirmed Redwater but noted that its bacillus could take several forms with different effects. While the letters went forth and back, the presence of the new disease among repatriation cattle was reported in the Northern Transvaal. Turner and Theiler took train to Pietersburg early in August and conducted postmortems on oxen at Spelonken, 'the presence of the disease being clearly proved'. Hardly were they home when they entrained again for the Eastern Transvaal following advice from Captain J. Irvine Smith, a military veterinarian attached to the South African Constabulary who, sent to investigate Rinderpest in repatriation cattle at Komati Poort on the Mocambique border, had reported a different disease. It had been endemic in the area since May. Theiler made over 20 postmortems with Turner and Irvine Smith and, in his scrupulous manner, a number of microscopic slides. He was now in no doubt that the rapidly fatal disease was a virulent form of Redwater, its familiar pirosona bigeminum of endoglobular or round or oval form now being bacilliform or rod-shaped.

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22  
23 Hankering after the sea and finding good excuse to travel the few miles from Komati Poort to Delagoa Bay where large numbers of repatriation cattle were landed from Australia and elsewhere, Theiler, accompanied by Irvine Smith, visited Louren o Marques and made the acquaintance of Dr Jose Rodriguez de Amalal Leal, Medical Officer of Health. Redwater concerned the Portuguese authorities as much as Rinderpest had done; but Theiler was unfavourably impressed by their lethargy. Emma had hoped that his duties would allow of some diversion. 'The days are too short for him', she wrote Alfred, 'although he gets up very early and at night, studies until 10 o'clock. I am glad that he is again away for a little as the eternal sitting over a microscope or books cannot be good for his stamina.' Arnold did indeed return refreshed but no one thought of Emma. During her ten years in Africa, she had not had a single holiday. For

six, she had been confined to the outskirts of Pretoria, three under strict Martial Law which still in part maintained. Her endurance was saintly.

For Theiler, it was work that was holy. As he pursued his investigation of the new disease, F. B. Smith submitted his Report and recommendations to Milner. They advocated urgently the immediate issue of a 'Handbook for Settlers' and, as soon as possible, a quarterly *Transvaal Agricultural Journal*. Since diseases of cattle were obstructing the regeneration of the country, Theiler must be a main contributor. Already acting as Smith's 'Veterinary Adviser', he wrote simple straightforward 'Veterinary Notes' to help English farmers in a strange country. They dealt with the main diseases and there was a glossary of Dutch terms. He was specially thanked by the editor (A. R. E. Burton). The Handbook was rushed out on the 21st August 1902 under the imprint of 'the Transvaal Department of Agriculture to assist Land Settlement in the Transvaal' - a remarkable feat of organisation by Smith who had been only three months in the country, most spent travelling.

24 Theiler then had to write three articles - 'South African Horse Sickness', 'Glanders or  
25 Farcy' and 'Rhodesian Cattle Disease and Rabies' for the *Transvaal Agricultural Journal* whose  
26 first issue was courageously planned for October. He wrote the first two and then was off again at the behest of the alarmed Stock Diseases Commission which he had assisted in drafting regulations for the control of the new disease. (They were enacted by the Transvaal Legislative Council on the 22nd August and approved by Milner who was then compelled to issue yet another Proclamation relating to Rinderpest, now lurking in the Rustenburg district.) Hutcheon was already in Rhodesia. Edington, immediately after his return from Mauritius, reached Bulawayo with M. Deixonne (a subordinate of Nocard at the Alfort Veterinary College who had been with him in Mauritius) on the 13th September. Theiler arrived soon after. Neither mentioned the other in their reports.

27 The Chartered Company could never be blamed for dilatoriness. The history of Rhodesia had been one of continuous calamity which Rhodes' men had bravely and imaginatively countered. By the time Theiler reached Bulawayo, Pasteur's nephew Dr A. Loir had come to Salisbury from the parent Paris Institute to establish a branch at the instigation of Dr Andrew Fleming, to combat with inoculation an outbreak of Rabies among domestic dogs. Theiler was  
28 alarmed at the prospect of its afflicting wild dogs and jackals which might cross the Limpopo  
29 and infect the whole of South Africa. Edington had dealt with an outbreak in the Eastern Cape in 1894. Against the unseen world, Man barely held his own.

30 In his investigation at Bulawayo, openhandedly assisted in transport, veterinary help and other facilities by the Administration, Theiler confirmed the observations of C. E. Gray, W. Robertson and Hutcheon - the disease was a peculiar form of non-contagious Redwater by which piroplasma begemium in rod form conveyed by ticks rapidly killed, not single animals, but whole herds at a time. 'During life', Theiler wrote in his succinct graphic way, 'the affected animal showed symptoms of severe illness and ceased to feed or chew the cud. The head would hang and the ears droop. There was also a slight running from the eyes which fell rapidly into their sockets and a slight dribbling from the mouth. There was very high fever and rapid loss of condition, the flanks heaving and a staggering gait and general weakness culminating in the animal lying down. There was constipation or diarrhoea (often mixed with mucous and blood), accelerated respiration, and collapse.' The poor beasts also moaned pitifully as the end approached.

The horrifying mortality in Rhodesia was beginning to be mirrored in the Transvaal. Not a beast remained in the Barberton district and more than half had died in the Lydenburg area. Figures were not yet available of deaths elsewhere. Dipping to kill ticks hardly helped. Within days, new hordes clambered aboard the unfortunate animals. No one was sure which tick was

31 the culprit though Theiler had his theory. The whole Eastern Transvaal was affected, Swaziland  
32 also. Theiler's laboratory was open house to all who sought to avert the coming disaster. Natal  
33 instructed S. B. Woollatt, its Principal Veterinary Officer, to tour its northern borders and pre-  
34 vent infection with a cordon sanitaire ten miles deep while its veterinarians and amateur experts  
35 pestered Theiler with enquiries at Daspoort. They could not understand why the Transvaal had  
neither taken action nor promoted dipping as Natal had done. Theiler felt himself insufficiently  
informed on the life histories of the numerous kinds of ticks and held his hand. C. E. Gray was  
sending infected brown ticks (*Rhipicephalus appendiculatus*) to Lounsbury in Cape Town for  
investigation and to determine whether they could cause the disease in sound animals. Mean-  
while Theiler compared the smears he had taken in Bulawayo with those obtained at Komati  
Poort and now in Pretoria itself, and found them identical, all indicating a virulent form of  
Redwater. From a further outbreak, he was able to prove on the 19th November 1902 that a  
consignment of cattle imported from German East Africa (Tanganyika) had brought the disease  
to the Transvaal and themselves 'been wiped out'.

He hardly had time for laboratory work. Numerous Army District Veterinary Surgeons  
posted in the Eastern Transvaal and elsewhere, constantly reported to him and he kept close  
coöperation with Captain J. M. Christy who, like him, was still on Turner's staff. A procession  
36 of urgently-imported veterinary surgeons, knowing nothing of Africa, appeared at Daspoort  
to be instructed in local conditions and animal diseases. Theiler's interminable Horse Sickness  
experiments continued together with his many investigations into trypanosome-produced  
diseases, particularly Biliary in Horses. The Rinderpest Station continued his responsibility  
37 (J. W. Phillips still operated it under great difficulty through lack of animals) and now, in Oc-  
tober 1902, the full impact of F. B. Smith's Report to Milner smote him and changed the course  
of his career.

\* \* \*

38 Like Theiler in the full flower of his talents, Smith had presented on the 31st July 1902 a docu-  
39 ment as idealistic as it was realistic, as visionary as it was intensely practical – so valid in its  
sense of values that every passing year could not assail but only affirm its integrity. To a  
crucial moment in history, the right men had come – Smith in drafting a plan for the regenera-  
tion of a country (subsequently imitated by others) and Milner in immediately agreeing to it and  
providing facilities for its earliest implementation. His many enemies and critics, even Louis  
Botha, would later never deny that 'the introduction of scientific agriculture into the new Colo-  
nies was wholly due to Milner's inspiration'.

'At present, all is confusion', Smith told Milner. The urgent need for an Agricultural De-  
partment had long been felt by the Z.A.R. but never fulfilled. Now opportunity provided to  
establish a single organisation serving the Transvaal and Orange River Colony with such  
efficiency that it could be left unaltered when Representative Government was introduced and  
worthily take its place in an ultimate federation of the British Colonies. Such a concept would  
avoid much duplication, overlapping and unnecessary cost. (Milner did not share his imperial  
vision and confined him to the Transvaal – which remained a debateable point.)

40 'The aim of the Department', said Smith flatly, 'should be to further the interest of the farmer  
by every means within its power and to render the country as productive as possible.' He em-  
phasised the deplorable state of Transvaal farming which compelled the importation from abroad  
of meat, milk, butter, timber, fruit and maize all of which could be produced locally (and in fact  
were, on a princely scale, on Sammy Marks' estates to prove the point. John Buchan, busy with  
'Land Settlement', marvelled that 'in 1898, agricultural produce, raw and manufactured, to the



value of nearly £2,500,000 was imported into the Transvaal' and that it required eight acres to raise an ox and two a sheep.) Elaborating, Smith introduced a novel point: 'The Department should be as readily accessible and as destitute of red tape as possible. Inquiries should be encouraged and promptly attended to. It should see everything, hear everything, so as to appreciate the needs of the country and be in a position to coöperate with the farmers in carrying out any necessary reforms or improvements.' It was a philosophy that Theiler himself might have expressed. Certainly he had practised it in all his days in the Transvaal – but Theiler spoke Dutch.

A primary function of the Department, Smith continued, was the formulation and administration of laws and regulations designed to protect and assist the farmer, ranging from providing facilities to preventing disease; but, he added warily, 'to attempt to introduce a series of sudden and drastic reforms would arouse a spirit of irritation and antagonism which would be greatly to be deplored at the present juncture.' Another function was to act as an 'Intelligence Bureau' keeping au courant with developments at home and abroad. In an unsettled undeveloped country, it would have numerous duties (such as encouraging agricultural shows, breed societies, coöperative associations, creameries, canning factories, transport facilities etc. etc. which might later be undertaken by private enterprise); but, he warned, 'the Department should be careful not to extend the principle of State aid and interference to too great lengths but should do its best to enlist the coöperation of private individuals and societies and to encourage them to act upon their own initiative as much as possible.'

Repudiating responsibility for 'Land Settlement' which he felt should remain the duty of the Land Board, sui generis an obsolescent body in common with the Repatriation Board, Smith outlined the Divisions of his Department beginning with what he called 'the Secretariat'. Second in importance was the Veterinary Division and at the head of its functions, 'the investigation of disease'. In a capsulated report of only a few pages designed for Milner's quick reading, Smith made no differentiation between veterinary research and services. He listed only the prevention and extirpation of diseases, sanitary inspection and transport of animals by rail. 'I should like to point out', he wrote, 'that the present provides an almost unique opportunity for stamping out contagious diseases because of the very limited amount of stock now in the country.' In his mind were heroic ideas which he reserved for later expression.

Further Divisions of the Agricultural Department should be Chemistry, Soils, Geology, Irrigation (where he doffed his cap to Willcocks' earlier report to Milner), Statistics, Entomology and Botany which would include many sub-divisions such as mycology, agristology, horticulture, seed-testing stations and forestry with all its ramifications. Smith laid emphasis on the importance of Publications to inform the farmer and to report on the Department's work, suggesting the initial issue of 'a comprehensive and carefully-prepared quarterly'. A library was likewise essential. Agricultural education at college level would have to wait (it was one of his principal aims) but much could be done in the meantime in various ways which he listed. Most urgent was the establishment of a number of Experimental Farms where burghers and settlers could see for themselves and 'learn object lessons' in how agriculture should properly be conducted.

Smith dealt lightly with Administration, indicating only that the whole complicated structure should be directed by a single Head with a seat on the Transvaal Executive Council. But on the subject of staff, he was explicit and visionary. 'Two distinct types of men will be required: profound scientists on the one hand to conduct investigations and research, and men with technical training on the other hand, experienced in administration and with an intimate knowledge of agriculture and the conditions obtaining in this country, to perform office duties, to act as inspectors, managers of experimental farms and so forth. Whenever possible, men of local

experience should be selected for this second class . . . ' In dealing with 'Cost' (he seemed to anticipate at least a quarter of a million pounds by referring Milner to the Cape's expenditure of £235,000 on agriculture in 1901), he made it clear that all money spent would be an investment in the future of the country. 'It has often been found in the history of other similar departments', he remarked pointedly, 'that the services rendered by a single division or perhaps by one skilled scientist have been worth more to the country than the total cost of the department.' The cap fitted Theiler and Smith saw that he wore it.

Acutely aware of the urgency, Milner referred the Report to the nominated Executive Council, installed barely six weeks before, who forthwith approved it and on the 20th August 1902, the Transvaal Department of Agriculture came into being, Smith being appointed its Director. Foregone development though it were, Smith had had only a few days to plan its operation and cast about for staff. The only effective existing institution was Theiler's Daspoort Laboratory and Rinderpest Station still nominally in the charge of Dr George Turner, the Transvaal M.O.H. Smith temporarily left it there while inspanning Theiler for urgent work in addition to his normal duties (now enormously enlarged by the Rhodesian Redwater epidemic) such as the 'Handbook for Settlers' and the first issue of the quarterly journal.

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42 Theiler had long envied Hutcheon and Watkins-Pitchford for their departmental journals. Hutcheon's *Cape Agricultural Journal* went all over the world and was occasionally reproduced in *The Veterinary Record* and germane publications. Its enterprising editor, J. B. Hellier, had died at his post at the age of 82 in October 1901, his place being taken by A. R. E. Burton F.R.G.S. whom Smith now lured to Pretoria as Head of the Publications Division. Vol. I No. 1 of the *Transvaal Agricultural Journal* was dated October 1902 and contained Theiler's three articles, as non-technical as he could make them; but 'Rhodesian Cattle Disease and Rabies' was sufficiently scientifically couched as to excite interest in the numerous institutions overseas to which it was sent and in his new scientific friends. At last a regular method of communication had been opened to him and he used it increasingly esoterically – to the mystification of the farmers.

Theiler was the embodiment of everything Smith envisaged for the future. He spoke Dutch and professed authoritatively to know 'the Boers'. Of indisputably high scientific standing to which Turner gladly testified, he had also travelled widely and was in fact the only man in the Transvaal closely acquainted with agriculture and stock diseases. He was a pearl beyond price and almost without parallel. When Smith first started to staff his Department, he was forced to import all his Divisional heads from overseas (with the possible exception of C. E. Legat who had been in the Cape Forestry Department). Some of his own students at Wye toyed with the notion of joining him, including a stocky young man who considered candidature for the Chemical Division and later became Sir E. John Russell, director of the Rothamstead Agricultural Experimental Station. From California, he obtained Joseph Burt-Davy, an Englishman trained at Kew, for his Botany Division. Herbert Ingle for Chemistry came from Leeds. R. A. Davies for Horticulture from Monmouthshire (via the Rhodes Fruit Farms at the Cape), Bourlay for Poultry also from England so on. They knew nothing of the Transvaal, its agriculture, its people or its languages. When it came to a Head of Veterinary Services or Principal Veterinary Officer, Smith searched unavailingly for almost a year before he found the right man. Meanwhile the initial vote for his entire Department – administration, planting trees and preparing nurseries pending the arrival of the Divisional experts – amounted to £12,000 while Theiler's two institutions, still under Health, received £9,212.

43 It was very clearly in Smith's mind that Theiler held the key to the locked door of agricultural development in stock-raising with all its ancillary benefits. The hydra-headed host of enemies – 'horses die of horse-sickness, sheep of scab and anthrax, cattle of rinderpest, redwater and the

44 immense variety of *ziektes* from *galziëkte* to *geilziëkte*' lamented John Buchan – was already fully engaged by him. Turner, himself overburdened, ceased his connection with the Rinderpest Station in October 1902 (devoting all his spare time to the Leper Institution) and Theiler now controlled both institutes at Daspoort. Based in his boggy domain where the summer rains produced stinking pools and rivulets and a continuous miasmatic menace, Theiler walked the corridors of power among men of vision and imaginative drive.

45 In his first Report issued a bare six months after the tentative debut of his department, Smith wrote – 'The work which the combined institutions (at Daspoort) are performing is of such vital importance to this Colony, and they have already proved themselves so useful that it has been decided to considerably enlarge their sphere of action. To this end, we are seeking a large and more appropriate site and plans are also being prepared for a complete set of buildings to place thereon. It is hoped that we may thus establish a thoroughly up-to-date and well-equipped institution which can be used for scientific investigations, the manufacture of vaccines, serums and anti-toxins, etc., and ultimately as a great Veterinary College for South Africa.' Five years later, the major part of these joint dreams, fantastic at the time, came to fruition.

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46 The Kindergarten were now putting Milner's careful planning into practice, equally opposed by Man and Nature. The burghers neither understood nor wished to understand the pale fresh-faced young men who bustled about Pretoria and toured the countryside telling them what they should do. Their leaders, if not actively hostile, held themselves aloof (Louis Botha had contemptuously refused £900 of the £20,000 claimed in compensation for the British Army's blowing up his Natal farmstead and other damages.) Three of the most glamorous and best known overseas – Generals Botha, Koos de la Rey and Christiaan de Wet – left for Europe to collect money to rehabilitate their countrymen and were rapturously welcomed by the English led by King Edward VII on their arrival in August 1902 before leaving for the Continent. (Their mission was scarcely successful, only £105,000 being collected; but while in Holland, Botha, an enlightened and extensive farmer, cannily came to an arrangement with the 'Netherlands Agricultural Committee' of sympathisers to collect 96 pedigree Fries bulls and heifers and send them to South Africa. As chairman of the 'Boer Help Funds Committee', Botha decided that they should be sold to farmers for cross-breeding. He, Commandant-General Piet Joubert and General D. J. E. Erasmus had earlier agreed that the cross-bred animal did better than the pure-bred and probably enjoyed a certain immunity to local disease. The Dutch committee generously continued the arrangement for several years, thus providing both funds and improvement in stock.)

50 The resentment and hostility confronting the Kindergarten were paralleled by the vagaries of Nature. The summer rains were late, causing the usual stock epidemics which greatly diminished the 'repatriation cattle' carefully collected for issue to the burghers, and were followed by one of the worst droughts on record which took heavy toll of the remaining cattle. The burghers protested bitterly at the cost and condition of the beasts they were expected to buy from the Government at prohibitive prices. Originally, they alleged, the Army had disposed of all its broken-down stock – 'osse wat met drie pote in die graf en een op 'n piesang staan' (oxen with three feet in the grave and one on a banana skin) General Kemp wrote many years later – to the Administration which sold them with equally broken-down wagons and rotten seed to farmers facing starvation. The known diseases – an exceptional outbreak of Lung Sickness, lurking Rinderpest, Redwater and others – were now joined by Rhodesian Redwater. Though 52 Theiler again went to Lourenço Marques to inspect cattle coming from afar, there was nothing

he could do to stop the spread of the epidemic. Among recalcitrant Boers (and particularly in the mind of General J. C. G. Kemp who remembered it all his life), every evil might be blamed on the British.

54 In the meantime, the dammed-up forces of humanity in the local Refugee Camps and the concentrations of prisoners-of-war in various locations overseas, began their trek back to the devastated land, zealously if inefficiently assisted by the occupying power. 'Day by day and all day long for many weeks, clouds of dust were to be seen to rise as long spans of oxen and mules dragging waggon after waggon laden with food, tents and a strange assortment of domestic articles, crawled snakelike out of the canvas town on to the illimitable veldt, wending their way to some distant farmstead. The conductor knows that his waggons are not of the best and his animals none of the strongest. He cannot contemplate with equanimity a breakdown in the veldt . . .' In Pretoria, other 'conductors' contemplated the breakdown of the whole repatriation plan. If Rhodesian Redwater swept the country like Rinderpest, there could be no 'regeneration'.

55 While Lounsbury artificially produced the disease in an ox in Cape Town from a brown tick sent him by Gray in Rhodesia, Theiler went on with his experiments. Cripplingly overburdened  
56 (and Smith no less) he maintained his laborious Horse Sickness sequence with hope of converting a serum-induced passive immunity to active, and further investigation of Equine Biliary. His trypanosoma theileri which caused it, was re-examined with results of such interest that he  
57 wrote another paper intended for the Royal Society; but 'A New Trypanosoma and the Disease caused by it' was in fact published in the *Journal of Comparative Pathology and Therapeutics*  
58 in September 1903. 'Of quite exceptional value', he thought (wrongly), was the discovery of the fly, Hippobosca, which carried the disease, entailing another long sequence of experiments. Having no entomologist (though Smith was trying to find one), he was continuing his own investigation of ticks. His staff was woefully inadequate. It consisted only of Charles Favre as his assistant, E. Heron as experimentalist, A. von Bergen as Lymph Maker, D. T. Botha as  
59 Lymph Packer, D. Ferreira as Serum Assistant, P. R. Ferreira as Inoculation Assistant, B. Porta (a foundation member of the Schweizerverein Alpina) as Special Assistant for Horse Sickness experiments, and 8 natives. As the menace of Rhodesian Redwater increased and later, in 1904 when Daspoort expanded into an extensive research institute with massive records and correspondence, Stevenson Cameron was appointed secretary and the assistants were increased by J. Fletcher as stockman and a Swiss, J. Schneeberger (Charles Favre and D. T. Botha having left).

Had Theiler been merely a backroom bacteriologist intent on microscopic work, his lot would have been easier; but he was in constant consultation with Smith who, sitting on the Land and Repatriation Boards, needed his advice in organising his evolving Agricultural Department, and with George Turner whose M.O.H. work impinged on his own. Theiler taught and wrote uninterruptedly. Veterinary surgeons requiring tuition were imported in number. Even more demanding were the old and new settlers. For them Theiler produced at the end of 1902 'Some  
61 Diseases of the Horse in South Africa', a sizeable handbook dealing with Horse Sickness, Biliary or Malarial Fever, Glanders, Strangles or Nieuwziekte, Pleuro-pneumonia, Diseases of the Digestive Organs, Internal Parasites, Contagious Skin Diseases and miscellaneous afflictions. Written with the pellucid simplicity for which he had genius, Theiler's work was edited  
62 by A. R. E. Burton before he resigned in January 1903, his place being taken in February by  
63 William Macdonald as Chief of Publications of the Agricultural Department. The handbook was published in May when the Department had attained fuller development and Theiler had become a regular contributor to its *Journal*.

His official duties did not preclude him from the obligations of a Civil Servant of stature.

64 Theiler was always keenly aware of what his position involved and from his first days in the Transvaal, had been notably punctilious in matters of manner, dress and ceremonial. Pretoria had always been English-orientated (despite strong Dutch and German influence) and he had taken readily to the concept of 'the English gentleman'. Now he joined the famous Pretoria Club and, properly garbed in frock-coat and top hat or full evening dress, participated in the official occasions to which he was entitled to be invited. Many were historic and none more so than the visit of Joseph Chamberlain, Secretary for the Colonies, which confounded the confusion and chaos characterising the end of 1902 and the beginning of 1903.

65 The Generals (who had been churlishly treated by him in London) hurried home some three weeks after Chamberlain had left via the East Coast, and reached Pretoria only a day or two before he arrived from Natal on the night of the 3rd January 1903. Pretoria had been agog for weeks. The town was slowly dragging itself out from suffocating military rule and adjusting itself to colonial administration under the Lieutenant-Governor Sir Arthur Lawley and Milner's young men. A few shops had opened, a few well-known citizens were trying to make a living in professional or devious ways, newspapers had optimistically reappeared including the new English daily, the *Pretoria News* and there were other signs of returning life despite the poverty and distress of most of the burghers.

66 Chamberlain had pronounced in Durban: 'I have come in a spirit of conciliation but also in a spirit of firmness.' The Boer leaders regarded him warily and themselves practised both principles. To Lawley's garden party for the distinguished guest attended by Viscount Milner, General Baden-Powell and high military and colonial officers came Louis Botha 'faultlessly arrayed' in a London suit, Generals de la Rey, Cronje, Smuts and others. They had come directly from a meeting (attended also by Kemp, Schalk Burger, Johann Rissik and many other Z.A.R. notables) convened to draft a firm address to Chamberlain (it made a point of the rooking of the burghers by the Government sale at £15 and £20 each of horses bought from the Army for £5). They had decided to coöperate with Chamberlain in resettling the country but not without redress of grievances. They were not alone in their feelings.

67 On the night of the 6th January 1903, Theiler donned his full evening dress and was driven in his Cape-cart from Daspoort to the Market Hall in Pretoria to attend the banquet in honour of the Colonial Secretary organised by the citizens. Everyone of note was there – the military, the Boer leaders, the Colonial Staff, the leading citizens. Bonhomie was manifest, even among some of the Boer generals though Botha was silent and thoughtful. In due course, it fell to the well-known Scots advocate Mark Greenlees (married to E. P. A. Meintje's daughter) to propose the toast of the High Commissioner, Viscount Milner. In a measured speech reviewing the Transvaal's situation, he pronounced that the country was not yet ready for representative government but it must come – 'what we want now is a form of Crown Colony Government with a little less Crown and a little more Colony' (applause). Milner was not amused at the implied criticism in the presence of the Colonial Secretary and replied petulantly. Theiler witnessed the embarrassing but memorable incident which the *Pretoria News* duly recorded in verse:

Oh Mr Greenlees! People say  
You are a dreadful sinner  
To talk of awkward matters at  
The Chamberlain big dinner.

In camera you should be heard,  
Your rulers' faults (ahem!)  
Should not be mentioned till you lunch  
In private with Lord M-.

Chamberlain went his elaborate way, touring the smallest centres of the two new Crown Colonies which struggled to come to grips with the forces that assaulted them.

\* \* \*

71 Koch had set out to grapple with Rhodesian Redwater in response to a final letter of the 24th December 1902 from the Chartered Company. He was now an expensive commodity allegedly charging £10,000 which included a yearly fee of £6,000 for himself and £1,000 for each of his two assistants, Drs Neufeld and F. K. Kleine. The Company had refused a British bacteriologist offered by the Colonial Office, preferring the great man himself. Two-fifths of the cost were 72 borne by the Company and the rest by the South African Colonies where quizzical looks were exchanged. 'I contemplate my mission with more or less misgiving', Koch had said upon de- 73 parture early in January 1903, 'because the Rhodesian plague is of an absolutely mystifying nature. Such symptoms as I have so far examined indicate that the disease is wholly different from any species of Rinderpest (Cattle Plague) that has ever come under medical observation.' All the local veterinarians and bacteriologists but one had failed to solve the problem - C. E. 74 Gray, W. Robertson (appointed Bacteriologist to the Cape Agricultural Department on the 1st July 1902), Hutcheon, Edington, Watkins-Pitchford and Theiler. The exception was Wilfred 75 Watkins-Pitchford, brother of Herbert who had succeeded in having him appointed as Bacteriologist to the Natal Allerton Laboratory in January 1903. Chosen from 50 applicants, Wilfred was a physician and surgeon with experience of Bubonic Plague in India but never entered the lists against Rhodesian Redwater.

Gray and his coterie of peers had tried every possible expedient from the transiently effective dipping and serum injections to inoculations with quinine. Unlike Rinderpest, the disease moved slowly but inexorably. Cattle could be neither effectively immunised nor cured. The advancing epidemic could destroy South Africa. Koch, travelling via the East Coast, made useful enquiries at Mombasa, Tanga, Zanzibar, Dar-es-Salaam, Kilwa, Ibo and Mocambique (at each of which he collected ticks) before disembarking on the 18th February at Beira where Gray met and fully informed him. Travelling inland, he found no purpose in examining the situation at Umtali and Salisbury as no animals remained. His headquarters were established at a camp  $1\frac{1}{2}$  miles outside Bulawayo and, whilst speculating on the origin of the disease, he wrote to Theiler to ask for blood smears from Transvaal areas of infection. 'Mr Theiler most kindly complied with my request', Koch wrote and suprised no one with the statement that they revealed the identical 76 disease as in Rhodesia. After a month, the Natal Government became restive and telegraphed for a report which Koch duly submitted, admitting the existence of a new disease, before settling into routine experiments.

Further South, the times were catalytic. With Milner's young men now in the saddle and his departmental heads completing the staffing of their operations, the machinery of Crown Colony Government moved into higher gear while the local inhabitants considered their possible part in it. Political activity had been dead for nearly five years. Each man now had to search his own conscience and decide on which side he could stand up and be counted. Early in February, 77 Louis Botha gave a much-publicised lead. He sold his properties and severed his connection with Natal, buying a large farm at Standerton in the Transvaal and a house in Pretoria. It was expected of him as the recognised leader of the burghers to play a part in the new legislative processes; but when Milner issued his invitation to Generals Botha, Koos de la Rey and J. C. Smuts to join the Legislative Council as nominated members, they refused, being disinclined to participate in legislation implying 'public decisions on many topics on which public feeling is still in a state of unhealthy irritation'. At a time of 'high tension', resentment and hatred, they

This permits bearer to pass in and out of Municipal Limits on days mentioned on Pass.

# TRANSVAAL PASS

No. 1228 Place Pretoria  
Date 4<sup>th</sup> March 1901

Name (in full) Arnold Theiler  
Farm (No. on Map) Tet: Farm  
District To pass through 22 guards and  
Reason of Issue anywhere within Outpost line  
Mounted on horse

## DESCRIPTION OF HOLDER.

Age 34 Height 5-7 Eyes Light brown  
Complexion Dark Nose straight  
Colour of Hair Face Black beard & moustache  
Head Dark brown  
Shape of Face Oval  
Marks of Identification Left hand missing

PASS OFFICE

M. 4 MAR 01

PRETORIA.

Signature of Holder A. Theiler  
Signature of Issuer J. G. Maxwell

Theiler's Official Pass issued and signed by the Military Governor John Maxwell on the 4th March 1901 enabling him to move fairly freely during the day.

Colonel F. Smith



Dr A. Theiler



Dr G. Turner



*The Incubus of  
'Concentration Camps' –  
Boers stride towards a  
'Protection Camp' while  
their wives and children  
travel in an open wagon.*



*Highly-infectious Animal  
diseases proliferated –  
British Army horses  
being dipped at  
Kimberley in 1901 in an  
effort to combat mange  
which was endemic.*

*Bleeding a horse at Daspoort where Theiler  
ceaselessly tried to combat Horse Sickness,  
Equine Malaria and other fatal diseases.*





objected to officiating without authorised representation or election by the burghers. Though plainly inclined toward political participation, none was prepared to be a Milner catspaw. With much on his mind and often ill, Botha held his hand for a considerable time but was always a presence. During that time, the Milner men wrought prodigies in restoring his country.

78 F. B. Smith (a lifelong bachelor and 'a club man' whose proclaimed recreations of 'hunting, shooting and golf' were seldom indulged) worked day and night to organise and staff his huge Department among people who had not the slightest notion of what he was about nor had any intention of coöperating. Nor had he any means of communicating with them except through  
79 the later Dutch editions of the quarterly *Agricultural Journal* and departmental papers. It was hardly likely that the dissident burghers read them though they were supplied free.

By the beginning of 1903, many of Smith's divisional experts had arrived or were on their way (Ingle of Chemistry and Burt Davy of Botany bringing particular joy to the colleague-starved heart of their associate at Daspoort) and had begun their thankless tasks in improvised accommodation with few facilities. Only the favoured Theiler had some semblance of organisation and efficiency; but, like Mahomet's coffin, he hung between the Heaven of an idealistic Agricultural Department and the practical earth of George Turner as Medical Officer of Health.  
80 On the 1st February 1903 by Resolution 80 of the Executive Council, Turner was relieved of his responsibility and Theiler and all his works were transferred to the Department of Agriculture under Smith who in turn was responsible to the newly-appointed Commissioner of Lands,  
81 Adam Jameson who took office on the 26th January 1903. An experienced agriculturist, previously Minister of Lands in the Western Australian Government and a fine speaker, Jameson promoted his highly diversified domain in the Legislative Council where Smith, also entitled to a seat as a departmental head, fought strenuously for his aims and particularly for money for Theiler.

The reorganisation had been en tapis for some time. J. W. Phillips left Daspoort to assume his  
82 original appointment as Superintendent of the Leper Institution (where the number of inmates had leapt from less than 50 in 1900 to over 250 including many Afrikaners). Turner, who had spent his best efforts on Rinderpest serum production, feared that Theiler 'would not be able  
83 to devote sufficient time to its proper supervision'. His concern was justified - Theiler was grossly put upon. Turner offered to help as much as possible though hardly less pressed. A close and mutually respectful relationship had developed between them which endured after separation. Due to go on six months overseas leave after five years' hard work in the Transvaal (his  
84 Health officials gave him an inscribed travelling bag), Turner mused on his colleague to whom there was presently delivered a silver cigar-case inscribed:

Pignus Amicitia

G.T. ad A.T.

26th March 1903

85 Theiler used it until the end of his days.

Glutton for work as he always was, Theiler now lived through probably the most frenetically busy period of his life. The Transvaal, crippled by the cruel drought and pervading depression, tottered on the edge of total agricultural disaster. Smith was introducing 25 civil veterinary surgeons to complement the dwindling Army vets in combatting the chaos created by old and new diseases. Theiler trained them all though it was no part of his duties. Smith was still unable to find a Director of Veterinary Services - the vital figure in a country whose agricultural districts had never known the benefit of veterinary surgeons. Only Natal had one for every district  
86 and the Cape, huge in extent, was totally inadequately supplied. Clamant farmers constantly demanded more. The Cape Government could not afford them; but in the Transvaal, Smith had carte blanche and slowly manned his Veterinary Division. Its impeded development and par-

87 ticularly its inability to deal with Rhodesian Redwater, now well established in the Transvaal and rapidly reducing the cattle population, compelled a desperate Repatriation Department to appeal to the Cape for help. Early in January 1903, Hutcheon was sent to advise and assist the Transvaal Government.

88 Rinderpest and the War had made a white-haired old man of the veteran veterinarian but at 61, Hutcheon's vigour and wisdom were in no way impaired and he remained a commanding presence in the South Africa field. Theiler joyfully met his venerable friend whom he had been instructed to assist in his survey. Together they did postmortems in Pretoria, Machadodorp and Middelburg (the disease had appeared also at Balmoral, Warmbaths and other places) and examined smears in the Daspoort Laboratory. Their work was facilitated by Smith, the Land Settlement Board and by A. C. Macdonald, Director of Stock of the Repatriation Department; 89 but in his report, Hutcheon paid special tribute to 'the cordial coöperation and valuable assistance of Dr Theiler - we have consulted together on every point connected with the peculiar character of the disease and the manner in which it is propagated and spread'. Hutcheon, while destroying Edington's thesis and confirming Theiler's diagnosis that it was an entirely new disease, could propose no panacea. It lay in the hands of two experts more than a thousand 90 miles apart - Theiler engaged in drastic experiments at his new out-station in the Elands River Valley between Machadodorp and Nelspruit (he killed 27 precious Texas, Cape and Africander oxen merely to prove that there was no immunity to natural infection) and Charles Lounsbury 91 experimenting with infective ticks at the Cape. Inevitably the two would have to come together.

In the meantime, Theiler's treadmill became almost intolerable. Dutifully he took Hutcheon to Johannesburg to attend the historic inaugural meeting of the Transvaal Veterinary Medical Association on the 16th February 1903 at Long's Hotel. A few civil and military veterinary 92 surgeons attended and Captain J. I. Irvine-Smith was elected president. Pledged to their cause, Theiler supported the association whenever he could. Similarly disposed, he had been too busy 93 to attend the meeting in Pretoria at the end of January that had founded a branch of the South African Association for the Advancement of Science which had originated in Cape Town in 94 1902 - events which inspired the parent British Association to announce within weeks that its Council had resolved to hold its next full meeting in South Africa in 1905.

Suddenly everything he had wanted and needed was becoming available when he was too 95 fully occupied to participate. His family life was disintegrating. Months had passed since he had last written to Alfred, commenting sarcastically on his brother's proposal to become a Catholic (which he soon fulfilled) and piously proclaiming the pleasures of the pursuit of Pure Science with the reward of Truth within it. Alfred needed guidance but Arnold had no time to write. His household had been rendered almost unmanageable by the departure of Mathilda and the impossible burden imposed on Emma. 'I am overwhelmed with work', she wrote 96 pitifully, 'and have no one to look after Trudi and Max'. Margaret was now attending the Loreto Convent School (where no one understood her Schwizerdutsch and she understood no one) and Hans was doing well. Arnold was now often away but in a rare moment at home before worse preoccupation beset him, he managed to tell Alfred his troubles:

97 'You can have no idea what work I have and how my job claims me in every direction. The Laboratory and Rinderpest Station provide a colossal amount of work. For the production of serum, we have at the moment 200 oxen. The blood flows in hectolitres every week and in hecto- 98 litres we prepare serum (it served the Transvaal, Natal, East Africa and German South West). Then we must be on our guard in every respect lest we propagate other diseases such as Lung Sickness and Redwater. Microscopic investigation and clinical observations are therefore a daily routine there. At the moment, I have about 350 animals on the Station which are under

observation and almost daily we make experiments. Everything is under my personal direction and responsibility.

'So far I have still no assistant but hope within a short time to receive a veterinary collaborator for the clinical work.

'I have equipped a temporary research station in the Eland's River Valley where I place horses to test whether the serum I have devised protects them from the Sickness infection. There also I am conducting experiments for the study of the devastating new Redwater. In this I shall soon be supported by one Mr Lounsbury, Entomologist of the Cape of Good Hope who will chiefly examine the transmission of the disease by means of ticks. We are convinced that this kind of Redwater is conveyed by a new kind of tick (*Rhipicephalus*). My assistants posted there also collect mosquitoes and, I hope, will bring the solution of Horse Sickness nearer.

'I have at the moment ten white assistants under me and thirty Kaffirs. You can see from this that our department needs much supervision.

'Together with this work, there is much else to do. I am always making Calf Lymph, then vaccine against Lung Sickness. Then of course I always take an interest in everything that offers something unknown to me and thereby find something new. Then comes the daily correspondence with my direct superior, the Director of Agriculture, then articles for the *Agricultural Journal*, advice for legislation, advice for cattle importation, advice by letter and telegram to farmers and veterinary surgeons, reports on material submitted to me and when, somewhere out on the veldt no one knows what to do, they send him to me.

'With all this come too my earlier friends whose cattle and horses I once treated and who seek me out whenever they need advice – people of the Old Republic, my comrades in the old Staatsartillerie etc. Then there are my official reports which I must write, then articles for scientific journals. And with all this, I must keep up with current literature and not forget the old!'

99 He did not mention the continuous correspondence with international colleagues which began to burgeon when his *Agricultural Journal* articles were reprinted in various scientific journals – particularly with Neumann of Toulouse (the tick expert) and with David Bruce who, with Nabarro, Castellani, Mrs Bruce and an Army medical technician formed a Commission to investigate Sleeping Sickness in East Africa. It arrived in Uganda on the day after Arnold wrote to Alfred and, in establishing that a trypanosome borne by tsetse flies (as in Nagana) produced the disease, soon brought Theiler again into Bruce's research orbit.

100 Charles Lounsbury arrived from the Cape a day or two later and Theiler and he set off for the hot humid unhealthy valley, endemic with malaria where the 'Experimental Station' was situated. There was no accommodation and they bivouacked in the bush. Theiler daily took a whisky sundowner to prevent malaria but Lounsbury, less wise, contracted it. As always, Theiler continued his chatty relationship with the farmers in the Nelspruit district, now denuded of cattle. 'In those days under Lord Milner's Government, we had a first-class Agricultural Department', one of the best known, Hugh Hall, remembered, 'At the end of the Boer War, Theiler came to Nelspruit to study East Coast Fever which had carried off all the cattle in these parts. He camped in a tent and I saw a lot of him and always admired the energy he put into his work in spite of the way he had to rough it. His department was always run in a businesslike way. When we sent blood-smears for examination, we got a reply at once stating what was the matter.' Theiler made much use of Hall's lands for his experiments and valued a tenacious and enterprising pioneer farmer.

102 Regardless of what Koch was doing, Theiler and Lounsbury had to determine precisely which ticks conveyed the trypanosome into the animal; how, when and where it did it; and, once possessed of this knowledge, how to combat it. It was incredible to some farmers such as the pioneering tick-fighter Joseph Baynes of Natal, that dipping was ineffective. Others considered it

logical to fire the veld and burn the ticks. No one had thought that they might convey the infection only at a certain stage of their complicated life-history and that eliminating them at a certain time by fire might be no solution. Lounsbury had already done useful work with the specimens sent him by Gray in Rhodesia and had inculcated the brown tick. Now he sent Eastern Transvaal brown ticks to his standing collaborators, Hutcheon and Robertson in Cape Town, to test whether they could infect cattle. They immediately did.

103 Both Theiler and Lounsbury had bred brown ticks and now they closely studied the process from egg to tiny larva (or seed-tick) to nymph and finally adult. The rudimentary stages showed remarkable longevity. As the two men peered at the tiny moulting creatures, they realised that much work would have to be done to determine at what stage the insect became a carrier. Its saving grace was thought to be that it inhabited principally the Lowveld and consequently the disease could be contained by quarantine and to some extent by dipping with arsenic. Both  
104 investigators published distinguished papers (Theiler's was reprinted widely in Europe); but the basic problem had merely been engaged. Quarantining and restricting the movement of cattle were, as the Rinderpest old hands knew, virtually impossible expedients, nullified by the lack of fencing, intransigence, carelessness and the nocturnal flittings of natives with their beasts over wide areas. The 'wild' natives of the Northern Transvaal were a particular problem.

\* \* \*

Theiler returned to Daspoort and Lounsbury to Cape Town to continue their interminable experiments. One of Theiler's assistants was always stationed at Nelspruit which he frequently visited scatheless; but all four assistants, one after the other, became malaria cases and the continuity of the work was consequently disturbed. (P. R. Ferreira, 'a most able and excellent official', died of the fever.) Theiler had known that the excessive burden he carried would soon  
105 be alleviated. Smith's long search for a Principal Veterinary Officer had ended in April in India  
106 where the Civil Veterinary Department had surrendered its brilliant pathologist, Stewart Stockman, the proponent of an African Veterinary College. To accommodate so distinguished an academic and administrator, Smith reconstituted his Division of Veterinary Science into two sections: (a) Contagious Diseases - Principal Veterinary Officer, Stewart Stockman (b) Bacteriological Laboratory and Experiment Station - Government Veterinary Bacteriologist, Dr Theiler (its telegraphic address was 'MICROBE' which was permanently retained). Stockman's appointment at £1,000 a year dated from the 1st May 1903. Theiler, confronted by an  
107 alert, energetic, highly-qualified and experienced colleague, warmly welcomed him more as a congenial fellow-scientist than as a relief to the burden he had been shouldering. Stockman and his force of district vets would at last make a reality of regulations but better, he would understand and coöperate in the delicate experiments now necessary to combat the major diseases. In no time, they were cordial collaborators.

Though well versed in similar diseases in India (particularly Rinderpest and Redwater), Stockman had no knowledge of South African conditions and, pending such survey of his territory as he could quickly make, left the administration of his enormous Division to his deputy, J. M. Christy. Some days after his arrival in May, he went with Theiler as cicerone to the Lydenburg and Barberton districts and was rudely informed of some of the difficulties with  
108 which his new friend had been dealing for more than a decade. 'Our object was to meet the local farmers in order to instruct them regarding the nature of Rhodesian Redwater which was playing havoc in these districts', he wrote in his first Annual Report, 'We found it impossible to convince them all that the disease was due to ticks and spread by transport-riding. They could not be got to make up their minds what they wanted done except in the case of a few whose

proposals were extravagant. We received little assistance from these meetings as the various individual interests were apparently too diverse to admit anything approaching unanimity.'

109 Theiler and Stockman returned to Pretoria and sat down immediately to frame regulations (as drastic as those for Rinderpest) to control the spread of the disease. Notices Nos. 599 and 600 were gazetted on the 18th June 1903 and in their restriction of movement, quarantining, compulsory notification of cases, permits, etc. antagonised the farmers even further. It was merely the beginning of the Stockman/Theiler work in safeguarding the cattle population. They continued with regulations controlling other diseases (Rinderpest, Lung Sickness, Redwater, Anthrax, Glanders, Scab, etc.) and earned a full and admiring editorial in the leading professional journal in England. 'It is humiliating', *The Veterinary Record* announced, 'to find that our veterinary regulations are far behind those of the Transvaal.' At last the battle against malevolent Nature was fully engaged and the ideal of agricultural prosperity hove in view. The Theiler/Stockman collaboration extended even further into the laboratory where Smith 'had strengthened Theiler's hand' with new assistants and Stockman hovered over his experiments, making suggestions of his own, knowing that they could make or break his work.

110 The spectacle of their ruined countrymen drove Botha, Smuts, Kemp and others to bitter public expressions of rage and resentment. Penurious burghers hopelessly roamed the streets of Pretoria or drove about in makeshift donkey-carts in the depths of poverty hoping for transport hire. Emily Hobhouse sent money to buy spans of oxen for ploughing but few benefitted from little assistance. The desperateness of the situation was reflected by Sir Arthur Lawley at the opening session of the Legislative Council in May 1903 when the Council was expected to approve formidable Votes for Agriculture. 'The initial expenditure in rendering such a huge Department thoroughly efficient is great but if, as I hope, we may by experiment and research discover the cause and the cure of the many pests with which this country is rife, if by the application of Science we may expand the producing capacity of this vast territory to its highest limit, then the original cost will be insignificant compared with the enormous addition which will accrue to the wealth of the Colony.'

111 The nominated legislators demurred a little but perfunctorily. Sir Percy Fitzpatrick loquaciously proposed that the Government should offer a prize for a cure for Horse Sickness. (The Natal Government had at that time published Blue Books containing Watkins-Pitchford's very detailed and painstaking 'Introductory Note' written on his return voyage from England in December 1900, and his 'First and Second Interim Reports on Horse Sickness' which had previously appeared in the *Natal Agricultural Journal*.) An amendment accepted by Sir Percy extended the proposal to a similar prize for a cure for Rhodesian Redwater. Smith and Jameson strongly attacked the motion, defending Theiler's longstanding work supported in 1902 by £6,000 for Horse Sickness alone; but Sir Percy's plausibility prevailed and the motion was carried. The departmental heads, old hands at the game, practised masterly inactivity and, beyond taking the opinions of the Cape, Orange River Colony and Rhodesia which were subsequently tabled, made no attempt to implement it. Ultimately the massive vote of £134,845 for Agriculture was agreed with the enthusiastic support of an ex-Z.A.R. official, Johann Zulch de Villiers who had been president of the Witwatersrand Agricultural Society when Burgomaster of Johannesburg. 'The Boer must be taught how to go about his work', he said and pledged the support of his agricultural colleagues in the Council.

112  
114 Theiler and Stockman toiled on, unimpressed by Koch's determined intention to find a serum injection for Rhodesian Redwater. They knew that the secret lay in the ticks. Hutcheon, cogitating in Cape Town on Pitchford's work and Theiler's 'Some Diseases of the Horse', concluded that they agreed on a blood-sucking insect causing Horse Sickness and that animals should be protectively stabled during the fly season.

The stifling drought, the heavy mortality from stock diseases, the hostility of much of the population and impediments of every other kind did not prevent the Milner men from pressing ahead with their idealistic plans (only F. B. Smith held his hand with his grand concept of Agricultural Colleges – they would be premature, he said, ‘we wish first to blend our scientific training with the best of the wisdom and experience of the people of the country.’) On the one hand, in the knowledge that Milner proposed early representative government for the two Crown Colonies (the Boer leaders began to show signs of political activity), an Inter-Colonial Council was formed to deal with matters of mutual interest, notably railways. On the other, the economy was stimulated at its grass roots by the subsidising of agricultural societies (Klerksdorp and Zeerust had already held successful Shows) and calculated encouragement of the Transvaal Agricultural Union.

During the War, its secretary, F. T. Nicholson in his scholarly manner had prepared papers on ‘matters of interest to farmers’ and subsequently managed to organise the first post-war Conference of the Union on the 3rd September 1903. Only 13 delegates attended under the chairmanship of J. Z. de Villiers but the movement was considered of sufficient importance for the Director of Lands, Adam Jameson and F. B. Smith, Director of Agriculture, to address them, four other agricultural officials attending. Smith ingratiatingly stated that ‘he had very largely based the present Department upon the recommendations and views expressed in the Union’s reports so that they might look upon the Department as the outcome of the efforts of the Union in the past.’ Nicholson and Gunning, present and pushful, might well congratulate themselves. The Agricultural Union movement throughout the land would develop into a force so powerful as to coerce Governments and their servants.

Milner himself, worn out by exceptional exertions, went to Europe for a Kur on five months leave (Lawley took his place as High Commissioner). His men continued their ‘reconstruction’ with undiminished vigour and a more stable atmosphere settled on the land. The ‘experts’ continued to arrive and Theiler at last had his entomologist. Smith had appealed to his friends in the United States Department of Agriculture who had recommended the Cornell-educated C. B. Simpson. He took office in Pretoria on the 26th August 1903 (subsequently marrying Jules Perrin’s daughter) and though his speciality was the codling moth, he might become interested in ticks (he was in fact diverted to locusts). Toward the middle of 1904, Simpson moved from his makeshift office in town to a corrugated iron shed, divided into 8 rooms, at Theiler’s Daspoort laboratory and shared its unhygienic conditions. There were other progressive developments. The indefatigable Smith (supported from the 3rd October 1903 by A. C. Macdonald of the obsolescent Repatriation Board as Assistant Director) had succeeded in opening a Government Experimental Farm at Potchefstroom where large numbers of animals were in the charge of an expert, Alexander Holm, and the Boer might well begin to learn how to go about his work.

In this growing galaxy of teachers, Theiler was the doyen. His aptest and preoccupying pupil was Stewart Stockman; but somehow he found time to lecture disbelieving farmers on the nature of Rhodesian Redwater and to set the feet of inexperienced veterinary surgeons along the right paths. The quarterly meetings of the Transvaal Veterinary Medical Association, sparsely attended because of the distant duties of its members, sometimes sorely exercised his patience but his criticism of papers was generally tempered with encouragement. Theiler had always wanted to be a teacher but his time had not yet come. Now (August 1903) he journeyed to Potchefstroom to make an acolyte of Holm. In the midst of a long sequence of experiments (Theiler was never concerned by the number of animals he destroyed, nor their cost), he wanted to prove that if a susceptible animal were injected with blood from one immunised against Redwater, it would develop a fever and its blood would then contain *piroplasma bigeminum*

(Redwater) and at a later stage, piroplasma parvum (as he called the rod- and ring-shaped bacilli of Rhodesian Redwater). He contended that the rings and rods represented a phase in the life-history of piroplasma bigeminum in the immune ox. At Tōtchefstroom, Holm had received 18 thoroughbred heifers of the Hereford, Shorthorn, Jersey, Lincoln, Polled Angus and Aberdeen Angus breeds. Theiler taught him to inoculate them, read their temperatures, take blood smears and generally provide his laboratory with the information he needed for a  
121 report on 'The Piroplasma Bigeminum of the Immune Ox' (subsequently published in the *Journal of the Royal Army Medical Corps*).

Emma saw little of him. In September, he was away investigating the same 'foot-rot' in donkeys that he had identified in 1897. He protracted his journey to Delagoa Bay to inspect the arrangements made to prevent tick-infection of arriving cattle (Texan cattle had been ordered  
122 in batches of 5,000) and again took the opportunity to go aboard European liners and to chat  
123 to Dr Leal. Emma had no such refreshments. She had not seen the sea for ten years. Her life was now one of drudgery, its social obligations a bore and an embarrassment. Arnold was expected to attend Colonial administrative occasions but not military. He had not been present at the formal Military Parade when his friend Colonel T. Flintoff A.V.D. was invested with the D.S.O. by Prince Arthur of Connaught, then Commander-in-Chief; but there was no way of refusing an invitation to a Ball at Government House on the 7th October 1903. 'Neither Emma nor I have  
124 ever really learnt to dance', he told Alfred ruefully in one of his cautionary tales, 'and it is therefore unfortunately impossible for Emma to accept the invitation. On such an occasion, men can find some diversion but women who cannot dance are superfluous and bore themselves. Many sins of omission were visited on us in our youth for which we are in no way to blame. If one is promoted to a position such as mine, one ought to have the necessary qualifications for the social round that one cannot acquire in youth.' He went alone. Then he was off again to  
126 Nelspruit to look at his horses and his fever-stricken cattle and his malaria-stricken assistant – twice in October, twice in November, twice in December with an intervening visit to the Magaliesberg to lecture the farmers on Rhodesian Redwater, leaving Emma alons.

His activities at Daspoort, now beautifully recorded, tabulated, classified and tallied by his  
127 secretary, Cameron, were enormous – 'an immense amount of work rendering most valuable services', Smith reported. With Stockman, he was making progress with the new cattle disease in investigating the various kinds of ticks and possible antidotes. In other fields, he was assisted (and overwhelmed) by material poured into Daspoort by his cognisant friends, Colonel Fred Smith, Colonel T. Flintoff and their numerous Army veterinary surgeons while Stockman's own corps, led by Christy, reported to him and sent him specimens from all parts of the Transvaal.  
128 Even his old civil alternate, J. F. Scott who had continued his practice in Johannesburg, sent  
129 him specimens, particularly of a new ulcerous disease in horses and mules widely known overseas and patently imported by the Army. Theiler dealt with it in a typically elegant if somewhat ungrammatical paper on 'Epizootic Lymphangitis' in the *Transvaal Agricultural Journal* of October 1903. His work was now closely studied locally and worldwide but the triumph which he most wished to record – the prevention of Horse Sickness – still eluded him. He could hyper-immunise horses with progressively severe doses of the disease and the resulting serum successfully immunised mules; but when injected into sound horses to protect them, they died  
130 horribly. Their blood corpuscles were vitally dissolved by Haemolysis. 'The more one exerts  
131 oneself to understand the riddle of the different appearances of Nature', he told Alfred, 'the more complicated they become. So I am at the moment very busy with the Haemolysis of Horse Blood which is involved in immunisation and presents me with great difficulties.'

Edington, with none of Theiler's new facilities but aided by a new and mature bacteriologist,  
132 Thomas Bowhill (author of a standard work 'Essential Bacteriology and Technique'), con-

133  
tinued his work on cattle diseases and Watkins-Pitchford equally. Professionally, everyone waited for Koch to wave his wand over Rhodesian Redwater and produce an immunising serum; but for months, nothing eventuated though Koch made it clear that such was the line he was pursuing. A considerable degree of local resentment and xenophobia was generated in Natal where Joseph Baynes' friend and journalistic collaborator G. D. Alexander who was an ardent proponent of Pitchford, revived the issue of Koch's intrusion on the local scientists' field. 'If Messrs Pitchford, Gray and Robertson would alter their names to say Herr Pitchforditsha, Signor Graysini and Monsieur Robertsoni', he wrote in the *Natal Witness* (sympathetically reproduced in *The Veterinary Record*) 'they might be given the opportunity at present denied them . . . When any investigation is needed, the powers that be wire at once for some Continental scientist and give enormous sums and a blank cheque for expenses although there are equally good men here . . . No recognition was given by Koch to Mr Pitchford F.R.C.V.S., the true discoverer of the Rinderpest serum treatment.' There was pointed omission of Theiler, a 'Continental'.

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135  
The resentful climate of professional opinion (in which Theiler shared, having little regard for the old man's ability to deal with Rhodesian Redwater or Horse Sickness in which he was likewise engaged, nor for his pontificating reports) in no way affected the current drive for Inter-Colonial and Inter-State coöperation which had brought him out. Animal diseases were still the greatest menace to the future of Southern Africa. Finding concurrence, the British convened a conference to deal with them, beginning with the lurking Rinderpest. It was on all hands desirable at least to have common regulations. There assembled at Bloemfontein on the 3rd December 1903 (ostensibly only to discuss Rinderpest) Hutcheon supported by the Cape Under-Secretary for Agriculture, W. Hammond Tooke; Watkins-Pitchford and the Natal P.V.O., S. B. Woollatt; Theiler and the Transvaal P.V.O., Stewart Stockman; Colonel Flintoff and an Orange River Colony legislator, Barry Gradwell; Southern Rhodesia's P.V.O., C. E. Gray; T. P. Kennan representing Basutoland; Colonel Panzera of Bechuanaland; Consul Friedrich von Lindequist (based at Cape Town but soon appointed Governor of S.W.A.) and Dr W. Rickman, director of the German South West Africa Bacteriological Institute; Dr J. R. de A. Leal, M.O.H. of Mocambique; and Dr Robert Koch who had come specially from Bulawayo at the behest of his then employers. All were spoiling for a fight.

There was no agenda and, having agreed to appoint the representative of the host country, Flintoff as chairman, the convocation was prepared to discuss Rinderpest until a sub-committee submitted a programme. Koch fared badly in an atmosphere of cold politeness. He proclaimed his bile method which no one would dispute as an emergency expedient (practised by Turner and Theiler in Basutoland); but none would agree that it did not convey infection as he claimed. Theiler pressed for correct diagnosis of cases and Gray failed in his plea for a central common serum station. In an unprecedented gathering of Rinderpest experts, the highly-informed and sometimes contentious discussion continued for a day and a half with Koch wisely silent after his debut. In less than an hour, the Agenda sub-committee decided the order of further consideration, its list representing the most serious diseases in diminishing sequence - African Coast Fever (as Koch had rechristened Rhodesian Redwater), Lung Sickness, Tuberculosis, Glanders and Epizootic Lymphangitis followed by Scabies, Swine Fever, Rabies, Foot-and-Mouth Disease and Scab.

As a matter of courtesy, Koch led the discussion on 'East African Coast Fever' and shocked the gathering, despite the 'loud applause' at the end of his address. He stated that the carrier was the Blue Tick when everyone knew that Lounsbury and Theiler had inculcated the Brown; that quarantine was unnecessary; that animals should be immunised by the serum he had devised only in infected areas and not wholesale; and that the disease would penetrate the whole



of South Africa until ultimately cattle became naturally immune to it. Theiler was at once on his feet. Politely he said that 'Professor Koch drew the prospect too black' and challenged him on the tick question. Stockman challenged him on the fact that all inoculated animals must become carriers of infection. Theiler came back to the attack. Koch refused to discuss his inoculation methods (a lengthy treatment involving continuous inoculation for weeks) and referred the gathering to his printed report. Pitchford tried to disconcert him by asking why he had not identified the new disease in 1897. Koch admitted that he had mistaken the smaller ring- and rod-shaped parasite as the young of the pear-shaped form. Theiler saved his face by stating that both Laveran and Nocard (who had died in August, widely mourned) had also stated that it was a form of Redwater. The belief had persisted until, at Nelspruit, he had produced the disease in cattle highly immunised against Redwater. Gray came further to Koch's rescue with a resolution on fencing. The spotlight was providentially removed from him. Failing to profit by it, he intruded once more to declare Hutcheon's resolution calling on the African Governments to consider the eradication of ticks, as 'futile - wherever it had been attempted, it had failed'. Undismayed Hutcheon persisted and Theiler, verbally amending it, got it passed. Thereafter Koch made only incidental comments. In a concert of expert veterinarians, Hutcheon dominated until the end.

136 As with all Conferences, much was accomplished outside the portals. Koch admitted privately to 'experiencing very many interesting things' and, in addition to resuming his acquaintance with Hutcheon and Theiler, enjoyed meeting in Bloemfontein Otto Henning of Rinderpest days in 1896/97, and Consul von Lindequist and Dr Rickman. Theiler paid zealous court to the great but passé savant, speaking his language and plotting his pleasure. Letters and telegrams were rushed to Pretoria when he persuaded him to stop there on his way back to Rhodesia. The extra-cameral colloquy of the sub-continent's veterinary scientists was on all hands valuable, especially to Stockman who knew none of them. The shape of 'Closer Union' was looming. Among the 24 resolutions passed by the Conference (all of practical application on a common basis), there was none recommending a further convocation to continue the work. 'The next meeting' was taken for granted and a committee of Principal Veterinary Officers appointed to prepare its agenda.

137 A happy German-speaking party left on the 5th December by the over-night train for Pretoria. Koch, who considered that Kohlstock had saved South West Africa from Rinderpest by his method, was glad of the company of Gray, Theiler, von Lindequist and Rickman, director of the Bacteriological Institute near Windhoek with four out-stations in his care. His territory had interesting variations - Rinderpest had been abolished but Horse Sickness was bad (an 8% mortality); Redwater, Lymphangitis and periodic Ophthalmia were present but there was neither 138 Tuberculosis nor Glanders. (Rickman worked conscientiously for a week in Theiler's Laboratory before returning to South West Africa.)

139 Koch, everywhere revered as one of the fathers of bacteriology, was on the point of celebrating his 60th birthday (he retired in 1904) but was game for everything that Theiler had organised. On the Sunday afternoon of their arrival, they called on Dr Gunning at the Zoological Gardens. 140 On Monday, the whole party closely inspected the Daspoort Laboratory and Theiler could not conceal his gratification when Koch appreciatively commended his Institute and the work done in it. The next moment was Emma's. Forewarned, she had prepared at the house an excellent luncheon with appropriate delicatessen. Koch sat next to her in high good humour and the affair was a great success. It marked the highest point in Theiler's professional career.

141 Before surrendering himself to his local compatriots, Koch saw his Kimberley colleague, George Turner (recently returned from leave), for whom he had always had admiration and affection. 'He is just the same', he wrote Kolle, 'he now actually lives among the lepers in Pre-

142 toria but looks very well and stout. He quickly told me a few Boer War stories.' Turner had that day taken his seat in the Transvaal Legislative Council and heard Sir Arthur Lawley open its first session with a speech outlining the importation of indentured labour – an issue ultimately involving Chinese coolies to work on the gold mines which fundamentally affected English and South African politics. Turner himself was deeply involved in regulating the health conditions of the mining industry but his heart and mind remained with the lepers.

143 The finale of Koch's 36-hour visit was a 5 p.m. reception at the Imperial German Consulate attended also by Theiler, Rickman and von Lindequist. Suitable salutations of the great man were made (he was belatedly awarded a Nobel Prize for Medicine in 1905 'for his investigations and discoveries in regard to tuberculosis') before the whole gathering bore him off to the station to catch the Rhodesian train, signalling his departure with loud Hurrahs. It had been an exciting time for Theiler. Dizzying though it were to consort with the great, he had not forgotten the past nor the manner in which Pitchford and he had been cheated of their just reward. Koch must be watched lest it happen again.

144

## EVOLUTION AND REVELATION 1904-1905

THE PRODIGIOUS labours of the Kindergarten, the various Boards (including the bitterly-resented Compensation Commission), the military, the Constabulary and the growing number of imported 'experts' had produced some order in the Transvaal. In December 1903, Milner returned for the last stage of his stewardship and surveyed a situation instinct with hostility and inefficiency but wearing the signs of methodical control. Botha and his cronies might hover discontentedly in the background but in the business of governing, progress was being made. Men worked in huts and tin shanties, in corridors and corners of unsuitable buildings, without staff or equipment, failing to answer letters and saying the wrong things; but they worked as they knew best under conditions that hopefully would change. Even Theiler, favoured above all, was compelled to state in his 1903/04 Report – 'I regret to say that the premises in connection with the laboratory do not meet the increasing requirements of the station.' Smith continued his efforts to find a new site.

1 Poverty ruled the Transvaal and drastic measures were necessary to break an economic  
 2 stagnation that affected the whole of Southern Africa. After hot debate, the Legislative Council  
 3 approved the importation of indentured Chinese labour to reactivate the gold mining industry. Botha and his political associates disapproved but even the burghers endorsed a method that might lift the country out of its misery. Lines of political battle were forming as much as other trends of human endeavour. Early in 1904, far on the borders of the Transvaal, an inspired school-teacher S. B. Hobson founded the Vryburg Farmers Association which was to rock the whole country while in Pretoria itself, George Turner sat in the chair of the local branch of the Association for the Advancement of Science, arranging occasions for the national body when, for the first time, it met in the Transvaal at Johannesburg and would come to the Capital for diversion. The British with their institutions – sport, clubs, associations, learned societies, even the Turf – had brought great stirrings to the land and with them, while the 'occupation' lasted, the men who made reality out of dreams.

4 Breathing this heady air and himself part of the forward move into the future whose new delineaments Science would reveal, Theiler had no idle moment. Still isolated in their Daspoort house and totally averse to social occasion, Emma and he made a recreation of improving their knowledge. Alfred, like his father, had to supply their needs. 'Our mathematical circle consisting of Emma, my assistant Porta and me find we have again got stuck', Arnold wrote him, 'please give the solutions to the problems on Page 267 of Schubert's Arithmetic. We simply don't understand it. The remaining problems we have easily understood. We use Mathematics as our Sunday evening's sport for practice, so to speak, and to nurse our brains by a complete change from the daily tasks.'

5 The daily tasks were overwhelming. Theiler prepared paper after paper on his observations of the great range of investigations into animal diseases staged at Daspoort and Nelspruit. Neumann of Toulouse was publishing a definitive work on ticks which would facilitate the attack on East Coast Fever, now creeping steadily over the Transvaal and maddening the farmers to the point of insurrection through the restrictions on 'trekking' and movement generally which Stockman and he had imposed. Smuts wrote Emily Hobhouse that he had told their young Pretoria farming protégé A. van Gass to slaughter the team of ploughing oxen for which she had paid. He could at least make some money from the meat before they died of the disease. Van Gass faced ruin (later borrowing money from Miss Hobhouse) but earned some income by

6 peddling the spurious 'cure' promoted by the Horse Sickness quack P. K. Roux who had reappeared in the Transvaal. Roux caused endless trouble to Theiler, Stockman, Jameson and even Lawley before he was finally prohibited from inoculating cattle with his new 'cure' for East Coast Fever.

Hostility and intransigence mounted dangerously. Even Theiler's old friend D. J. E. Erasmus, still a leader of his people, publicly pronounced his refusal to believe that the new scourge was due to ticks. Farmers Committees to combat stock diseases had been formed throughout the land. Erasmus, a famous and influential cattle breeder, told his Committee that East Coast Fever was an old disease imported from abroad and activated by grass burning. Talk of ticks was twak (nonsense). Theiler made a deal with him. Give me three oxen, he said. I will put ticks on two and the third will be a control. The two will die and the third will live. Erasmus, with memories of countless calves saved from Sponzietke by Theiler in the nineties, gave him three specially-selected oxen immune to local diseases and on the 23rd February 1904, went to Daspoort to watch.

7 Theiler showed him a brood of brown ticks in the nymph stage taken from an ox at Nelspruit dying from the fever. He put eleven males and females on Erasmus' first ox and a similar nine from the same brood on the second. Nothing was applied to the third and all three were stabled to prevent outside infection. Within ten days, the first two sickened and, a fortnight or so later, died. The third remained healthy. Theiler himself did the postmortem on No. 1 with Erasmus watching and clinging to the belief that the cause of death might be Rinderpest. No. 2 convinced him. He spoke up like a man at the next Farmers Committee meeting and, demolishing the scepticism even of his brother, S. P., allied himself with Theiler and Stockman in enforcing regulations galling to all traditional stock farmers and impoverishing to the people. Roads through infected areas were closed and no ox transport allowed. Isolated on their lands, farmers could not bring their sole stock-in-trade to market. The 'arme burghers' suffered particularly. The Government bought thousands of 'Repatriation Donkeys' and issued them on sale to cattle-owners and on credit to the poor. Woe was everywhere but rigid restriction and quarantining had to be enforced.

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9 The investigations seemed illimitable. Theiler was compelled to break his laboratory research routine with frequent visits to Nelspruit. Hugh Hall had made his lands available and Stockman/Theiler were using them to establish whether, fenced and free of cattle, they would in time be 'clean'. With no host-animals to feed on, the carrier ticks might be eliminated. The public expected veterinary scientists to utter an abracadabra and presto produce a cure. But the determination of this period of time, a factor of the utmost importance in dealing with East Coast Fever and restoring productivity to the land, might take months, perhaps years. Methodically, patiently, scrupulously observing and recording, always training his lay staff at the same time, Theiler pursued his investigations. Interested anxious eyes were on him, Louis Botha's among them.

10 It was the penalty of evolutionary times that too much was laid upon him. To the stimulation of Stockman's scientific brilliance was added the practical expertise of Colonel Fred Smith P.V.O. of the British Army in South Africa and now a close colleague. Theiler's literary output had leapt to suffocating level. The world was avid for news of the tropical trypanosoma and piroplasmas. 'For an English journal, I am writing an article on "Spirillosis in Cattle" (published in M'Fadyean's *Journal of Comparative Pathology* on the 31st March 1904)', Theiler told Alfred in January, 'for Zschokke, I want to write an article on Piroplasmosis in Donkeys and Mules (duly published by him in the *Schweizer Archiv für Tierheilkunde*) and for Colonel Frederick Smith, a famous English veterinary science author who is publishing a book on Veterinary Hygiene, I have undertaken to write the chapter on Parasites, Infection and Immunity. This must

11 of course all be done in my so-called free time and we are in any case exceptionally busy in the  
laboratory.' The third edition of Smith's classic work appeared at the end of 1905 with Theiler's  
12 contribution on 'Immunity' joined by papers from Stockman, Burt-Davy, Lounsbury and  
Borthwick. Additionally Theiler wrote a monthly report for his Director and poured out con-  
cise significant papers on his work, some of which were published in the quarterly *Transvaal*  
*Agricultural Journal*. None of the triumvirate – Smith, Stockman and Theiler – was too grand to  
13 descend to the level of the Veterinary Association meetings. Theiler would deliver papers to  
its small gatherings (including one on Horse Sickness on the 19th March 1904, published by  
M'Fadyean in June) with as much dedication as his major address on East Coast Fever to the  
Association for the Advancement of Science in Johannesburg in April.

The short Horse Sickness paper with its assertion that serum-immunity could be conferred  
only on mules owing to haemoglobinuria (the effect of Haemolysis) in horses, had particular  
significance. After producing a spurious immunity to East Coast Fever ('most disappointing',  
14 C. E. Gray reported, 'herds were not protected from infection and his method was a failure'),  
Koch had proceeded to wave his wand over Horse Sickness in Rhodesia with equally misguided  
15 authority. In a report submitted to Milner, he purported to have overcome Haemolysis and to  
have evolved a successful serum to immunise horses. Then, having cost the South Africa Colonies  
16 £20,000, he left in April for home. Upon reading his report, Theiler had decided on immediate  
action. He would not repeat his Rinderpest mistake.

17 Delayed by a rapid visit to Nelspruit, he wrote formally to the Director of Agriculture on the  
24th March – 'I have the honour to forward herewith a copy of a communication made to the  
18 Transvaal Medical Veterinary Association on the 19th March 1904 in connection with my ex-  
periments regarding Horse Sickness. I thought it advisable to communicate the results of our  
experiments to a scientific body in order to put the work on record in the literature for the sake  
of priority. It is Professor Koch's custom to report immediately he has some results and I  
was afraid that as nothing of my experimental work has yet been published that my work would,  
in the face of his reports, have to take a back seat.'

He went on to say of the problem of Haemolysis 'I pointed out in my report that I felt confident  
to overcome this difficulty'. He felt sure that if given facilities to experiment on a much larger  
scale (his horses were usually broken-down old nags that could be spared in the shortage), he  
would be able to select some whose blood did not produce haemolytic serum. He also wanted a  
special centrifugal machine for separating the serum from the blood in large quantities. 'This  
however is only a small item. The principal thing is to make the necessary provision to enlarge  
our premises especially in the shape of stabling, shedding, storerooms, etc.' His case was irre-  
futable. In a land already in parts totally devoid of ox transport, the mortality from Horse  
Sickness was 95%. Even with his imperfect serum, the loss of injected mules was only 10% to  
15%. 'We have now no time to lose', he ended, 'Trusting you will give me every assistance and  
support, I can assure you that I will do my utmost for the practical solution of the question.'

19 He had no need to doubt the bureaucratic aid of Adam Jameson and F. B. Smith; but now  
George Turner, always persona grata in higher circles also took a hand in his friend's affairs.  
Under cover of a note, he sent a copy of Theiler's brief Horse Sickness paper to the Lieutenant-  
Governor. Sir Arthur Lawley (later Lord Wenlock) replied in his own hand – 'Many thanks for  
Theiler's report. It is most satisfactory. We must give him every chance of carrying his experi-  
ments to a successful issue in regard to horses as well as mules.' Turner sent the note to his friend  
telling him to tear it up but Theiler kept it. Visible encouragement from on high meant much to  
a man smarting like his colleagues from the costly adulation of Koch. In the event, Koch's  
20 Horse Sickness serum was a disastrous failure in Rhodesia during a season 'of extreme severity  
and heavy mortality'. The lengthy course of injections seemed to produce, at risk of fatality,

21 only a passive immunity. 'Whether the immunity be lasting or temporary', Gray reported, 'the  
length of time taken up by the treatment is so considerable that the employment of this method of  
22 immunisation on a large scale can scarcely be regarded as practicable.' Theiler went on with his  
23 own novel attack, still lacking facilities in the impoverished Transvaal but, through his friends  
at court, gaining two new bacteriological assistants, Neville Edwards and V. Baerlocher who  
joined him in July.

His duties entailed constant interruptions – frequent journeys to Nelspruit, consultations with  
his superiors in Pretoria and now, a day spent with Stewart Stockman in Johannesburg to address  
24 the South African Association for the Advancement of Science on East Coast Fever (published  
in the April issue of the *Transvaal Agricultural Journal*). It was good to meet the coterie of Cape  
and other scientists and to transform names into persons. They came to Pretoria on a recreational  
25 visit but Theiler had little time for them. The proceedings of the Association were stimulating to  
the struggling Transvaal, always apathetic to Science, and provided a climate enabling the for-  
26 mation at that time of the South African Ornithological Union – the first such society in the  
north. Theiler hailed it with joy as an early attempt to organise scientific thought and activity  
but was then too preoccupied to play an active part. His own work (later compounded in his  
Annual Report) was constantly being published in the *Agricultural Journal* and elsewhere –  
27 'Pleuro-Pneumonia' in which he retailed the history of Lung Sickness and methods of com-  
batting it; 'A Contribution to the Diagnosis of Heartwater in Cattle' (reproduced in *The*  
28 *Veterinary Record*); 'Piroplasmiasis in Mules and Donkeys', 'East Coast Fever', paper after  
paper reproduced in many languages in overseas journals. He was being read and his work  
studied throughout the world while himself travelling constantly in the sub-continent – in May  
29 1904 from Nelspruit with Stockman to Lourenço Marques where Dr de Amaral Leal took them  
cruising in Delagoa Bay and, a few days later, to Cape Town for the hurriedly-convened Second  
Inter-Colonial Veterinary Conference. During that time, the simmering political situation in  
the Transvaal boiled to a climax.

There were some changes in the attendance at Cape Town. Watkins-Pitchford did not come,  
Natal being represented by Woollatt. German South West Africa was immersed in the bloody  
turmoil of the Herero Rebellion and neither von Lindequist nor Rickman attended, the Vice-  
Consul in Cape Town, Dr F. Keller taking silent part. After the official courtesies, Hutcheon  
stated that his Government has been impelled urgently to call the Conference owing to Koch's  
experiments 'not being as satisfactory as expected'. Elected to the chair, he plunged into the  
burning question and called on Gray to report on East Coast Fever. Gray's statement greatly  
30 shocked all but a few of the gathering. Woollatt in particular was aghast. 'The public of Natal',  
he said, 'had been led to believe that inoculation would be the saving of their cattle, so much  
so that a resolution was carried in Parliament to purchase cattle that had been inoculated and  
to send a veterinary surgeon to Rhodesia to become thoroughly acquainted with the method.'  
Now that it had been proved 'valueless', he was compelled to support a radical scheme pro-  
posed by Stockman and Theiler.

Lounsbury came to communicate the latest advice on ticks of all kinds and the results of his  
experiments following his work in the field with Theiler. The combined veterinarians glumly  
confronted a problem which they had thought was already solved by Science and which now  
appeared more confused and insoluble than before. It was Theiler's and Stockman's work that  
could save the situation but even they could not combat intransigent humanity and the vagaries  
of the disease itself. The notion that it could be confined to the Lowveld no longer held. It had  
appeared in the Highveld. To natives, cattle were holy possessions. In the Transvaal, they failed  
to report disease, hid their animals and trekked them secretly or at night. In the Cape, they re-  
fused either to sell or slaughter though they might exchange for other beasts. In the Transvaal,

farmers flouted the regulations. They came to Nachtmaal from infected areas in their wagons, widely distributing the disease. They refused to fence or to be helped to fence. The 'clean' lands of some were infected by the straying animals of others. Confronted with the slaughtering of their infected herds, they declined to engage in vicarious farming with sheep and goats and pigs or to use donkeys for transport and traction. They insisted on 'trekking' their herds from summer to winter grazing, regardless of incurring or distributing infection. Prosecution for breaking the regulations increased their bitterness and resentment in a climate ripe for political exploitation.

31 The tragic trend in the Transvaal would assuredly move through the entire land unless stopped at source. Drastic though Stockman's proposal, valiantly supported by Theiler, the other Colonies finally endorsed it. 'Clean' areas would have to be isolated so that the carrier ticks would die for lack of sustaining beasts. Tens of thousands of cattle would have to be slaughtered until the lands became 'purified' in the period they had established as 15 months after long and elaborate experiments. (Woollatt, after visiting Daspoort at Theiler's invitation, practised 'purifying' in Natal with 'very great success'.) The cost to the Transvaal would be enormous (at least £60,000) but as the price of protection, the other Colonies should contribute to it. More experimental work must be done on dipping. (Simpson, soon ensconced in his tin shanty at Daspoort, coöperated with Theiler in trying to find a cattle dip for Fever ticks.)

32 The Conference dealt more cursorily with many other diseases, Theiler always insisting on correct diagnoses. East Coast Fever had been mistaken for Redwater, Anthrax for Rinderpest, highly-infectious diseases dismissed as trifling afflictions. 'Science' too was not infallible and the practising veterinary surgeons constituting the majority of delegates had their own tales of woe. 33 Gray told how his Government had imported hundreds of long-horned Angoni cattle from Central Africa where Lung Sickness was unknown and he had considered it desirable to inoculate them against it before they were issued locally. Almost all died although the same inoculation successfully immunised local cattle against Pleuro-Pneumonia. He warned that prophylactic measures with unhabituated animals might actually introduce disease.

34 After six full days of solid constructive thinking, the Conference consolidated its resolutions. The East Coast Fever resolutions were detailed and elaborate, placing the onus on the Transvaal, financially assisted by its colleagues, to defend the whole country. Theiler then departed wholly from their local deliberations to propose a resolution of his own. The next International Veterinary Conference, he said, would be held in Buda-Pesth in September 1905. Advantage should be taken of it by the delegates of the countries sharing the same animal diseases as South Africa to confer with each other at that time. He had seen the agenda and knew that there was a section on 'Tropical Diseases' (of which he was largely the instigator) of the utmost importance to them and they would benefit from consulting with Australia, Africa, India, the U.S.A and the South American States. He asked the Cape Government to arrange such a meeting in Buda-Pesth. Stockman and others supported him. Hutcheon and Flintoff felt that another Inter-Colonial Conference should be held beforehand and Gray moved accordingly. Both resolutions were passed unanimously. Southern Africa would be moving into the international field.

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During April/May 1904, Louis Botha and his wartime colleagues emerged from their disapproving apathy under the influence of impending representative government and actively entered the political field. Meetings were held throughout the Transvaal, converging on Johannesburg and Pretoria. Botha preached conciliation and forgiveness (not only of the British but of his own people who had treacherously served as 'National Scouts'), aiming to consoli-

date his leaderless countrymen into an effective political force. As Theiler and Stockman had prepared to leave for Cape Town, he had convened a large conference of recognised leaders in Pretoria and, defeating the ex-Acting State President Schalk Burger, was elected to the chair. The purpose of the meeting was to discuss urgent matters. The first item on the agenda was 'Rhodesian Redwater' as the Boers still called it. The second was Help for Indigent Boers and the third Opposition to Chinese Labour.

35 Feeling on these points was intense (the question of Responsible Government was only 11th on the agenda). Botha spoke temperately about the efforts that the Government and 'clever specialists' had made to combat Tick Fever, the most serious menace ever to afflict South Africa for which no cure had been found. Vigilant measures had been taken to prevent its spread 'but I fear that unless there is general coöperation throughout the country, the future of stock-breeding is endangered. It has not been treated seriously enough by the farmers. Some regulations may be wrong but most are based on sound principles of protection.' He urged coöperation which many of the delegates found hard. The following day, they discussed the oppressive restrictions and appointed a committee to present a request to the Government to relax them. It was submitted by General Tobias Smuts and broadly asked that the existing Committees try to reconcile the demands of the Government's veterinary experts with the needs of the farmers. Lawley referred them to the Commissioner of Lands, Adam Jameson who, through F. B. Smith, submitted them to Stockman and Theiler as they returned from Cape Town, intent on tightening the screw. On the one hand, they had an ally in Botha; on the other, increased opposition from the men he dared not alienate if his entry into the political field were to be solidly supported.

36  
37 Milner's Government had no alternative but to follow the drastic policy of its experts, backed by the colleague Colonies. It became an ugly time of covert movements and defiance. 'Here are the powers of darkness that work in silence and one has to be ever on the spot and on the watch', wrote Botha's able adjutant J. C. Smuts to his friend Miss Hobhouse. The air was thick with political plotting while the land and the people suffered dread disabilities and deprivations. Smuts himself planned to go to England if the Conservative Government fell and he could influence their Liberal successors to confer responsible rather than representative government on the Transvaal.

38 Botha went his way preaching conciliation and enlightenment and enrolling the bitter burghers in branches of his movement, now called 'Het Volk - The People', an engaging title. The need of coöperation was keenly and sincerely felt among men of all strata in the presence of material menace. The Inter-Colonial Council met regularly and there was movement in other areas, particularly agricultural, toward joint action. When Lawley opened the next session of the Transvaal Legislative Council, the first point of his speech was the mortality (95%) in horned cattle from East Coast Fever. 'It is impossible to exaggerate the gravity of the peril which menaces the whole farming community', he said. By then, Theiler and Stockman had done their obligatory work and drafted drastic regulations demanding huge Government subvention. Jameson and Smith had gone to Treasury to persuade the dour men in charge to provide the funds. F. T. Nicholson, secretary of the Transvaal Agricultural Union, had called a meeting of farmers to discuss what impended.

39  
40 Protesting that the Colonial Treasurer W. L. Hichens should do so, the Colonial Secretary Patrick Duncan presented the Budget on the 12th July 1904 and by manipulating a surplus, allocated £63,000 'to check and if possible, eradicate the cattle disease known as East Coast Fever' which was duly approved. A draft Ordinance was published in the *Government Gazette* embodying compulsory slaughtering of infected and contact cattle (with compensation only for the latter), assistance in fencing and other means of 'purifying' the land. The fury and resent-





*The Daspoort Scene* – Additions were made to the sprawling Bacteriological Laboratory (centre foreground with the Leper Asylum surrounded by trees on the left and Pretoria in the background.)



*Theiler's expanded staff* now included the original Swiss, English, South Africans and many natives. (Front row left to right) S. Cameron, W. B. Beeton, N. E. Edwards, E. Heron, A. Theiler, C. Favre, von Berlacher, A. von Bergen, D. Ferreira.



*Matilda takes the children to the Daspoort Laboratory (left to right) Margaret, Max, Hans and Gertrud.*



*The Theiler family in 1904: (from left) Emma, Max, Margaret and Gertrud with Hans behind, and Arnold.*

ment of Transvaal cattlemen against these authoritarian intrusions on their traditional freedom to pursue their livelihood was intensified at that time by the death in Switzerland of President Kruger. No Department of Agriculture or veterinary surgeons or officious scientists had worked their will on the free burghers in his day. The death of the old man at 79, symbolising the fall of the last redoubt against uncongenial change, shocked and saddened the whole country.

41 An Inter-Colonial Agricultural Conference had timeously been organised in Pretoria for the 25th/29th July and, opened by Lawley with his familiar warning, duly discussed the proposed radical regulations. Stockman and Theiler addressed it. Their work now was vitally concerned with convincing cattlemen, either recalcitrant or ignorant, of the necessity of adopting drastic measures. Theiler, speaking the taal when necessary, was an ideal propagandist and both the Conference (which formed a powerful Inter-Colonial Agricultural Union) and the meeting of the 45 delegates of the Transvaal Agricultural Union which followed and which visited Daspoort, could be considered converted. (Theiler's new ally, J. Burt-Davy addressed the farmers on Poisonous Plants.)

42 The predilection for teaching shone out of Theiler at every opportunity. His immediate assistants and associates (particularly Smith and Jameson who could speak like experts on his affairs in the Legislative Council though responsible for a score of other technical departments) were willing pupils, responding too to the charisma of his conviction. He was not merely a gifted lecturer. It was his philosophy that Truth lay at the heart of Pure Science and could be attained only by the rigid disciplines of scrupulous method. Fired by the visions already vouchsafed him, he was inspired both to convey them and to do anything in his power to prosper the cause of Science. It was his duty to enlighten farmers and obtain their coöperation in combatting East Coast Fever; but it was equally his bounden pleasure in the middle of it all (no doubt persuaded by George Turner) to deliver to the Pretoria Medical Society a pellucidly informative and extensive paper on 'Diseases caused by Trypanosomes' – a subject on which the world might now consider him an authority along with Bruce whose work he copiously quoted. He forgot nothing that he had read and his study of scientific journals in several languages was endless. He could speak of esoteric matters with a layman's simplicity and he neglected no chance to encourage any kind of person, trained or untrained, to worship at the shrine of Science in whatever form. The authority of the man impressed hard-headed public figures who had only the dimmest notion of what in fact he was doing.

43 Even as Theiler sat with Stockman at the Inter-Colonial Agricultural Conference, the Legislative Council was debating the Agriculture Vote of £102,188 and unprecedentedly telling his superiors that his salary should be raised. Led by the mining magnate and proponent of Chinese labour, Sir George Farrar and followed by T. Everard, E. F. Bourke (a merchant and then the first mayor of Pretoria), J. C. Brink and Harry Solomon (a lawyer), the request was directed to an embarrassed F. B. Smith who, in his presence, referred it to an equally embarrassed Commissioner of Lands. 'Certainly no officer is more worthy of such consideration', Jameson said, 'He has done an immense amount of work – original work that is of real value to this Colony. You may remember that a very large sum has been paid to Dr Koch – who had received about £20,000 from the Colonies of South Africa – and therefore it is only reasonable that we should also recognise such able work as has been done by Dr Theiler. We are very pleased to hear such expressions and we shall consider the matter at an early date.' Still suffused with emotion on the following morning, F. B. Smith wrote to Theiler in his own hand – 'I can assure you that those of your colleagues who were in the House last evening were delighted to hear the pleasing and appreciative references made to you. We have all along recognized the good work you were doing but it is very gratifying to know that influential persons outside the Department are also alive to your merit and the good services you are rendering, not alone to

the Colony but to Veterinary Science at large. May you long be endowed with health and strength to continue your researches.' Theiler's salary was raised from £1,000 per annum to £1,200 from the beginning of 1905 and announced to applause in the Legislative Council in August.

45 It was good that Milner's men and others supported him. When it came to enacting Ordinance No. 38 – the Cattle Disease (East Coast Fever) legislation drafted by Theiler and Stockman – their allies needed all that they had been taught to overcome reactionary views. Jameson, emphasising again the failure of Koch, how little was known of the disease and how difficult to diagnose, gave the legislators a lecture worthy of Theiler – 'He understood the brown tick communicated it, the blue tick being believed not to be dangerous. The tick affected oxen after which it dropped to the ground and laid many thousands of eggs. The little tick did not walk along the veld as was supposed nor did it move from one paddock to another. It went a short distance and crept up a blade of grass. It was an extraordinary instinct by which this minute creature would sit for three months on a blade of grass waiting for an animal to pass to which it could attach itself. If one shook the grass, one could see the little creature opening its two front legs in order to attach itself to an ox. After this, it would drop off and lie down again for perhaps a month when it would creep up again on to a blade of grass. It was believed that it was only in the nymphal stage of the insect that the disease could be given to an ox at the first bite. A great deal had been learnt. The danger lay in the ground being affected and if the ground were fenced till the ticks died – it was supposed to take about 15 months – and if they had isolation, no doubt the paddock would become clean and it was safe to allow cattle into it again . . .' He went on to promote all the prophylactic points but the Council would not swallow them whole. Stockman's wholesale slaughtering was too much and an amended scheme was proposed. Ordinance No. 38 of 1904 was passed on the 12th August on the day that Theiler signed his first Annual Report as Veterinary Bacteriologist for 1st July 1903–30th June 1904 and sent it to the Government Printer where it remained for six months. It was a massive work containing some of his best papers, already published overseas.

46 His working conditions continued makeshift and inhibiting. Smith did what he could and  
47 built three new corrugated iron stables (insufficient to shelter all the experimental animals) and a forage store. Henry Cox was appointed labour assistant for the growing staff of natives. A site was ceaselessly sought for a new Laboratory and somehow money would have to be found to build it. In October 1904, hope was kindled. The millionaire Alfred Beit, diamond and gold associate of Cecil Rhodes, had donated his Frankenwald farm outside Johannesburg to the  
48 Transvaal Government which would formally receive its title deeds when Lionel Phillips arrived in March 1905. Smith thought it might solve his problems of proper accommodation for several of his Divisions, particularly the Bacteriological Laboratory. On the 24th October 1904, he inspected it under the aegis of Beit's agent Carpenter and in the company of Theiler, Burt-Davy and others. He hoped to be able to transfer Theiler's institute at Daspoort to Frankenwald but sadly, he considered the extensive estate, well planted with trees, suitable only for an Agricultural  
49 College. Theiler (who thought it 'hopelessly unsuitable' owing to its Highveld situation and subjection to intense cold) would have to wait.

A second blow had fallen. Africa had not proved the grave of Stewart Stockman's brilliant reputation but indeed enhanced it. The British Board of Agriculture and Fisheries offered him appointment as its Chief Veterinary Officer with opportunities for research. Stockman, enriched and encouraged by his stimulating association with Theiler, accepted, agreeing to serve the Transvaal until the end of November. His loss at that juncture after only 19 months service, would be hard to bear for the country in general and for his friend in particular; but Theiler looked forward and in the intervening time, compounded many schemes in which Stockman and

50 he would continue to collaborate. A farewell dinner was given on the 26th November where Theiler sat silently (Mark Greenlees irreproachably proposed the toast of Veterinary Science to which Colonel Fred Smith replied) while Stockman received the warmest encomiums from Jameson as well as pieces of plate from the Department's staff and stock inspectors, the Transvaal Veterinary Medical Association of which he was president and, presented by F. B. Smith in a long speech, from the Agricultural Department itself. All paid tribute to Stockman's congeniality, his ability to get on with everyone and his success in overcoming the atavism of the cattlemen. Theiler would miss him for scientific camaraderie. In South Africa, there was no one  
51 of his stature to replace him, both Stockman and Theiler having openly been at odds with Edington over the scientific soundness of a work on the inter-relation of stock diseases. There  
52 would be a further gap when Colonel Fred Smith, British Army P.V.O. and always helpful to Theiler's work, left for England early in 1905 to assume the Eastern Command (King Edward awarded him the C.B. for his services in South Africa).

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Hampered and harassed, Theiler continued his investigations in an increasingly wide field. Daspoort had become all things to all men with few of the appropriate facilities. A long-anticipated convulsion seized the Cape Agricultural Department whose organisation had never  
53 operated satisfactorily (Jameson and Smith were called to give evidence to an investigating Commission and for the first time, the upstart North gave advice to the maternal South) which resulted in a reorganisation placing further burdens on Theiler. Confining the Graham's Town Laboratory to Animal Diseases, the Cape Government was unable to institute Calf Lymph  
54 production at Cape Town and for two years, Theiler had to supply massive amounts to the colleague Colony.

Daspoort was a factory for vaccines; a tutorial centre conducted by Theiler himself ('it does  
55 certainly interfere with my work on the station') for illimitable numbers of farmers, members of Agricultural Societies, civil and military veterinary surgeons and members of the Constabulary who were trained to do good supplementary work, as well as the growing number of recruits to Smith's expanding Agricultural Department; and a research institute constantly conducting a wide range of investigations into stock diseases. Theiler's own heart and mind were in his microscope with its revelation of the fascinating field of flailing trypanosomes and protozoa whose biological escapades and idiosyncracies were obviously the key to animal diseases. Somehow he pursued crucial experiments while overloaded with mundane obligations. On the credit side, he at least had increasing technical assistance - C. B. Simpson, the entomologist, working close at hand on ticks, flies, mosquitoes and insects supposedly toxic to stock; J. Burt-Davy the botanist examining plants poisonous to cattle; and H. Ingle the chemist investigating soils and the bones Theiler gave him to analyse for chemical deficiencies causing osteoporosis. Smith by no means ended his search for Divisional experts. More would soon be coming to strengthen Theiler's hand.

56 The whole of the Transvaal was in a profoundly evolutionary state. The hated Milner still controlled its affairs and some, finding it intolerable, met in September 1904 in the office of *De Volksstem* to plan an exodus to Uganda. Repulsive equally to many English and Dutch was the proposed representative government and strange bedfellows were to be found as members of *Het Volk*. Botha and Smuts ceaselessly campaigned for responsible government. Their party, no longer a 'faction', began to dominate the situation and to make allies of 'Responsible Government Associations' that arose in the large towns. Over the turbulent unhappy scene rose the spectre of the old President whose body was about to begin its last journey to the land

of his birth. As the political temperature rose, meetings were held in Pretoria to arrange suitable ceremonies for its transit by train from Cape Town where the ship *Batavier*, specially painted black by the Dutch, would deliver it on the 1st December.

57 The high emotional tone of the time was exacerbated by the heavy fining of farmers for breaches of the East Coast Fever regulations. To many, it was all part of the British yoke. Lord Roberts added to the prevailing animus by returning in November to the Transvaal with his family ostensibly to visit the battlefields and the grave of his only son who had been killed in Natal. Bitterness and resentment were reanimated. A hush fell upon the country as Botha and his entourage left Pretoria in the specially-prepared funeral train on the 28th November to take delivery of the Kruger coffin in Cape Town. Dr Leyds had accompanied it. On its slow journey to Pretoria, the train stopped at many stations, gathering wreaths at each. It arrived in Kruger's Capital on the 10th December, the hearse carrying the coffin to the Susanna Hall for a week's lying-in-state being guarded by uniformed members of his Staatsartillerie and Zuid-Afrikaansche Republiek Politie. At every juncture, the British coöperated with decorum and tact. On the 15th and 16th December, the columns of all newspapers including the *Pretoria News* were heavily bordered in black.

58 Theiler came to town on the 16th and with a full heart, stood among the vast crowd in Church Square as he had many times stood in Republican days. Generals Schalk Burger and Christiaan de Wet spoke movingly in praise of their President and finally, Louis Botha who in June, on behalf of the nascent *Het Volk*, had sent him a cable on his 79th anniversary. Botha said that it was a day of dedication for the Afrikaner people and read the intensely moving reply that Kruger had sent to his cable on the 29th June only two weeks before he died (see Appendix B). In calling on his people to cling together so that the nation might prevail, Kruger wrote – 'The bitterness will be softened as long as I may continue in the conviction that the work once started will be carried on. Because then the hope and expectation that the work will be good in the end, will sustain me. So be it.' Botha exhorted his countrymen to rededicate themselves to these aims. Along crowded streets controlled by mounted burghers under General F. Beyers and by the South African Constabulary, the cortège moved to the Old Cemetery while a battery of the Royal Horse fired every minute from the hills. There had been no more moving moment in South African history. Theiler, owing no allegiance, holding dual citizenship and loyal only to Science, remembered that Kruger had given him his chance and never wavered in his support. Now the British were building on what the President had enabled for him.

59 Milner had come to Pretoria from Johannesburg. On the day following the funeral, still deeply emotionés, Botha, Smuts and other of the Boer leaders then in the Capital 'secretly' met him (though *Land en Volk* had hinted at the meeting). They wished to make clear their opposition to representative government and to affirm a basis of enfranchisement for responsible government. Smuts confirmed their discussion in a letter of the 13th January 1905 to which Milner, privy to the Colonial Office's plans and suspecting a change of Government, replied coolly, releasing both his and Smuts' letters for publication in the Press. Milner had long wished to leave and was planning departure early in 1905. There was difficulty in appointing a successor. His whole effort of 'reconstruction' would fail in inept hands. Kruger even in death, his apostles and associates had thwarted Milner's attempts to reduce the Afrikaners to submissive rôle within the British Empire. Without admitting failure, he included among his last public words – 'I should prefer to be remembered for the tremendous effort, wise or unwise, in various particulars, made after the war not only to repair its ravages but also to restart the new Colonies on a far higher plane of civilisation than they had ever previously attained.' It was not until almost the day of his departure that he could be told of the man who would accept and discharge that responsibility.

All sections of the Transvaal public now engaged in frenetic political manoeuvring intended to marshal combined opposition to a merely representative form of government. Uitlanders coöperated with Afrikaners and bitterness against Imperial control suddenly became common. Botha went about the country gathering his forces and at the same time seeing to what desperate straits it had been reduced. Owing to East Coast Fever, Africa could no longer ride on the back of the ox nor, if the season were bad, of the horse. In many parts of the Transvaal, there was no transport at all. Donkeys had limited use but got footrot in the Lowveld. Stockman had even imported Indian buffaloes to try to meet the crisis but they had died of the fever as quickly as the cattle. Then he tried camels which seemed entirely to resist it though harbouring ticks. Encouraged by this result, 36 camels were imported from Somaliland for use in the Northern Transvaal. While detained at Daspoort for rest and observation, one died. Theiler held a post-mortem and diagnosed Surra which resembled Nagana. All were destroyed. F. B. Smith confessed to 'great disappointment as it had been hoped that the introduction of camels would have done something to solve the transport difficulty in parts affected by East Coast Fever.'

The work to save transport animals was now vital. There were several advantageous features. Theiler went twice to Barberton (September and December 1904) at the invitation of the Agricultural Society which actively coöperated and provided him with experimental animals. An increasing number of farmers were converted and, not waiting for Constabulary men to do it for them, sent smears directly to him at Daspoort. 'Once at a meeting of our local Farmers Association', Hugh Hall remembered, 'our chairman who was an Australian, asked the secretary to write and thank the Veterinary Department for the prompt way in which they had advised us of smears. He told us a little anecdote about what happened in Australia to one of their Farmers Associations. They had sent blood-smears from sick pigs and after two weeks, the reply came from their Veterinary Department - "Your pigs have Swine Fever". They replied - "Swine Fever has got the pigs".'

Theiler too was working on Swine Fever at this time and with the help of Schneeberger, continuously investigating tick diseases, particularly ordinary Redwater in cattle. He now established that it was caused by the blue Tick (*Rhipicephalus decoloratus*) and spectacularly proved it. He reared blue ticks on a calf, injected it with Redwater blood and when it contracted the disease, collected the infected full-grown female ticks which duly produced eggs. Theiler sent the eggs to his willing collaborator, John M'Fadyean, principal of the Royal College of Veterinary Surgeons in London. The eggs soon hatched and M'Fadyean placed the larvae on animals which contracted Redwater identical with the South African. In Theiler's mind was the idea of pre-immunising English cattle before exportation.

Colonel F. Smith caused horses and mules to be made available to him for the Horse Sickness experiments which Porta carefully conducted while Theiler extended his field to sheep, for centuries afflicted with Malarial Catarrh or Blue Tongue. Hutcheon and particularly his veterinarian J. Spreull had done excellent work on the disease but, never one to accept the most authoritative results, Theiler repeated all his experiments with active assistance from farmers. In his ever-widening field of investigation, F. B. Smith and Jameson helped by erecting on the insanitary site several new iron buildings, still quite insufficient for his purposes. 'For the ordinary work, there should be a newly-equipped laboratory', he said, 'but as in the near future, the special work on Horse Sickness will attain enormous dimensions, larger and better installations will be required than at present exist.' His superiors were sympathetic but in troubled times with a new constitution impending, no immediate action could be taken.

In the middle of January 1905, a double tragedy almost crippled Theiler's heartening progress. Living in the tin-shanty staff quarters at Daspoort, J. Schneeberger contracted and died of enteric on the 11th and Ben Porta similarly on the 17th. Schneeberger had been the laboratory

71 assistant in charge of ticks since December 1903 and Porta, associated with Theiler since 1901, had become a specialist in Horse Sickness experiments. 'Both were most able and excellent officers' Theiler reported, deeply distressed by the death of two compatriots, 'and their death is a severe loss to the work of the station.' They were replaced by Alfred von Bergen and W. B. Beeton who had previously worked at Daspoort (Charles Favre had also returned) and Theiler began a campaign for the welfare of his staff. His own house was on higher ground but the station stood on a level, undrained site absorbing the insanitary seepage from stables, post-mortems and general detritus. From January to March, Theiler addressed a series of urgent  
72 memos via Smith to Jameson (who also dealt with Public Works), declaring that his premises had become suspect and requesting that his staff quarters be replaced by more hygienic buildings. They were immediately erected together with a new Postmortem Hall but did little to diminish the unsuitableness of the Daspoort site. Political circumstances were inhibiting many of Smith's original plans but they were never out of his mind.

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73 Botha and his supporters were vigorously building Het Volk into a powerful body (including many English-speaking citizens) to oppose the 'Lyttelton Constitution' imposing representative government which was known to impend. Milner, making his farewells, referred to it. To many, it seemed incredible that the iron man who (tyrannically to some) had brought foreign order and government to the Transvaal, should now be leaving. He came to Pretoria toward the end of March and Theiler attended the Farewell Banquet given him on the 22nd at which the burghers were notably absent. The Lawleys gave a garden party the next day which both Emma and  
74 Arnold attended but a typical Transvaal storm of wind, dust and rain ruined the occasion and Milner returned to Johannesburg for his final leave-taking. By then he knew who would follow him. 'It was the greatest possible relief to me', he wrote his friend Arthur Balfour, 'to know that Selborne was to be my successor.'

75 Milner returned to England via the East Coast. In the heat of the tropics on the 14th April 1905, he wrote a long 'STRICTLY PRIVATE' letter to Lord Selborne to acquaint him with his visions and actions in South Africa. He dealt with the recalcitrant population and the motives that obstructed his 'reconstruction'. 'Unfortunately some of the most useful things we are doing are far from being the most popular, or from being popular at all. They will need your special protection if they are to survive the attacks of deliberate malice or mere empty-headed superficiality as they have needed mine. The most important of these is the whole work of the agricultural departments . . . It is a little disappointing that our efforts at agricultural improvements which after all will benefit ten Boers to one Briton, have met with so little encouragement and recognition from those chiefly interested. I do not say that they have met with *none* but I am firmly convinced that they will in time become generally popular. But it does require time, all the more since what we are doing in this direction is so very thorough and, because thorough and scientific, not so showy or productive of rapid results as more superficial works would be. The foundations are being carefully and scientifically laid. Indeed as far as the fostering by Government of the productive industries of the country is concerned, there is nothing that I know of in any British Colony, *except Canada*, at all comparable to what is being done in the new Colonies. Chemistry, botany, bacteriology are all being pressed into the service. In South Africa, with its self-satisfied empiricism, all this is absolutely new and at first unwelcome. The South Africans, British as much as Dutch, will snort at your scientific agriculturalists who "know nothing about South Africa and come to teach them their business". And certainly theoretic knowledge requires local experience to complete it but then no one knows that better than the



scientific man himself. This work will be recognised in time but till it has had time, it needs a powerful protector.'

76 Selborne took congenially to the rôle in which Milner cast him. Widely experienced in public affairs (as his father's Private Secretary, Under-Secretary of State for the Colonies under Joseph Chamberlain, and First Lord of the Admiralty), he had inherited the family estate in Hampshire in 1895. It was farmed largely by tenants with sheep and also produced cereals, dairy products, beef and pork. Selborne himself was particularly interested in horses and forestry but kept a benevolent eye on all the other estate activities. 'I am myself a farmer', he would say without strict regard for accuracy but evincing a wide knowledge and keen interest in agriculture and all its aids. He arrived alone in Pretoria in May 1905 (his wife, a Cecil, the daughter of Lord Salisbury, followed in July) and was presented with a host of Addresses of Welcome. 'The conditions of agriculture in this Colony at the present juncture', the Transvaal Agricultural Union told him in their's, 'are such as to call for the most sympathetic consideration on the part of those who are in authority.' Others hammered their own points home; but Selborne, urbanely meeting Botha, Smuts, many mayors, consuls, clergymen, doctors, editors and sundry citizens at a banquet at the Pretoria Club and a garden party (attended by Dr and Mrs Theiler) staged in his honour, held his peace and returned rapidly to Johannesburg. Lady Selborne joined him soon after, creating a new situation after the bachelor rule of Milner.

77 All events indicated rapid changes in established order. At the Cape, the legislators' dis-  
78 approval of Edington's Bacteriological Laboratory which had almost abolished it in 1904,  
79 was amended to confining it to animal diseases. Edington, suffering throughout his service from  
80 insufficient staff and funds as well as continuous official unpopularity, resigned with effect  
from the 30th June 1905 and entered private medical practice. His place at Graham's Town  
was taken by Thomas Bowhill M.R.C.V.S. a versatile and controversial character.

81 For a country shattered by war, disease and pestilence, the Transvaal was making remarkable  
strides into the future. When Theiler's 1903/04 Report, of great detail and complexity, was at  
last published in March 1905, people marvelled that so much work had been done and so much  
light cast on diseases. Many of his investigations had already been published in the *Transvaal  
Agricultural Journal* which, freely distributed in 6,000 English and 1,000 Dutch copies, had so  
well made its way that it was frequently out of print. At an annual subscription of 5s. then im-  
82 posed, 10,000 English and 2,000 Dutch copies were within a year necessary. Theiler's gospel  
was reaching the farmers and his local and overseas colleagues. He was in constant consultation  
with Smith and Jameson on the future of his Institute. They planned with a grandeur appropriate  
to the times. It was agreed that he should take four months overseas leave in July to enable him  
to attend the International Veterinary Conference in Buda-Pesth in September (at his own ex-  
pense) and that he should employ some of his time on the Continent and in England visiting  
research institutes, engaging specialised staff for Daspoort and purchasing modern equipment.  
The Lyttelton Constitution was promulgated in April with its partly-elected Legislative Council  
complemented by nominated Government officials. Time would show whether it would enact  
the costly modern Research Institute which Theiler, Smith and Jameson envisaged.

83 In the meantime, in a hot political climate with Botha and Het Volk increasingly active, a  
new High Commissioner and a general atmosphere of unrest and change, Theiler's varied duties  
extrapolated into a new field. There was some relief when, after a four-month gap, Stockman's  
post as Principal Veterinary Officer was filled by Rhodesia's C. E. Gray (replaced in Salisbury  
by J. M. Sinclair M.R.C.V.S.) on the 1st April 1905 at an annual salary of £1,000 with J. M.  
Christy continuing as assistant at £750; but no one could replace the brilliant zealous Stockman  
in collaboration in Theiler's work.

He was now in close communication with the organisers of the Buda-Pesth Conference who

84 planned a leading part for the new luminary on tropical diseases. Apart from his family whom he had not seen for six anxious years, he had to make arrangements in an enormous correspondence with the institutes and purveyors of equipment whom he was pledged to consult and with his personal scientific friends of long standing in Europe as well as his new English colleagues, particularly Stockman, Fred Smith and M'Fadyean. Emma (who had not seen her own people for fourteen years) would at last come with him together with the tiny Max aged 6 and Margaret and Gertrud who, at 9 and 8, could be put to school. Hans would remain in Pretoria to continue his schooling. Five months was too short a time for all that had to be done and all possible arrangements had to be made beforehand. Theiler was amused when the departing Lieutenant-Governor, Sir Arthur Lawley (Selborne assumed his duties) insisted on giving him a letter requesting all possible assistance addressed to the British Minister in Berne. It was his old acquaintance, the British Resident of Republican days, now Sir W. Conyngham Greene. Reminiscence would be rich between them.

85 There were his usual obligations to the Transvaal Agricultural Union which met at the end of May and which, like its Cape counterpart meeting earlier in the month, had grown in force and stature. There was also the tedious and meticulous task of completing his Annual Report for 1904/05 before he left (he signed it on the 1st July on the verge of departure). One of its investigations would interest Bruce to whom he duly sent 'Transmission and Inoculability of Spirillum Theileri' – the micro-organism he had found in cattle which Laveran had named for him. Bruce sent it to the Royal Society which published it in its *Proceedings*. More demanding was the paper which he had been asked to deliver to the unprecedented meeting of the British Association for the Advancement of Science in Johannesburg on the 29th August. The local branch of the South African Association with F. B. Smith in the chair had been arranging a Pretoria visit for the delegates; but Theiler would not be there. Heartbreakingly he would have sailed and missed meeting a galaxy of luminaries and friends – David Bruce, Leonard Darwin, A. Shipley and others. George Turner was also giving a paper on 'Rinderpest: Its Prevention and Cure' and perhaps would write him. Theiler prepared a classic of its kind – 'The Advance of Our Knowledge respecting the Stock Diseases of South Africa' and left a copy with William Macdonald (himself going overseas to study Dry-Farming in the U.S.A.) to print in the *Agricultural Journal* in October. Its preparation was useful in clarifying his material for presentation to the international multi-lingual convocation at Buda-Pesth.

86 Daspoort would be reasonably safe under the supervision of the Pretoria veterinary officer, R. S. Garraway with C. E. Gray and J. M. Christy holding a watching brief. Charles Favre would continue with the preparation of Horse Sickness serum and the hyper-immunisation of mules along routine lines. Heron would do the diagnostic work of interpreting smears and generally identifying cases of disease. The laboratory would continue producing lymph in massive amounts.

87 Early in July 1905, the Theiler family minus Hans embarked at Lourenço Marques for the voyage to Europe via the East Coast, putting in at numerous ports and giving Arnold his first impression of truly tropical Africa. At Dar-es-Salaam, he called on his German colleagues and made similar calls elsewhere. In the Suez Canal, their ship encountered Russian ironclads steaming to join the remnants of the fleets destroyed by the Japanese. The family landed at Naples and were quickly in Switzerland for joyful reunions.

## UPHEAVAL 1905-1907

THERE WAS no part of Southern Africa at this time which, in point of unrest and emotion, was unconscious of exalted aim. With the chaos of war receding, it was a time for planning in the grand manner by men of every political policy. Those temporarily in authority were limited only by their financial resources which might curtail the realisation of visions but certainly not of envisioning. Theiler's instructions were wide and handsome. With the clear intention of building him a modern laboratory on a new site, he was told to study the leading such institutions in Europe, to engage specially-trained staff and to purchase modern equipment. Improving his knowledge and extending his connections with the best advice overseas were left to his own resources and his recognised passion for 'keeping up to date'.

1 Theiler by then was something of a local hero in some quarters. The incidence of East Coast Fever had been sizeably diminished; large areas of the Transvaal had been 'cleansed' and were again available for stock production; mules immunised by his Horse Sickness serum ran scathelessly through the worst districts and reopened commercial traffic; Lung Sickness, Mange, Anthrax, Glanders and many other stock diseases were diminishing either through his treatment or the measures he imposed to control them. In the realisation of 'reconstruction', he had proved an effective instrument and worthy of the fullest support in rendering the country productive.

2 F. B. Smith plodded on, step by step fulfilling the provisions of his 1902 plan approved by Milner. Hardly had Theiler left than there appeared a volatile little red-headed Welshman, Illyd Buller Pole Evans, to assist the botanist J. Burt-Davy as Plant Pathologist. How little Smith's vision matched the reality was measured by Pole Evans' shocked realisation that there was no mycological laboratory in which to put the three cases of glass apparatus and one of books that he had brought, and that he was expected to practise his profession in part of a room adjoining Burt-Davy's office. It was in the spirit of the times that he stayed and became one of Theiler's closest collaborators.

3 The fervent feeling of going forward into a future fortified by new realms of knowledge was timeously assisted by the majestic visit of the British Association for the Advancement of Science convening its 75th Meeting in Cape Town and Johannesburg in August 1905 with all its hallowed procedures and assembly of distinguished overseas and local scientists. The president of the Physiology Section was the burly David Bruce. Its theme was 'The Advance of our Knowledge of the Causation and Methods of Prevention of Stock Diseases in South Africa during the last ten years'. Bruce delivered his presidential address at the first meeting in Cape Town (when Hutcheon also presented a paper) and then in Johannesburg on the 29th August in a remarkable closely-studied work. 'South Africa', he said with the relish of a research scientist, 'is particularly rich in diseases affecting domestic animals' and, beginning with East Coast Fever whose brown tick he illustrated with slides, went on to survey them. 15,000 cattle representing £200,000 had died of the fever in the Transvaal in 1904. He had been told that all the local Colonial Governments intending reducing their veterinary staffs and research budgets. 'If this was so', said Bruce in his usual brutally direct manner, 'it was the maddest sort of economy and the shortest-sighted of policies.'

His survey dwelt particularly on Tsetse Fly Disease which he also 'threw upon the screen' (he had the same lucid style as Theiler in describing his Nagana work in Zululand) and on Horse Sickness. He reported that as a military surgeon, when he 'went to the north of Zululand in

1895 with the Ingwavuma Expedition, they had lost all their horses with this disease. They started with 100 horses and had to march back on foot, every horse having died.' Bruce emphasised that the fly carrier was still unknown and that 'the blood parasite is so small in size as to be absolutely invisible to the highest powers of the microscope and also so minute as to readily pass through the pores of a Chamberland filter'. He gave due credit to the work of Edington, Watkins-Pitchford and Theiler (as he also did to Hutcheon and Spreull in other contexts) and was reported as ending very pointedly – 'The man who discovered a practical method of dealing with Horse Sickness would be one of the greatest benefactors of this country. There had always been a tradition that a large money reward was awaiting this discovery. He did not know whether this was well founded or not but certainly such a work would well deserve the highest possible reward. The best reward was to give the successful investigator more opportunity and more assistance in pursuing his beneficent work. The reward given by the French people to Pasteur was the Pasteur Institute; by the German Government to Koch, the Imperial Hygienic Institution.'

4 Very possibly he knew that the same idea had been in the mind of Milner and now most actively animated Smith, Jameson and Selborne. Only a few days before, Smith had reported to an approving Legislative Council – 'Dr Theiler is in Europe at the present time purchasing apparatus for the campaign which we hope to take against Horse Sickness next year and he is also learning the latest methods of preparing serum and so forth. We have great expectations with regard to Horse Sickness as to being able to immunise mules. We have now immunised 400 mules and so far, it has been a success.'

5 Bruce was followed by George Turner delivering his paper on 'Rinderpest: Its Prevention and Cure'. Then it was Theiler's turn. His paper, taking the same title as Bruce, was read for him and as always, was a model of lucidity. He divided it into Diseases caused by Ultra-Visible Micro-Organisms and those caused by Protozoa, ranging authoritatively over both fields. His final words were 'We may assert with confidence that the time is not far distant when South Africa will not be devastated by ravaging diseases. And this point will be won not only by the advance of our particular branch of science but by the advance of science in general.' His own multi-disciplined attack was slowly being enabled by Smith's gathering concert of experts, some of whom (C. B. Simpson, Herbert Ingle and Smith himself) had also addressed the meeting.

7 The tonic effect of the British Association's presence was sustained by its members' contributing money to a fund commemorating their historic visit through a medal to be awarded for scientific achievement in research in the discretion of the South African Association. Much thought and planning were devoted to the interpretation of this gracious gesture to which the British Association had attached no stricture beyond 'a desire that the award be made only to those persons whose scientific work is likely to be usefully continued by them in the future'. It was to be called the South Africa Medal.

8 The limelight now shone brightly on 'Science', causing the second meeting of the Inter-Colonial Agricultural Union (of which Lord Selborne had become patron) held in Pietermaritzburg in October 1905 to debate 'that this Conference considers it desirable that steps should be taken to establish a Central African Laboratory for scientific research and for the investigation of diseases among livestock, in addition to the local laboratories'. Watkins-Pitchford spoke wisely and at length on the dangers of compelling scientists to produce 'results', the high costs of depressed times and the advantages of maintaining local work. Hutcheon supported the resolution. The president, G. D. Alexander, unethically from the chair, approved it with passion, beating his familiar drum on the iniquity of importing overseas scientists. The resolution was carried unanimously. It was reaffirmed again and again by constituent branches.

9 'Centralisation' and 'Closer Union', possibly in the form of federation of the Colonies, was now generally and officially in the air though Selborne counselled *festina lente*. Botha was consolidating his political forces while Smuts prepared to leave for England immediately the Government fell and the Liberals presented new possibilities. Selborne equably toured the Transvaal in the guise of 'a brother farmer', answering resentful questions and shaking the burghers by the hand, even offering them his tobacco pouch. At Wonderfontein in the steamy Marico district, the address of the local Chamber of Commerce specially welcomed Lady Selborne for the sake of her brother, Lord Edward Cecil who, as an Imperial commander, was affectionately remembered and esteemed. Lady Selborne was alleged to be learning Dutch. Her husband, genuinely and conscientiously, was integrating himself in the country's agricultural problems. There could be no political stability without economic productivity. The costly import of agricultural products had been only slightly diminished by local production.

In Buda-Pesth, the arena was far wider but the climate equally steamy. A humid heat afflicted the delegates immediately on arrival when they foregathered at the Hotel Royal on a tropical Saturday night of the 2nd September. Cordial greetings were exchanged between Theiler and Bang of Copenhagen, Perroncito of Turin, Arloing of Lyon and Leclainche of Toulouse, Leonard Pearson of the U.S.A. and other friends of Baden-Baden days. Best was meeting the seven-member British delegation led by Professor M'Fadyean with Stewart Stockman, A. E. Mettam of Ireland and Professor Frederick Hobday. Theiler could count on their support and also on S. B. Woollatt who, with his wife, had come from Natal. On the following night, delegates gasped and sweated in the unventilated Royal Palace where the Archduke Joseph welcomed them on behalf of the Emperor Frans-Joseph. There were great language difficulties, the host veterinarian Hutyra having earlier delivered his address in Hungarian which no one understood and by far the greater part of the later discussions being conducted in German.

10 Theiler was an eminent figure – for himself and his published works and for his command of the current languages (apart from the small British band, there were many English-speaking delegates from the U.S.A. and the British Colonies). Much of his time was spent in giving *viva voce* translations of the contributions of delegates in English, French and German during the discussion of papers of which his own was outstanding. The innovation of a section on Tropical Diseases was introduced by Lignières of Buenos Aires followed by Piot Bey of Cairo speaking on 'Diseases of Egypt'. 'Theiler of Pretoria' came next with much the same paper as he had prepared for the British Association, followed by Lavaran and Vallé of Paris, and Motas of Bucharest speaking on 'Protozoic Diseases of Domestic Animals'. Many, including the famed Dschunkowsky of Russia and Bitter of Cairo expounded and demonstrated their views. Theiler, Stockman and Woollatt dominated a 'good' discussion through their first-hand experience in South Africa and, in Stockman's case, also India. It was alleged to be the pleasantest and most instructive day of the Congress.

11 Six years had intervened on Baden-Baden where, alone and unknown, Theiler had established his liaisons with the international leaders in his field. Now, fortified by their recognition, he came as one of them, propounding novel notions, discoveries and techniques. The concept of the intermediary host, the use of new stains in revealing protozoa, the subsistence in an animal's system of dormant micro-organisms, the wide experimental techniques employed to identify a causative trypanosome or piroplasma and many germane subjects were enthusiastically discussed with Theiler proving a new and refreshing leader among the world's veterinary experts. 'Tropical Diseases' were suddenly thrown into demanding prominence. A large number of resolutions were passed emphasising the urgent need for investigation and the services of bacteriologists, mycologists, parasitologists, and entomologists. 'Piroplasmoses' were accepted as accounting for the principal cattle diseases in warm countries and, Theiler reported, 'our

knowledge regarding them is yet very meagre'. By no means alone in the field, his own work had excited high international interest.

The Congress was not well organised, much time being wasted by speakers reading long papers already in the hands of delegates. Emma examined Buda-Pesth and in the evenings, Arnold joined her for enchanting entertainments – dining on a ship drifting down the Danube with a gipsy orchestra aboard, fireworks and illuminations ashore; or wandering in the Stadtwaldchen talking to other delegates and enjoying an al fresco souper. There were also many excursions into the country to visit Stud Farms and stock-raising estates as well as abattoirs and other urban institutions. Arnold was immensely affairé, going specially to the Hungarian Veterinary College to watch Lignières inoculate cattle with his anti-Redwater serum and later inspecting it fully as part of his mission. His eye was always on what he would need for his promised laboratory in Pretoria.

12 He had reviewed the Pasteur Institute and the Alfort Veterinary College in Paris, the Bacteriological and Therapeutic Institute in Berne and the Bacteriological Laboratory of the Zurich Veterinary College, much developed since his student days. He had turned to his French and Swiss colleagues for help in his problem. Since the outbreak of Rabies in Rhodesia in 1902, Theiler had feared an epidemic in South Africa. He wanted a veterinarian who could prepare the necessary vaccine against it. Professor Zangger of the Berne Veterinary College recommended one of his graduates, Walter Frei and Theiler arranged for him to be trained in the procedures of preparing Rabies vaccine by his old friend Bordet, now director of the Pasteur Institute at Brussels. Frei began his service as an employee of the Transvaal Government in November 1906 and began work at Brussels in January 1907, reaching Daspoort on the 23rd April 1907 and bringing the original Pasteur strain of the Rabies virus.

13 Theiler also visited the Veterinary College at Vienna and, returning through Germany, made substantial purchases of equipment at the Zeiss establishment at Jena. (Zeiss gave Emma dainty opera glasses with purse attached which she used and safely kept all her travelled and troubled life.) Other laboratory purchases were made elsewhere.

14 There remained England and the many new friends made after the occupation of Pretoria and since – Colonel F. Smith, Stewart Stockman, John M'Fadyean, David Bruce who saw that he inspected the Bacteriological Laboratory of the Royal Army Medical Corps, and others who arranged his visits to the Lister Institute and to commercial suppliers. Theiler confided his staff problems to M'Fadyean who recommended his own assistant, Sydney Dodd M.R.C.V.S., demonstrator in Pathology and Bacteriology at the R.C.V.S. He had graduated in 1902 and gone to South Africa with the 10th Hussars, witnessing the post-war corruption of the country by the victims of animal diseases. He joined Theiler's staff in England on the 14th October 1905 as Assistant Government Veterinary Bacteriologist at £600 a year and sailed with him to South Africa soon after.

15 Stockman was in course of establishing at Weybridge his laboratory for the Control of Contagious Animal Diseases and gladly entered into coöperative arrangements with Theiler. The Buda-Pesth Conference had emphasised the urgent necessity of investigating in loco existing 'tropical diseases' and the danger of new ones being imported from abroad. Theiler mooted with Stockman the equally important problem of enabling the importation of thoroughbred animals to improve the local stock by pre-immunising them, particularly against Redwater. Much preliminary work had been done and they planned a systematic assault.

For Theiler, his four months' leave had been no holiday and he looked to the voyage to refresh him against coming battles. The English, disenchanted by Balfour and his effete Conservatives, were already exposed to electioneering propaganda, which, he heard on all sides, would carry the Liberal Party to power at the General Election early in the New Year. He sailed

in October with his family in the knowledge that he would have to fight for his new Research Institute and possibly without the help of his staunch allies Jameson and Smith. They might well be swept away in the new political order that was coming. Smith was on a well-earned holiday in England and Jameson would go on four months leave in January 1906. Theiler would be lacking support for the first months of his struggle and no one knew, except J. C. Smuts who left for England in December, what a new British Government might ordain for its Transvaal Colony.

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16 The family returned early in November 1905 in good time for Theiler to attend the farewell banquet for Sir Arthur Lawley early in December. Henceforth Lord Selborne himself, as Governor of the Transvaal and proponent of Lord Milner's maxims, would watch 'the scientific development of agriculture'. Theiler's hand had indeed been strengthened. Sydney Dodd immediately relieved him of much routine work in veterinary supervision and livestock inspection while undertaking vaccine production and the investigation of Swine Fever. Almost better  
17 was the appointment in January 1906 of a mature man, E. B. H. Parkes B.A. (Cantab) as Superintendent of Daspoort undertaking all routine administrative work.

At the same time, Theiler's 1904/05 Annual Report was published containing the astonishing locally-produced innovation of colour plates illustrating piroplasmas and trypanosomes drawn and painted by Charles Favre, the versatile Swiss who 12 years earlier had been co-secretary with Theiler of the Schweizerverein Helvetia in Johannesburg. There joined them now another  
18 compatriot of those days, Herman Oettli as a lay assistant together with R. White. Numerous natives to tend the animals on the station and grazing on adjacent leased farms (Theiler constantly increased the number of horses for serum-production and Sickness experiments) completed a staff unparalleled in any other Division. Equally unparalleled was the equipment costing £6,000 which continued arriving on Theiler's orders from overseas for grotesque  
19 installation in the collection of discarded military corrugated iron buildings which represented the Veterinary Research Institute. Long inadequate, they provided no suitable accommodation for sophisticated apparatus and Theiler, 'though well knowing that it is the intention of this  
20 Government to remove the Laboratory to a better place', addressed requests for additions to the stony-hearted Colonial Treasurer, W. L. Hichens who was acting for Jameson.

Resoundingly elected to office in January 1906, the Campbell-Bannerman Liberal Government (ably prodded by Smuts who soon returned to help organise Het Volk for action) abrogated the Lyttelton Constitution and appointed a Royal Commission under Sir Joseph West Ridgeway to devise a constitution appropriate to the Transvaal and Orange River Colony. The air of suspended animation that affected all but political parties, could not prevent the Transvaal Government from grasping the nettle created by the chaotic conditions of its various  
21 scientific laboratories led by Theiler's. On the 28th February 1906, the Executive Council appointed a Committee to enquire into the question of Government Laboratories of which George Turner and C. E. Gray were of the original 8 members. It was concerned primarily with duplication and over-lapping, the possibility of combining activities and the selection of appropriate sites. It met four times (finally on the 17th June) during which Herman Oettli, in common with his Daspoort compatriots Porta and Schneeberger, died of enteric, greatly emphasising the need for change, Theiler and Smith (who returned in March) gave impressive oral evidence, Theiler's supporting a written report of the 5th June of the Daspoort site (which was thought 'to be saturated with enteric organisms' owing to its earlier military occupation). Oettli's death had greatly shaken him. On the 14th May, the Pretoria M.O.H. Dr Boyd had

22 reported to the Committee on the prevalence of enteric at his Laboratory and condemned it as being unhealthy for human beings. Under the heading 'Typhoid and Other Illness at Daspoort', Theiler had written his Department on the 31st May supporting the removal of his Bacteriological Institute and asking for an immediate decision as his Horse Sickness experiments would suffer.

23 The Committee, equally shocked, thought otherwise. 'It would obviously be absurd', they said, 'to suggest the actual removal to any locality of the present laboratory buildings which are wood and iron erections, mainly of indifferent construction and quite unfitted for permanent serious work. The Government of this Colony will have, sooner or later, to sanction the expenditure of a very considerable sum of money for the purpose of erecting permanent buildings for a well-organised and well-housed Veterinary Station on a really suitable site and until such buildings are erected, there would be little advantage in ordering any hasty removal of the laboratory from its present site.' The days of the Transvaal Colonial Government were clearly numbered and no radical decisions involving 'very considerable sums' could be made. Nonetheless the search for a site was energetically undertaken and Smith and Theiler drove from farm to farm in the neighbourhood, hoping to find suitable land in the 'Middle Veld' – neither sub-tropical as in the Lowveld nor severely cold as at Frankenwald in the Highveld. Theiler's Department never wavered in its support and met his every request, further increasing his staff with Theo Meyer as Laboratory Assistant, W. F. Averre as Stockman and in August, transferring W. H. R. King as Technical Clerk. King soon became indispensable to all Theiler's paper work.

24 In all the turbulence of the times – with the entertaining of the first Royal visitors to the Transvaal, the Duke and Duchess of Connaught accompanied by General Sir John Maxwell (whom Theiler joyfully greeted at a garden party), with the Westway Commission making its investigations in loco, Het Volk busily preparing to fight an election in the inevitable Responsible Government, official approval of Federation of the Colonies to be promoted, deadly and dismaying depression accompanied by drought and massive locust invasion to be combatted, and a thousand and one delicate duties – Lord Selborne likewise never wavered in honouring the charge with Milner had laid upon him to protect and sponsor 'scientific agriculture'. The shocking revelations of the Laboratories Committee drove him to make his own investigation. F. B. Smith was instructed to act as his cicerone and, accompanied by Lady Selborne, they drove to the disreputable Daspoort where Theiler awaited them on the 12th July 1906. Ever with a sense of occasion, Smith had bought a Visitors Book. Selborne, Maud Selborne and F. B. Smith were the first signatures in it. Much passed through the High Commissioner's mind. On the 1st August, the West-Ridgeway Constitution providing for Responsible Government in the Transvaal was published. There would be a new order and new difficulties. 'Protection' might still be needed.

27 Theiler was doing interesting things. He and Stockman had succeeded in halting East Coast Fever with their policy known to the farmers as 'dip, fence, isolate or slaughter'. Calamitously the Zulu or Bambatha Rebellion which flared at this time despite police and military action in which Colonel Watkins-Pitchford (awarded a medal and bar for his services) took part, had the effect of reanimating the disease in Natal through the promiscuous movement of cattle. Watkins-Pitchford was well qualified to deal with it. More important for the general agricultural development of the country was the pre-immunising of imported stock. Since his Potchefstroom experiments of 1904, Theiler had conducted elaborate and lengthy tests on Redwater with its confusing alliance of the causative piroplasma begeminum and another which he named piroplasma parva. He became convinced that the latter (which his overseas colleagues making similar tests, renamed piroplasma Theileria) produced another infection and that if imported cattle



were to survive in South Africa (they usually died swiftly from Redwater), they would have to be immunised against both bigeminum and Theileria. He had presented this problem to Stockman in England and they planned a joint experiment. Acting for the absent Smith, A. C. Macdonald had authorised Stockman's purchase of 6 English heifers which, variously inoculated with English and South African Redwater, were sent to Pretoria and quartered on the farm Lynnwood. Their temperatures were taken and their blood examined daily. Only one died and Theiler felt he was on the track of a technique that could safeguard imported stock. The experimentation was long and involved but the result might be of the highest value.

30 Of more immediate importance was his work on Horse Sickness which consumed large and costly numbers of experimental animals (the Legislative Council cavilled at his estimate of £6,703 to buy horses and mules but duly granted it – the cheapest horses cost £5 and £10 and sound young mules between £17 and £20 each). Both the president of the Transvaal Agricultural Union and Selborne who opened its Annual Conference on the 10th July 1906, spoke of it. 'The experiments of the Government Bacteriologist in the inoculation of mules against Horse Sickness have proved most successful' the president said, 'and the losses from the process are infinitesimal. The whole Colony owes Dr Theiler its warmest thanks for the investigations that have produced such results.' Selborne, covering the whole field of agriculture, spoke of its scientific aspect and 'the great work done by Dr Theiler (applause) and of others engaged in similar work in their silent laboratories'. The Transvaal Union endorsed the earlier Inter-Colonial Union plea for a Central Laboratory. The following night Theiler addressed the Conference on Horse Sickness and the animals he had attempted to immunise at the height of the season in March. The results had been 'very satisfactory'. He had still to conquer the problem of 'aanmaning' or recurrence; but for the moment, his stock stood high. The next day, Selborne had come to Daspoort in a procession of visitors that never ceased.

32 Many came to learn the technique of the new inoculation. Alerted by his predecessor C. E. Gray, the Rhodesian P.V.O., J. M. Sinclair had spent three weeks in the ramshackle institution and returned with supplies of the serum to inoculate his Government's mules. He was followed by many other regional officers – W. H. Chase of Bechuanaland, Otto Henning of Basutoland, W. M. Power of Natal, F. Pereira and Dr de Amaral Leal of Mocambique, all coming to learn. 34 Of great pleasure to Theiler and doubtless F. B. Smith was the arrival of Henry G. Simpson M.R.C.V.S. at the instigation of Stewart Stockman and the British Colonial Office for a four-month study at Daspoort before assuming appointment in Nairobi as British East African Veterinary Bacteriologist. 'I hope', wrote Theiler in his Annual Report, 'that this will lead to our establishment becoming the training school for veterinary surgeons who wish to enter the Colonial Service.' His sordid collection of shanties on which all visitors commented, was already known world-wide as a leading centre for the study of tropical and other animal diseases. 35

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36 The search for a site had continued whenever Theiler and Smith could leave their offices. Sometimes Theiler went without him. On the 1st July 1906 he took Parkes to inspect a portion of the farm Onderstepoort (the lowest passageway) on which E. P. A. Meintjes held a 97-year lease. It was only 7 or 8 miles from Daspoort; the railway to the north and the Aapies River ran through it; the grazing was good and the land arable; its extent about 500 acres. Theiler considered it 'in every way a most suitable site' and forthwith wrote to Smith requesting him to obtain details and cost from Meintjes. Smith, in the interests of economy, had been fruitlessly trying to find Crown Land and had then considered Koedoespoort to the east of Pretoria where the Wesleyan Mission Station farm seemed a likely prospect if its trustees could be persuaded

to sell. Now he went with Theiler to inspect the latest hope, returning happily to Pretoria to seek Jameson's permission to obtain a report and valuation from the local firm of Dyer & Bosman, Meintjes' asking price of £5,150 or £21 a morgen was high. Smith had been shown nearby farms at very much lower cost but not nearly as suitable. In a long memorandum to Jameson on the 2nd August, he made his recommendation.

The expenses of Daspoort were extravagant. For almost all his working life, Theiler was wont to command 'en paar Paarden!' (a few horses) and later in Afrikaans 'n paar Perde!' whereat Averre was expected to produce any amount of horses, regardless of cost, for experimental purposes. Much the same obtained for other animals. In 1906, the daily Daspoort population was 187 horses, 214 mules, 32 donkeys, 53 cattle and 200 sheep and goats of which a small proportion subsisted on leased farms, the majority being stall-fed in stables at the Laboratory, bringing swarms of flies and contributing to its unhygienic condition. £5,700 was spent on their maintenance and £10,893 on buying more animals. At the Onderstepoort farm, grazing would be available, lucerne and other fodder could be grown and, Smith stated delicately, 'it would enable us to turn to good account the large amount of manure made at the Station which is now more or less useless'. These advantages in his opinion offset the high cost of the farm. He asked Jameson to get a decision from the Executive Council, then consisting of the Acting Lieutenant-Governor Sir Richard Solomon, the Acting Attorney-General H. F. Blaine, the Colonial Secretary Patrick Duncan, the Commissioner for Native Affairs Sir Godfrey Lagden (previously British Resident in Basutoland), the Colonial Treasurer W. L. Hichens, the Acting Commissioner of Mines H. Weldon and Jameson himself as Commissioner of Lands. With these conservative colleagues, Jameson did his work well and an amount of £15,000 for 'Bacteriological Laboratory' was put on the Supplementary Estimates.

The Legislative Council debated it on the 4th September, the chronic pinchbeck H. C. Hull making a contribution worthy of Kruger's takhaare. It were better, he said, to include the Laboratory in existing Government offices – a suggestion inspiring Hichens to remark that 'a diseased pig could not be put in that of the Colonial Treasurer' (his own). In a high implausible voice issuing from his ferocious red moustache, Smith presented an irrefutable case. The Station was inadequate to the huge demands made on it. Their hands had been forced by the regrettable outbreak of enteric and the loss of three valuable lives. The M.O.H. of the Transvaal (Dr George Turner) and the M.O.H. of Pretoria (Dr Boyd) had told him that the cost of converting the Station into anything like a sanitary condition would be enormous. The Public Services Commission and the Laboratories Committee had condemned it. The Horse Sickness work must be maintained. The country's livestock could not be kept alive without Dr Theiler. The Council must not have on its shoulders the responsibility of further deaths.

The legislators knew that, with what were considered unduly heavy charges and levies, Hichens had accumulated a sizeable surplus. Funds were in fact available. Jameson dilated on Smith's presentation and raised the required amount to £60,000 – about £5,000 for the farm, £10,000 for the buildings and about £40,000 for general expenses. The legislators felt that they had been tricked but passed the extended amount. Hichens himself had made a telling point early in the debate – 'it would take very much longer to meet Dr Theiler's requirements if they waited until Responsible Government came because they would have no money voted until next year'. Whomsoever it might be, the future Government was committed to the abandonment of Daspoort and the burgeoning of bacteriology in a new institute at Onderstepoort.

Jameson and Smith immediately took all the necessary steps, cautiously supporting their selection of Meintjes' farm by obtaining an opinion from Johann Rissik, now in private practice as a land surveyor. Smith, W. L. Strange of his Department, and Rissik inspected the property of which, Rissik pointed out, Meintjes was not the owner (it belonged to Cornelius Erasmus)

No. 160  
 Species Horse  
 Sex Stallion  
 Age 4 years  
 Received from

Height 18 hands  
 Weight  
 Marks Dark bay, star, saddle  
 marks, blind right eye.

DATE.	TREATMENT.	OBSERVATIONS.
9-10-02	Inj. subc. 5 10 c.c. blood <sup>A.R. 1906/07</sup> 400/158	No
26. 10. 02	Inj. subc. 5 100 c.c. carb. Ser: 17344	"
31. 10. 02	Inj. subc. 5 1 c.c. virus horse 102	No reaction
20. 11. 02	Inj. subc. 5 10 c.c. virus horse 166	
5. 12. 02	Inj. subc. 5 20 c.c. virus horse 216	
<u>Head of</u> <u>Hyperimmunised 5 horse blood.</u> A.R. 1903/04.		
2. 2. 03	Malleined.	
18. 10. 03		
3. 1. 05	Exported at Dundee Port.	
28 June 05	Received back from the Post	7/4/06 to F. Garfield
		5 Dec. 05 sent to Samuel Farrow
		7/4/06 received back
		7/4/06 to F. Garfield
1908.		
3. February	Malleined (Hation 20.1.08)	2. Feb. '08. Received back.
21. "	do (Grah. 22.7.07)	
		2 March. On loan to J. S. Tomball (th. Lacey's Farm Queen's River)
1914		29 March '14. Died of Stibily.

Experimental Record of a Horse - With his position regularised, Theiler recommenced work on Horse Sickness at Daspoort with infinitely lengthy and elaborate experiments. This rare report sheet records his meticulous methods with a single horse from 1902 until its death in 1917.



*Stewart Stockman*, the brilliant British veterinary scientist and administrator who was appointed Principal Veterinary Officer in the Transvaal and cooperated closely with Theiler in eliminating Rinderpest, East Coast Fever and other diseases.



*The Government Bacteriologist* travelled through the Transvaal by cart and train and sometimes on horseback.

but the lessor. He doubted whether Meintjes held the right to draw from the Aapies River half of its flow of water in his furrow; but even if it were only a quarter, it would suffice to irrigate the 25 acres adequate to the Institution. There was additional water from springs but Rissik strongly recommended that it be analysed lest it be as polluted as the Aapies. He also insisted that before transfer was made, the rights to water in the Zandspruit on the northern boundary be secured. The price, he gave as his opinion, was more than the owner could get at that time but, taking the advantage of the property into account, he 'had no hesitation in recommending the purchase of the land'. Smith then instructed the Government Attorney to conclude the sale and, subject to Meintjes' reaping his crops and removing two zinc buildings, transfer was completed toward the end of October 1906.

42 It was not until the middle of November that Parkes could properly get his hands on the property when he promptly ploughed up 80 acres of irrigable land, 70 virgin. Everything was against him including recurrent swarms of locusts which Simpson combatted with a new arsenical spray demonstrated adjacently to an official party of Patrick Duncan, Jameson, Smith, Dr Gunning and others including Theiler himself. Green forage was essential to sick and experimental animals. Parkes produced 200 tons at his first attempt. It was only part of his multifarious duties now divided between the discredited Daspoort and the new site.

43 It fell to Theiler to impart to Patrick Eagle, Chief Architect of the Public Works Department the immense amount of information he had accumulated in Europe on the best design for a Bacteriological Institute with all its complicated apparatus, techniques and services. His typical Swiss frugality diminished in proportion to the approaching realisation of his long-cherished visions. Neither Smith nor Jameson did anything to discourage him and Selborne himself was already in support. 'You can only really help agriculture through science if you insist on your Government putting down a sufficient sum of money every year and sticking to it', he shouted to Transvaal farmers at Potchefstroom on the 10th November after riding around the Experimental Farm in heavy rain all morning. 'Do not let your votes be promiscuous or sporadic. It takes the heart out of a man like Dr Theiler if, just at the moment when he knows he is coming to the fruits of years of experiments, an ignorant critic gets his vote reduced, clips his wings, takes away the weapons out of his hands and all the money you have previously spent has been wasted . . . You must have patience and you must have faith and you must have persistence in policy.' (Selborne was always translated into Dutch by F. T. Nicholson who, he said, improved his speeches.)

44 If Theiler were encouraged to plan in the grand manner, it was nonetheless strictly utilitarian and devoid of any but scientific extravagance. His constant advice on the comprehensive design which included not only laboratory buildings but animal-breeding installations, full farm services, black and white staff facilities, transport and a host of other considerations, could be given Eagle only when his routine duties allowed. They were many and related. In November when the whole project burned in his brain, he had to go to Ermelo with Gray to investigate yet another mysterious disease - Gouwziekte causing sheep grazing normally suddenly to jump convulsively and drop dead. Toxic plants were suspected. He intended drafting Sydney Dodd to Ermelo to establish an Experimental Station. Thence to Cape Town to represent the Transvaal at an Inter-Colonial Bacteriological Research Conference where he heard of many changes. 45 Back at Daspoort, he welcomed on the 28th November his laboratory's most significant visitor since the Buda-Pesth Conference. In the expectation that he would occupy the new chair of Tropical Veterinary Medicine and Hygiene at Berlin University, the Imperial German Government sent Dr Phillip Paul Knuth to Theiler for education in the animal diseases of Africa. It was done diplomatically through the British Secretary of State for Foreign Affairs, Sir Edward Grey and tout d'un coup, lifted Theiler into another sphere of eminence and enhanced his 46

47 vision of a great Veterinary College. Speaking German, he was particularly attractive to Knuth whom he found congenial and took with him to Natal in December to collect ticks infected with East Coast Fever coöperatively provided by Woollatt and his Durban veterinarian S. T. Amos. Knuth, sent by the German Government and H. G. Simpson, destined for Nairobi and sent by the British Colonial Office, worked for weeks at the same time at Daspoort as harbingers of international scientific coöperation.

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48 The temper of the times was reaching crisis level at many points closely affecting the community. Theiler, going about his own frenetic business – running Daspoort, planning the new institute, investigating new diseases (the ‘Tzaneen virus’ and the ‘Bulawayo virus’ producing new kinds of Horse Sickness, Gouwziëkte, Ephemeral Fever, etc.), introducing Walter Frei to his new duties, helping C. B. Simpson with his locust battle – was closely in contact with them. Poverty and distress met him everywhere. Hundreds of unemployed loitered about Pretoria, particularly around Meintjes Kop where they were encamped, with a rising degree of militancy. The Government (prodded by the Kindergarten’s Lionel Curtis who had written forcefully to J. C. Smuts proposing his services as secretary) finally appointed an ‘Indigency Commission’ on which F. B. Smith served. Curtis was a member and his colleague Phillip Kerr (later Lord Lothian) was secretary. It revealed an appalling state of poverty, demoralisation and depravity. Long before it reported, a mass meeting of unemployed had rioted in Church Square.

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50 The political temperature had been rising steadily since it became known that Responsible Government would formally be granted the Transvaal early in December. Het Volk arranged its Annual Conference at the same time, declaring its policy in forthright terms. (Of equal importance in the inscrutable Afrikaner manner was the sending of a cable to Paul Roos’ Springbok Rugby Team for the first time playing in England: ‘Congress of Het Volk proud of your victories’ which was agreed to great applause.) The Party’s policy included many proposed laws to foster Agriculture by various measures of which ‘more efficient and sympathetic coöperation between the Agriculture Department and the rural population’ was prominent. Gray and his Veterinary Department were hated and reviled for their rigid imposition of the East Coast Fever regulations and Theiler tended to be tarred with the same brush. The farmer-delegates were loud in their bitterness and complaint. ‘The vets simply played with other people’s property’, they said, ‘the regulations were designed to hinder, not help the farmers.’ Even D. J. E. Erasmus pronounced that it was not the regulations but the way they were applied that was objectionable. If a calf died, a whole district was put into quarantine. Angry men demanded to see Lord Selborne. Significantly a few days later, the quarantining of Pretoria and district was lifted and for the first time in nearly three years, ox wagons were again seen in Market Square.

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53 Politicians of all persuasions were on the stump, making full capital of the country’s real and supposed ills in wild flights of rhetoric. Smuts was alleged by the hostile *Pretoria News* ringingly to have addressed the arme burghers encamped on Meintjes Kop in bitter terms – ‘They knew an Agricultural Department had been established but there was a woeful lack of return for the enormous expenditure and that was because there was so little sympathy between an army of experts and a people who were not used to being driven. It would be different when the officials were dependent on the people and could be kicked out if they did not give satisfaction.’ It boded ill for Theiler and his colleague scientists. His friends took note and bided their time. Meanwhile it became known that Adam Jameson was leaving the service on completion of his five-year contract. Under a new Government there might be other changes.

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Het Volk, Progressives, a National Party (the erstwhile 'Responsibles'), Labour and many Independents contested the Election with mounting intensity in the New Year. On the 15th January 1907, the America entomologist C. B. Simpson based at Daspoort died of enteric. A few days later, Sydney Dodd, similarly afflicted, was carried off to hospital. Fanned by the Press, panic was produced in the dying Government. Typhoid and enteric were as usual endemic in Pretoria. Simpson might have been infected anywhere but fingers pointed relentlessly at Daspoort. The town's M.O.H. had condemned the site and ordered its immediate evacuation. Its Health Committee described the laboratory premises as 'a pestilential spot'. Regardless of future plans, the Bacteriological Institute must at once be removed. The responsibility lay with the Agriculture Department and the harassed Smith rushed off to find alternative accommodation. 'The erection of Dr Theiler's new Laboratory is proceeding as rapidly as possible', he wrote the Pretoria Health Committee on the 24th January, 'and in the meantime, we are endeavouring to procure quarters for him elsewhere in order that the site now occupied may be abandoned at once.'

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His first proposal to Jameson was that it be transferred to the South African Constabulary Depôt on the Pretoria Town Lands and Theiler went at once to inspect it, encountering such strong objection from the S.A.C. officers and Garraway, Pretoria's veterinary officer, that the proposal was dropped. Smith then suggested approaching Lord Selborne for accommodation at the military base at Middelburg, then being dismantled and sold (Smuts bought the wood-and-iron Officers Mess for £600 and re-erected it as his home on his Doornkloof farm at Irene). The Cantonments were 95 miles by rail from Pretoria and as impracticable as Smith's further idea of utilising Sammy Marks' nearer Hatherley Distillery which had been bought by the Government. In the turmoil of the approaching Election, the Executive Council could take no action beyond speeding the work at Onderstepoort, Theiler, distressed by the death of a close colleague, the dangerous illness of Dodd and the unsavoury reputation of his Institute, continued his work under a cloud. The Ermelo Experimental Station would have to wait. Sydney Dodd recovered and, taking six months sick leave, never returned, preferring the safety of Queensland in Australia.

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In high excitement, the Election took place on the 20th February 1907. Het Volk, led by the conciliatory Botha ('it was always the Boers who had to conciliate' while the British stood their ground, wrote the bitter Kemp) won an absolute majority increased by the support of the 'Responsibles'. Many of Theiler's old friends in the Volksraad were returned - General Schalk Burger, General Koos de la Rey, General D. J. E. Erasmus (unopposed at Wonderboom), R. K. Loveday and Botha himself who had fought for an Agricultural Department since 1892. Selborne sent for Botha. They were in good rapport but Botha needed time before he named his Cabinet. Smuts had a claim to the premiership. Theiler and others speculated whom their new Minister might be. F. B. Smith, immersed in his creative departmental work wrote exultantly on the 3rd March to Basil Williams (now in England but an early member of the Kindergarten entrusted with Education) - 'I am getting some splendid buildings put up for Theiler on a farm near Pretoria. It will be the best tropical bacteriological station in the world.'

The next day, the Cabinet was officially announced:  
Prime Minister and Minister of Agriculture - General Louis Botha  
Colonial Secretary - General J. C. Smuts  
Attorney-General and Minister of Mines - Jacob de Villiers  
Colonial Treasurer - H. C. Hull  
Minister of Lands and Minister of Native Affairs - Johann F. B. Rissik  
Minister of Public Works - E. P. Solomon  
Selborne assembled, thanked and dismissed the previous legislators and the new Cabinet was

sworn in by the Chief Justice. Within three weeks, Botha would be leaving for England to attend the Colonial Prime Ministers Conference in London. Smuts would administer the Government for him. In the intervening few days, only the most urgent matters could occupy them. One of them was spent at Daspoort.

61 Theiler had little notice when, on the 9th March 1907, the Prime Minister accompanied by General Smuts, F. T. Nicholson, secretary of the Transvaal Agricultural Union (and later allegedly appointed Botha's private secretary) and E. Ross Townsend, secretary to the Rhodesian Minister of Agriculture (for whom Nicholson probably translated Botha's habitual Dutch) arrived at Daspoort where Smith and Theiler awaited them. The visit was official and Botha came in both his capacities. Theiler and his work closely affected the new administration. There was also the current notoriety of Daspoort. More money would certainly be needed before Smith and Theiler's joint dream could be realised at Onderstepoort.

Theiler had prepared a careful tour beginning with the exhibition of microscopic slides of the bacteria causing the principal stock diseases. He explained how Equine Biliary had been combatted and how his success in immunising mules against Horse Sickness was being extended to horses. The party knew of the measures taken against East Coast Fever and Theiler told them he hoped to find a cure for the disease itself. He could protect sheep against Blue Tongue with a vaccine and cure them with a serum. He dealt with other diseases and demonstrated the grisly collection of bottled organs afflicted with Glanders, Osteoporosis, Tuberculosis, etc. He showed them his tick-breeding section and the smallpox lymph production department which supplied massive amounts to the Cape and other Governments at 2d. a tube and yet made a profit of £4,000 in 1906. He told them of the work Frei would be doing in producing anti-Rabies vaccine and investigating diseases, and of the tasks for which Dodd had been imported. He showed them such of his new equipment as he had been able to instal (Simpson's entomological laboratory had immediately been transferred to an office in Pretoria and there was now more space) and he expounded the wide field that would open for productive research when the new laboratory came into operation at Onderstepoort.

62 The clear blue eyes of Smuts and Botha surveyed it all, weighing the work that Theiler could do against the country's future. The man must be backed; but they told him only that they were greatly pleased with what he had done and was doing but regretted that it should have to be accomplished under such unfavourable conditions. In his bold curlicued hand, Botha signed the Visitors Book followed by the small precise signature of J. C. Smuts. It was Theiler's first official meeting with the men who would ordain his future. 'It may be mentioned', the *Pretoria News* reported, 'that a new site for the Bacteriological Institute has been secured two miles beyond Wonderboom and it is hoped that sufficient funds will be available for immediately proceeding with the necessary buildings.'



## RECOGNITION 1907-1909

1 THIS WAS THE TIME the Kindergarten had long been awaiting. Lionel Curtis, Patrick Duncan, Richard Feetham and their colleagues now applied themselves privately to the study of South African political problems in terms of the current climate of 'Closer Union', 'Federation', 'Centralisation' or 'Unification'. They were thought substantially to have influenced the men who might determine the country's future and in turn were influenced by the trends of the times. There was not an Agricultural Union in the sub-continent that did not advocate a Central Research Laboratory for animal and other diseases and when Curtis' 'The Government of South Africa' was published in 1908, it included the recommendation.

2 The tendency of thinking men was toward a future unified in some form; but the present reality was bitterly dissuasive. While Selborne had squabbled with the Colonial Office on the possible outcome of the forthcoming Transvaal election based on a problematic census (compiled under the direction of George Turner), the whole country had sunk deeper into deathly depression. Heavy Government and private retrenchment of staff was imposed. Unemployment escalated. Suicides abounded – some in despair through destitution, others in fear of prosecution for fraud, theft and other charges. Many of all races died of starvation or exhaustion. Smuts who had said in electioneering speeches that destitute servants of the Old Republic then walking the streets would be re-employed if Het Volk were returned, now told starving deputations that he could offer only temporary relief in pick-and-shovel work on roads. Thousands asked him for work in the Government service, he said, but there were no openings. They must go back to the land and help to stop the drain of millions of pounds in imported goods.

3 On the land itself, aid failed. The Cape Government reduced its grants to Agricultural Societies from £13,000 in 1906/07 to £3,000 in 1907/08. When the Cape Central Farmers Association asked for Refrigeration Trucks, the Government replied – no funds available; for imported Stud Stock – no funds; for more Veterinary Surgeons – no money; and so on. The ranks of the Veterinary Medical Associations throughout the country thinned as, unpaid by their clients, their members failed to find the small annual subscription. The longest drought in history produced desert conditions and where verdure appeared, the locusts ate it. For trifling jobs in any capacity, hundreds of men applied. Ruin seemed endless. Only the natives profitted by calamity by roasting and eating the locusts. A year later, Botha would say – 'We have struggled through a depression unprecedented in the history of this sub-continent but once we have accomplished this great feat, we shall get fresh courage . . .' The feat took long to accomplish and the tottering economy gave witness to the force of man-made disaster.

4 As if vengeful of the manipulative progress of Science, Nature struck back in a dozen unmanageable forms. Droughts and locusts were commonplace though unusually severe in 1907 which also marked the worst season for Horse Sickness. In Pretoria (where a 'galloping ambulance' was sent to urgent cases), horses died in scores and the Municipal Tramways were forced to limit their services to half-hour intervals. In Natal, using Theiler's serum, Woollatt lost 3 mules out of 800 immunised. Watkins-Pitchford, like Theiler, struggled to find a formula applicable to horses. It was suggested in the Transvaal Parliament that the South African Constabulary be mounted on mules and Botha replied that the experiment was already being tried. East Coast Fever hovered on the border while ravaging Natal and far to the west in the Northern Cape, the Vryburg Farmers Association became increasingly apprehensive that it would travel across the Transvaal and provide the final fatal factor in their stock-raising industry. Lamziekte,

long the principal scourge of Bechuanaland, was now rendering the country unfit for cattle-raising.

Hutcheon had engaged this disease shortly after his arrival at the Cape in 1880. Despite continuous study and observation, it had remained inscrutable and, apart from the beneficial administration of bone-meal and dosing with Stockholm Tar, no means had been found of preventing or curing it. It was the most enigmatic of diseases – neither contagious nor infectious, neither caused by insects nor toxic plants nor contaminated water, neither regional nor epizootic though the Northern Cape was particularly prone. A large body of information had been accumulated, some from native and some from qualified veterinary sources; but nothing useful could be deduced from it.

13 After the administrative convulsion in the Cape Agricultural Department in 1905 when Edington resigned, Hutcheon was appointed Acting Director of Agriculture from the 1st January 1906 and confirmed in the post in July when his previous assistant, J. D. Borthwick became the head of the Cape Veterinary Services and W. Robertson the Director of the Veterinary Research Laboratory at Graham's Town. In the meantime, Thomas Bowhill, continuing  
14 Edington's bacteriological work at Graham's Town, had been directed to examine Lamziekte (historically endemic in the Eastern Cape) and had pronounced that it was a form of poisoning caused by *Pasteurella bovis*, a well known syndrome. Many scoffed at his hypothesis including Hutcheon who, in the light of continuous outcries from stock farmers and members of Parliament owing to the increasing heavy mortality determined to make a systematic attack on the  
14 disease. He sent one of his best veterinarians, J. Spreull to Koopmansfontein in an afflicted area near Kimberley to make a series of lengthy and heavily-controlled experiments to which the local ranchers gladly contributed animals.

Spreull began his work in October 1906 in specially-fenced camps with crushes for the individual administration of bone-meal, Stockholm Tar, ash and other specifics. Hutcheon visited the Station in November. Both were fully familiar with the strange spectacle of cattle scavenging even in native kraals and huts for putrefying carcasses of veld and other animals, live tortoises, old bones, stones, manure, tins, even the horns of their fellows, and refuse generally as a sign of phosphate deficiency which diminished with dosage of bone-meal. But neither of them could identify the cause of the various forms of the disease – Lamziekte, Gall-Sickness, Stijfziekte, etc – which crippled animals, most of which expired eventually with agonising groans.

15 Hutcheon returned to the Cape confident that Spreull's carefully mounted experiments of at least a year's duration would produce reliable results and give authoritative judgment on the hypothesis which Bowhill, an original and assertive character, now stated as fact and resigned  
16 in pique when it was not accepted. If there were a micro-organism, it might be *Pasteurella bovis* or something else. In the then economic situation of the whole country, some definitive conclusion was essential to the reopening of vast tracts of land to stock-breeding. During the Rinderpest, Hutcheon had travelled over all of it, often in the company of J. F. Soga, South Africa's first qualified veterinary surgeon who at that moment, broken by his earlier exertions, died in East London of an alleged over-dose of laudanum on the 6th December 1906. Hutcheon publicly mourned a worthy colleague and foundation member of the Cape Veterinary Medical Association. Five months later he himself was dead.

17 From the Cape to the Zambesi, the whole sub-continent grieved. Hutcheon had been the pioneer of veterinary science and practice and a father-figure to all who followed him. His meticulous observations and descriptions of known and unknown animals diseases, often illustrated by his wife, his tireless work in the field, his urbane and persuasive manner endearing him to farmers of all races, his palpable integrity and love of his metier had established standards in a novel field which his assistants and colleagues strove to emulate. The devotion to his duty

18 entailing strenuous outdoor activity, microscopic and other laboratory work, and endless writing, mostly at night, all barely leavened by church, club and Scottish allegiances, finally killed him. In 1902 the Royal College of Veterinary Surgeons had elected him an Honorary Associate – its highest honour. Now a host of Members of Parliament and high civil servants saw him to his grave where a mound of wreaths topped by one from the Cabinet already awaited him. The force of the blow was reflected in the proceedings of every farmers' organisation throughout the land. A friend and leader had gone. Funds were opened to provide for his widow and two daughters left 'in straitened circumstances' through niggardly pension (£100 per annum). Monuments and bursaries were contemplated. F. B. Smith in the Transvaal circulated a plea for contributions headed by Merriman and all Colonial Directors and/or Secretaries for Agriculture. Owing to the depression, the results was painfully poor.

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20 In Johannesburg in August 1905, Bruce had said – 'It is to Mr Hutcheon that South Africa owes its knowledge of many stock diseases. For the last 22 years, he had laboured with the utmost earnestness in Cape Colony, often under trying conditions, and his description of the various diseases formed the basis of all the modern work done on the subject.' Theiler had never failed to acknowledge it from his earliest study of the Volksraad's copies of Hutcheon's Annual Reports and articles in the *Cape Agricultural Journal* to the end of his days. 'His name', he said, addressing the Third Inter-Colonial Agricultural Congress in September 1907, 'will be handed down to posterity; but I am afraid those living have hardly rendered him the thanks he was entitled to by his imperishable work. We will always look upon him as the pioneer of Veterinary Science in South Africa who, by his hard work and splendid services, has created an ideal for the members of his profession to emulate.' It was no perfunctory praise. Until his own death, Theiler would begin a paper on his latest research with reference to Hutcheon's original work describing the disease in question.

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22 All was already changing – terminology, techniques, attack. The germ, bacillus, bacterium, microbe, micro-organism, trypanosome, piroplasma, even protozoa were fading in favour of the 'virus' and various 'strains' with novel classifications, the 'antigen' and suchlike. The microscope in the hands of bacteriologists and bio-chemists was no longer focussed only on the structure and activity of causative organisms but on relative viscosities, surface tensions, volumes of blood corpuscles, polyvalent potentialities and other ancillary features. Of his work with Theiler in 1907, Walter Frei recorded – 'Many nights we were studying physical and chemical sciences together and of course immunological problems but always also pathological anatomy and physiology of actual disease.' They were following the ignis fatuus of a polyvalent serum that would overcome haemolysis in horses and abolish the dreaded seasonal Sickness. It was now obvious to Theiler that the new multi-disciplined approach demanded by investigation into animal disease was almost beyond his reach. When the new laboratory was ready, it would be easier.

23 Work had begun in June 1907 on the massive main building of the huge complex. It would house many laboratories, postmortem facilities and main services. A family of smaller installations would later sprout on the lush grassveld and would continue sprouting as the Institute developed. Jameson who had put teeth into Smith's original outrageous proposals, would never see it. He had been killed when the train taking him to Lourenço Marques in March on his way to Australia had been derailed in the night. (His funeral, attended by Selborne, Botha and his Cabinet, and notabilities of all persuasions, was the biggest seen in Pretoria other than Kruger's.)  
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25 Nor would George Turner, also a fervent proponent who in October left for final retirement in

England. Theiler attended a farewell dinner at the Leper Asylum where the faithful J. W. Phillips spoke at length on Turner's 12½ years in the service of the Cape and Transvaal Governments as Medical Officer of Health and of his unswerving devotion to the lepers among whom he lived, giving them all his free time and conducting important research into Leprosy. Theiler would miss his friend and supporter but they would maintain communication. Now he had new collaborators in the reconstituted Government. Under the Minister of Lands, Johann Rissik and the Minister of Public Works, E. P. Solomon, there was Colonel G. H. Fowke as Director of Public Works and the immovable Charles Murray as Secretary who watched every penny that the Chief Architect, Patrick Eagle spent on the expanding complex. None, instructed from on high, put impediment in Theiler's way.

26 The interim period between Daspoort and Onderstepoort was hard to bear. A gracious mansion would replace the little stone house that Theiler had hardily built in 1898 where Emma still bore the demanding burden of raising and cherishing the rats, mice, guinea-pigs and rabbits used for his experiments. It was too confined for four exceptionally energetic children – Hans aged 13, Margaret 11, Gertrud 10 and the tiny Max 8. They were strictly raised in accordance with their parents' opinionated principles. Prudence dictated that they should sit at the dinner table with all their fingers on the edge until a plate was set before them and speak only when spoken to; but Arnold and Emma's convictions ordained that Natural Science should be their God. A disdain for social convention particularly in clothes and manner early distinguished them. They were naturmenschen from the beginning. Relations with Uncle Alfred had deteriorated. In Switzerland in 1905, Arnold had found his younger brother an ardent Catholic and determined to become a teacher and not a Man of Science. Never taking kindly to being thwarted, Arnold resented the frustration of his plans to make Alfred his resident zoologist and a lamentable coolness developed. For nearly four years, no letters passed between them.

28 As much as he fell out with his family, Theiler fell in with the high and the mighty. He was as familiar with Government House as with Botha's home in Pretoria, at both of which garden parties and receptions were held. Emma, versed in haute couture, dressed for the occasion, garbing her diminutive frame in the feathers and furbelows of the time. Arnold, par contre, dressed specially for every occasion and spent much of his limited salary on an impressive wardrobe varying from frock coat and top hat and full evening dress with white waistcoat and tie, to tweed suits and wide-brimmed trilbys rakishly tilted, tropical whites and helmets, various working clothes, all with collars, shirts, ties, socks and boots to match. He had a strong sense of what was fitting to the status of a Senior Civil Servant and was always dressed in a manner upholding the dignity of his position and of his Government. In later life when neither obtained, he took the habit to the point of foppishness on his own account.

30 Strung like Mahomet's coffin between the heaven of Onderstepoort and the grubby earth of Daspoort (where at least the massive production of Smallpox lymph had ceased in July 1907), Theiler had somehow to deal with ever-increasing obligations. His research staff laboured under deplorable conditions on the tasks that he set them while he himself fulfilled a multiplicity of rôles. Government Veterinary Bacteriologist though he were, it was his duty to coöperate with Gray in framing and issuing 'Veterinary Hygienic Principles applicable to Stock in South Africa' and otherwise practically to assist farmers. He addressed their meetings and received them in number at Daspoort. By choice, he gave his support to the Transvaal Veterinary Medical Association (though he could not attend its meetings in Johannesburg), particularly in regularising the status of veterinary surgeons who sent a deputation to Botha in 1907. Gray's officers throughout the Transvaal were in constant communication with him, sending specimens and smears, reporting new diseases, offering theories on causes and treatments. The farmers were less forthcoming and preferred to talk to him personally.

34 Since the contretemps with Koch over Rinderpest, Theiler had made irrevocable policy of publishing the results of his investigations even at inconclusive stages and without being able to announce the solution of a disease problem. After Buda-Pesth and the catapulted prominence of 'tropical diseases', he was welcome in any professional journal overseas and contributed articles to M'Fadyean's *Journal of Comparative Pathology and Therapeutics*, the *Journal of Tropical Medical Science*, the *Veterinary Journal*, *Der Tierärztliche Wochenschrift*, *Monatschrift des Praktische Tierheilkunde*, *Revue Generale de Medicine Veterinaire*, Laveran's *Bulletin de la Societe de Pathologie Exotique*, *Bulletin de l'Institut Pasteur* and others. Every issue of the *Transvaal Agricultural Journal* (which was sent to appropriate institutes overseas) included his work and his annual reports containing the results of his own and his staff's researches became massive volumes. His output, despite distracting conditions, was enormous. In addition, he was called upon to compose lengthy lectures for annual agricultural conferences and, in July 1907, a series of three on Horse Sickness for a Vacation Course at Rhodes University College in Graham's Town attended by distinguished colleagues. Published as a whole in the *Cape Agricultural Journal*, they were Theiler at his best.

35 The stream of visitors to Daspoort (where his administrative staff had been increased in June by C. F. Hinds and T. Mauchlé as clerks) continued and widened. Its fame, proudly publicised by Selborne, was well known to the Colonial Office and, deplorable though its appearance, it steadily moved toward Theiler's ideal of a Colonial Veterinary College. In May 1907, he received R. E. Montgomery of the Indian Colonial Veterinary Department at Lahore and Dr Allan Kinghorn of the Liverpool School of Tropical Medicine which had commissioned them to investigate fly-borne diseases in Northern Rhodesia. A few weeks later, the Principal Veterinary Officer of British East Africa based at Nairobi, the later Colonel Robert J. Stordy C.B.E., D.S.O., called on Theiler. A darkly-bearded impressive figure like his host and renowned for great resource and scientific knowledge, Stordy found much of interest to see and hear – a facility which he was later to reciprocate.

36 All these activities and particularly the prophylactic measures against East Coast Fever, the success of the immunisation of mules and the inoculation of sheep against Blue Tongue, were closely watched by Selborne and Botha, both anxious to restore the economy of the country. At its first hurried session in March 1907, the new Transvaal Government had no Estimates of Revenue and Expenditure to consider. When Botha returned from England at the end of May, he had immediately to address himself to the drafts which Smuts, Hull and others had prepared. In August at the Second Session, the Appropriation Bill was discussed and under Agriculture, 38 A. G. Robertson (president-elect of the Transvaal Agricultural Union) delivered a polemic against 'one of the most unpopular departments in the country'. Gray and his men were fiercely attacked but, said Robertson, 'we are to be congratulated on having such a man at the head of affairs as the present bacteriologist'. Others deplored the lack of rapport between the department and the farmers. Botha said nothing. It was his first appearance in the Transvaal Parliament as Premier and Minister of Agriculture. On the 12th August he spoke for the first time – in Dutch – 39 40 defending his 'new department' and justifying his large Vote. It could produce no 'returns' in the usual sense but was worth every penny. 'If there is one man who has done much to assist the farming population', he said, 'it is certainly Dr Theiler and I hope the time is not far distant when some substantial recognition of his services will be made . . . We have not yet had time to go into the question of salaries but we shall go into it thoroughly and regulate them according to the work the officials perform.' (Theiler's salary continued to remain at £1,200 per annum).

Botha deplored the lack of agriculturally-trained South Africans and the need to import overseas experts, announcing a plan to subsidise six young men yearly to study abroad. He made the speech of a leader and loyal Minister. Members felt contrite and tried to explain the

41 attacks on his department (it was the high-handed actions of the mostly English-speaking Constabulary and veterinary surgeons in enforcing the East Coast Fever regulations that everyone resented). Heavy subsidisation of agriculture was agreed. 'I am glad to say', Theiler recorded in his official report, 'that the late Government decided to move our quarters to a fresh site and the present Government carried on the scheme, voting an additional sum for the purpose.' Little more than the foundations had been dug but Botha had shown a forceful hand and continued to do so.

42 The Parliamentary Session closed on the 20th August and on the 26th, Botha found time to deliver a rousing address (translated by F. T. Nicholson) to the annual conference of the Transvaal Agricultural Union. No politician or administrator could now afford to ignore such bodies throughout the land. Paying tribute to the Union's longstanding drive toward coöperation, Botha harangued his influential audience on the need for greater production. 'At the present time, we are importing articles into the Transvaal at a yearly value of some five or six million pounds. This vast sum of money must be kept within our own borders and in addition, we must export our surplus products. We are sending vast quantities of raw products out of the country to be returned to us as manufactured articles. This is specially true of woollen goods and articles manufactured from leather.' His plea was that 'large areas of land now locked up' be developed for production. 'I expect more from you', he told the Union, 'than I do from the Agricultural Department'. On that day, representatives of destitute unemployed whites begged the Government to provide more relief road-work.

43 Under the chairmanship of Smuts, Theiler addressed the congress on 'Recent Researches into Tropical Diseases', telling his audience of the catalytic effect of the Buda-Pesth Conference in promoting study and the creation of appropriate chairs at Veterinary Colleges, and mentioning the continuing stay at Daspoort of Dr Knuth. He reserved his personal inspirational message for the Third Annual Congress of the Inter-Colonial Agricultural Union (with the Cape's C. G. Lee as president) a month later. Smuts opened it on the 30th September 1907 in his usual rôle of substitute to Botha, a prey to influenza and other ills. Smuts, inclining toward Federation, poured cold water on the cherished project of a Central Research Institute, believing that each Colony should carry on its own work. Dr Theiler, he said, had assured him that all diseases could be stamped out when his new Laboratory came into operation. (During the Conference, 44 all the distinguished delegates visited Daspoort - P. J. du Toit, Cape Secretary for Agriculture; J. D. Borthwick, Hutcheon's veterinary successor; Charles Lounsbury; W. Robertson of Graham's Town; Claude Fuller of Pietermaritzburg; James Butler of Cradock, editor of the *Midland News and Karroo Farmer* and brother of Charles, editor of the *Vryburg Northern News*; and numerous others.)

45 Always speaking to 'loud applause', Theiler delivered a masterly review of 'The Prevention and Eradication of Stock Diseases' in which he asked the farmers to have faith in the scientists whom the Government provided and equipped. He concluded with a purple passage expressing his own convictions - 'The various South African Colonies possess establishments for the purpose of investigation on the lines indicated. The Cape Colony was the first in the field and Natal followed. The Transvaal has in the past supported scientific work to a great extent although till now the buildings were not equal to our needs. However the late Crown Colony Government of this State saw the necessity of enlarging the premises of our Veterinary Bacteriological Laboratory and Responsible Government, being also in keen sympathy with the idea, accorded their hearty support - sanctioning the expenditure of over £50,000 for the purpose - and at the present time, the work is progressing so well that in a few months we hope to take up our abode at Onderstepoort, a few miles outside the Capital. We are building a laboratory sufficiently large, not only for the requirements of this Colony but also for the study of these great problems 47

of South Africa, not only for the present time but also with a view to the requirements of the future. And, being convinced that the salvation of South Africa in eliminating disease will ultimately remain with the sons of the present generation, we have made provision to educate them, hoping that in the near future, the new Government Institution will train our sons in Veterinary Science and they in turn will be sent forth to assist you in the prevention and eradication of all South African stock diseases.'

- 48 Three weeks later, he received a CONFIDENTIAL letter from Government House in Selborne's own exceptionally large hand: 'Dear Dr Theiler - I have reason to know that His Majesty the King is contemplating bestowing on you the honour of Companionship of St Michael and St George in recognition of your great contribution to veterinary science. Let me say what pleasure this news has given me and how abundantly in my opinion you have earned the honour. I wish however to ask you confidentially whether I may assure His Majesty that this honour will be agreeable to you.' Selborne would have secured Botha's assent (or vice versa) before approaching Theiler (Botha himself had accepted only non-official tributes in England) and the way was clear for him to accept. Selborne at once cabled the Colonial Office and when, weeks later, Theiler received the formal intimation of the Earl of Elgin and Kincardine, Secretary of State for the Colonies ('it has given me much satisfaction to submit your name to the King in recognition of your services in the Transvaal and of your distinction in the sphere of practical and useful science which is, I am assured, acknowledged far beyond the borders of the Transvaal itself'), his acceptance was carefully phrased - 'I can assure you that I esteem this honour greatly and look upon it as an encouragement to all who try to do their duty in whatever capacity under the Crown they are employed.'

In the eyes of some, Theiler was now 'verengelsed' ('Englished') in the same sense as Botha who trying to hold himself aloof, had been lionised by the British, their King and parliamentarians. Theiler's adherents paid little regard (he was, after all, the servant of a British Colony); but Botha, leader of Het Volk, was to suffer all his political life from the captivating admiration of the English.

- 52 Selborne's secretary immediately requested a list of Theiler's degrees for gazetting which was cabled to London early in November. The news broke in South Africa on the 6th when King Edward's Birthday Honours were announced. They were singular in the absence of peerages but included a knighthood for the politically-luckless Richard Solomon who that day had presented the Cullinan Diamond to the King on behalf of the Transvaal Government. There were only two South African C.M.G.'s - Theiler and Major Timothy Marcus McInerney, a giant Australian whose cold grey eyes had roved over Daspoort in December 1906 but whose formidable appearance had belied a congenial nature (he was now serving as a Transvaal magistrate).
- 53 The London *Times* in a leading article remarked: 'Among the Companions of the Order of St Michael and St George, we note with pleasure Dr Theiler whose work in eradicating plagues of animals is known to every South African farmer; Major McInerney, fittingly rewarded for his thankless and laborious task as Chairman of the Compensation Commission in the Transvaal; Sir Isidore Spileman and public servants in Australia and Canada.'

It was indeed a remarkable honour for the Swiss veterinary bacteriologist. It was also preposterous. When it came to rewards for contributing to Colonial economy, none deserved it more than Hutcheon who died virtually penniless and unrecognized by any body than the Royal College of Veterinary Surgeons, his own Government proving both ungrateful and ungenerous. As for the Transvaal no one had laboured harder or more loyally and doggedly at achieving 'reconstruction' than the unimposing F. B. Smith whose favoured subordinate had now been distinguished above his head. It was even more preposterous that the King should have honoured not only a foreigner and previous enemy alien but a quasi-belligerent for Theiler had written

55 in his published letters how, as a member (allegedly non-combatant) of the Staatsartillerie, he had drawn Major Wolmarans' attention to an undetected advance of British troops who had then been shelled. With good cause, Watkins-Pitchford, then struggling to keep East Coast Fever at bay with new dipping techniques and still combatting Horse Sickness, burned with indignation. Both as veterinarian and as military officer, he had served his country well, suffering much in Ladysmith and saving Natal from Rinderpest and other diseases. It was not in Selborne's mind to consider such issues. He had plans to make the fullest use of Theiler as one of the most potent forces in stimulating the agricultural economy.

56 Normally he would have invested Theiler with the insignia at Government House in Pretoria but he stage-managed a more effective scene. The award had been warmly welcomed in South Africa and in overseas and local professional journals. Theiler went dutifully about his daily business, perhaps with slight additional authority and swagger as photographs portray but retaining the common touch. The walls of the great building at Onderstepoort were rising and contracts were being allocated for its ancillaries (the well-known Johannesburg firm James Thompson received one in December for £17,295 for 'certain buildings') Theiler's preoccupations were prodigious. The atmospheric character of the times had changed from deep depression to tension and excitement. A new future was opening and the whole public seemed involved in hot controversy as to whether it should be determined by Federation or Union of the Colonies, any man feeling competent to express his views. Of all the inherent issues – race, suffrage, transport, health, communication – the agricultural economy was basic. If he took no part in political discussion, Theiler knew that he was an essential cog in the wheels then beginning to turn.

57  
58 Selborne made his dramatic *démarche* early in 1908. He had planned a tour of the Eastern Transvaal (which had particularly benefitted from Theiler's East Coast Fever work), beginning with the opening of the first agricultural show at Middelburg since the war. For what he proposed, he persuaded the Minister (Botha) and Secretary for Agriculture (F. B. Smith) attended by Theiler to accompany him and Lady Selborne as far as the dorp which had always been an important farming centre, largely English-speaking. Much of the district came to town on the 5th February when the Mayor H. Laver welcomed the distinguished party, addresses were presented to both leaders and the Show was formally opened by Selborne in the presence of a crowd of about 1,200. A ceremonial luncheon was then held in a large marquee where, replying to the toast of His Majesty the King, Selborne unburdened himself of his usual homily about increasing agricultural production. They had amongst them, he said, one man, not a farmer, who had done more for the farmers than any man he knew in the Transvaal. That was Dr Theiler and he went on about the mules and the East Coast Fever and the Blue Tongue.

Selborne then waxed lyrical about unsuspected virtues in his sovereign. There was no more enthusiastic farmer in the world than King Edward and it did not matter whether the farmer was in the Transvaal or in England – his whole hope and interest was in the welfare of the farmers. His Majesty had followed with intense sympathy the great sufferings and difficulties of the farmers in the Transvaal and also the work that Dr Theiler had done. Turning toward him, Selborne dramatically declaimed – 'King Edward has ordered me, as a mark of his Imperial approval and respect for the work which you have done in the cause of science throughout the world but more especially for the work you have done for the farmers of the Transvaal, to confer upon you the Companionship of the most distinguished Order of St Michael and St George' (of which he himself held the Grand Cross). Theiler stepped forward and Selborne pinned the seven-pointed gold and enamel star on his coat amid loud applause. Its motto was *Auspicium Melioris Aevi* – Augury of a better age.

59 Responding to the toast of the Minister of Agriculture, Botha spoke in wide terms sensitive to current feeling. He plainly advocated Closer Union and the absolute necessity to produce and



export. Drily he remarked – ‘The Government has now built a laboratory for Dr Theiler and from this I expect good results’. He was giving Theiler everything and every man he needed.

60 In January, James Walker who had done promising work as a district veterinary surgeon, joined  
61 Walter Frei as Assistant Veterinary Bacteriologist. In August, ‘because of the ravages caused by  
internal parasites in domestic stock and the impossibility of this work being thoroughly studied  
before’, Theiler caused Dr L. H. Gough, a zoologist trained at Basle, to be transferred tempo-  
62 rarily from the Transvaal Museum under the Agricultural Department, to Daspoort. The post  
would in due course be gazetted and he still hoped Alfred might fill it. In September, Dr K. F.  
63 Meyer of Zurich was appointed Pathologist and in October, a number of lay laboratory assist-  
ants including the first woman, Miss L. Basson. King would head a growing clerical staff. As  
the great building neared completion, engineers, an electrician, a storekeeper, caretaker, yard  
foreman, farrier and others swelled the staff while Parkes who ruled the whole domain of farm  
64 and installations, was assisted by W. B. Beeton as farm foreman, Otto Meyer as stockman and  
K. Pietersen as gardener. Few outside Theiler’s immediate circle had any concept of the extra-  
vagant Palace of Science which was being constructed in the thick yellow grass north of Pre-  
toria at a time of excruciating distress and depression.

\* \* \*

The excitement of phenomenal times and activities failed to take Theiler’s feet off the ground. He was always conscious of his lack of academic training in the many sciences which now clamantly demanded his attention if he were to solve the animal disease problems so confidently referred to him. He maintained his interest in the local Ornithological Society (of which he later became president) and in the Pretoria Branch of the South African Association for the Advancement of Science whose annual conference in Durban and Pietermaritzburg in July 1907 he had been unable to attend (Watkins-Pitchford had taken the delegates over his Allerton Laboratory and demonstrated his work on cattle diseases and Horse Sickness). The Association had then recorded receipt from its British colleague of the die and twelve medals struck from it and resolved to award the first ‘South African Medal’ at its next annual meeting in Graham’s Town. Theiler had also retained a close personal interest in the Transvaal Veterinary Medical Association and went with Gray to persuade the Prime Minister to enact an ordinance giving its members status and rights.

65

The dynamic presence of Science was heartening but Theiler and others felt that it was compartmentalised and that a common forum should be provided for specialists for their mutual advantage. He himself particularly wished to sit at the feet of zoologists, botanists and chemists. He had talked about it to his colleagues in various fields and on the 9th December 1907, pre-  
66 sided over a meeting convened by the entomologist C. W. Howard (who had taken C. B. Simp-  
son’s place) at the Old Volksstem Building when it was agreed to form the Transvaal Biological Society. The founders were the botanists J. Burtt-Davy, I. B. Pole Evans and Miss Leendertz; the zoologist Dr J. W. B. Gunning, director of the Transvaal Museum of whose supervisory committee Theiler was a member; the bacteriologist Walter Frei; the biologist A. J. T. Janse and one or two representatives of other disciplines. At a second meeting on the 12th January 1908, a constitution was accepted, Theiler was elected president and C. E. Gray, the bacteriologist J. Walker, the chemist H. Ingle and others were added to the foundation members. All were expected to read at least one paper at a monthly meeting and the results were various. At the  
67 February meeting, extremely indigestible fare was provided for the few lay members who  
timorously attended – Howard on Ticks, Frei on the Viscosity of the Blood, Gunning on Osteoporosis in a baboon’s skull, Gough on Wireworm in Sheep, Theiler on East Coast Fever

68 transmitted by various kinds of ticks, and Burtt-Davy on Transvaal exotic plants, Dribok poisoning and Mendelian characteristics in cross-breeding maize. The general public recoiled from these lengthy and prolix displays of preciosity. Later some of the papers were unworthy of the occasion.

69 The number of members increased very slowly but Theiler's idea of a concert of scientific minds and a sharing of scientific knowledge gradually developed. He pursued it with ardour (never missing a monthly meeting and frequently contributing esoteric papers) and with customary demands on Emma. 'I have a vivid recollection', Janse wrote 30 years later, 'of a very happy dinner given to a small group of members by Dr Theiler at his house in Pretoria West (Daspoort). We also visited his then rather primitive establishment near his house and he was anticipating the erection of a new place. We all were, as we were at the meetings, like a happy family with the pleasant personal touch of a small gathering of people who have the same interests.' For Theiler, the disadvantage was that, through private study and the zealous reading of scientific journals, he knew almost as much as they. He hankered always after an opportunity to make a deeper study of the disciplines which most closely affected him, notably Botany and Helminthology (worms as parasites). They were increasingly featuring in the diseases with which he had to deal.

70 While Spreull grappled with Lamziekte at Koopmansfontein on the Kaap Plateau and convinced himself that Bowhill and Robertson had been right in ascribing it to *Pasteurella bovis* or some new *cocco-bacillus* which he had been able to isolate and reproduce, Stijfziekte or Stiff Sickness which was believed to be another form, appeared at Zeerust in the Western Transvaal. Theiler and Gray hurried there in March 1908 and watched a scene long familiar to them both - strong beasts so stiff in the legs and discomfited by inflamed hooves that they stood awkwardly with their front feet advanced and their backs arched to avoid pressure. Pain caused them to try to stand on the heel of the hoof so that the two toes separated and, lacking wear, grew in upturning curves. Ultimately they could not stand, lay down and died of starvation on the open veld. Hutcheon had thought that like Lamziekte, the conditions was due to phosphate deficiency and was remediable with bone-meal. Theiler and Gray, looking at acute cases, believed it was the same Laminitis that afflicted horses. The Transvaal farmers had long ascribed it to the stijfziekte bosje, a tough little plant with hard bean-pods. Theiler consulted Burtt-Davy and in a long series of experiments, drenching cows with gallons of infusions from the culpable *Crotalaria Burkeana*, finally established in 1910 that Stijfziekte was Laminitis in cattle caused by the plant. The chemist Ingle had helped in analysing the bones of victims.

72 Much wider fields of research than those revealed by the mere microscope now confronted the Government Veterinary Bacteriologist and with them, more varied experiments and investigations. The earlier emphasis on sera-therapeutics in a laboratory was tending to drift toward more field work at experimental stations in situ. Frei was sent to the Western Transvaal to investigate cases of Lamziekte which he reported in the fullest detail without discovering a suspected infectious organism; but the disease died out and his station was closed, later being reopened at Christiana further south. Carefully specifying the experimental attack, Theiler sent Walker to a farm near Lake Chrissie in the Ermelo district to identify the cause of Gouwziekte in a long series of feeding tests with muzzled sheep and others running free. In the best Theiler tradition, Walker meticulously chronicled every aspect of the disease without divining the 'unknown toxin' that caused it.

75 It was hardly possible for Theiler to grasp these nettles at this time. His attention was divided between his over-crowded, over-burdened and over-worked Daspoort and the rapidly advancing building at Onderstepoort with its complicated installation of every known modern equipment. Visitors continued to plague Daspoort and to bring him news of the outside world.

76 For the whole of his career, Theiler never failed to pay close attention to public affairs. At this time, they affected him personally. The urge to congregate or move toward 'Closer Union' was now evident at every level, including the normally torpid farmers, downcast by depression, drought and the hovering menace of East Coast Fever still ravaging Natal and menacing the Transvaal and Northern Cape. In March 1908, representatives of the Cape Agricultural Union, the Central Farmers Association and the Eastern and Western Boards of Horticulture met specially at Port Elizabeth to unite their voices in the creation of a 'Chamber of Agriculture of the Cape Colony'. If the concept were stillborn, it nonetheless betokened a general trend operative at all levels and rapidly becoming overt in the political field. For Theiler, it could mean a change of course.

77 Early in May a crucial Inter-Colonial Conference of leading personalities took place in Pretoria to consider the practical implications of 'Closer Union'. It allegedly boggled the issue but made a significant recommendation. On the following day, Selborne opened the first Show organised by the Pretoria Agricultural Society since the war. At the luncheon (where Jakob de Villiers as Attorney-General announced the dissolution of the hated Constabulary), he made one of his dramatic announcements when replying to the toast of Agriculture - 'I cannot for-  
78 bear to remind you that yesterday was an historic day in the history of South Africa. Yesterday, for the first time, statesmen representing the people in all the four great white Colonies of South Africa decided that the time had come when a National Convention should be summoned to consider the question of Closer Union (applause)'.

79 For Theiler, everything concatenated. 'In 1908', wrote Frei picturesquely, 'the new laboratories at Onderstepoort were built and we dislocated.' Their full operation and formal opening were five months distant and the intervening dislocation at Daspoort required constant control. Selborne selected the 14th May to bring two of his most distinguished house-guests to visit it -  
80 Sir Walter Hely-Hutchinson, Governor of the Cape Colony and president of the South African Association for the Advancement of Science, and Robert Coryndon, Resident Commissioner in Swaziland and later Governor of Kenya. Theiler well knew of Sir Walter's close connection with David Bruce and his deep interest in Science. Two weeks later, the Association's offices  
81 in Cape Town announced that the South Africa Medal and £50 prize presented by the British Association had for the first time been awarded to Dr Arnold Theiler C.M.G.. He would receive it at the meeting in Graham's Town in July.

Apart from the dislocation and the host of problems involved in setting Onderstepoort in motion, he had two other matters on his mind - the building had been designed to include a lecture room which could serve as a small Conference Hall. If he could persuade the Transvaal  
82 Veterinary Medical Association to transfer to Pretoria the venue of its meetings in Johannesburg, he could vitalise the vets by discussing their affairs at the new Laboratory and giving demon-  
83 strations in situ. Secondly he was already planning for the Ninth International Veterinary Conference to be held at The Hague in September 1909. If the last had been catalytic, the next might be even more significant. He had so far failed to persuade his Government to send him as a delegate but would go on his own account, urging the local practitioners to become members of the Conference so that they might benefit from its papers. Theiler's mind ranged far and wide while constantly applied to the thousand vexatious matters still impeding the running order of the new Laboratory and its equally exigent estate.

84 On the 29th July 1908, the Transvaal Legislative Council received the historic message from the lower house recording its resolution that a National Convention be called to determine the means of uniting the several self-governing Colonies into a body under the Crown and that Rhodesia be offered admission. Botha spoke to it on the following day. There were too many countries in South Africa, he said. Action taken by one was being nullified by action taken by

others. 'No doubt we shall all hail with delight that bright day which will bring to South Africa the sublime message "One God, one land and one people".' He moved concurrence in the resolution. Henceforward and especially when the National Convention began its sittings in Durban in October, no notability was available for any purpose, even his own official duties. All were delegates or advisers.

85 Three days later, Theiler left for Graham's Town to receive his medal and £50 prize. Sir Walter, entangled in the historic moment at Cape Town, was unable to preside and his cognisant speech was read for him by Judge T. L. Graham. The Acting President of the Association, Professor Selmar Schonland, made the award in felicitous terms. 'Your work', he told Theiler, 'illustrates in a particular happy manner the fact that progress in applied science must go hand in hand with progress in pure science . . . The Council is confident that with your knowledge and enthusiasm and with the splendid resources placed at your disposal by your Government, we may look forward to continued important results of your researches which will to an enormous extent benefit our country.' It was an occasion after Theiler's own heart - colloquy with varied scientists, many already friends, and the chance to expound his own field in a lecture on 'Tropical and Sub-Tropical Diseases in South Africa'. Plaudits were pleasant but the appreciative approval of his own kind was warming and encouraging indeed. On his way back 86 he delivered at his Department's request the same lecture to the Bloemfontein Philosophical Society.

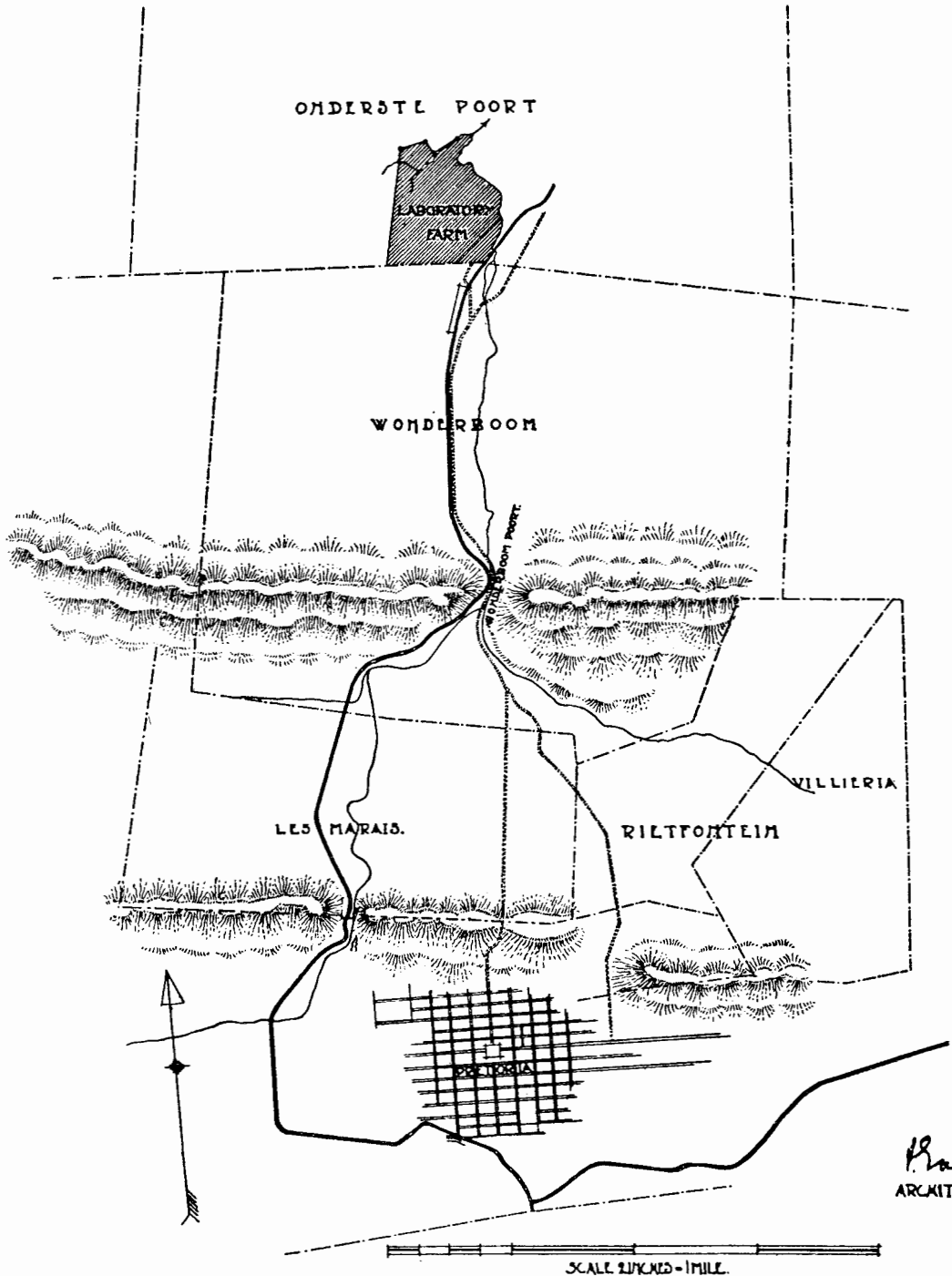
87 Barely had he returned to Pretoria than the Royal College of Veterinary Surgeons elected him an Honorary Associate and there were further floods of congratulation. He had already 88 been awarded a similar honour by the Société Centrale de Médecine Veterinaire of Paris. He 89 knew too that it was largely through his efforts that the organisers of the Ninth International Veterinary Conference had already constituted a 'National Committee for South Africa' consisting of himself, Gray and Christy for the Transvaal; Watkins-Pitchford for Natal; Borthwick of Cape Town and Robertson of Graham's Town for the Cape; and, illogically, J. M. Sinclair for Rhodesia and Robert Stordy for British East Africa.

90 Theiler hoped that Onderstepoort would be in running order in October 1908. F. B. Smith, so largely its originator and so enthusiastically implicated in its development, would not be there. Botha was sending him in August on a six-month tour of England and the United States to study advances applicable to the new South Africa. When 'Closer Union' came, there would be very great organisational difficulties. Advised in time, Theiler secured authority for Smith (staying at the Savile Club in London) to request Stockman to buy 20 pure-bred but inexpensive heifers for experiments in Redwater and Gall Sickness. Stockman duly selected Sussex heifers at £20 each and Smith sent them to Theiler who received them in January 1909. He would be able to discuss his results with Stockman when he 'came over' later in the year, Smith would have told him of the wonders of the new Laboratory which, during his absence, would be cherished by C. E. Gray as Acting Director of Agriculture.

91 As far as it was possible at a time of ferment and conflicting views (Curtis' 'The Government of South Africa' was then meaningfully published), Botha devoted himself to the affairs of his Agricultural Department. Speaking to the Diseases of Stock Amendment Bill in the Legislative Council, he revealed the failure of Theiler's stringent regulations. Natives had gained the support of the Courts in demanding full compensation for tens of thousands of cattle due for slaughter. The cost would have bankrupted the Government. Other means would have to be found. Persons posing as veterinary surgeons carrying infected ticks were suspected of vengeful spreading of East Coast Fever in the same manner as the earlier Rinderpest. There were other difficulties. Nature would not succumb to Science without stubborn resistance. Theiler had had to draft new measures for his Minister.

The farm that Theiler wanted.

- BACTERIOLOGICAL LABORATORY •
- ADMINISTRATION BLOCK •
- AT ONDERSTE POORT •



*Boyer*  
ARCHITECT

CHURCHAS •  
CHIEF ENGINEER •  
PROVIDORIAL •



*The Colonial Governors* – (left): Sir Hamilton Goold Adams – Orange River Colony; Sir Walter Hely-Hutchinson – Cape Colony; Lord Selborne – Transvaal Colony and High Commissioner for South Africa; and Sir Henry McCallum – Natal Colony.



*Lord Selborne* opens the Standerton Agricultural Show in 1907. (Extreme right to left): F.B. Smith, Secretary for Agriculture; Lord Selborne, I. B. Pole Evans and Arnold Theiler. A mounted detachment of the South African Constabulary forms a guard of honour beyond the crowd.

92 Botha even managed to open the 8th Annual Congress of the Transvaal Agricultural Union in September and was reminded by its president A. G. Robertson (prompted by F. T. Nicholson, the original and enduring secretary) how the Union had briefed him in 1897 to fight in the Volksraad for an Agricultural Department with reliable statistics, an Agricultural College, experimental farms, meteorological statistics, a Government Chemist, a Forestry Department, a Bacteriological Department, an Agricultural Journal, a Veterinary Department, the import of pure-bred stock and the federation of agricultural interests, all of which had been accomplished in the last eleven years (he did not say – by the British). Then Botha went away on National Convention business and his Department attained its highest moment without him.

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93 In September 1908, the 'dislocation' from Daspoort to Onderstepoort took place. Since it was a serum factory as much as a research laboratory, the move was a major feat accomplished by the over-worked staff under the stimulus of transference from a slum to a palace. In fact Onderstepoort was at that time one of the wonders of the world, a reputation which it retained. With Theiler constantly looking over his shoulder to assure attention to essential detail, Patrick Eagle had designed a T-shaped building with a lengthy frontage of 303 feet and a 51-foot depth surmounted by a second storey 77 feet in length whose gabled roof terminated in a tall clock tower. The stem of the T extended behind to a length of 80 feet with various installations around it including an adjacent quadrangle surrounded by stables. Dwellings, staff quarters and a hostel for students would be built at a distance on a novel 'garden city' plan.

94 This monstrous complex now stood incongruously on a site bared by building activities in the Transvaal bushveld surrounded by tall grass and thorn trees. On the 8th October 1908, Theiler formally issued a circular advising all and sundry that the move had been completed and asking for note to be taken of the new address. He was sitting in his lordly office in the new building with his private laboratory for the study of protozoa at hand and King in charge of technical records next door. A house-telephone connected him with all the principal services and laboratories and they with each other. Huge windows adequate to maximum light for microscopic work and protected by insect-proof gauze (mosquitoes abounded) extended along the building whose ceiling were 13 feet high to promote airiness and coolness in the sometimes searing heat. The floors were granolithic and curved where they met the walls, eliminating corners that would harbour dust. Every device had been employed to ensure cleanliness and freedom from dirt.

When he walked down the long corridor extending to left and right of the entrance, Theiler would find each one of the many laboratories similar to his own, equipped with gas, steam, electric light and power, and hot and cold water. Each had heavy teak tables with sunken sinks and glass-fronted fume-cupboards whose independent flues disposed of noxious smells and gases from experimental work and sterilising. Each was furnished with solid cupboards and shelves and equipped with small incubators, vacuum pumps and electrically-powered centrifugal machines. There were also three fully-fitted sterilising rooms. In point of equipment alone, the place was a marvel.

A bacteriological laboratory produced mallein for Glanders, tuberculin and vaccines for Pleuro-pneumonia (Lung Sickness) and Quarter Evil (Sponsziekte). Adjoining rooms provided storage for glassware and laboratory apparatus. There was a pathological laboratory and other rooms for producing vaccine for Rabies and Blue Tongue, and Horse Sickness serum which in 1908/09 amounted to 3,341 doses supplied to the four Colonies and also Bechuanaland, Swazi-

95 land, Rhodesia and German South West Africa. (In the Transvaal, Theiler later reported proudly, 2,165 mules had been inoculated of which only 128 or 5.9% had died.) The Institute also made pathological examinations for its neighbours.

The large operating theatre and postmortem hall were fully equipped including the latest ingenious devices. Of particular interest to ingenuous visitors was the narrow-gauge rail-track with turn-table flat cars which brought sick or dead animals from the stables to either theatre or hall and carried them back, or by a branch line to a distant destructor (this consisted of two 'cremators' with a tall chimney in between and could incinerate five or six horses daily as well as all refuse). The track encircled the stables and had multiple uses including the delivery of forage. Also on the ground floor was a photographic laboratory including among its equipment a Zeiss micro-photographic apparatus and other cameras. Here Theo Meyer laboured to record Theiler's teeming protozoa, clinical cases and events at Onderstepoort and in the field.

The smaller second storey was devoted to academic ends and constituted a rudimentary Veterinary College. Its small raked lecture room was equipped with blackboards and a screen to receive the image of slides 'thrown by the microscopic projector'. There were several small laboratories for students and a Pathological Anatomic Museum where hideous specimens lurked in jars in huge glass-fronted cupboards and more hideous anatomical specimens were hidden in massive chests of drawers.

The main complex included an open quadrangle in the rear surrounded by stables variously housing sick and experimental animals or those under observation. All were gauzed and guttered, lit and ventilated, each stall labelled with its animal's recorded number sometimes running into several digits and letters. Theiler's phenomenal memory was already famed for its ability to recall precisely the number of an animal, perhaps long dead, which exhibited features to which he wished to refer.

A large number of ancillary buildings stood in the vicinity of the main complex. Despite the withdrawal of Cape custom, the production of calf lymph for Smallpox was still an essential activity for the benefit of the sub-continent including Mozambique. The output of the small building devoted to it touched 300,000 tubes in 1908/09. Each aspect of the Institute's vast range was separately housed in specially-designed accommodation - dog kennels; piggeries; a breeding station for rats, mice, guinea pigs, rabbits and other experimental small animals; a segregation stable for special cases; an isolation stable for infectious animals; and eight separate stables for non-experimental animals.

There were also - some combined, some separate and some brought from Daspoort - forage stores, a carpenter's workshop, a farrier, a saddler, a shed for wagons and farm implements, and a 'buggy house' which contained the carts and traps used when no convenient train could be stopped at the siding to take passengers to town. Pride of the place was the maintenance works for the most modern equipment astonishingly installed in a research institute far from established source. It had in fact to be entirely self-sufficient, relying on a power plant producing a considerable but not altogether adequate volume of electricity, a lighting plant, a boiler house and gas-production unit, a borehole and pumphouse, and an outstanding water tank 40 feet high to produce sufficient pressure to service the laboratories, stables and distant dwellings.

96 The animation of this vast and varied empire which included farming activities and the management of leased properties, entailed heroic demands on Theiler and his men. The 'dislocation' and its sequelae imposed new burdens on over-worked staff and, he reported, 'overtime became the order of the day'. Not only did farmers now reply in hundreds to questionnaires which he had sent them about various diseases but, inevitably, Onderstepoort became a magnet to all and sundry. Expecting to have all its wonders demonstrated to them, about 300 visitors made the journey from Pretoria to see the Institute in its first eight months. In his pride



and gratification at the realisation of his life's work and ideals, Theiler undoubtedly anticipated that in common with Pasteur and Koch, he would be honoured by his grateful Government in the naming of 'The Theiler Institute'.

97 In time, there were developments, alterations and extensions but from the outset, Theiler devised a regimen for himself which luckless assistants learnt to dread despite the equanimity of his manner and the rarity of his losing his temper. For the first time in her life, Emma had space and could organise her household in a capacious and elegant dwelling (designed by Eagle to conform with the overall Cape Dutch gabled pattern except that the roofs were not thatched but corrugated iron.) As always, the family rose at dawn, the children now having to travel to school in Pretoria North. Formally dressed, Theiler left the house at 6 a.m., walked the odd hundred yards to his office, discarded his coat and crossed the passage to the rear section where Avere awaited him, holding his famous white apron and tied it at his back. A native with a bucket of water and towel now joined the procession which progressed to the operating theatre where horses were to be bled and immunised blood simultaneously infused. If Theiler took a hand in the operations, it was washed by the native and dried on the towel. The procession then moved into the quadrangle where the various staff members responsible for the different cases led from the stables for inspection, awaiting him to answer any questions he might ask or receive his instructions. His hand might be washed many times. Finally, back in the building, Avere removed his apron, he returned to his office, re-assumed his coat and, walking back to his house, arrived for breakfast at 8 sharp. At 9, he returned to his office and laboratory where he worked until 1 p.m., having lunch at home and a 20-minute siesta from 1.30 until 1.50 when the Institute hooter roused him. From 2 to 5, he was in the main building or grounds, returning home for supper and the lifelong habit of reading scientific journals or studying until about 11 p.m.. Despite the distance from Pretoria and the inconvenience of traversing it by horse and trap at night, Theiler continued to attend the monthly meetings of the Biological Society and, now that they met alternately in Pretoria, those of the Veterinary Medical Association.

98 The initial aspect of his empire was not altogether prepossessing. The site of the great complex had been cleared of all vegetation and levelled. Dust flew in dense clouds from the uncovered soil. The surrounding veld with its high grass and thorn trees was green from the summer rains and Parkes and his gardeners sought to emulate it in laying out the Institute's grounds covering many acres. Formal gardens with shady trees were planned for the main building and dwellings. Theiler wanted it done quickly so that all would be shipshape and Bristol fashion when Botha came on the 11th January 1909 to open the new Bacteriological Institute and, on the 12th, a Pan-African Veterinary Conference, hastily convened on the Prime Minister's instruction in the spirit of 'Closer Union' and the knowledge that South Africa's defence against disease must operate far beyond its borders. Distinguished delegates would be coming from the Cape to the Congo and beyond. The whole organisation devolved on Theiler himself with some help from his Department. His cup would have been filled to overflowing if his friend, the newly-knighted 99 David Bruce, had been able to come. While in Uganda in 1903/04, Bruce had pursued a theory that some type of trypanosome carried by tsetse flies caused Sleeping Sickness. In 1908, the Royal Society's Commission on the disease again sent him to the area and he landed at Mombasa with Lady Bruce, Captains A. E. Hamerton D.S.O. and H. R. Bateman of the Royal Army Medical Corps, and Captain E. P. Mackie of the Indian Medical Service at the moment that Theiler took occupation of Onderstepoort. His experimental station was located in a remote and undeveloped area of Uganda whence it was inconceivable that he should travel to Pretoria. Letters however were exchanged.

Many of Theiler's enlarged staff – Dr K. F. Meyer, Miss Basson, Davies, Schultz and others – first assumed duty at the new building in October and had much to learn from the old hands

100 who had troubles of their own in adjusting themselves to new conditions, however superior.  
101 All the vaunted facilities did not at first work perfectly and, hampered by constant visitors, Theiler was much occupied with solving technical and organisational difficulties, planning the grand opening, assisting in compiling the Commemorative Book which would follow it, and directing the complicated procedures and agenda for the forthcoming Conference whose delegates were to be honorary members of the Pretoria Club. His enthusiastic proposal that the South African veterinary surgeons should meet at the same time and form a National Association proved too ambitious for the harassed practitioners. The year ended in a frenzy of preparation and augury of disaster.

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102 The first meeting of the National Convention in Durban had been trying owing to the great heat and humidity which had affected many of the senescent delegates. It adjourned early in November for re-assembly in Cape Town at the beginning of January 1909 and there it stayed until February. By the end of December, it was known that Botha could not return to the Transvaal to open the Conference he himself had convened and that Onderstepoort would have ceremonially to be opened by someone else. On the 30th December, it was announced that Johann Rissik, Minister of Lands, would take his place. Rissik proved unavailable. At the last moment, Jakob de Villiers, the Attorney-General and 'the only member of the Transvaal Government at present in the Transvaal' as he himself said, was pressed into service. By then, the delegates were assembling in Pretoria in impressive array:

- J. Carougeau, Tananarive, Madagascar
- A. D. Bertolotti, P.V.O., Belgian Congo
- R. E. Montgomery, Liverpool School of Tropical Medicine Unit in the Congo
- J. M. Sinclair, P.V.O., Rhodesia
- P. Conacher and O. W. Barrett (who had inaugurated veterinary services in Portuguese East Africa only 7 months earlier)
- Otto Henning, P.V.O., German South West Africa
- W. H. Chase, Bechuanaland Protectorate
- F. A. Verney, Basutoland Protectorate
- W. A. Elder, Swaziland Protectorate
- Colonel L. J. Blenkinsop D.S.O., P.V.O. British Army in South Africa
- W. M. Power, P.V.O., Natal
- A. Grist, P.V.O., Orange River Colony
- J. D. Borthwick, P.V.O., Cape Colony
- W. Robertson, Director of Veterinary Bacteriological Institute, Cape
- C. E. Gray, P.V.O. and Acting Director of Agriculture, Transvaal
- A. Theiler C.M.G., Director of Veterinary Laboratory, Transvaal
- L. H. Gough, Zoologist, Veterinary Laboratory, Transvaal

Nigeria, Egypt and the Northern African Colonies had also been invited but the short notice and long voyages prevented their acceptance.

105 On the 10th/11th January 1909, the heavens opened on Pretoria and precipitated unprecedented volumes of rain, continuing almost uninterruptedly into March in the worst floods ever known. In January alone, double the usual quantity of rain fell. Beginning with five inches in four hours, Onderstepoort and all its works were flooded. The Aapies River ran 100-yards wide and Beeton tried to salvage the bodies of a white man and woman which he saw tumbling past in the swirling flood. Hour upon hour on the 11th January, thousands of tons of water

poured upon the new institute, wrecking its more fragile installations and converting its unsettled grounds into an impassable quagmire littered with the debris of destruction. A washaway threatened the Onderstepoort railway bridge and all communication ceased. Theiler's plan to hold the Conference in the Laboratory was brutally annulled. Desperately he applied to the  
107 Department of Prisons to send a party of convicts at the earliest feasible opportunity. They came during brief intervals in the downpours and cost him £53.

The delegates, huddled in their soggy quarters in Pretoria, emerged on the 12th January to pick their way to the Executive Council Chamber in the Government Building. The town was  
108 in chaos. At the Lion Bridge, the Aapies in wide and furious spate had destroyed dwellings and warehouses. Several lives were lost. Gunning was washed out of his zoo and many of his valuable animals drowned and their cages destroyed. Louis Botha in Cape Town and Selborne in Pretoria sent messages of condolence to the Mayor. In the moist heat familiar to them all, interspersed with torrential downpours, the delegates assembled to hear de Villiers as Acting Prime  
109 Minister make his usual perfunctory speech, scuttling off immediately thereafter. As Acting Director of Agriculture, C. E. Gray was elected to the chair and Dr Gough as secretary. Theo Mentzl, translator to the Department, interpreted for the foreign guests. Day by day, Theiler took those that he could to the ravaged Onderstepoort where most of them signed their names in the Visitors Book on later visits after the Conference. The great occasion had dwindled into a mudlark but the stately building with its manifold marvels still stood on the flooded veld and Theiler was determined that it should be seen.

The Conference sat, in token of his interest and regard, in the Prime Minister's own office and, veterinary rather than scientific, worked well and to the point in coming to practical conclusions. Head and shoulders above the others in knowledge of African stock diseases, Theiler dominated it. The agenda took the form of a list of scheduled diseases, each introduced by a delegate in whose territory it particularly figured except in the case of East Coast Fever which was of general concern. Appalled by Natal's inability to come to grips with its increasing incidence through lack of funds, the large amount of native-owned cattle and other factors, the Conference approved a resolution moved by Theiler that Natal be helped by the South African Colonies in their own interest. The principle obviously could be thorough-going and embrace all Africa in the spirit of Botha's (and/or Smuts' - it was never clear) vague concept of Pan-Africanism.

Montgomery introduced Trypanosomiasis (Sleeping Sickness in humans and Nagana in cattle) in an address suggesting the inculcation of flies additional to tsetse, paying tribute (as Theiler always did) to the pioneering discoveries of Bruce. He impressed Theiler who had received him at Daspoort 18 months previously on his way to Northern Rhodesia with Dr Kinghorn. Now Theiler found that during that time, they had been conducting precisely similar investigations as himself on various forms of trypanosomes conveyed by flies, both tsetse and others, with equally baffling results. The known trypanosomes - brucei, congolese, dimorphon etc - had habits and peculiarities demanding deep investigation. The blood of an apparently  
(and enduringly) healthy horse, for instance, could kill another animal when injected, its resident  
110 trypanosome becoming effective. Montgomery brought specimens and animals which, after the Conference, were most usefully discussed at Onderstepoort. Theiler, supported by the Belgian Congo and Portuguese East Africa, had approved Montgomery's resolution that 'an extended enquiry into trypanosomiasis' be made and had moved one of his own that all results be centralised, obviously at Onderstepoort.

The Conference moved on to the training of Colonial Veterinary Surgeons and the praises of the Palace of Science in the Transvaal were inevitably sung, Bertolotti regretting that 'under the restricted instructions of his (Belgian Congo) Government, he was unable to ask Dr Theiler

to allow him to remain for a month or two to follow the experiments being carried out there'. Theiler said that his Institute had been specifically designed for that purpose and offered it as a place for training Colonial Veterinary Surgeons. He caught a Tartar. Considering Bacteriological Research in general, the Conference with equal inevitability resolved that 'in Pretoria, the time would be most favourable for a meeting of the Chiefs on the various veterinary laboratories to discuss the question of the most economical distribution of routine and research work'. With dramatic speed, Smith's vision of 1902 inspired by Theiler and approved by Milner was coming to fruition.

111 Theiler went on to urge the publication of a continental scientific journal on work on tropical stock diseases. (In his need, he had used the *Transvaal Agricultural Journal* for the publication, in the fullest unintelligible detail of his complicated experiments, causing the *Pretoria News* to protest that it was becoming too technical and that '12 pages of quite incomprehensible tables would be as little understood by farmers as Greek verse'.) With many other active signs of Pan-Africanism, the Conference ended with resolutions proposed by Theiler to foregather again in about 3 or 4 years but at longer notice and with better planning. The committee appointed to organise it consisted of Sinclair, Power, Bertolotti, Carougeau, Theiler and Verney. Disastrous though its debut, the meeting had been a triumph for Theiler's visionary aims. It had brought men of like mind together and identified urgent common purposes, notably the consolidation of prophylactic measures in the subcontinent and the communication and sharing of research results. Its significance was widely noted locally and abroad.

112 Before departure, the delegates were fêted by the Transvaal Government at a banquet in the Pretoria Club attended by the Mayor, J. G. van Boeschoten, F. T. Nicholson and others at which they lavishly praised the new Institute and drank 'to the success of the Onderstepoort Laboratory'. Theiler replied with suitable distribution of credit. To the Press, the foreign delegates ('exceedingly popular socially') expressed themselves expansively. 'C'est magnifique!', exclaimed Bertolotti and Carougeau's admiration was unbounded. Less than a week later, the heavens again opened and Onderstepoort was swamped anew by another five-inch fall in four hours and continuing torrents. The damage was serious

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116 Botha and Smuts were back in their offices on the 10th February in an atmosphere of high excitement after the arrival of the first printed copy of the draft of 'The Great Act of Union'. (Pretoria was incensed at the 'ridiculous proposal' that Cape Town should be the legislative capital and Pretoria the administrative.) Botha was genuinely concerned with Theiler's affairs and when F. B. Smith returned from the U.S.A., sat for a formal photograph with him and Theiler for the publication commemorative of the opening of Onderstepoort. As Prime Minister, he asked the Governor Lord Selborne to perform the opening ceremony of 'Dr Theiler's Institute' on the 3rd April 1909 when the Transvaal Parliament met before the final meeting of the National Convention in Bloemfontein in May; but the incumbent could not manage it. 'A lot of repairs, alterations and cleaning required to be done', Theiler told his Minister who then asked Selborne to open it in June. Selborne agreed but stated that if still absent in Swaziland, Lord Methuen, Commander-in-Chief of the Imperial forces in South Africa, would deputise for him. In the tumult of the times with the whole country re-aligning itself for the forthcoming Union and himself incapacitated by heavy colds, Botha gave up and on the 9th June, advised Selborne that the official opening of Dr Theiler's Institute had been abandoned.

117 Onderstepoort, the climax of Theiler's 17-year struggle, was never officially inaugurated and he was left with the empty souvenir of the splendid Commemorative Book, carefully planned

and executed, published in July 1909 by the Government Printer. It listed his major publications from the first days at Daspoort onward and those of his senior staff – Dodd, Walker, Frei, Gough and Meyer. The body of the book was intended to reflect their current work beginning with Theiler's 'Immunity in Tropical and Sub-Tropical Diseases' written in his exemplary lucid logical style; but the contributions of Walker ('The Diagnosis of Bacillary Plasmosis in Bovines'), Frei ('Haemolysis in Practical Veterinary Science'), Gough ('The Anatomy of *Stilesia Centripuncta*') and Meyer ('Pathological Anatomy of Pleuro-Pneumonia') were lost on the layman, however much they betokened the thorough and advanced work being pursued. The book, excellently illustrated, was useful to present to the distinguished guests who now thronged the Laboratory; but the guerdon that he had coveted had slipped through Theiler's hands. 'Onderstepoort' it remained and not 'The Theiler Institute'.

118 The burden he carried had been and continued immense. (In 1907/08, the Laboratory had received 661 letters and despatched 1,112 – in 1908/09, it received 5,815 and sent 5,666.) Two of his senior assistants, Walker and Frei, were in the field and precluded from helping in the daily routine. Theiler specially commended his over-worked clerical staff and demanded more. The width of his work in engaging the whole field of stock diseases made illimitable demands on men, experimental animals, time and energy. He looked forward to going on overseas leave in August. Even Bruce had turned to him for help. Confronted by an endemic disease in calves called by the natives 'Mkebe' in the depths of Uganda, he telegraphed Theiler early in February asking whether he could recommend a veterinary surgeon for the Protectorate. Theiler had telegraphed 'No' and followed with a letter of the 12th February saying that no vet would come at the offered salary of £400/500 when even their District Veterinary Surgeons got more than £500. He had added that he intended to travel to Europe via the East Coast in August and would like to discuss stock diseases with Bruce in Uganda but required every moment of his leave in Europe.

119 At the end of 1908, Arnold's mother had had a seizure which gave Alfred (now married and possessed of a daughter Klara) an opportunity to reopen communication with his brother. 120 Arnold replied early in January 1909, enthusiastically offering Alfred appointment as zoologist at the Transvaal Museum, Gough having been transferred to his own staff. He had, he said, sufficient influence to ensure it, the cost of Alfred's and his wife's passages to be paid. Pleading a dislike of lecturing in English, Alfred declined; but the rift had been bridged and letters now 121 passed regularly between them. In March, Arnold showed his hand. Describing the size and international character of his new Institute and the diversification of its work (Gough investigating intestinal worms in sheep, Frei facilitating immunology by physical chemistry, etc), he wrote – 'Now I feel as director that I ought to know a bit more about all these investigations than I in fact do so as to be in a better position to judge the work of a scientific nature which these people do. This is particularly the case with Zoology though not so much in other fields.' He suspected Frei of being as deficient in knowledge of Zoology as he himself was of Physics and Chemistry. His plan was to ask his Government for a two-month extension of his leave to study all three subjects for a whole semester at Zurich University while consulting appropriate colleagues. His aim was to qualify for a doctorate of philosophy by a particular work in Helminthology, bearing in mind the host of parasitic worms which infected South African stock. He would bring specimens which, typically of Theiler, he had long been collecting. He collected everything.

'As a one-hander, I have difficulty with the histological techniques', he continued, 'but I think Professor Lang will have no objection if I do this work at home with the help of my wife. By the aid of private tuition, I will compensate for the lectures which I shall not be able to hear during the semesters and shall offer a good salary to a zealous tutor.' He hoped his under-

graduate two years at Berne would count with Zurich. Would one winter semester qualify him for the doctorate? He needed it to convince his Government that 'I had really applied myself to study and further, I would give to my colleagues and assistants an example of my energy and love for work and Science.' Alfred must lay the matter before Professor Lang. Meanwhile

122 Theiler tenaciously pursued the problem of immunising horses by advertising, by cajoling the farmers and by invoking the help of the Police in obtaining large numbers of animals for experimentation at huge cost permissible only in a comparatively affluent Transvaal. His cry for 'en paar Paarden!' was now for troops of horses. The Sickness prospered after the rains, particularly in Bechuanaland where desperate farmers annually boarded their animals on high-level 'safe' properties during the season.

Theiler's energy, possibly stoked by success, was boundless and his leadership irresistible. He had harangued the Transvaal veterinary surgeons into subscribing to The Hague Conference to the number of 48. Now, still trying to see Smuts about the regularising ordinance, he besought them to form a National Association which could consort with its African fellows. He also demanded their support in founding a Veterinary Journal and otherwise implementing the recommendations of the Pan-African Conference. Like Hutcheon who had done the harder work, Theiler strove to enhance the reputation of the veterinary profession, particularly among the farmers who had made much mock of Smith's men. Many a bucolic jape testified to the ridicule initially heaped upon them. 'n Perd is 'n perd maar 'n hexperd is 'n verdomde esel!' (a horse is a horse but an expert is a damned ass!) exclaimed a Boer in the witness box when twitted by a veterinary surgeon's evidence. Now the wheel was turning full circle and country newspapers gleefully retailed a possibly apochryphal story:

124 'A Boer in the Transvaal resolved to take a rise out of the Agricultural Department. Having to send a blood-smear of a dead ox, he subtly prepared a second with his own gore and told his neighbours of the fool he was making of the "ingevoorde Engelschman" and his new fangled regulasies. Some weeks later when the long envelope brought the official report, he called his neighbours to rejoice with him over the jest and the schoolmaster was impressed to interpret the precious report which ran somewhat as follows - "To Johannes Hendrik Petrus Boonzaaier Esq. Vlakvarkfontein - Sir, With reference to the bloodsmears furnished by you on the 15th ult., I have the honour to inform you that the one - that of an ox - shows no trace of disease. The blood on the other side appears to be that of baboon in an advanced stage of senile decay. I have the honour to be, Sir, your obedient servant, etc."'

125 While Theiler tenaciously pursued his ends, Bruce equally tenaciously pursued his friend. After receiving Theiler's February letter at his camp at Mpumu, Bruce wrote on the 11th March 1909 to the Uganda Chief Secretary making a very plausible case for persuading the Transvaal Government to give Theiler two months special leave to act as consultant. Mkebe, Theiler had written, might very well be a form of East Coast Fever. 'I need hardly point out the extreme importance of this statement', Bruce wrote, 'as East Coast Fever is one of the most deadly of all cattle diseases.' The Governor concurred and a copy of Bruce's letter was sent to F. B. Smith under cover of a letter of the 1st April stating 'The possibility of consulting this distinguished scientist on the subject of the various diseases which are affecting cattle in Uganda would be of great advantage to this Administration and I am desired by the Governor to say that Dr Theiler would be cordially welcomed. This Government would gladly defray his expenses from Mombasa and back.' Smith sent the letter to Theiler 'for your information and reply'. Theiler was delighted - 'I grasped the invitation of my old friend, Sir David Bruce with both hands', he wrote Alfred - but with Swiss caution, insisted in discussion with Smith that he go only on special paid leave. He emphasised that his visit to Uganda would benefit the Transvaal in that his survey of stock diseases would determine any that might menace the south. The spectre of

128 Rinderpest coming from that area remained with him. He planned to leave in June, returning at the end of November. Smith endorsed his confirmatory memo with 'not more than one month'. The Transvaal might be richer than the other Colonies, still in the depth of depression, retrenchment and rigid curtailment of expenses; but the indulging of Bruce did not imply extravagance or the prolonged absence of Theiler's hand in controlling Onderstepoort.

129 Smith persuaded Treasury to recommend to the Public Service Board that Theiler receive one month's special leave on full pay non-deductible from his regular leave. With due formality, 130 the Prime Minister's Office requested the Governor Lord Selborne to sanction it, as well as 14 days from the 10th to the 23rd September for Theiler's attendance at The Hague Conference. This was the second time his Government had undertaken Theiler's overseas expenses; but ten years before, the Z.A.R. had failed to refund the £200 owed him. His prospects were better now.

131 Only a few days remained before his departure. Perversely East Coast Fever flared in the Eastern Transvaal, slaughter was ordered and the Government was expected to provide donkeys and mules to compensate for the killed and quarantined oxen. A painful dichotomy afflicted the Government Veterinary Bacteriologist (still earning only £1,200 a year despite his palatial premises and large staff). He longed to remain at his new Institute to control its huge activities and to be at hand when the political currents swirled into straight course and the detailed structure of 'Union' became a unanimous demand of critical importance to himself – so important that already he was being instructed to look for staff, additional equipment and all 132 facilities for converting Onderstepoort into a Central Laboratory for the new South Africa, if not for Africa itself. On the other hand, the lure of Bruce with its chance of visiting East and Central Africa, the International Conference which would 'bring him up to date', his family, his friends, the old familiar ambience of Europe, were powerful forces to take him away. The idea of studying at Zurich had gone by the board. The sooner he left, the sooner he would be back.

In the second week of June 1909, Theiler left by train for Lourenço Marques to board the Deutsche Ost-Afrika liner travelling east. Emma would follow a month later on the next ship, meeting him in Mombasa on his return from Uganda. The children would be put to boarding school. Onderstepoort would run along the lines clearly established, haunted by the rigid principles of meticulous observation, accuracy in recording and conscientious service which its originator had instilled.

## UNION . . . AND A SWARM OF GADFLIES 1909-1912

AS THE COLONIAL empires approached their zenith throughout the world, South Africa (ignoring Rhodesia) moved toward unified participation in the British Raj. Regardless of the depressed and penurious state of most of its citizens, the whole country allowed itself to become intoxicated by a vague idea. 'Union' would solve everything. By the wave of a wand, the local and overseas politicians would cause all problems to evaporate. Only the bureaucrats understood what perils it implied.

1 F. B. Smith returning from his overseas survey on the 1st March 1909, had already made his  
 2 plans, strongly influenced by the federal U.S.A. 'Bureau' system (the Bureau of Animal Hus-  
 3 bandry, the Bureau of Plant Industry, etc.) 'My Institute will also be involved in them', Theiler  
 wrote excitedly to Alfred in May, 'it may well become the Central Institute for the whole of  
 South Africa. That means that there will be Reorganisation which I must plan and continually  
 carry out. I cannot and dare not stay away during the next winter.' Hardly had he left than  
 A. G. Robertson moved in the obsolescent Transvaal Legislative Council that he be given a  
 special grant or bonus in view of 'the thousands and thousands of pounds he has saved the  
 Transvaal farmers', his annual salary of £1,200 being inadequate (though now enhanced by  
 free use of his modern house, light and fuel). Johann Rissik, Minister of Lands, cannily agreed  
 to refer it to the Prime Minister.

For such trifles, Botha had neither time nor opportunity. He was in England negotiating the  
 final phase of unification which, passing through both Lords and Commons as the 'South  
 Africa Act of Union', was formally given Royal Assent in September 1909. Lionised as usual,  
 4 Botha refused a peerage but 14 of the 33 delegates to the National Convention accepted knight-  
 hoods. Honours were lavishly bestowed on men prominent in any field of the new adult member  
 of the Empire. Exhausted and plagued by his chronic 'Indigestion', 'influenza', swollen legs  
 and excessive weight, Botha submitted to examination by the King's physician, subsequently  
 5 Lord Dawson of Penn, and was consigned to Kissingen for a Kur while his country, wracked  
 by confusion and insecurity, continued to grovel in poverty with its inevitable concomitants of  
 violence, murder and suicide. Many months were to pass before the wand was waved and no  
 miracle was wrought. Only the tense atmosphere of expectation and insecurity remained.

Theiler intended to miss nothing in the new 'reconstruction' while making the most of his  
 absence in serving his future purposes. The glory of his possible future rôle in the new country  
 did not exclude him from present personal troubles. Marie was in difficulty with a husband  
 who, whatever his merits, was not a good provider. Hans too might be a problem. He did well  
 at the Pretoria Boys High School but, the headmaster said, would do better if he took an extra  
 year before matriculating. Arnold's salary would have further to be stretched. The girls worked  
 solidly and well at the Pretoria Girls High School, both enthusiastic and proficient at outdoor  
 sports appropriate to naturmenschen. Many years must pass before the diminutive Max could  
 complete his education at equally expensive schools and colleges. Provision must be found for  
 all. Emma, shrewd and thrifty, kept expenses down without loss of status. She would not waver  
 when future demands stretched their resources even more. Arnold made it clear to her that his  
 6 intention to study abroad remained - 'my plan must be postponed for one or two years but  
 pursue it I must and will', he wrote Alfred.

7 The importance of the agricultural economy impressed all the colonial powers. F. B. Smith  
 had already become the proud by unwilling victim of a steadily increasing 'brain drain'. His



deputy, A. C. Macdonald had become Director of Agriculture in British East Africa based at Nairobi. One of his best vets, P. Conacher, was now Principal Veterinary Officer of Portuguese East Africa where his entomologist, C. W. Howard, had also gone. One of his botanists had gone to Southern Rhodesia and other experts elsewhere. If 'Union' did not bring improvement in their conditions of employment, there would be other defections, perhaps even the pearl among his specially-trained staff – Theiler himself, now dangerously summoned by the great Bruce and later voyaging to an International Conference full of beguiling invitations.

Typically equipped in tropical whites and a monstrous red-lined terai, Theiler was travelling up the east Coast where the Deutsch-Ost-Afrika Linie steamships, moving mostly at night, touched at every outlet – Lourenço Marques, Beira, Mocambique, Port Amelia, Dar-es-Salaam, Zanzibar, Mombasa – taking aboard the skeletal victims of malaria and black-water fever to die in their native lands. At Dar-es-Salaam, Theiler called on the Principal Veterinary Officer, Dr G. Lichtenheld and, chatting happily about common interests, found that he would be company for Emma on the ship six weeks hence when all three would continue to Europe. Lichtenheld had much to tell him about tropical animal diseases, especially East Coast Fever.

He landed at Mombasa in a welcoming atmosphere and took the train across the Athi Plains to Nairobi where the P.V.O. Robert Stordy and R. E. Montgomery, recently appointed Veterinary Bacteriologist for British East Africa, met him as friends. They had plans to make use of him when he had finished with Bruce in Uganda. Stordy placed himself at Theiler's disposal, showed him everything he could, answered all his questions and put him up. East Africa was an exciting experience – the strange and varied natives, the profusion of wild animals, the odd cattle (long-horned Angoni and dewlapped Asian), the dull grey-stone British Colonial buildings with their fresh-faced officials struggling to help dashing settlers (many remittance men), and the heroic scenery of the Great Rift Valley with its distant peaks. Theiler went on by train to Port Florence (Kisumu) on the shores of Victoria Nyanza and thence by boat to Entebbe where a genuine safari took him by rough track to Bruce's well-developed camp at Mpumu on the northern shore.

Some degree of emotion inhered in the meeting of the tall corpulent Bruce and the stocky Theiler, both bullet-headed and imposing. Theiler had been abroad when Bruce visited South Africa in 1905 and their continuing correspondence had been but a dull reflection of the relationship which sparked into vivid life upon meeting. Bacteriology was their common field and if Theiler seldom touched on the human aspect, confining himself to domestic animals, Bruce worked in both. They hastened to bring each other up to date.

In his Nagana work, Bruce had established the vitally important fact that unaffected animals could serve as reservoirs for deadly virus transmissible by flies. The killer-trypanosome could lurk harmlessly in game until a tsetse fly absorbed and transmitted it by biting domestic cattle. In 1903/04, Bruce had been sent by the Royal Society to Uganda to join an investigation of Sleeping Sickness, then depopulating the lake area. Its human victims provided research material and one of the investigators, sure that he had found the cause in a bacterium in the brain of dead patients, casually told Bruce that he had noticed *Trypanosoma gambiense* (already identified in West Africa) in the blood of some. 'Like a flash of lightning', Bruce told Theiler, 'it went through my brain that this parasite must be the cause of Sleeping Sickness and nothing else, and that if such were the case, then it must be transmitted by a fly.' Now he was experimenting with scores of monkeys, each chained to its elevated box-house as shelter from Uganda's torrential storms, in regular rows outside his Mpumo laboratory. Theiler eyed them appreciatively. He had come to advise on his own 'trypanosome', transmitted by ticks.

Contrarily the examples of Amakebe (endemic in calves and distinguished by heavily-swollen lymphatic glands, emaciation and a 50/75% mortality) which Bruce had available were mostly

10 recovered cases. To obtain freshly-infected calves, he and Theiler journeyed to the glamorous native capital Kampala whose grass-fenced and – woven Lukiko or Parliament was ruled by the Katikiro, Sir Apolo Kagwa K.C.M.G. (prime minister). Bruce was a big man but alongside Kagwa, cut no figure while the stocky Theiler at an alleged 5 foot 8, appeared a pygmy. A huge short-necked square-headed and toweringly impressive African whose stern expression could break into a smile stretching a neatly-trimmed moustache, Sir Apolo in his long kanzu and embroidered cotton kofia was a dominating figure (doubly impressive in State robes), ‘rejoicing’, it was said, ‘in the great power he wielded’.

11 Theiler had met the saintly Khama of Bechuanaland; but this African potentate, devout Protestant though he were, was a man of different stamp whose private life was far from immaculate. He had fought for his people and thrown in his lot with the British when Uganda had fallen by agreement into their sphere of influence. With no schooling, he was nonetheless a proponent of higher education. He had left his country only once when he went to England in 1902 to attend King Edward’s coronation, receiving the K.C.M.G. soon after. Of his intelligence and administrative ability, there was no doubt (he was ‘prime minister’ for 35 years) and there was much congenial discussion between the three men of like age. Sir Apolo had known Lugard and Johnston and recounted to Theiler the terrible devastation of the Rinderpest in the early nineties when cattle, buffalo, antelope and other game died in large number. They were dying from it now only a few hundred miles further north and in 1907/08, it had ravaged the animals of eastern Kenya. Africa, Sir Apolo knew, would stand or fall by what was done about its stock diseases. Upon their request, he provided Bruce and Theiler with fresh cases of Amakebe which they took back to their station.

12 Observed with customary interest by Lady Bruce (steadfastly attired in Edwardian dress and huge hats), they began their microscopic examination. They found in the calves’ blood the usual piroplasmas of tick-borne diseases but Theiler drew attention to almost invisible dots in the red corpuscles which he called ‘marginal points’. A mystifying number of potentially lethal micro-organisms could be found in any animal’s blood, Bruce emphasised in his subsequent report to the Royal Society; but Amakebe must be East Coast Fever because among them were ‘Koch’s granules’ or ‘blue bodies’ found in the spleen and other organs. ‘The diagnosis of East Coast Fever was made in South Africa if such bodies are found.’

13 Theiler essayed empiric proof by arranging with the Uganda Veterinary Officer, E. Hutchins, to send to Onderstepoort specimens of the culpable brown tick (*Rhipicephalus appendiculatus*) which abounded in the Protectorate. Arriving in good order, they were placed on calves which 14 died of East Coast Fever in two or three weeks. Both Bruce and Theiler reported it fully to their sponsors. Their happy association (involving a good deal of sight-seeing as well as discussion) had come too soon to an end. Early in August, Theiler went down to Nairobi where Sturdy had arranged to demonstrate a variety of East African cattle diseases common, Theiler found, to sub-tropical Africa. They performed many postmortems together and held discussions (including Montgomery) of great mutual advantage. Sturdy also arranged a meeting with Kenya farmers. Theiler gave them a comprehensive address on African stock diseases (subsequently 15 published in the *Agricultural Journal of British East Africa*). ‘I have recently come to the conclusion’, he said, ‘that Gall-Sickness, hitherto regarded as a sequel to Redwater, is due to the presence of another parasite which I have called “Marginal Points” owing to their position in the red corpuscles. Gall-Sickness is therefore a separate and distinct disease.’ He thought it was transmitted by the blue tick and the hypothesis long occupied him.

16 A scoffer at all non-scientific theory, particularly religious (‘at the beginning was protoplasm’, he would say of the Creation), Theiler later admitted to a strange feeling of disquiet in Uganda. 17 His mother had died and while never conceding an extra-sensory perception, he had been aware

of it long before the news reached him. When he joined Emma on the ship at Mombasa toward the middle of August, their plans would have to be changed – they would have to go straight to Switzerland, omitting the intended visits to Toulouse and Paris. From his discussions with Bruce, Stordy, the resident veterinary surgeons and particularly the East African farmers (Theiler always acknowledged the help of farmers), he had gained an impressive view of Africa's common stock disease problems and their worldwide menace. Now Lichtenheld, aboard the ship for two weeks, gave further details, mostly relating to East Coast Fever. Emma brought bad news. The whole Cape Colony and particularly the Transkei with its uncontrolled movement of native cattle, was menaced by outbreak. The ancient precautions of patrolled fences, cordons, prohibited movement and a host of regulations had been invoked. Theiler had been unable to reproduce the disease artificially and thereby evolve a vaccine. There was little to stop it except Watkins-Pitchford's new and revolutionary technique of dipping every three days. The cattle neither died nor were poisoned nor impregnated by arsenic but it was a great nuisance. Joseph Baynes practised it enthusiastically and successfully, loudly lauding its effectiveness.

The clouds on Theiler's now vastly extended horizon served to warn him further of the gaps in his professional training and private study. It was not enough to employ experts in a multi-disciplined approach – one had to know what they were doing and the quality of their work. He had wanted to study zoology and parasitology with special emphasis on helminthology because of the infestation of sheep, horses and stock generally by worms and other parasites. Now, with Lamziekte, Stijfziekte and supposedly allied diseases, plants came into the picture and with plants, pasturage; and with pasturage, the chemical constitution of the soil; and with soil, mineralogy and geology. When the family discussions were over in Switzerland, Arnold attacked Alfred. In the course of his European tour, he would engage more experts on Botha's authority but he himself must make an assault on soil chemistry, mineralogy and geology. Alfred must select suitable literature for him to study. Then he dashed off with Emma to Holland.

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The Congress was held, not at The Hague itself but in the Kurhaus and Palace Hotel at Scheveningen, the neighbouring seaside resort. 'Theiler of Pretoria' was immediately prominent. He had been appointed president of Section V dealing with tropical diseases. Sir John M'Fadyen, leading a slightly improved delegation of 50 English ladies and gentlemen, was appointed a President of Honour and Stewart Stockman a Vice-President of Honour. Like Theiler, their wives were with them but his friend A. E. Mettam of Ireland and Frederick Hobday of London came unaccompanied. There were about 800 delegates including the renowned Bang of Copenhagen, Hutyrá of Buda-Pesth, Ostertag of Berlin, Arloing of Paris, Perroncito of Turin, Dschunkowsky of Russia, Ligni eres of Buenos Aires, Leclainche of Toulouse, Theiler's Onderstepoort pupil Dr Knuth of Berlin and many newcomers from all parts of the world including in Theiler's section, Professor J. A. Gilruth of Auckland who gave a paper on 'The control of animals in health and disease in New Zealand'. The total attendance of the Congress was about 1,500 and infinite diversion had been arranged for them despite the usual language difficulties.

In opening the proceedings, the Royal Consort Prince Hendrik of the Netherlands – whose wife, Queen Wilhemina (she had taken Kruger from Lourenço Marques to Holland in her cruiser *Gelderland*), had thrown Pretoria into transports of Dutch fervour and flaunting of the colours of the House of Orange by the birth of a daughter Juliana in May – delivered his address in French, German and English, rivalling Theiler himself who later translated as usual. Many delegates had difficulty in understanding the 146 papers. The agenda inevitably was grossly overloaded; but despite the heavy European influence on the proceedings, Theiler's Section V

on Thursday the 16th September with Sir John M'Fadyean in the chair, was particularly eminent. There were seven papers. Knuth spoke on 'Prophylaxis and Pathology of Protozoan Diseases' and Theiler gave a then highly innovative lecture on 'The Prophylaxis of Tropical and Sub-Tropical Diseases of Domestic Stock'. Moving away from the microscope, he inculcated flies and ticks and, to the surprise of many delegates, urged the elimination of intermediary hosts.

23 The morning held drama. The widely-respected Dschunkowsky, speaking to 'Transcaucasian Tropical Piroplasmosis' which he demonstrated with microscopic slides, described a tick-conveyed cattle disease which Theiler was confident was East Coast Fever. But Dschunkowsky said it was inoculable with infected blood and he failed to explain 'Koch's granules' in his protozoan samples. Theiler believed that the disease he conveyed by inoculation was something other and that the same fundamental micro-organism caused Cattle Fever in the Transcaucasus and Africa. He could all but prove his point; but the real importance lay in the Congress' readily agreeing to recommend the foundation of an International Bureau of Tropical Diseases. In one bound, he had become a truly world-wide figure. In knowledge and stature, he had made a forceful personal impression resounding through the corridors of bacteriological research and enabling him to concert its efforts throughout the world. Other resolutions, all consonant with those of the Pretoria Pan-African Conference in January, were passed by the Congress (which resolved to hold its 10th meeting in London in August 1914); but none had equal global importance nor owed their acceptance to the expertise and drive of a single man outside the hallowed European circle.

24 When the English delegates returned after a series of post-Congress tours organised by the Dutch authorities, they had much to say about Theiler's contributions. 'Appreciative comment appeared yesterday (24th September) in the London Press', Reuter somewhat bemusedly reported, 'with regard to the series of lectures which Dr Theiler, the Transvaal Bacteriologist, has given in Holland on the subject of diseases of South African stock. Dr Theiler has agreed to give several lectures to a number of learned societies in England.' Upon his return at the end of 1910, Theiler consolidated the impressions gained on his 'paid leave' (possibly to account to his Government) in masterly 'Notes on Stock Diseases of German and British East Africa Uganda, and the Resolutions of the International Veterinary Congress at The Hague, Holland 1909' but for the moment, he was travelling in Europe in search of the men and equipment needed to convert Onderstepoort to the service of the Union of South Africa.

25 His progress was royal. He visited his friends at the Institut Pasteur in Paris - F. E. P. Mesnil and Edmond Sargent of the Algiers branch - and his closer colleagues in Switzerland. In 26 Zurich, a civil engineer employed by the Emperor Menelik of Abyssinia sought him out to enquire how the Rinderpest epidemic there might be controlled. Alarmed after all that Sir Apolo had told him that it might again spread through Africa, Theiler promised assistance if a genuine attempt were made. In Berlin, Knuth welcomed him and in Hamburg, he called at the 27 Institut für Tropen und Schiffs Hygiene and made a deal with its director, Professor Nocht. If Nocht would lend him a protozoologist to investigate East Coast Fever (whose causative organism had been further fogged by Dschunkowsky), he would give him all assistance in studying other tropical diseases. Nocht lent him Dr Richard Gonder who soon arrived in Pretoria. 28 As Frei's contract as bacteriologist expired in October, Theiler also recruited Dr Hans Sieber to replace him. Gathering information and current views on parasites, intermediary hosts and protozoa all the way, Theiler finally crossed the Channel into the welcoming arms of old friends, particularly Stockman.

29 Their joint experiments on immunising cattle against Redwater would continue despite the happy discovery of G. H. Nuttall of Cambridge (an authority on ticks to whom Theiler had sent specimens) and Dr Hadwen of Canada that an injection of the stain Trypan Blue effected a

30 cure, an event hailed almost throughout the world. Theiler, now distinctly an important servant of the British Empire, went diligently about his business of preparing himself and his Institute for wide and heavy responsibility in the forthcoming new order. The old bogys would not disappear, among them Horse Sickness. He had always believed it was caused by a fly, probably a variety of mosquito. Now he approached F. E. Theobald, a zoologist and vice-principal (as F. B. Smith had been) of the South Eastern Agricultural College at Wye, who was a specialist on mosquitoes and to whom Simpson had sent specimens on Transvaal types. Theiler offered to send him an extensive collection from Onderstepoort and environs where Horse Sickness was always rife, for identification and classification. He began it immediately upon his return and continued until 1910, collecting at random and also from traps in horse-stables where the insects might conceivably have been feeding on the animals. Theobald carefully classified them, suspecting an even wider mosquito population in the Transvaal but the identification of the specific Sickness carrier remained elusive.

31 For the whole of October 1909, Theiler sounded the level of research and the availability of assistants among his peers in England. They had bright young men whom they could recommend and Theiler made tentative arrangements pending the authorisation of increases in his establishment. His eye was on D. T. Mitchell and W. Horner Andrews in London, both able investigators. He had also checked the progress made by the first South African students whom Botha's bursaries had enabled to study Veterinary Science at the Royal College in London and elsewhere. The earliest, P. R. Viljoen was doing exceptionally well at the R.C.V.S., later passing his second Examination with First Class Honours. The two students who had followed him, Gilles de Kock and G. F. Marais managed their first Examination with Second-class Honours. Theiler was pleased at the promising prospect of indigenous assistance, all of it Dutch-speaking. Then he crossed the Bristol Channel to visit Professor A. E. Mettam, principal of the Royal Veterinary College of Dublin. Mettam had a likely candidate in Daniel Kehoe who had graduated with distinction and joined his staff. Theiler engaged him forthwith as an Assistant for serological work and Kehoe sailed in September 1910. In the meantime, D. T. Mitchell was brought out for appointment to the Veterinary Division and transferred thence to Onderstepoort in June 1910.

32 His work worthily done, Theiler embarked at Dover on the 3rd November on an 'intermediate' or slower steamship than the mails for reasons of economy. Vile weather impended, later littering the English coast with wrecks; but after a first frigid week, the voyage was 'extraordinarily pleasant'. Both Arnold and Emma needed the recuperation after eight frenzied weeks abroad and facing a future clouded by confusion and uncertainty. On the 29th November, the eager faces of their children and staff confronted them on Pretoria station. Life at Onderstepoort was quickly resumed. Disillusion soon laid its damp hand on every aspect.

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34 Botha was back, thinner and better in health. The whole country had been dismayed by the mooted appointment of the undistinguished Mr Herbert Gladstone, then Home Secretary ('Asquith will be glad to get rid of him', the papers reported, some pleading for the retention of Lord Selborne) as Governor-General of the forthcoming Union. The King formally proclaimed the 31st May 1910 as the date of inauguration of the new constitution and on the 22nd December 1909, Gladstone's appointment, approved by Botha, was formally confirmed. Slowly the glorious event was diminishing in stature. The fine figures of the past departed – first, Hely-Hutchinson, valued and esteemed by Theiler, and last, on the verge of the new order, Lord Selborne himself, his sponsor and supporter. Pathetically people continued to believe that the

poverty, insecurity, violence and confusion would disappear with one wave of the wand of Union. It was a testing time for men of moral integrity and courage. Theiler was tried more than most.

35 Unlike his colleagues, the pattern of his future had been pre-ordained. Licence had been given him to reorganise his Institute and prepare himself to be the Chief Veterinary Research Officer of the Union of South Africa. While the four colonial civil services suffered from a pervasive feeling of insecurity – ‘everyone’s job is in the melting pot’ – Theiler could be reasonably confident that he would remain in charge of an expanding function. ‘Not the least valuable item in the dowry which the Transvaal will carry into the Union’, noted a local newspaper appreciatively, ‘is the Onderstepoort Laboratory’. It had its own difficulties regardless of the impending adjustment to national level.

The size and activities of Theiler’s staff inevitably conduced to personnel problems. The Institute was as a monument to his own evolution and in administering it, he naturally ‘liked doing things his own way’ (as his men put it) and with his own rigorous standards. During his five months’ absence, the tasks he had set had been satisfactorily accomplished with two exceptions.

36 Frei, whose knowledge seemed limited, had returned to Switzerland in October without Theiler’s making any move toward renewing his contract (after some months study in Berlin, he became Professor of Veterinary Science at Zurich University). He had expressed himself disloyally to the staff and worse had occurred in the case of Karl F. Meyer, also Swiss, who had

37 pursued his assignment, not in accordance with Theiler’s direction but in conformity with his own ideas. He had further written ‘disloyally’ to his family whom Theiler had met in Switzerland and similarly indulged his feelings at Onderstepoort. Admitting that Meyer was ‘indubitably a really able man’, Theiler resented his attacking the problem of ‘Koch’s granules’ in relation to East Coast Fever in his own way and expected him to conform to his superior’s direction. Personal relations deteriorated steeply between them until they ceased to be on speaking terms. Meyer left for Pennsylvania at the end of May 1910, his name and his work reviled by Theiler who was ultimately forced to admit that his investigation into the pathogenesis of East Coast Fever had been sound and correct. (Meyer subsequently became a well-known veterinary scientist in Canada and the U.S.A.) The contretemps had been both unpleasant and disillusioning. Less distressing was the resignation of the zoologist, L. H. Gough, on sick leave in Basle, who was replaced by W. H. Andrews.

Among so large a staff as now obtained at Onderstepoort, there was bound to be some incidence of ‘domestic politics’, jockeying for promotion and, men being men, malicious gossip. Theiler talked emotionally of ‘the Onderstepoort spirit’ and it was indeed the measure of his leadership that he could conjure wholehearted coöperation from the most recalcitrant material. The ‘failure’ of his Swiss recruits baffled and hurt him. In pioneering days, his compatriots had served him well when, *faute de mieux*, he had engaged them as lay assistants and trained them as laboratory workers. Now he could employ English-speaking men and soon there would be qualified South Africans. Years passed before he again engaged Swiss; but his drive toward maximum effort from every member of his staff never dwindled nor failed in effect. In time, little men accused him of authoritarianism, of grasping honours for himself earned by them, of putting his name to work done by others, and further pusillanimous charges. In fact, he was genial and gregarious, ‘barking’ only when interrupted at his microscope, and as much prepared to drink a beer with his men as to cheer the ‘O.P. football team’ on the field. Those who toiled to complete investigations forgot that the concept had been his and that the experiments and field-work had been planned and mounted by him. The results justifiably bore his name.

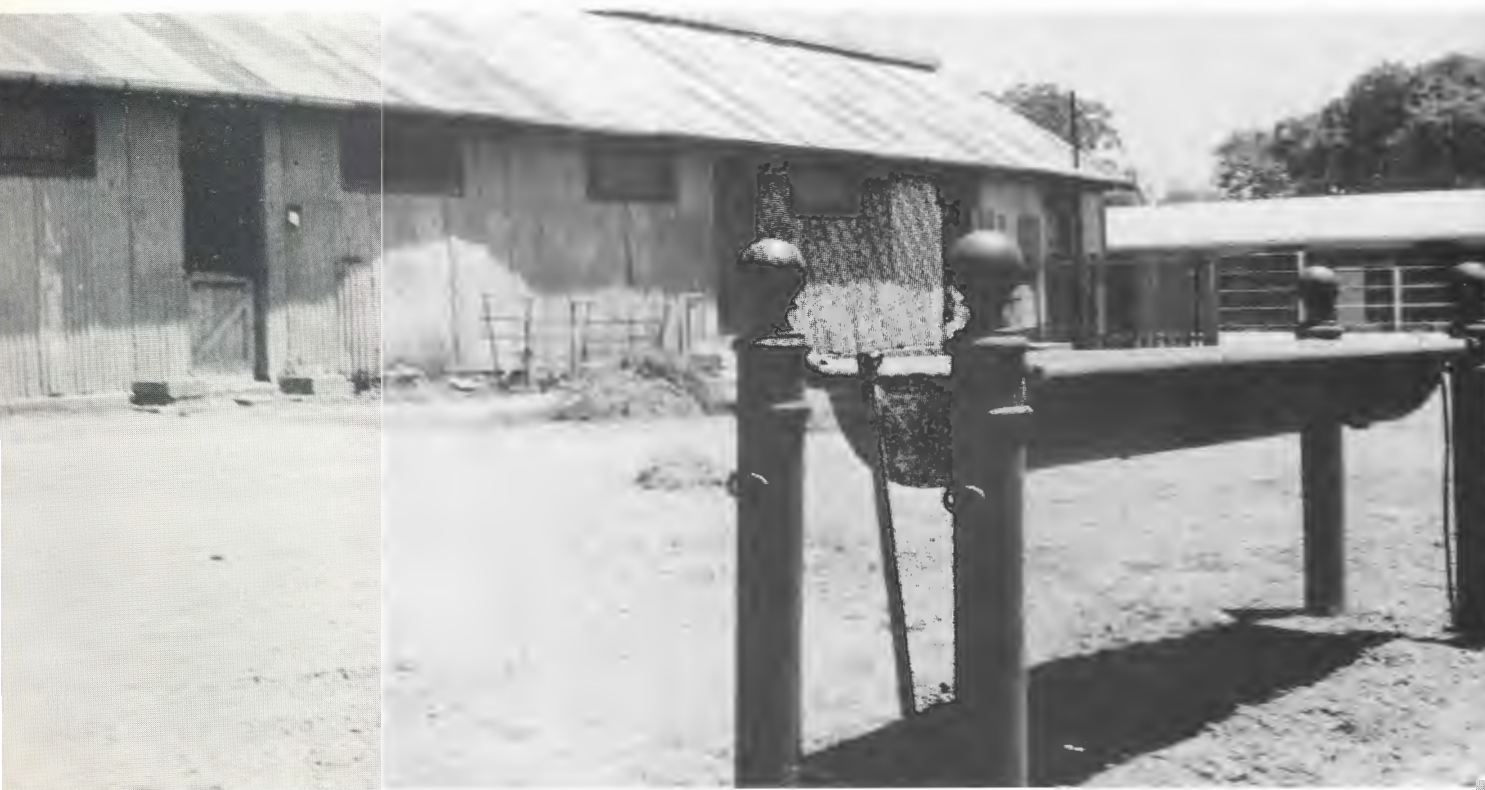
Domestic troubles likewise haunted the family. Marie’s husband failed to support her and money, barely spared from heavy educational expenses, had regularly to be sent. Margaret



*New Forces at work* – The Governor of the Transvaal talking informally to a Middelburg notability during the Agricultural Show in 1907. Lord Selborne was a notable diplomat, every element in the population succumbing to his congenial and modest manner.



*The Leaders of Het Volk* – Generals Louis Botha and J. C. Smuts leave in their trap for their offices with Mrs Smuts and three of her children bidding farewell.



*Relics of Daspoort* – a manger and corrugated iron buildings brought from Daspoort to the new Bacteriological Institute at Onderstepoort.



and Gertrud, perennially directed toward the charms of Natural History, acquitted themselves creditably at the Pretoria Girls High School. Hans, vague in his thoughts for the future, would soon finish at the Boys High where the spidery little Max was making his scholastic way without sign of brilliance and too small for robust sports. Arnold had plans for all of them but already Hans showed signs of non-compliance. Problems abounded, none worse than the simmering discontent surrounding Union and all that it meant for Onderstepoort. Thrice weekly, Arnold and Emma addressed themselves to the solution of mathematical problems (there were then no crossword puzzles) to take their minds off besetting cares.

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38 The prevailing atmosphere was thick with surmise. Smith had completed his draft reorganisation of the departments of Agriculture into a single Union body. Theiler knew where he stood. His immediate concern was to draft legislation applicable to Stock Diseases throughout the Union for the first meeting of Parliament. No one knew who the new Prime Minister would be – some said the veteran Merriman of the Cape, others the Afrikaner Botha of the Transvaal. In April, Selborne convened the sixth and last session of the Transvaal Parliament which voted its remaining resources – £1,500,000 – for the construction of a massive elegant Union Government Building in Pretoria designed by Herbert Baker, and £100,000 for an Agricultural College. After opening the third post-war Agricultural Show, Selborne made his valedictory in a long and hopeful speech in reply to Botha's amiable and appreciative address in Dutch. Then he was gone, the last solid symbol of Imperial strength. It wanted only a few weeks before the great metamorphosis on the 31st May. Gladstone and his entourage sailed from Southampton. At that moment, unexpectedly, King Edward died and all was confusion. Edward the Peacemaker was no longer King of the Transvaal and his son George V was duly proclaimed in Church Square, Pretoria on the 9th May 1910 in the presence of Louis Botha, Prime Minister; Jan Christian Smuts, Colonial Secretary; Jakob de Villiers, Attorney-General and the whole Transvaal Cabinet. He reigned for three weeks during which his father was buried on the 20th and all businesses closed. On that day, Gladstone was sworn in at Cape Town as Governor-General of the Union of South Africa and official instructions were received from England that nothing was to stand in the way of public rejoicing on the 31st May when it would be inaugurated. Before the month was out, everyone knew that Botha was to be Prime Minister. Who, Theiler wondered, would now be his Minister of Agriculture?

39 The British South Africa Act of 1909 made provision for the appointment of various commissions – Public Services, Financial Relations, etc. – to regulate the consolidation of powers and activities under Union, including the delicate question of what should be Provincial and  
40 what National. Smith had foreseen that for some time, the four Colonial Agricultural Departments would have to continue as before. Always a virtually independent unit, Theiler had to decide what to do with their various laboratories – Watkins-Pitchford's bacteriological research institute at Allerton outside Pietermaritzburg; the Cape's Veterinary Bacteriological Laboratory at Graham's Town; and various experimental stations. Like the Laocoon that Smith became, he would probably be strangled by red tape; but for the moment, hope lit the horizon. The heady prospect of having a hand in developing a new nation was captivating. Theiler had always held a Pan-African view but could control only the Transvaal. Now almost the whole sub-continent would be his domain and already diseases with which he had hardly or never had to deal were creating crises – Lamziekte making a cattleless desert of the Northern Cape and Bechuanaland, wire-worms destroying the ostrich feather industry in the Eastern Cape and Little Karroo (one of the major sources of the Cape's revenue); miscellaneous sheep

42 diseases and other afflictions which had hardly entered his orbit in the Transvaal. It was a time for heavy thinking and planning – ‘an exceptionally trying time’, Smith wrote, failing at first to control the over-lapping and confusion.

In readiness for the great day, Gladstone (hurriedly created a Viscount in response to hot resentment) arrived in Pretoria on the 25th May. On the 31st, the first Union Cabinet, carefully drawn from all four Colonies, was announced. Botha as Prime Minister retained Agriculture. Relief was tempered with apprehension – how could he run the whole country and yet have time for its most important industry? Smuts as Minister of Mines, Interior and Defence would help as he always did but of the Free State’s old Abraham Fischer for Lands, little could be expected. It was a caretaker Cabinet without a mandate and the country was forthwith plunged into electioneering, Botha creating an immediate sensation by announcing his candidature for Pretoria East (where he had had a house for some years), the Transvaal seat of the popular Sir Percy Fitzpatrick. For more than three months, the general atmosphere of speculation and uncertainty was accentuated while the economic situation in no way improved.

43 The whole machinery of Union lurched confusedly forward on a temporary basis announced in June. F. B. Smith was appointed Acting Secretary for Agriculture with his Cape vis-à-vis P. J. du Toit as Under-Secretary and special Under-Secretaries for Natal (H. A. Hime) and the Orange River Colony (W. J. Palmer). Every man in high position hoped for Union appointment and many jockeyed for advantage. Giving his presidential address in March to the new Natal Veterinary Association formed in November 1909, Colonel Watkins-Pitchford (his brother 45 Wilfred was to be transferred to Johannesburg as Government Pathologist and Bacteriologist prior to appointment as director of the new South African Institute for Medical Research) 46 ranged over the history of veterinary science in Natal in heavily hinting terms, not omitting to mention the lost credit for the Rinderpest serum discovery. ‘Much of our work’, he said, ‘has passed unnoticed and gone by default for want of an occasional fanfare of trumpets’ and dutifully drew attention to the opportunity for further feats ‘as our Colony is just about to lose itself in the greater and more spacious affairs of United South Africa.’

47 At the June meeting of the Transvaal Association, Theiler was elected president and confined himself to urging Union legislation establishing the rights and status of the profession whose three associations – Cape, Transvaal and Natal – should be federated. In concluding remarks he mentioned the astonishing discovery that Trypan Blue used for staining, had proved a specific against biliary fever. At the next quarterly meeting in September, he would give his presidential address. During that period, in large and small event, the tempo of the times changed from frustrated inertia to frenzied pursuit of new goals.

48 ‘Science’ embodied in the forlorn figure of Robert Falcon Scott visiting Pretoria in the hope of raising funds for his polar expedition (his ship *Terra Nova* already lay at Cape Town), 49 flashed into brief prominence. Staying with the Gladstones at Government House, Scott gave a public lecture with slides emphasising the scientific nature of his work – Meteorology, zoology, geology, biology and a survey of the magnetic field – of special interest to Theiler, then absorbed in drafting Union legislation and planning the consolidation of veterinary research services. Scott interviewed Botha, Smuts and other members of the Union Cabinet (which had contributed only £500 to his expedition) and, gaily visiting and sight-seeing as much as he could, went his way never to return. The Gladstones began a tour of their domain, hardly noticed in the mounting hysteria of the coming election.

The climax came on the 15th September 1910. The following day, a stupefied country learnt that their Prime Minister had been defeated by Fitzpatrick in Pretoria by 95 votes. Other heads had rolled including the Transvaal Treasurer H. C. Hull, intended Union Minister of Finance, and many confident notabilities. Where reassurance had been sought, there was now further

confusion and insecurity. Amid a hubbub of political discussion and speculation, Theiler solemnly went the next day to the Pretoria Magistrates Court to deliver his presidential address to the Transvaal Veterinary Medical Association. The total attendance was five.

50 In a carefully-prepared address delivered in his guttural voice, Theiler made no reference to the loss of his Minister. He had taken a long look into the future and spoke with passion in invocation of his own vision. 'You all see in front of you the great South Africa', he said, 'You see the rapid progress of civilisation and you see the necessity of giving facilities for sons of the country to get their education in agricultural matters as well as Veterinary Science in the country itself. . . . You are fully aware – and you know by bitter experience – how meagrely the knowledge concerning Tropical Diseases has been dealt out in the colleges of Europe. You will agree with me that as the diseases do not occur on the sacred soil of England or the Continent, there is no occasion to deal with them at the home colleges,' and he went on to urge the support of the Association in impressing on the Government that 'the establishment of a Veterinary College for the Union of South Africa is imperative.' He spoke with particular feeling.

51 Two months earlier, a prominent Vryburg farmer, J. Fred Pentz, had visited him and discussed the increasing ravages of Gal-Lamziekte among the cattle of Bechuanaland, the proliferation of quack 'cures' ('Bert Bowker's Gal-Lamziekte Cure' – Bowker was a farmer at Carlisle Bridge in the Eastern Province – Arthur Mayer's, a rancher at Kuruman; and others) and the continuing prevalence of Horse Sickness. Theiler had offered hope with Horse Sickness; but Gal-Lamziekte continued virtually unknown to him. A correspondence had already begun with the stricken ranchers of the Northern Cape and, come order in Union, he would deploy his new forces to attack the disease. Order was still a long way distant. Only a month before, the Public Services or 'Retrenchment Commission' had been appointed by the Governor-General in terms of the South Africa Act. Exactly a year later, its Fourth Report (in which F. B. Smith had assisted) dealing with the organisation of the Department of Agriculture was published and shocked the country, particularly Theiler.

52 In the delusory absence of these future upheavals, Theiler continued confident of the importance of Onderstepoort's work and included in his address to the Transvaal vets, a short resumé of the advances and intricate investigations being made. Gonder of Hamburg (whose colour illustrations of protozoa embellished Theiler's 1910/11 Report) had made such an elaborate enquiry into 'Kock's granules' and the anatomy of the tick (whose salivary glands had proved revealing) that it was now possible to produce East Coast Fever artificially by inoculation. (Theiler had also persuaded his Government to grant £500 to Professor G. H. F. Nuttall to make similar investigations at Cambridge). An immunological technique might result.

53 Even more radical was Theiler's flying in the face of his American colleagues with what 54 English commentators called 'some distinctly revolutionary research work'. Redwater, it had been stated, was caused in its initial acute stage by the *Piroplasma bigeminum*, followed by a further stage due to what Theiler called 'marginal points'. He now flatly stated as he had in Nairobi that this was nonsense and that the condition caused by 'marginal points' was not a sequel to Redwater but another disease altogether, also caused by the tick. Immunisation against 55 Redwater did not protect against it. He called it 'Anaplasmosis' and stated 'I am thoroughly aware that this new conception will not be so readily accepted on the other side of the Atlantic but I can assure you that we have so much evidence that nothing can upset it' – brave words 56 indicative of his confidence and stature. He had no such evidence about the hovering spectre of Gal-Lamziekte but in the same spirit, announced that 'although we have not been successful yet in finding out the cause of this disease, there is every reason to believe that this will soon be accomplished'. Nature made him eat his words.

Fame was now proving a serious impediment to Theiler's activities. Of the many who visited

57 Onderstepoort, few did not demand to see the great man. Theiler tried to hold himself accessible, particularly to farmers on whose testimony he relied; but the general run was burdensome. Barely had he delivered his presidential address than telegrams began to be exchanged between Smith and the gubernatorial train travelling through Natal on its return to the Transvaal. Gladstone wanted to visit Onderstepoort on the 27th September – would Theiler be there? The colourless Governor-General and his wife (who soon evinced her dislike of South Africa) accompanied by a military A.D.C., Major Garroway and secretary, duly arrived and were met by the greying Smith and Theiler, professionally attired in his working white apron. Theo Meyer took a photograph. What transpired was nowhere recorded, either officially or otherwise.

58 Theiler sent the photograph to Smith, asking permission to publish it in the *Transvaal Agricultural Journal* but Smith declared it unsuitable for the *Journal* and appropriate to Theiler's Annual Report. Neither the photograph nor any mention of the Gladstones' visit figured in that official publication or any other.

It was quite otherwise with the Duke of Connaught who, deputising for his nephew George (who, as Prince of Wales, was to have officiated but now was King) had come to South Africa to open the first Union Parliament in Cape Town. By November 1910, all the leading political figures (Botha had been returned by the Losberg constituency east of Potchefstroom) and high government officials including Smith were already in Cape Town. There was no one in Pretoria

59 to arrange the reception of the son of Queen Victoria, even Lord Methuen then being absent at the Cape. All was left to Theiler (who had himself been in Cape Town during 'the Royal

60 Visit' to attend a conference of the Inter-Colonial Agricultural Union). On the 28th November

61 1910, frock-coated and top-hatted, he awaited der onkel des Englischen Königs and a large entourage. They were all exhausted after continuous official engagements including driving up

62 the precipitous Meintjes Kop in a motoring car to lay the foundation stone of the Union Buildings. On that morning, the Duke, resentful at being in mufti, had reviewed the troops of the Pretoria garrison on the Race Course. As the ceremony ended, he and the Duchess with their daughter 'Princess Pat' were rushed to Onderstepoort followed by Lord and Lady Methuen, Lord Hamilton of Dalziel, Sir Francis Hopwood, Miss Evelyn Pelly (lady-in-waiting) and a

63 number of military officers and officials. They all signed the Visitors Book. Their advent so resounded that the next signatory in the Book a few days later, J. Langley Levy, a glib journalist on the Johannesburg *Sunday Times* was able to record the awed recollections:

'The Duke was a keenly interested visitor to the Laboratory and saw every phase of its multitudinous labours. "Theiler", he said, on being introduced to the doctor, "wherever I've been from the Cape to Cairo, I have heard of Theiler. Well, doctor, we'll see if you justify your great reputation." And the doctor did – up to the hilt. The Duke, I am told, saw the manufacture of serum but the Princess Pat could not be persuaded to enter the laboratory and watch the process. "Don't be foolish!", laughed Miss Pelly, the lady-in-waiting, with which unconventional utterance, she literally pushed the Princess into the room and made her one of the

64 spectators willy-nilly.' In his Annual Report, Theiler recorded – 'There were over 500 visitors to the Laboratory and I would particularly refer to the honour conferred on the Institute by the visit of Their Royal Highnesses the Duke and Duchess of Connaught and Princess Patricia.'

65 To Alfred, he wrote – 'The Duke expressed himself very appreciatively.' It was all very enheartening.

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Theiler needed it. The troubles of his vastly-expanded field were accumulating and pressures were being brought to bear on him. The Lamziekte bogey had ceased flitting and settled on his

shoulder. For him, it was a cattle disease undergoing routine investigation by James Walker at the farm Schoonheid near Christiana in the Western Transvaal. Previously notorious for cases, few had appeared; but Walker conducted feeding experiments and bacteriological investigation of the organs of victims. Some of these he took to the Institut Pasteur in Paris and the Veterinary College at Alfort where he began his study-leave in September 1910, D. T. Mitchell taking his place. Nothing conclusive having emerged, Theiler closed the Christiana station and proposed opening another at Smith's Kraal owned by the Leo brothers in the Orange River Colony. To the ranchers of the Northern Cape and Bechuanaland whose livelihood was slipping away with increasing speed, these academic adventures were frivolous.

Let by 'battling Butler of Bechuanaland', the modest but powerful editor of Vryburg's *Northern News*, they mounted a campaign to force Theiler's hand. Most were English-speaking, some well-educated and informed, and several were subscribers to the *Cape and Transvaal Agricultural Journals* which, together with the *Natal* (also lively and authoritative and replete with leadership) ceased publication in October 1910 and were replaced in February 1911 by *The Agricultural Journal of the Union of South Africa* – dull, colourless, diffuse and impersonal, lacking in inspiration and leadership, and pronouncedly bureaucratic. Theiler regularly wrote for it.

Butler exerted himself to revive the Vryburg Farmers Association of which he was secretary, writing continuously in the editorial and news columns of his lively weekly on all agricultural matters and particularly Gal-Lamziekte, its vaunted 'cures' and the mounting annual losses in cattle. Arthur P. Mayers' 'preventive' was the straw at which many tended to clutch, having no faith in Theiler's lengthy and incomprehensible investigations. Mayers, hoping for massive Government bounty, refused to divulge his 'secret'. The local Massouw Farmers resolved to ask General Botha to send a delegation to Mayers on his farm Grootfontein near Kuruman to investigate his 'preventive'. Tempers were becoming ugly when the newly-elected Member of Parliament for Bechuanaland, D. W. (Danie) Wessels intervened and early in October 1910, took Mayers to Pretoria to sell his specific for £10,000. Botha was ill but the Acting Minister for Agriculture F. S. Malan convened a meeting in his office attended also by F. B. Smith, his Under-Secretary P. J. du Toit and Theiler. The atmosphere was 'not as sympathetic as desired', indeed antagonistic. Wessels and Mayers wanted the local farmers to test the 'preventive' under Government aegis with the evident aim of claiming reward if it succeeded. Smith coldly told him to patent it. Theiler refused even to countenance the proposal and offered a controlled experiment with 100 contributed cattle treated with the specific and 100 not. He emphasised that the disease was of erratic incidence and that the experiments might last over two or three years. Wessels and Mayers visited Onderstepoort on the 6th October and, personally impressed by what he saw, Wessels subsequently tended to toe the Government line. There was much chatter in the district when they returned and one of Butler's now prolific correspondents, commenting on the Government's offer to test the 'preventive', wrote – 'This should not delay the establishment of a Veterinary Research Station in Bechuanaland in order that the stock diseases peculiar to the country be eradicated.' Butler publicly welcomed the suggestion. It became his Holy Grail.

On the 27th October 1910, Wessels rendered account at the monthly meeting of the Vryburg Farmers Association. The inconclusiveness of the whole affair riled the ranchers and one of the most prominent, G. D. Smith 'in a very powerful speech', lambasted the Government. Lamziekte, he said, grievously affected Bechuanaland, the Western Transvaal, the Free State and the Cape. One Eastern Province farmer had lost 75% of his milch cows. What had the Union Government done for Bechuanaland? Nothing (loud applause). It should put the money down for an experimental station and provide cattle to test Mayers' preventive. Everyone knew that

experts disparaged laymen but some of the world's great discoveries came from that source. Wessels defended the Government and was swept aside. It was unanimously resolved to appoint a committee to consult Mr Mayers and, without discussion, 'that this meeting is of opinion that the Government should at as early a date as possible establish an experimental station in Bechuanaland to scientifically investigate the disease known as Gal-Lamziekte'.

73 The feeling of the meeting infected the whole cattle-raising area and Butler fanned it industriously, calling inter alia on Mayers to be public-spirited and make his 'preventive' available to all. As secretary of the Association, he conveyed its resolution to the Government and at the next meeting on the 8th December 1910, read the reply. F. B. Smith had baldly stated that 'experiments were being carried out along the lines indicated on the Western border of the Transvaal' (Christiana, about 100 miles from Vryburg). The gathering was incensed. Expressing the highest indignation, the meeting resolved to forward the correspondence to their Member so that he might insist on the station being in Bechuanaland and nowhere else. Butler had hatched a plan to raise £5,000 from the ranchers (such was their need) to pay Mayers out for his specific but he failed to appear at the meeting to discuss it, being engaged in haggling with Theiler (through Wessels) for a 2% death-rate when tested. Wessels had told Butler that Theiler now intended making the test at the new station, Smith's Kraal near Warrenton in the Boshof district of the Free State owned by the Leo brothers whose losses from Lamziekte were very heavy. They were prepared to make 200 test animals available. Bechuanaland ranchers made similar offers, including McKee of Border siding. Profiting by the situation, 'Bert Bowker's Cure for Lamziekte' resumed its large advertisements in the *Northern News*.

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75 For Theiler, it was all very vexatious at a time when his affairs were moving to a climax and he had cares enough of his own. The shocking news that his friend George Turner had contracted leprosy in England moved all Pretoria, despite the turbulence of the Royal Visit. November/December were always neurotic owing to the intense heat and school examinations. Arnold was anxious about Hans, now writing his delayed matriculation and listless about the future. He proposed sending him to Switzerland for pre-University training. His own future lacked clarity and he was making little progress in dispersing the murkiness which still clouded the consolidation of veterinary research services. 'Exceptionally trying circumstances', Smith reported.

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77 When the new Union Parliament considered the Agriculture Vote under Estimates, many grievances concerning pests and diseases were ventilated by farmer-Members and, Botha remarked sarcastically, Opposition front-bench Members who were all townspeople. There was much mention of Gall-Sickness/Gal-Lamziekte. Dr T. W. Smartt complained of heavy losses in Bechuanaland (his own estates were not far distant). Botha, briefed by Smith, rose splendidly to it - 'He quite realised the importance of the Bacteriological Department and he hoped the House would never cut down the Vote (hear hear) . . . Their best thanks were due to the important work done by Dr Theiler and whatever the doctor thought was necessary for the successful carrying out of experiments was granted by the Government. As to Lamziekte, the matter was receiving the very serious attention of the Government and Dr Theiler was carrying out experiments.' Wessels felt bound to remark that 'if nothing were done, cattle farming in Bechuanaland would be a thing of the past'. He confirmed that the Government had offered  
78 Mayers £5,000 if his 'preventive' proved effective. Under the Vote, Theiler had asked for  
79 £40,000. He got it intact. 'What a contrast between before and now!' he wrote exultantly to  
80 Alfred.

81 At a confused and gloomy time, there were other small pleasures. In token of the importance of animal diseases to the Colonial Empires, the Imperial German Government had sent Professor Robert Ostertag of the Berlin Veterinary College (whom Theiler had last seen at The

82 Hague) to South West Africa to investigate an epidemic of Sheep Pox. Theiler invited him to Onderstepoort where he signed the Visitors Book on Christmas Day 1910, and made him an honoured guest at the quarterly meeting of the Transvaal Veterinarians in Johannesburg on the 31st December. Ostertag was charmed and spoke at length on his mission, concluding reassuringly with the view that Sheep Pox (with a mortality of 50% to 90%) would not reach South Africa. He was further charmed when the vets gave him a solemn dinner after the meeting at the Goldfields Hotel. A good ambassador had been made. A further pleasure to Theiler was appointment to the Advisory Committee for the proposed Agricultural College. Led by the Mayor of Pretoria, Sir Johannes van Boeschoten (a plethora of South African knighthoods had distinguished the New Year Honours List) and the Transvaal Administrator, Johann Rissik, a party of experts and notabilities visited a site at Fountains which the City proposed to offer to the Union Government. Theiler, Gray, Burt-Davy, Gunning, A. G. Robertson and other longstanding proponents were included. Typically Theiler had written to Alfred asking for appropriate literature.

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The New Year portended nothing but trial and tribulation. The massed brains of the Government's advisers had evolved the new hierarchy in the Department of Agriculture and on the 1st January 1911, the incumbents took office on a temporary basis amid shock and disappointment to many individuals. Onderstepoort and its ancillary activities would now be controlled by:

(Acting Director of Veterinary Research for the Union – Dr Arnold Theiler  
Assistant Director – Lieutenant-Colonel H. Watkins-Pitchford (Pietermaritzburg)  
Assistant Director – W. Robertson (Graham's Town)

83 Of his immediate associates, Theiler would now have on a national but acting basis C. E. Gray as Principal Veterinary Surgeon assisted by J. D. Borthwick and in the Transvaal, by J. M. Christy; Cape – R. W. Dixon; Native Territories – J. Spreull; and Free State – A. Grist; for Plant Pathology and Mycology – I. T. Pole Evans (Burt-Davy was not mentioned); for Entomology – C. P. Lounsbury; and later, for Chemistry – C. F. Juritz.

84 The chaos and consternation in the Civil Service when these and other alignments were made all but paralysed its activities. The fear of retrenchment at a time of economic depression and widespread unemployment affected the highest and the lowest and poisoned personnel relations. There was in addition real impediment in establishing national methods of operation vis-à-vis the previous colonial systems and a strong tendency for officials to lack initiative and to refer the most trifling matters to their superiors who in turn, referred them to other departments. No one dared blot their copybooks.

To Theiler fell the extremely uncongenial task of centralising the activities of men, long his equals and rivals and loyally supported by their colonial governments and communities, who were bound to resent the superiority of his office and the comparative negligibility of the institutions which they had zealously developed over many years. Onderstepoort was to be the Central Research Institute and Allerton and Graham's Town mere sub-stations. It was a bitter pill for Watkins-Pitchford and Robertson to swallow. Theiler had the grace and manner to meet the situation but his own position was far from congenial. From a commanding position (Botha and Smuts well knew that almost any country in the world would gladly employ him), he sought an interview with the Prime Minister.

Theiler was confronted by the perennial problem of paid employment: promotion from tech-

nical expertise to administration. From his first days in Africa and particularly after the loss of his hand, he had devoted himself to bacteriological research and not to veterinary practice. His skills had created their own unique outlet and he had made of Onderstepoort a scientific institute of worldwide fame. He was cock-of-the-walk in the Transvaal but when it was merged into Union, he would not be commensurately promoted but in fact demoted into an office-bound bureaucrat directing the researches of others. Further, his salary of £1,200 a year was inadequate to his responsibilities. Au fonds, his heart was not in the kind of work he would be expected to do but yearned for academic fields and the pursuit of Pure Science. On the 28th January 1911, he took train to Cape Town.

85 Botha, with Smith in attendance, listened to him carefully and with a high degree of apprehension. If the new country were to crawl out of suffocating depression, the agricultural product must at all costs be increased, particularly the meat, wool and feather export trades. (Meat, 86 owing to widespread East Coast Fever, and butter were still being imported in large quantities from Australia and elsewhere.) This man was essential to all of them and more. He was holding a pistol at their heads but there was no alternative to making concessions.

87 Theiler spoke his mind on a man-to-man basis. He had been with Botha during the War and his favoured and willing servant since. He was now 44 and wanted to realise his life's ambitions while having to provide for a family of four minor children and other dependents. He would have to continue working but not as a bureaucrat. In the pre-Union days, he had always done all the research work personally and accepted responsibility for it. Now the field was immense and he had insufficient scientific assistants to deal with it. 'There is no question of being able to control their work in detail', he said, particularly in respect of new complicated diseases for which he would nonetheless have to accept responsibility. 'Parliament would expect far more from the Director of Veterinary Research than it was possible for a mortal to do.' He wanted no part of it. By choice, he would like to be a Professor of Veterinary Science at a South African University or Central African Agricultural College. If work he must as Director of Veterinary Research, he must be given more assistants and opportunity to become better equipped by study overseas. No other civil servant could similarly have held a Minister to ransom. Botha paid it willingly.

88 Theiler took the train back to Pretoria on the same day – Monday the 30th January – and two days later, Smith confirmed the terms of the interview – his salary would be increased to £1,500 from July 1911; his Minister would grant him leave not exceeding one year for overseas study when convenient; his Minister would do his best to get a Chair of Veterinary Science for him when his present work was completed or safely consigned to competent hands. Botha had bought time and Theiler had secured his immediate future. Both had reason to regret it.

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The men who constituted the first Union Parliament had difficulty in adjusting themselves to national affairs. In general, everyone felt competent to speak about everything, often in trivial terms, and the debates were long characterised by parochial attitude and lack of largueur. Additionally and increasingly, racial politics were injected into the forum. Botha's policy of conciliation and coöperation staggered before the strident claims of Afrikaner dominance and allegations of discrimination which issued from his own Free State henchman, J. B. M. Hertzog, Minister of Justice, and a growing band of followers. The tendency (known as 'Hertzogism') had been evident before the Election and now was increasingly overt. It had a pronounced effect on the general activities of the Department of Agriculture (particularly in the appointment of minor officials such as Scab Inspectors, escalating to higher positions). The assertiveness of



89 Afrikaners even threatened the venerable Transvaal Agricultural Union when a rival body – the Organizatie Vereniging – staged a simultaneous congress on agricultural affairs in February 1910. Botha himself came to resolve the differences and an amalgamation was arranged. Theiler who had been asked to address the new body, prudently replied that he had received no official instruction. The patched-up truce hardly concealed bitter feeling that Afrikaner interests were still dominated by the English.

90 All sections of the population and especially the ‘poor whites’ (who besieged the office of the Pretoria Resident Magistrate, demanding relief work) had expected the mere Act of Union to wreak miracles. Conditions in fact grew worse and the temper of the times was bitterly disputatious and frustrated. Race-hatred and political mud-slinging infused community life generally and ‘conciliation’ became all but a dead letter. Despite their poverty and dispiritedness, the Dutch-speaking people, largely in the northern part of the Union, became more articulate in their opposition to the Government’s avowed principles. A temporising Botha made great play in the first session of Parliament that no one was to be forced, no steam-roller tactics employed, even in protecting the country against stock diseases by enforcing Scab regulations, prohibiting the trekking of sheep, instituting compulsory dipping, etc. Afrikaner assertiveness continued to grow. For the moment, it was of no particular concern to Theiler whose principal gadfly was the English-speaking ranchers of Bechuanaland.

91 Their tiny associations – Griqualand West, Vryburg, Taungs, Massouw and other groups recently constituted to combat the prevailing menace – together with individuals who considered themselves specially qualified, such as J. Fred Pentz and Charles Butler of Vryburg – wrote him constantly. They could quote plausible figures. Though it was agreed that some cases could have been caused by Anthrax, the Police had reported that in four months, about 4,000 beasts had died from Lamziekte in the Vryburg, Mafeking, Kuruman and Taungs areas (an additional unreported 2,000 deaths were suspected.) At £5 an animal, the loss was severe.

92 Butler, still hopeful of the dilatory Mayers’ ‘cure’, published innumerable letters from all quarters describing supposedly effective treatment. A Taungs cattle-owner recommended ‘ $\frac{3}{4}$  bottle of vinegar, 2 spoons of mustard given as an emetic, the vinegar to soften the hard-caked dung in the blaar pentz (known to English cattlemen as the “leaf stomach”) which in some afflicted cattle was dry enough to light with a match) followed by a powerful purgative viz. a spoon of powdered aloes on the back of the tongue’. Others favoured a lick of Stockholm Tar, sulphur and salt; massive doses of paraffin; Little’s Dip; Epsom Salts; Glauber Salts; etc; and hanging a sick beast by the neck for an hour or two. J. Fred Pentz recorded Theiler’s saying when he had met him at Onderstepoort on the 19th July 1910 and discussed Lamziekte ‘cures’ – ‘Let us hear all the raads (remedies). We are not above hearing from anybody, not even from an old Boer or even a Kaffir. We may be able to build on it.’ Now he had written to Pentz, deploring the use of strong purgatives as likely to inflame the intestines. Patience was running out among Theiler’s new parishioners. ‘I think it is time’, one of them wrote to the *Northern News*, ‘that we left all so-called “cures” alone and unitedly press the Government to have this disease which is devastating our herds scientifically investigated. If Dr Theiler’s time is too much taken up in investigating East Coast Fever, Horse Sickness, etc, then it is the duty of the Government to employ the services of another man of the same calibre.’ The heresy hurt.

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95 While Botha successfully piloted the Diseases of Stock Bill through Parliament, its author was instituting just such an investigation about 100 miles from Vryburg in the equally-afflicted Free State. The Leo brothers on their Smith’s Kraal farm had supplied the 100 beasts which Theiler had divided into two lots of 50. His association with Burt-Davy had convinced him that Lamziekte, like Stijfziekte, must be due to a toxic plant and the investigation was devised accordingly. 50 beasts were muzzled and cruelly herded in the veld with the remaining 50 which,

96 unmuzzled, grazed freely. The 50 muzzled beasts were fed at night in a bare kraal on fodder brought from an area where Lamziekte was unknown. Mitchell, in charge of the station, also attempted to transmit the disease by injecting organic material, crudely drenching with similarly infected stuff and feeding with bones from Lamziekte victims. Many months would pass before conclusive results could be obtained. It occurred to no one that centuries of investigation, irked by even greater impatience, had failed to find cures for recurrent human diseases. Bechuanaland was not waiting.

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97 No single man, however young and ambitious (and Theiler was neither, though proud of his office) could cope with the vast demands made on the Director of Veterinary Research. His Department was admittedly in a state of chaos and his own Division barely embarked on 're-organisation'. Watkins-Pitchford, supported by local sympathy in being usurped by 'the foreigner' (as he later contemptuously called Theiler) virtually did as he pleased and Robertson, also confronted by Lamziekte, was making his own bacteriological investigations. Theiler, in addition to continuously briefing his Minister (Botha defended him doughtily in the Budget Debate, rejecting all criticism of the Agriculture Department and any reduction in its Vote – 98 'I refuse to lengthen my blanket at the top by cutting a piece off the bottom') was compelled to address various Agricultural Congresses, to write articles for the Department's *Journal*, supervise his large staff and elaborate experiments at Onderstepoort, develop a vaccine against East Coast Fever, tactfully initiate control at Allerton and Graham's Town, receive increasing 99 numbers of distinguished visitors (including nostalgically the ailing Dr J. W. Leyds and his wife from Holland), and maintain an immense communication (12,550 letters received and 100 12,523 despatched in 1911) with the whole Union and overseas. He was well served by his staff, particularly his Chief Clerk, the indispensable H. W. R. King. At this most inconvenient moment (March/April 1911), one of his dearest pigeons came home to roost – the Belgian Government 101 sent the heads of the Agricultural Colleges at Brussels and Bruges with supporting staff and six veterinary surgeons from Katanga in the Belgian Congo for instruction in tropical diseases at 102 Onderstepoort. They continued coming and others from all over Africa including E. Hutchins from Nairobi. Nowhere else in the world could such instruction be given.

103 The cauldron boiled in Bechuanaland. In his dual capacity, Butler kept it well fuelled. When the Vryburg farmers met on the 28th April, they were told that 8,000 cattle had died in the Cape Colony from Lamziekte in 1909 and many more in 1910. The meeting passed an ingenious resolution requesting the Government to devote all duties levied on imported meat to the expenses 104 of combatting stock diseases. In Butler's fertile mind, a further idea took shape – the Association should itself initiate a fund to combat Lamziekte and ask the Government for a £ for £ 105 contribution. Then he paid one of his periodic visits to Pretoria (usually to attend Newspaper Press Union meetings) and called on Theiler at Onderstepoort on the 29th May. Theiler took to the dynamic little Quaker whose main interests were his newspaper, his dorp and district, and all worthy works in the interest of the community. Butler was impressed by the immense pre- 106 occupations of his swarthy host who had just returned from Glencoe in Natal where he had inspected progress in immunising against East Coast Fever and later lectured a farmers' meeting at Machadodorp on preventive measures.

Whatever their feelings about Lamziekte, the Bechuanaland farmers had a high regard for Theiler whose articles they read in Butler's paper and in the *Agricultural Journal*, and particularly for his work on Horse Sickness. Horses by the hundred continued to be moved by train down- 107 country for safety during the Season. They hoped he would refine the method by which mules

108 were successfully immunised to enable them to inoculate their horses. The Massouw farmers who corresponded with him, intended taking the risk and trying it on their own horses. Butler raised the Lamziekte question with him with such energy and gusto that, infected by the urgency, Theiler told him that he would leave for Vryburg within a week and what was more, would bring his colleague J. Burt-Davy, the Union Agrostologist and Botanist. That night Butler caught the mail train and issued his paper the next day. It carried an excited and historic advertisement:

VRYBURG FARMERS ASSOCIATION  
Next Meeting on Thursday 8th June 1911  
*Lecture by J Burt-Davy, Government Botanist*  
*Proposed Lamziekte Fund*  
etc etc

SPECIAL VISIT OF DR THEILER

On Friday evening, June 9th in the Town Hall at 8.15 p.m., Dr Theiler, Director of Veterinary Research, will give a lecture on Animal Diseases. This will be illustrated by a number of lantern slides.

*Chas Butler*  
Secretary

In following issues, he 'plugged' the visit extensively and urged all farmers to take advantage of it.

109 Taking the night train to Kimberley/Cape Town on the 6th June, Theiler, Burt-Davy and Theo Meyer (technical assistant and photographer) arrived at Warrenton the following afternoon and waited four hours for the northbound train to Rhodesia. It was a journey Theiler was to make innumerable times without ever complaining of the tedious delay. Station masters, porters, farmers, idlers, 'Kaffirs' were all fair game to his enquiring mind. Great heat and bitter cold seldom troubled him. It was only 100 miles to Vryburg (where the railway had ended when Theiler made his first journey in 1892) and with numerous halts at rural sidings, the party arrived at dawn and made their way to a primitive hotel for an early breakfast. Hardly had they finished when they were formally welcomed by the Farmers' Association's standing president (until the Government forbade civil servants to officiate), the Civil Commissioner and Resident 110 Magistrate F. W. Roberts and the secretary Charles Butler (who had rhapsodised in his leader that 'it was most refreshing that so shortly after the consummation of Union, it was possible to welcome two of the highest officers in their respective spheres in our midst').

111 Local notabilities and ranchers had already assembled in the hotel and without thought of rest, the great man was introduced to them and conversation on Lamziekte began, continued in the dusty streets as the gathering walked to the Stock Fair Kraals to inspect animals. This was merely an hors d'oeuvre to the convocation of 40 or 50 ranchers who awaited Theiler in the Municipal Council Chamber at 11.30 a.m. Theiler took the floor. He told them how, at Deelpan near Lichtenburg, he had mounted experiments to ascertain how cattle got the disease - through the mouth, feeding on pasture, through the skin, through a wound, or through ticks. Nothing conclusive was gained owing to the erratic incidence of cases and he had moved the station to the badly-infected farm Schoonheid at Christiana. Perversely, from the wide tests employed, not one animal contracted Lamziekte. At that stage, the exorbitant sum of £1,500 had been spent on abortive investigation but he had decided to try again on the notorious Smith's Kraal farm near Warrenton where Mitchell was in charge. He read a list of 165 experiments to transmit the disease from infected stock to healthy animals. All had failed. A farmer had sent old bones eaten by cattle that had died. Theiler had fed them to sound beasts. Not one had sickened. He himself suspected ticks. He had collected ticks from Lamziekte areas - from meerkats, buck, etc -

and every animal to which they were applied went on living. He appealed to the gathering to advise him. The intent expression on the eager turkey-red faces changed. Every man had something to say. Theo Meyer recorded it all. At 1 p.m., Butler intervened and took his guests home to lunch. Theiler had a short siesta.

Back at the Council Chamber at 3 p.m., the ranchers gave their testimony. There had been no stock disease in Bechuanaland until the Rinderpest, they said. One claimed that since he incinerated the carcasses of Lamziekte victims, he had no losses. Another stated that before developing the disease, the animal went mad, eating, bones, rags, anything. Several said that transferring cattle to other forms of grazing stopped the disease. Perhaps a grass was the cause. Theiler asked whether sheep and goats got it. Goats, they said, but the course of the disease was longer. A huge body of conflicting evidence emerged. Theiler reiterated his belief that Lamziekte was not infectious. He asked for careful observation of grasses to determine whether any fungus, rust or smuts existed. He also asked for samples of plants. The ranchers for the first time felt important. They gave him a hearty vote of thanks. That night, Burt-Davy gave his long lecture on toxic plants and demonstrated the collection of grasses he had brought. Every seat was occupied and some stood. Vryburg was electrified by all the expertise.

The Stock Fair had brought a large number of cattle-raisers to town but many, some from 100 miles distant, stayed to hear what Theiler had to say the next day. They were waiting for him in his hotel the following morning and discussions continued for the whole forenoon. Burt-Davy caught the train to Pretoria in the afternoon but Theiler attended a meeting of the Executive Committee of the Farmers Association. They wanted his view on Butler's pet proposal to raise a fund to combat Lamziekte. Surprised and encouraged by their enthusiasm, Theiler suggested that they devote it to mounting experiments to determine the cause of the disease. He wanted a series of observation stations. All present, Butler particularly, were suddenly dedicated and important men. In the evening, Theiler gave his address on Stock Diseases in the Town Hall to a 'good attendance' of ranchers and townsmen (many dorp-dwellers also ran stock on 'farms') with Theo Meyer projecting colour microscopic slides of protozoa, parasites, etc, some magnified 5,000 times. The bucolic audience had never seen such things. Touched by the afternoon's decision, Theiler praised the proposal to raise an Experimentation Fund with the Government contributing £ for £ and thanked the meeting for its confidence in him. He was only human, he said and might fail in finding the cause of Lamziekte; but if he did fail, it would not be for want of love for the work and trying his best. He would go back to Pretoria with a very good opinion of the district and he would depend on them to give him every assistance in his investigations. Thence forward, they were his men. Butler glowed.

Theiler was not yet done. On the morning of the 10th, he again met the Executive Committee whose private pet he had become. Mr W. C. Hunt of Doornbult offered him a cart and horses whenever he might need them. Others confirmed coöperation. They all adjourned to the property of Mr Masson where a sickly cow stood in the veld, already surrounded by the dorp's doctors, local worthies, ranchers and stockmen. Accompanied by Meyer with his camera, the district veterinary surgeon Elphick and with Butler ever at his side, Theiler was to give a demonstration of the type of technical assistance he required. The chance of seeing the great man at work was relished.

The cow, according to the cognoscenti present, was not a Lamziekte victim and would have recovered from its evident indisposition but became a sacrifice to Science. To the astonishment of all, Theiler first pricked it all over to determine any areas of paralysis. Then it was despatched by the local butcher Ted Pavitt and dissected by Elphick, handicapped by his Department's having failed to provide him with the necessary instruments. Theiler talked all the time. He was a born teacher. He showed his craning audience how to take blood-smears and how to report a

- 112 postmortem. 'He gave in extreme detail the observations necessary (among his own staff, he would never countenance "N.U." - "nothing unusual" - on a postmortem sheet without full justification), urging the use of non-ambiguous terms and the avoidance of vague words such as "rotten" . . . ' The cattlemen said they would not have missed it for anything. They had already  
113 been astounded by Theiler's finding a tick unknown to him in an animal's ear and bearing it  
114 off to Pretoria while begging them to find more. They now knew what he needed. 'He had  
115 made a forceful impression on all', wrote the triumphant Butler, girding himself to promote the most difficult consequence of the whole affair.
- 116 Theiler left that afternoon for Warrenton where Mitchell, travelling the 11 miles from Smith's Kraal by cart, met him to report developments and the failure of Mayers' 'preventive'. Four of his own cattle to which it had been applied were dead from Lamziekte and eight from the control group. No more was heard of him.

\* \* \*

- The glories of Union had faded into oblivion. Conditions were worse than they had ever been. Botha, sickened by the intrigues and bickering in his Government, had left for England in April to attend his first conference of Imperial Prime Ministers and the Coronation of George V (where, sentimentally, Lord Selborne carried the standard of South Africa). Smuts was left in charge as Acting Prime Minister and holding also the portfolio of Agriculture in addition to  
117 Mines, Interior and Defence. From London, Botha wrote him anxiously - 'Dear Jannie - Sauer writes me that the railway and the general revenue are falling fast. I hope it is not serious . . . ' The economic situation was desperately serious. Smuts confronted widespread poverty,  
118 unemployment, lack of agricultural production. Levelled with the rest, the Vryburg Farmers opened their Fund for Theiler. In a week, they had £78. In a month, £150 and slowly onward, each man contributing what little he could.
- Theiler, through Butler, kept closely in communication with them. He asked for supplies of the new tick. Butler arranged for the Association to offer monetary prizes for collections submitted by ranchers. Theiler carefully composed a Report Sheet of 36 questions with spaces for answers and bound together in a book, on Lamziekte for them to complete and return to him.  
119
- Butler reproduced it in his *Northern News* and saw that it was distributed. (It was also reproduced in the *Union Agricultural Journal* which appreciatively mentioned the Vryburg Fund and began to publish letters on Lamziekte.) Butler prominently published anything relating to the  
120 disease, however trivial viz. 8 out of 10 ducks died after eating meat from a dead ox. By October,  
121 the Fund had reached over £300 with donations of 5s. to a maximum of £5.5s.0d. contributed  
122 by townsmen as well as ranchers, dairy firms and agricultural corporations. The district was  
123 keeping its word. On the hopeless property Armoedsvlakte (Poverty Flats) seven miles distant from the dorp where Lamziekte prevented the owner McKee from maintaining stock, a suspicious bush was found and sent to Theiler. He had immediately telegraphed, asking for a quantity to feed to experimental animals. He had also written requesting supplies of oat-hay in 100 lb lots from infected farms, railage to be paid. J. Fred Pentz remarked drily at the Association meeting that no one could cut hay during drought and that, with great respect to the Doctor who had not sent an expert to the district to conduct affairs, they had better get on with a new 'cure' propounded by Mr L. S. Meintjes. The Association agreed. All its members were now suffering severe lossess.

- The Doctor was an unhappy man. His private affairs were unsettled (despite the additional  
124 year, Hans had matriculated only second-class and, detrimentally affected by his detention, was now listlessly widening his education at the new Transvaal University College. His aunt

Marie in Switzerland still required to be supported financially). Theiler was constantly travelling, beating his bounds throughout the Union and trying to coördinate the chaos into an operable organisation in an atmosphere of suspicion, distrust and naked fear.

- 125 Before leaving again for Kissingen to restore his corrupted health, Botha had written Smuts –  
126 ‘Jannie, I think our departments are badly overstaffed and we shall have to retrench seriously. Burt-Davy etc and a few others in my Department you can sack at once because I feel strongly the argument that our expenditure on officials is much too high for such a small population.’
- 127 When Smuts received his letter, the Public Service Commission (known as the ‘Retrenchment Commission’) was about to issue its Fourth Report – dealing with the Department of Agriculture. F. B. Smith had sat with the Commissioners as adviser but had been powerless to prevent drastic reductions. Theiler escaped lightly with his staff diminished from 45 to 39 in the recommendations and his existing salary to be reduced (regardless of Botha’s promise to increase it). Watkins-Pitchford and Robertson were to compete for the post of Assistant-Director. The axe fell brutally elsewhere, even upon the invaluable Burt-Davy. With his work already grossly hampered by lack of scientific assistants, Theiler’s position would be insufferable and he asked  
128 to be retrenched. Smuts intervened. ‘My request for retrenchment was not looked on with favour’, Theiler later recorded, ‘I took on the duties of Director of Veterinary Research with great reluctance. In fact I only held the post under protest.’ Smuts saw to it that his staff, so far from being reduced, was increased.

- Early in September 1911, ostensibly escorting an historic figure of the nineties, the Dowager  
129 Lady Loch (she died in 1938 aged 97) accompanied by his wife Isie, Smuts himself visited Onderstepoort and took rapid stock of its requirements. Smith had made them clear to him and now there was the menace of Lamziekte. Smuts was a realist. He had seen how Theiler  
130 had eliminated East Coast Fever in the Transvaal. Cattle from the Zoutpansberg in the north would soon come to the Pretoria market for the first time in 8 years. He must be helped with  
131 the new disease. Smuts found £5,000 for Lamziekte research. Theiler’s heart was further lifted  
132 at that time by election as president of the South African Association for the Advancement of Science – a notable honour.

Reams were written throughout the country about the dismantling of the Civil Service, the sacking of ‘the Milner men’, the employment of incompetents in the terms of ‘Hertzogism’ and the rapid decline of the Union into chaos and disaffection. Botha returned in September and took refuge on his farm. Theiler had made his decision and soldiered on with the assurance of Smuts’ support in importing new assistants for whom he had immediately written overseas. Uncharacteristically hors de combat for three weeks with acute influenza, he returned to exceptional activity. Vryburg had told him of the Meintjes’ specific and, unable to leave Onderstepoort when on the verge of launching his finally-tested vaccine for horses against the Sickness, he asked the intelligent and articulate Bechuanaland rancher to visit him.

- L. S. Meintjes’ properties were north of Vryburg at Setlagoli where his herds had suffered from Lamziekte as much as others. So far from relying on lore and superstition, he had applied  
133 an educated mind to local conditions and evolved a preventive. On the 22nd September 1911 he came to Onderstepoort to confer with a much-impressed Theiler. In brief, Meintjes believed that wilted plants in his hot arid region became toxic and produced Lamziekte unless combatted by a powerful lick compounded of  $\frac{1}{3}$  salt,  $\frac{1}{3}$  bonemeal and  $\frac{1}{3}$  potassium nitrate. His theory was that drought conditions produced nitrate deficiency in grazing stock and rendered them vulnerable to plants made poisonous under those conditions (a point which Burt-Davy had himself made). He could substantiate his theory with impressive facts gained from treating his own herds. According well with his own surmise, Theiler determined to examine the hypothesis in  
134 situ as soon as possible. Joy abounded in Vryburg when his intention became known. He should  
135

136 make it his headquarters for a few months, Butler wrote, the problem was serious enough. The Association's mission to Meintjes, W. C. Hunt and A. W. Cullinan who were both losing heavily from Lamziekte, had reported favourably on the results of his specific without divulging the nature of his 'mixture'.

137 Many duties prevented Theiler's immediate departure for Bechuanaland. While he had chatted to Meintjes, Onderstepoort was preparing to receive all the Transvaal Government veterinary surgeons for instruction in the use of Anti-Horse Sickness serum which, after years of dissuasive results, he now felt justified in applying to horses as well as mules. Haemolysis had been overcome to the extent of producing only minor mortality. The whole country had been impatiently awaiting this moment. Theiler did not wait to receive the distinguished delegates to the first Union Dry Farming Congress (they all came to Onderstepoort) which Botha opened with praise of scientific farming. The Cape corner of his huge fief had called and early in October, at the request of the Farmers' Associations, he set out on an exacting lecture tour beginning at Steynsburg, Middelburg and Cradock in the Midlands and continuing to Port Elizabeth, Graham's Town, East London, Bedford and Alice. Robertson, in charge of the Graham's Town Laboratory, was abroad on vacation leave, preparing himself for future responsibilities by studying the latest research techniques in European laboratories. Such was his personal parochial popularity that Theiler, confronted everywhere by resistance to change, had to placate protesting farmers by saying that if he were transferred to Pretoria, they must not be selfish and the Eastern Province would in any case remain his preserve. James Walker was temporarily taking his place and continuing Lamziekte experiments on the farm Yarrow near Seven Foundations to determine its possible relation with *Pasteurella bovis*.

138 Endemic with stock diseases of every kind including Lamziekte, the Eastern Province had special interest for Theiler in that it rode the current tide of popularity of ostrich feathers. While by no means as extensive as the famed Oudtshoorn district further south, the area around Graham's Town and particularly the Heatherton Towers property of the pioneering producer  
142 Arthur Douglass, contributed significantly to the national income and accordingly commanded  
143 his care. (Of Farm Products in 1911, Ostrich Feathers to the value of £2,253,140 were exported, their nearest rival being Hides and Skins at £1,207,651.) Theiler found it fascinating. 'I orientated  
144 myself on the conditions of ostrich farming and the accompanying diseases which I now want to study', he wrote Alfred, 'It is exceptionally interesting and very rewarding. The ostrich farmers are the richest in South Africa.' He would find little guidance in Europe for this branch of  
145 poultry research. As always, he consulted the local farmers. Bechuanaland was diverted to hear that in addressing the Bedford Association, he had mentioned 'Vryburg's unknown tick' (later identified as *Ornithodoros megnini* - the Spinosa ear tick).

146 Theiler's vitality was illimitable. Endowed with a tough constitution nurtured by hardship, he was carried along his physically- and mentally-demanding way by sheer inquisitiveness and a genuine love of scientific processes that would reveal the nature of the phenomena that interested him. His southern tour would have felled a fit man half his age; but hardly had he returned than he wrote Butler announcing his soon arrival with Burt-Davy on an excruciating tour by motoring car exposed to all the elements. By then, in response to his published request, many farmers (some very knowledgeable and resourceful) and others had contributed a mass of empiric, historic and speculative material on Lamziekte in addition to completing his questionnaire.

There was no unanimity though many subscribed to vague theories that Lamziekte was probably due to a 'germ' or 'microbe' transmitted by ticks, to wilted grass or to sour (brak) veld. Natives insisted that the white man had brought the disease by giving his cattle salt and the white man angrily replied that if he didn't, his cattle ate old bones and other refuse in compen-

147 sation. Others ascribed this craving (known as Pica) to internal parasites. Most said bones and  
148 bonemeal were essential to strengthen the animals but provided no cure. Stockholm Tar with  
paraffin was good, also soluble sulphur but Epsom Salts useless. An 'old man' (63) farming on  
the Kaap Plateau where Spreull had made his extensive investigation in 1906/07, offered the  
interesting but neglected observation that he had expunged Lamziekte and successfully run  
cattle on previously fatal farms by cleaning them of all animal refuse. New owners had failed  
to do so and the disease had returned.

149 Theiler tried to keep an open mind but, always a botanist manqué, inclined strongly to the  
150 toxic plant theory, abandoning the tick hypothesis. The assiduous and excellently-informed Burt-  
Davy then made confusion worse confounded by introducing fine distinctions to which Theiler  
paid little regard. Burt-Davy pointed out that some plants were poisonous only at certain times  
or at a certain age or when fresh and not dry or in certain parts (seeds could be more toxic than  
foliage) or in large doses when small were safely assimilated. Paradoxically some could safely  
be eaten by cattle but were fatal to horses, mules, donkeys and pigs. Animals learnt to avoid  
toxic plants (Theiler was unable to induce a hungry ox, starved for 36 hours, to eat Yellow Tulp  
151 (*Homeria pallida*) even when chopped and mixed with hay.) Par contre, grazing cattle could  
develop a morbid craving for the taste of lethal plants. The chemical aspect of the problem would  
have to wait until the arrival of the new assistants.

152 In searing summer heat, Theiler and Burt-Davy left Pretoria in an open car with hard non-  
balloon tyres, frequently punctured, on woodspoked wheels whose maximum velocity could not  
exceed 30 m.p.h. on the shocking rural roads. There was no money to keep the gravel main roads  
in repair and the sandy or rocky side roads with their innumerable cattle gates were in worse  
shape. They came via Wolmaransstad and Schweizer Reinecke to Vryburg where D. T. Mitchell  
153 met them. Butler and his colleagues had been busy. They took the two great men to the desolate  
Armoedsvlakte farm a few miles out of the dorp where cattle could no longer be kept because  
of Lamziekte. Its owners, the McKee brothers, offered it to Theiler for a year without charge  
as an experimental station. The Vryburg Farmers Association offered its Fund, now standing  
at over £300 for such expenses as might be involved. Its members offered to supply cattle for the  
experiments. Theiler was delighted. Trudging over the barren property with Burt-Davy, noting  
its strange grasses and small bushes stunted and withered by three years' drought, its lack of  
water, its underlying dolomitic rock and exposed situation, he made a plan sur le champ to  
fence it (at Government expense) into several large 'camps' or paddocks of several acres in  
which to conduct closely-controlled feeding experiments. The sun still shone out of his eyes for  
Vryburg and the ranchers stood at his command.

His decision made, Theiler took the north road on the 12th November 1911 and, detouring to  
numerous ranches whose owners such as W. C. Hunt at Doornbult he already knew, got as far  
as Madibogo and Setlagoli on atrocious roads. Here he met Meintjes on his estate West End  
and came to an arrangement by which Onderstepoort would test his preventive which the  
Government would recommend if successful, while Meintjes in the meantime marketed it  
commercially. Gathering much first-hand information, Theiler intended visiting further cattle  
154 stations during his four-day safari 'but owing to the heavy nature of the roads, the motor car  
was unable to negotiate them.' The heat was intense in Vryburg and the dust suffocating. Both  
bearded and wide-hatted, Theiler and Burt-Davy were burnt brown by sun and wind. After  
two days' further discussion, they drove the empty 80 miles via Geluk to Kuruman, thence to  
Kimberley, Windsorton Road, Taungs and Bloemhof to Pretoria where Theiler found he had  
155 been awarded a D.Sc. honoris causa by the University of the Cape of Good Hope. He was  
pleased that his services were recognised by his 'new home land'.

Within a few days, Burt-Davy and Theiler had covered a country new to them and gained a





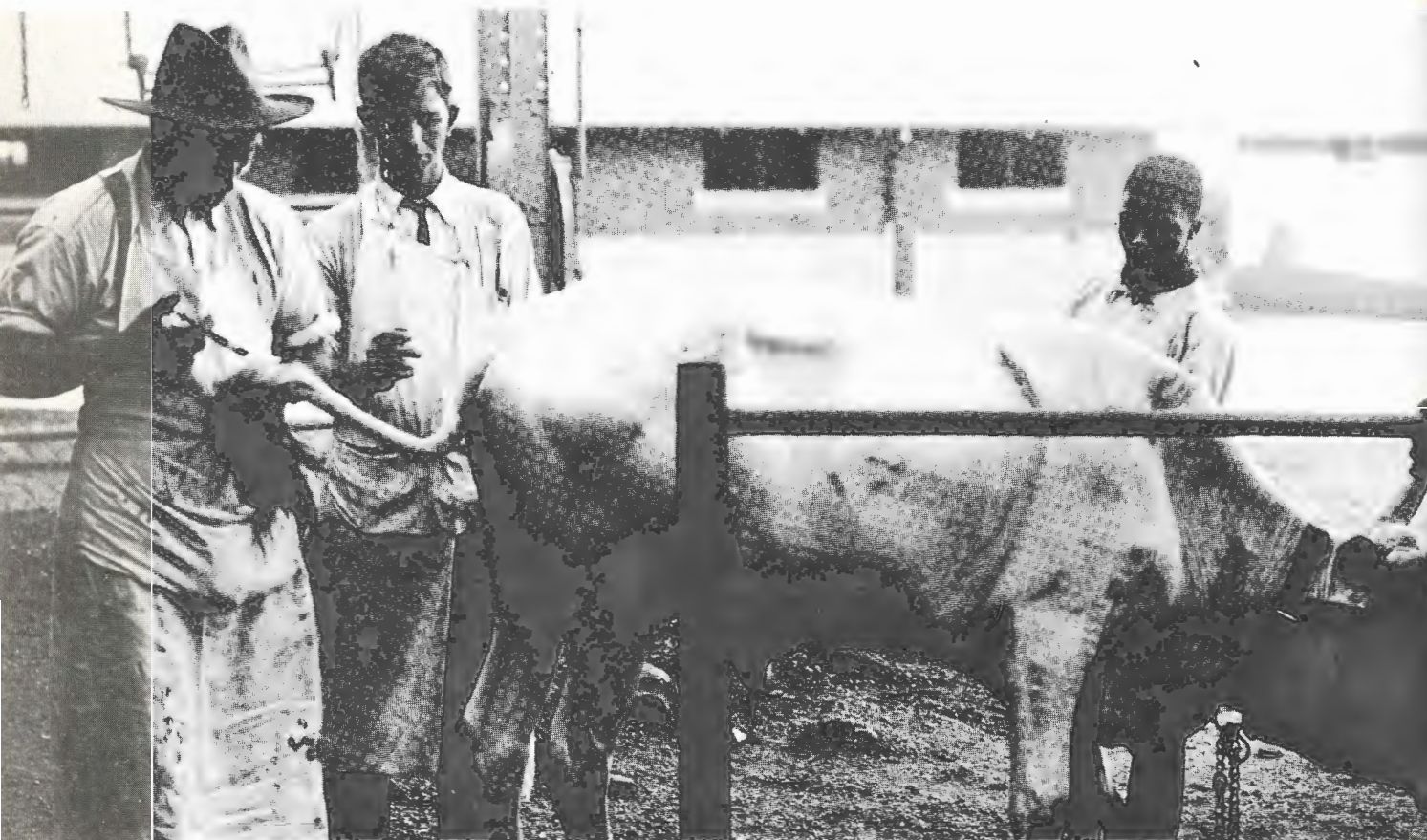
*The main building* of the Onderstepoort Bacteriological Institute (later Veterinary Research Institute) shortly after it was ready for use in 1908 but before the gardens and grounds were fully laid out.



*Commemorative Photograph* specially taken for the Souvenir publication intended for the formal opening of Onderstepoort – (from left): General Louis Botha (dangerously over-weight and with swollen legs from a heart condition), Transvaal Prime Minister and Minister for Agriculture; Dr Arnold Theiler C.M.G., Government Veterinary Bacteriologist; and F. B Smith, Director of Agriculture.



*The Gubernatorial Visit in 1910* – (seated): Viscount Gladstone and Viscountess Gladstone (in mourning for King Edward VIIth); (standing): Major Garroway A.D.C.; the Governor-General's secretary; F. B. Smith, Director of Agriculture; and Arnold Theiler in his famous white apron.



*Injecting serum into an Ox's tail at Onderstepoort.*

156 vivid impression of its conditions. They left a trail of excitement in Vryburg which justifiably now felt responsible for the solution of the Lamziekte problem. At the December meeting of the Farmers Association, there was a record attendance (the membership had greatly increased), the Fund had advanced to £341, 35 beasts were offered free and 71 on a compensation basis, Meintjes offered his farm for experiments and a resolution was passed thanking the Government for attacking Lamziekte scientifically under Dr Theiler's direction. 'This meeting wishes further to express its absolute confidence in Dr Theiler's methods of investigating the course of the disease so far as they have been disclosed and wishes to assure the Government and Dr Theiler of its hearty support.' Both replied appreciatively (as well they might) and Theiler himself, accompanied by Burtt-Davy, had returned on a one-day visit before his letter came. He supervised the partitioning of Armoedsvlakte into fenced camps and ordered boring for water for each one through very hard rock. The experimental animals were to be delivered there by the 12th January 1912, the Smith's Kraal station near Warrenton would be closed and the new station put in the charge of a farmer-lay assistant, R. R. Sharpe who had been engaged in August to supervise East Coast Fever tests in Natal.

159 In February 1912, Theiler was back again. The Fund was still increasing, 40 animals were  
160 already on the station, feeding tests had begun with local veld plants (Burtt-Davy selected 57 – later more – from various areas which were ultimately tested at Armoedsvlakte, Onderstepoort and other stations), Butler who was in constant correspondence with Theiler, had spent money from the Fund in building corrugated-iron stables on the property for controlled tests, and the battle against Lamziekte had been energetically begun. Vryburg prided itself on being in the front line. It was in fact the vanguard for the world.

161 In his straitened and vexatious circumstances, Theiler had done his best. Cattle were allegedly dying by the thousand in Bechuanaland, the Western Transvaal and the Free State; but he had neglected matters of the highest importance to try to save the situation. Unable to give them more than cursory attention, his two new assistants had arrived – Dr F. Veglia, an Italian veterinary parasitologist recommended by Professor Perroncito of Turin (his knowledge of animal parasites was very limited, Theiler found) and G. A. H. Bedford recommended by Theobald whom he had served as entomologist. Theiler hoped they would solve many problems. In  
162 December 1911, between his many trying sorties to Vryburg, he had traversed the Union, always  
163 by hot and smutty train, to visit Bloemfontein, inspect the laboratory at Graham's Town and deal with Natal. Watkins-Pitchford was being recalcitrant. Inflated by the success of his 'Three-Day Dipping and Tick-Destroying Agents' (which Theiler intended to test for himself) and his  
164 popularity and esteem among influential people in Natal, Pitchford paid no heed to his ordained  
165 subordinate position and went his own way. In an original attack on the problem of Horse  
166 Sickness, he proposed using hybrids bred from zebras (congenitally immune) and horses. Theiler's new serum was in the meantime being widely hailed during a bad Season though by no means fully successful. When the Acting Director of Veterinary Research signed his 1911 Report on the 1st January 1912, he was compelled to add that though he appended a report from  
167 Graham's Town, 'up to the time of writing, no report has been submitted by the Acting Assistant Director of Veterinary Research, Pietermaritzburg'. The situation quickly reached crisis point.

\* \* \*

168 'Arnold is always away nowadays', Emma told Alfred (she was now of customary invaluable aid to Arnold in reading his scientific literature and marking papers for his attention), 'and when he returns, naturally finds an accumulation of work as he never has enough assistants. The

Union has put all departments out of order as it is not easy to merge the civil services of four colonies without much disagreeableness and without the work thereby suffering.' 'Centralisation' continued to be furiously attacked. The powerful South African Agricultural Union resolved that the Department of Agriculture be reorganised on the American system (with which Smith had flirted), giving the Section heads wider powers. Violent views erupted in the Press and Parliament regarding the chaos, the cost, the destruction of the Milner efficiency and the impracticability of the whole concept of centralisation. Botha, sometimes rescued by Smuts, had a torrid time in the House of Assembly where, led by the members for farming areas and joyfully joined by the Opposition, attacks on his addled Agricultural Department proliferated. Lamziekte conveniently gave urgent cause and D. H. W. Wessels (Bechuanaland) C. A. van Niekerk (Boshof), T. W. Smartt (Fort Beaufort) and many others spoke to it. All commended Theiler's efforts (he was now confirmed in office as Director of Veterinary Research) and were at pains to deny criticism; but all, in one form or another, stated that the dramatically-increasing losses could not be stopped while his duties were so wide. 'He could not be everywhere at the same time' or 'spread himself over the whole country' - he must be given more money and assistants.

169 Botha who, via Smuts, had given him £5,000 without the authority of Parliament, a motor car and a free hand, feebly felt that further assistants 'would only get in each other's way'. 'Dr Theiler had a better knowledge of South Africa than any imported experts and the matter could safely be left in his hands.' Wessels was not satisfied. He wanted a number of experts under Theiler's direction and warned that 'the farmers would be slightly disappointed with the Minister's answer'. Butler applauded his member in the *Northern News* and gave space to the quackery that continued. It was at least a symptom of the urgent need. ('A dog specialist' at Taungs, one Evans, formally advised Theiler that Lamziekte was caused by 'a round worm' which was vigorously discussed in Parliament and elsewhere. There were many other such fancies.)

Theiler came to Cape Town to receive from the University of the Cape of Good Hope his first honorary degree. The ceremony was held in the City Hall on the 17th February 1912 with some fanfare, duly noted by his friends in Parliament. The opportunity was used for a discussion with his sorely-trying Minister. Botha was concerned with the rapid spread of East Coast Fever throughout the Eastern Cape (he dared not antagonise voters by enforcing compulsory dipping against ticks) and the worse depredations of Lamziekte in the Northern Cape and Western Transvaal. Theiler had solved the first problem which had become a departmental matter, and was in course of solving the second. For him, the problem of 'reorganisation' had become insoluble. Watkins-Pitchford continued intransigent and resisted all coöperation. Theiler returned to Pretoria and Botha called a meeting of all the Natal members of Parliament.

The discussion revolved around 'the professional jealousy between Dr Theiler and Colonel Watkins-Pitchford'. It was said with regard to East Coast Fever that Pitchford had discovered and promoted three-day dipping which eliminated the causative ticks; but Theiler was jealous and discounted it in the light of his newly-applied inoculation against the disease. Botha, the great conciliator, had a difficult time. There was no doubt in his mind that Theiler, the appointed head of Veterinary Research, should remain the 'baas' and that if Pitchford refused to conform, he must go. The Natal members were mostly loyal to their man but saw the cogency of his case and agreed with his view. Botha had done 'his utmost' as he later said, to keep Pitchford's services for the country. His salary as Assistant Director of Veterinary Research would have been £700 per annum. He was offered £1,000 and the opportunity to do his own work at Onderstepoort. But Pitchford was opposed to the concept of a Central Laboratory and refused to work under Theiler. He was duly informed of the Prime Minister's decision (mollified by full-some encomiums) and resigned immediately, returning to veterinary service in the British Army

177 and, upon retirement, employing his versatile talents in business enterprises connected with cattle-feeds. Strong partisan feeling endured in Natal.

178 It could not be held against Botha that control of his Department was slipping from his over-  
full grasp. Nature, abetted by partisan political interests, was everywhere asserting dominance  
over Science. Furiously attacked in the debate on Estimates of Additional Expenditure (when,  
inter alia, he sought authorisation for Theiler's £5,000), Botha was openly insulted by a pro-  
Pitchford Natal member (Hugh M. Meyler of Weenen who had visited Onderstepoort in June  
1911). He was widely accused of pinning his faith in Theiler while East Coast Fever raged at the  
179 Cape (then being officially visited by R. E. Montgomery of Nairobi to study Theiler's new  
preventive inoculation) and while Lamziekte with mounting losses developed widespread. Botha  
180 well-primed, ably defended himself and his Department but not for long. Theiler and Gray  
had been to the Transkei to urge the wholesale building of dipping tanks. Now Theiler went on  
181 the inevitable uncomfortable mission to Pietermaritzburg to address the Natal Agricultural  
Union meeting on the 23rd/25th April, explaining the position of the Allerton Laboratory whose  
control he had formally assumed. It would continue as before, he said, with A. W. Shilston in  
charge as the work was too heavy for Pretoria and Natal had special problems in which its  
farmers could help. Further conciliatingly, he stated that inoculation against East Coast Fever  
was only an emergency measure and that the fight must continue to be waged with the Natal  
182 method of dipping. He could afford to be amiable. In four months, he would leave for Europe  
for his promised year's sabbatical. In constant consultation with Alfred, he had made plans to  
study Parasitology, Pathological Anatomy and Physiology (in a makeshift laboratory with  
Emma's help) and Botany and Geology thrown in for good measure.

183 The spectre of Lamziekte would take long to lay. It was, in Theiler's own words, 'causing  
terrible destruction and even threatening to ruin the newly-developed north-western districts'.

184 On one of his many visits to Vryburg, he told Butler that he had cabled England, France,  
Germany and Switzerland for assistants to combat it but there had been no replies. He had  
opened a new station on the farm Kaffraria at Christiana and another at Besterput in the Free  
State for further feeding experiments. At Armoedsvlakte, the cattle in the various camps were  
185 strictly watched but perversely, with animals dying on neighbouring properties, none contracted  
the disease.

186 Its nature remained completely baffling despite bacteriological and botanical attack. Always  
accompanied by Burt-Davy who had not been 'sacked' (they covered tens of thousands of miles  
together, mostly in withering heat), Theiler personally investigated it in all areas of incidence.  
Returning from Natal via the Cape Midlands in April/May 1912, they spent a few hours in  
187 Vryburg and Theiler told Butler of its mystifying features. He remained convinced that it was  
caused by something eaten – a toxic plant or grass or several. It seemed confined to grass veld  
but in the Graaff Reinet district, occurred only on the mountains, cattle feeding on the plains  
being unaffected. Laboratory investigation had shown no causative micro-organism. The disease  
was not infectious. Unweaned calves of infected cows showed no trace. Cattle victims which  
recovered were not immune. Burt-Davy pressed his hypothesis that certain grasses might be  
poisonous at certain times. The abnormal craving for bones, tins, rags, refuse might arise from  
it. Butler listened to it all and sadly editorialised – 'Nature holds her secrets very tightly.'

188 It was no time for an academic approach to a dire economic problem. In the Cape native  
territories, it was said, the only transport was by horse and mule – there were no longer oxen.  
The whole livestock industry, essential to general revenue, was faltering. A situation comparable  
189 to the Rinderpest epidemic had developed. Robertson, returning to Graham's Town from over-  
seas and impressed by Bowhill's earlier inculcation of *Pasteurella bovis*, began experiments to  
establish whether inoculation with cultures of it might confer immunity from Lamziekte. Like

190 others, they would take long. Botha, goaded by taunts that he put party political interests before the country's welfare, showed a brave front in the House, defending his agricultural policy and his riven Department which had not issued an Annual Report since 1910. He recited Theiler's achievements with Horse Sickness and East Coast Fever and mocked the ridiculous 'cures' for Lamziekte. His enemies made capital of his discomfiture. On the 31st May 1912, Merriman noted - 'This is the second anniversary of Union which seems to have brought not peace but a sword to South Africa. Prime Minister incompetent, Cabinet quarrelling, administration chaotic' and during the debate on the Agriculture Vote - 'Botha cut a sorry figure and the lamentable disorganisation of agricultural department too evident . . . a monument to incapacity.' Vere Stent in the *Pretoria News* flailed him continuously. Unlike Koch who had magically produced a Rinderpest 'preventive', Theiler was unable to conjure an antidote to Lamziekte to take some of the heat out of the attack on his master.

193 When the House rose in June, Botha informed Smith that he wished to see Theiler on his return to Pretoria to discuss his field and future plans. Smith well knew them but when Botha returned, Theiler was away on the gruelling schedule which would enable his proposed departure early in September. In the intervening two months, tired and strained in his famous 'will to work', he was driven as never before.

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194 Since the beginning of 1912, Alfred (who taught Natural Science and Mathematics at the Lucerne Canton School) had been carefully enquiring at the Zurich, Berne and Basle Universities regarding the special facilities that Theiler required for his chosen studies which he might have to pursue in Germany if Switzerland failed. In the event, Basle proved the most suitable. His old mentor Zschokke of Zurich would be accessible. As he was knowledgeable about Cestodon and Theiler wanted briefing on worms in ostriches, it was particularly felicitous. There was also Lang with his new text-book including Helminthology and Schinz the botanist. For months, Theiler had been assembling parasitological and pathological specimens and a plant collection for his intended work. 'I have already a mass of material for my studies', he wrote, 'and have already done preparatory work on part of it and planned a further part which will be pursued during my absence and of which I shall be kept currently informed.'

196 His senior staff - James Walker, D. T. Mitchell, Daniel Kehoe, Theiler himself (in a particularly thorough historical survey for which he had consulted the authoritative Dr G. M. Theal, and analysis of all the facts that were known from Hutcheon's exemplary notes onward), and the virtually-seconded Burt-Davy - had all worked intensively on Lamziekte during the year and contributed highly-detailed papers to his Second Report (1912). Kehoe had also dealt with Plant Poisoning, Walker with destructive parasites in ostrich chicks, Andrews with the effects of snake bite on domestic animals. Onderstepoort remained a fairly routine vaccine factory but its research programme had carefully and thoughtfully to be planned. Robertson, helped in the ways and procedures of the place by the invaluable King for the first few months (King then went on leave) would do his best but he would be a pale shadow of the driving demanding Director of Veterinary Research with his clear concept of the form and methods of work and the ends in view. Theiler laboured to lay down a pattern which his proxy, already at hand, could pursue. He had also to plan and supervise the reconstitution of his Institute as the Central Laboratory for the whole Union. Extensive alterations and additions, including a house for Robertson, were set in train with the coöperation of J. S. Cleland, an architect of the Public Works Department. By the end of June, Theiler was compelled to advise F. B. Smith that no more visitors could be received owing to the disorganisation of building. They came all the

199 same, including Theiler's early gadfly, Lieutenant-General Robert Baden-Powell, Lord Grey, the Portuguese Governor-General of Mocambique and entourage, many German scientists, foreign veterinary surgeons and a host of others.

200 Theiler had yet to reap the reward of Botha's bursaries, two of whose recipients were completing their courses in London. On the 1st October 1912 in the presence of Sir John M'Fadyean and other dignitaries with Stewart Stockman officiating for the Royal College, the first to qualify P. R. Viljoen would receive the Coleman Silver Medal, Second Ralli Prize in Practical Surgery and the Class second prize for Surgery while H. H. Curson would be awarded the Centenary Prize, the first prize in Histology and Anatomy and others. Fully qualified, they and others such as E. E. M. Robinson whom Theiler himself had encouraged, would soon pay their debt to South Africa. A further candidate was an alert clear-thinking young man from Stellenbosch with a brilliant academic record. P. J. du Toit attracted Theiler's attention as the recent recipient of a Ph.D. with honours in Zoology at Zurich University after study at Berlin and Halle. Undertermined in direction, the 24-year old du Toit buttonholed Theiler on the deck of the ship as he left for Europe and, pacing up and down with him, listened to the great man expatiating on his need for specialists. Du Toit forthwith decided to return to Berlin to study Veterinary Science.

202 In the meantime, unsettled conditions were accentuated by a ministerial change. Always on a knife-edge of hostility between north and south, Transvaal and Cape, Botha, as Merriman had noted and everyone knew, had been confronted by a Cabinet crisis. His Finance Minister H. C. Hull of the Transvaal had been at odds with his ingenuous Railways Minister, J. W. Sauer of the Cape who deemed it unnecessary to report his pro-Cape financial adventures in his department to his Transvaal colleague. Hull accordingly resigned. To maintain Cape support in a less contentious position, Botha transferred Sauer from Railways to Agriculture. He held the portfolio for only six months. For once, Smuts had been unable to extricate Botha from the imbroglio. He had been heavily occupied in drafting and piloting through Parliament the Union's first Defence Act initiating and regularising local armed forces in place of the vanishing Imperial might. Smuts saw room in the new Defence Force for colleagues of Boer War days.

203 Among those he persuaded to join it was the embittered J. C. G. Kemp who enrolled in 1912 at the Training School at Potchefstroom with future implication in Agriculture.

204 In his last few weeks in South Africa, Theiler was very much part of the swirling currents that characterised 'my new home land'. He had quickly become a formidable national figure and nowhere more eminently than among his peers. At some time or another, they all came to Onderstepoort and its Visitors Book reads like a roster of the men and women who made South Africa. In June 1911, the 'Universities Commission' had signed its pages - the chemist/historiographer George Cory, the zoologist J. E. Duerden (who was also investigating ostrich parasites), the botanist/museum director Selmar Schonland, all from Graham's Town together with Snape and Thomson of Cape Town; Notcutt, Goddard and van der Riet of Stellenbosch, Rinde and Ridge of Bloemfontein, and Dr C. F. Juritz of Pretoria. Now, a year later, Theiler travelled to the Eastern Province where Graham's Town was celebrating the centenary of its founding, to preside at the meeting of the Association for the Advancement of Science and to meet again the men most active in his own cherished fields - Scientific Research and Teaching.

205 He addressed them on the 2nd July 1912 in the Stevenson Hall of the Collegiate School in Port Elizabeth, covering in his inimitable simple and direct manner the whole of his field, its achievements, its limitations through lack of sufficiently powerful microscopes, its paradoxes and its failures.

206 With generosity of spirit, he specially mentioned Joseph Baynes of Natal as the pioneer of dipping to eliminate ticks - 'the credit for demonstrating its practicability is particularly due to

Lieutenant-Colonel Watkins-Pitchford', he said. 'I will now have to mention a subject where the use of the microscope and all transmission experiments into animals failed. It is the disease "Lamziekte" to which in recent years so much attention has been given by the public, the press and Parliament', and he told them of Burt-Davy's work on plant toxins and the current feeding experiments. To bring the difficulties nearer home, he reminded them that 'Mr Robertson of Graham's Town proved in an unmistakable way that the plant *Senecio latifolia* (the Dunziektebossie or Horse Staggers Bush) collected in that part of the country, proved to be very fatal when fed to horses and cattle. The experiments in Natal, carried out on the same class of animal and with the same plant, proved harmless . . . Of the physiological effect of grasses and plants under the various conditions of climate and soil in South Africa, we know nothing as yet. I am glad to state that the Minister of Agriculture to whom I have explained the necessity of such investigations has promised to add a branch for physiological research to the laboratory under my control,' and he went on to support the longstanding plea of his pioneering colleague Dr C. F. Juritz for 'a systematic and thorough chemical survey of the soil of this sub-continent.' In the guise of practical advice to the South African, Theiler concluded his address with a virtual expression of his own philosophy: 'Foster by all means the pure sciences. They are, in the hands of experts, the medium of solving the many economic problems of South Africa.'

207 His guiding light shone in the direction of Europe but exceptional ardours occupied him before he could leave. From Port Elizabeth, he made an inspection tour of the Graham's Town and Allerton laboratories with their various experimental stations, returning to Pretoria in time for his appointment with Botha on the 14th July. Incongruous though it seemed, Botha agreed to his leaving in September. Theiler had persuaded him that every possible investigation into Lamziekte would continue locally and that he himself would be better equipped to solve the problem when he returned, aided by specialised assistants whom he would select. In fact, Botha had no alternative. Theiler could hold him to ransom at any time - as he could and did any Minister of Agriculture.

208 Apart from the building chaos at Onderstepoort and the planning of its reorganised programme, there were several important occasions that Theiler could not avoid. The Transvaal Veterinary Medical Association had succumbed to the futility of trying to hold quarterly meetings and, responding to his long-proffered invitation, held two of the three days of its first annual meeting early in August at the Laboratory. A record attendance (including A. E. Hollingham, Theiler's veteran colleague of Johannesburg and Ladysmith days who gave a paper and died two weeks later) was increased by members of his staff, J. Burt-Davy and Gray's assistant, J. D. Borthwick. Valuable papers were given, some supported by laboratory and postmortem demonstrations. Theiler himself, elected vice-president of the Association, spoke on Lamziekte and Stijfziekte in cattle, Jachtziekte in sheep, and the 'experimental nature' of his anti-Horse Sickness serum which, although in use, conferred variable immunity being successful in some areas and under some conditions but not in others. It had all taken time and trouble to prepare and was hardly over when his national duties again took him away.

210 By the diligent work and enthusiasm of Butler through his paper and secretaryship of the local Farmers Association (whose meetings were now attended by 150/200 persons and whose Lamziekte Fund at an impoverished period approached £400), Vryburg had attained sufficient eminence to provide the venue for the annual meeting of the Cape's Central Farmers Association, mostly cattle-breeders. For weeks the dusty wintry dorp had bestirred itself to accommodate and entertain close on 100 grim-faced farmers from the coast to the Kalahari, obsessed with the loss of their livelihood through the rising toll of Lamziekte. Theiler, closely-cropped grizzly-bearded and smiling urbanely arrived with Burt-Davy to join the convocation formally welcomed on the 19th August by Butler on behalf of the Vryburg Farmers. The delegates, impatient



213 at the delay (though many were using Mentjes' method because it was effective) demanded more experimental stations from Uitenhage to the north. Theiler needed all his eloquence to calm them. He counselled patience, reiterated his belief that the disease was due to herbage which was the business of a physiological chemist and not a bacteriologist, and reassured them with Botha's promise, permitting him to find such an expert in Europe. They asked him many questions and Burt-Davy answered others on weeds, grasses and poisonous plants. Not all the flowers put in their buttonholes nor the 'garden party' and dance arranged by the Vryburg citizens, the demonstrations and bonhomie, really pacified angry men with fast-diminishing herds. With the exception of Natal, reduced by East Coast Fever, the number of cattle raised in the Cape, Free State and Transvaal had phenomenally increased with corresponding reduction in imported beef. At that moment, 5,797,000 beasts valued at £34,782,000 grazed in the Union in the shadow of Lamziekte. Their owners resented being fobbed off with glib promises.

214 Theiler looked at the feeding experiments at Armoedsvlakte. 10 loaned animals had died and Butler had compensated their owners from the Lamziekte Fund. Sharpe was running the place satisfactorily. He rushed back for a day or two in Pretoria. There he found that the King of the Belgians had honoured him with the title of Chevalier de la Couronne Belgique in appreciation of his assistance in training Belgian veterinary surgeons for service at Katanga in the Congo.

215 'You should put this in the newspapers - applause belongs to industry', he wrote hurriedly to Alfred, 'Be careful though that my correct official title "Director of Veterinary Research of the Union of South Africa" is in all cases connected with it as I am the first person to hold this appointment in South Africa and am as proud of it as of the Order. I have accepted ofcourse, not as a Swiss but as director of all those institutes that come under me - Cape Province, Natal, Free State and Transvaal.' Then he was in the train with F. B. Smith, C. E. Gray, Burt-Davy and several other divisional heads on their way to East London to attend an important combined conference of the Cape Agricultural Union and Western Province Fruit Growers Association opening on the 28th August. In the roadstead, he saw his ship *Kinfauns Castle* on its way up the coast to Durban where it would turn round to return to Cape Town for the voyage to England.

216 Theiler now had no time to spare for the longer East Coast journey direct to Europe. On the 9th September 1912, after manifold complicated arrangements ('the travel fever has gripped me') Arnold, Emma, Margaret, Gertrud and Max took train to Cape Town and boarded their ship on the 11th for Southampton, England.

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## HERESY AND HEROICS 1912-1918

IN 1912, the dragon's teeth were sown. As the Theiler family landed in Europe, the 'Balkan War' flared violently and was quickly extinguished. Thereafter every European nation increased its martial manpower, the naval race between Britain and Germany accelerated and the possibility of conflict hardened into inevitability. The 'Great Powers' still strode the stage, brutally suppressing the stirrings of their peoples, were they nationalist or socialist. Their whole energies were bent on the forthcoming trial of strength to determine whose should be the greatest Colonial Empire of the future. The aim was clear and the stirrings among peoples were world-wide in many shapes and forms. In little countries, self-determination persistently raised its head.

1 It was said of Botha that he had abandoned his foundering Agricultural Department to Sauer for six months the better to campaign in the open field against the recalcitrant in his Cabinet. His Minister of Justice J. B. M. Hertzog had raised the standard of self-determinism and now exhorted the country at enthusiastic meetings to consider South Africa above the British Empire. The Afrikaner, said Hertzog, should be baas in his own land. The time was singularly propitious. 'Union' had shown little to commend itself, poverty and distress maintained, the lot of the loyal South African was in no way improved and his leaders continued the creatures of the hated British. On the 7th December 1912, Hertzog made an irreconcilable speech at de Wildt, a tiny dorp some miles north of Pretoria. Within a week, Botha had resigned. Gladstone called on him to form a Government and Botha reappointed his Cabinet but excluded Hertzog. It was the beginning of conflict, including other stirrings. 'Self-determination', 'Socialism', 'Syndicalism' and other movements were endemic among all humanity to greater or lesser degree. Before long Botha and, more closely, Smuts were in contention with all of them.

2 Of these and other matters nearer to his official position, Theiler in Europe was kept closely posted. He had seldom worked harder in his entire life and, he later said, was engaged on scientific research week in, week out excepting Sundays. It had been difficult to arrange his affairs.  
3 Hans had declared his hand and said he wanted to train as a veterinary surgeon; but his father had firmly pronounced that 'there was no money in it' and had sent him to Rhodes University College at Graham's Town to take a B.A. in Physics, Chemistry, Mathematics and Applied  
4 Mathematics. Hans was no fool but lacked application. He would take his holidays with an ostrich farmer whom Arnold had met. The girls, now 15 and 16, would have no difficulty at School in Switzerland as Schwizerdutch was their home language. Nor would the spindly Max, aged 13 and still diminutive, at the Gymnasium at Basle where they had taken lodgings and Emma had prepared herself as amanuensis and technical assistant to her exigent husband.  
5 Winter had begun and the children, all of whom could ride and shoot and enjoy camping in the veld, now hoped to become proficient at winter sports; but in 1912/13, the snow was disappointing.

6 It was a measure of Theiler's integrity and vision that a man of his stature could sit in class with youthful students to broaden his already encyclopaedic knowledge. For his own staff, he had established certain didactic rules. Given an assignment, they were first to study the literature, international as well as local on the subject (Theiler had induced his Department to assemble an extensive library of books and periodicals at Onderstepoort to which he added his own collection), then they were clearly to state the aim of their work, describe the attack, list or tabulate the results with the fullest observations, and finally summarise their conclusions. He

himself usually devised the experiments that would reveal the end in view. But he was conscious that with recent advances in many branches of Science, his field was limited while the problems with which he was expected to cope were unlimited. There was no solution in the mere importation of highly-specialised experts. A governing mind must understand and direct their work.

7 The development of Science had in fact reached an important point. Its established sponsorship by universities had been diversified by the foundation of specialised institutes such as Pasteur's and Koch's for bacteriological research. Now a majestic concept on a far wider basis appeared in the Rockefeller Institute for Medical Research in the United States and others of similar ilk elsewhere. They dealt principally with human diseases. Problems of animal pathology remained the practical concern (with few special facilities or inclination for research) of certain universities and agricultural colleges. 'A true research institute' (wrote the Rockefeller Institute historian of this time) dealing with the whole field of animal diseases existed *only* in South Africa. Its unpronounceable name was synonymous with Arnold Theiler. Recognition of this phenomenon was world-wide. Its incumbent was determined to ensure that it retained its reputation.

8 Theiler explored routine academic fields in prescribed courses at Basle University but, consorting with associates, he was made acutely aware of advances in entirely new fields. He prided himself on keeping 'up-to-date' in South Africa through scientific literature; but much of his own work was determined by local conditions which appeared to bear little relation to what he read. The feeding experiments to find the cause of Lamziekte would, for instance, go on; but Theiler himself had lost faith in the toxic plant theory and its corollary of accumulated toxin in the body of the animal after constant grazing on something poisonous. He had brought Lamziekte material in his pathological collection and was asked by the Basle professor of pathology, E. Hedinger, to give a lecture on South African Stock Diseases which he illustrated fully with slides, including many demonstrating the contorted posture and other symptoms of Lamziekte victims. Hedinger then propounded a new aspect of the chemical deficiency view – the condition, he said, might be similar to Beri-beri (which had recently been revealed as resulting from the unrelieved eating of polished rice by the natives of the Dutch East Indies and was similar to Scurvy), caused by the absence of what came to be called 'vitamines'. The whole subject was then under scientific investigation and held promising prospect.

Unbeknown to Theiler, an alert chemist and bacteriologist, Arthur Stead employed by the Union Public Health Department in Bloemfontein, had also been studying the chemical deficiency hypothesis in relation to Lamziekte. Unlike Theiler, he had read all the latest literature – Ostertag and Zuntz on saltpetre, Funk in London on 'protective substances' or 'vitamines', the work of English chemists at Liverpool University, and others. Stead hotly propounded the view understood in translation to farmers as 'it is not what the cattle eat that gives them Lamziekte but what they don't eat'. In a closely-reasoned, well-documented article 'Some Chemical Reflections concerning Lamziekte', he surmised that the missing substance might be yeast. The article was published in the March issue of the *South African Agricultural Journal* appearing in the middle of the month and immediately attracted widespread interest. Theiler did not see it for several weeks. Meanwhile he constantly received out-dated reports of developments at home enlivened by local news. Little was cheering.

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10 The King, at the instigation of Lord Selborne prompted by Botha, had knighted 'a martyr to Science', his old friend George Turner, now an 'anaesthetic leper' whom he would see in England when returning to South Africa. To the joy of the veterinary world, Stewart Stockman had also been knighted in the 1913 New Year Honours. But there the joy ended. The whole world mourned the death of Captain Scott and his companions at the South Pole. Deputising

11 for the president Dr J. W. B. Gunning who was fatally ill, Pole Evans caused the Transvaal  
12 Biological Society to open a fund in support of their dependents – as was done throughout  
the world – but the £100 collected was subsequently devoted at the request of Scott's widow  
to commemoration. There was great political bitterness in and out of Parliament, Theiler's  
friends wrote him, and wholesale resignations from the Civil Service. The atmosphere through-  
out the country was tense and unhappy.

For all of the European winter semester, Theiler attended his classes while his children climbed  
the Alps and disported themselves in the meagre snow and Emma toiled at his pathological  
work in their lodgings. Sometimes the family attended concerts and the theatre, both parents  
believing in their children's developing fully-rounded personalities. At his Botany lectures,  
13 Theiler sat next to a buxom Swiss student, Marguerite Henrici aged 22 who impressed him by  
her assiduity and interest in the subject. As usual, he chatted expansively to the young lady (at  
first abashed by the attention of her famous compatriot) and later invited her to join him on  
excursions to study the inter-relation of plants and animals. He decided to watch her academic  
progress with a view to possible future employment. For the moment, he was in search of 'a  
14 pathologist of European repute to visit South Africa to investigate Lamziekte, a Physiological  
Chemist and an additional Veterinary Bacteriologist' (according to his official instructions) and,  
having £150 to spend on equipment, employed the short winter vacation in March/April in  
15 Berlin, Dresden and Munich consulting his scientific colleagues and making his purchases.

While in Germany, Theiler received an urgent cable from his Prime Minister via Sir Richard  
Solomon, the Union's High Commissioner in London. Stung beyond endurance after resuming  
16 the Agricultural portfolio, Botha wanted action. He had been the victim of a two-pronged  
attack in the House – from the farmer-members who wanted to know what was being done about  
Lamziekte and from the Opposition whose leader, Sir Thomas Smartt, also a farmer, fiercely  
17 exercised his duty to oppose. The woefully-inadequate Robertson acting for Theiler had mis-  
guidedly believed he had isolated the 'causal microbe', prepared a vaccine and started inoculat-  
ing animals while suspending the feeding experiments at Armoedsvlakte (made available by  
18 McKee for a further year) owing to drought but continuing them elsewhere. The members for  
Boshof (C. A. van Niekerk) and Bechuanaland (D. H. W. Wessels) wanted to know with what  
19 result and got a dilatory answer.

The full wrath of the House was vented on Botha a fortnight later (17th March 1913) when  
the Agriculture Vote under Estimates of Additional Expenditure was debated. Discussion  
centred on Lamziekte and the lack of result from experiments while the disease spread ruinously  
in areas where it had never been. The farmers, said Sir Edgar Walton (Port Elizabeth) of the  
Eastern Province area, are having to abandon their land – 'at present the poor beggars are  
sitting there in despair watching their cattle die.' Sir Percy Fitzpatrick said that Theiler was not  
impeccable. Botha defended him and Burt-Davy; but the heresy had been uttered. Others took  
it up. Sir Thomas Smartt introduced 'professional jealousy' and the Watkins-Pitchford im-  
20 broglio. Botha began to lose his head and baselessly stated that 'Dr Theiler had undoubtedly  
done excellent work for South Africa but his health had become so bad that he had to have a  
holiday which should not be grudged him'. (He was in fact on 12 months fully-paid study-leave  
as Botha was later forced to state). Smartt seized the opening and demanded that the Govern-  
ment import experts. Had not the Mining Department imported the pathologist Sir Almroth  
Wright? Had not the Government imported Koch for Rinderpest? He was acquainted with the  
conditions in Bechuanaland and he knew the havoc that had been wrought there. Under these  
conditions, the Government should have given more attention to the matter and have had more  
help before Dr Theiler took a holiday. Of course he knew that it was very difficult for his right  
honourable friend to cope with the business of his department when he had to cope with the

21 business of keeping his Cabinet together (a reference to the expulsion of Hertzog). There were  
Cheers and Laughter. Botha cabled Theiler 'to get two more experts'. The instructions were no  
22 different from his standing orders. He did not answer.

23 Locally and politically, the situation was serious. Straws were clutched. The Vryburg Farmers  
resumed their request that the Government offer a £50,000 prize for a Lamziekte cure, feeling  
that Theiler had misled them when he said that their Fund should be devoted to experiment.  
(Commenting on the proposal, Gray had said that Hutcheon had done his work in the course  
of duty, not in the pursuit of reward.) Smith replied that it would avail nothing and that valuable  
24 time and expertise would be wasted on testing entries. They then drew his attention to Stead's  
25 article, Robertson 'most heartily concurring'. Butler buttonholed Smith at an Agricultural  
Congress in Port Elizabeth and was told that Stead was being transferred from Public Health  
in Bloemfontein to the Grootfontein Agricultural College at Middelburg, Cape to conduct  
26 experiments testing his theory. Wisely the Agriculture Department allowed Stead to go to  
Vryburg to address the farmers in August. The cattlemen came from as far as 60 miles. Stead  
told them yeast would solve the deficiency problem and eliminate Lamziekte. Sadly Butler  
27 remembered all the other theories and wrote - 'We are left with practically only the views of  
Dr Theiler that the disease is taken by mouth and is probably a cumulative poison.' Theiler's  
time was running out. He would soon be back. Over larger and larger areas, the cattle continued  
dying.

28 Basically the economy was approaching crisis. Agriculture, still enhanced by ostrich feathers,  
lurches on, bedevilled by a tottering Department (there were 46 resignations including Shilston,  
Elphick and other veterinarians, of top staff in one year) against which every Farmers Association  
29 protested. Mining, the mainstay, was seriously menaced. The stirrings in Europe of oppressed  
peoples began to be reflected in 'labour unrest' on the gold mines. 'Capitalism and Labour'  
stood in classic opposition and no effective media for negotiation, let alone conciliation, existed  
between the miners and their employers. Friction arose in May 1913 (ably stoked by men and  
the famous 'Pickhandle Mary' Fitzgerald dedicated to obtaining basic rights) and escalated  
into armed insurrection. Early in June, with 63 of the Rand's mines strikebound, a 'Reign of  
Terror' erupted in Johannesburg. While Parliament, sitting in Cape Town, looked the other way,  
the strikers turned arsonist and dynamitard. Many buildings including newspaper offices were  
destroyed or damaged, the police and inadequate local militia were unable to control the situation,  
Gladstone authorised the use of Imperial troops quartered at Potchefstroom (his life  
promptly being threatened) and Botha and Smuts hurriedly took train to the north. They were  
forced to sign an humiliating agreement with the strikers for the sake of maintaining the  
essential mining industry. By the same token, they were forced to put up with Theiler whatever  
he might demand for the sake of maintaining and developing agricultural production. Neither  
source was amenable.

Theiler knew his power and exploited it in his own and the country's interest. Despite all the  
difficulties of 'Union', he still commanded what he hoped would be 'The Theiler Institute' -  
unique in the world in purpose, equipment and now, in versatile staff. He had persuaded Pro-  
fessor Hedinger to come to South Africa early in 1914 on a six-month tour pathologically to  
investigate Lamziekte. In August, as his leave ended, he crossed the Channel to recruit his  
physiological chemist and additional assistants. Few of his friends were available in the summer  
holiday season but he achieved his purposes while the family explored the sights of London.  
Apprised by letter, the aged Sir George Turner promised to come up from Colyton in Devon-  
shire to see them before they sailed.

30 Seeking help, Theiler made his routine calls on the High Commissioner and his learned  
colleagues. Burt-Davy was also in London on leave, some of it paid, with an additional allow-

31 ance of £100 to investigate maize and experimental stations in the United States. He called one night and told Theiler he had resigned but would return to the Transvaal to his farm at Vereeniging, continuing his interest in Science. All his expertise in Lamziekte would be lost. Theiler considered the possibility of appointing a Swiss botanist. His letters of enquiry now brought for  
32 an interview a tall clear-sighted young scientist, Henry Hamilton Green whom he immediately engaged as physiological chemist. There came also a mild little man, E. M. Robinson, son of a Cape veterinarian who now lectured in veterinary science at the Grootfontein Agricultural College. Young Robinson had heard Theiler thundering around Robertson's laboratory at Graham's Town after receiving the Science Association medal in 1908 and, encouraged by his father, had gone to England and qualified at the R.C.V.S.. Theiler was glad to engage him and another South African, Gilles de Kock as veterinary bacteriologists to fill vacancies due to resignations.

M'Fadyean, Stockman and all the veterinary luminaries were already planning the agenda of the 10th International Conference to be held in London on the 3rd August 1914 to which  
33 South African vets were already subscribing. Section V dealt again with Tropical Diseases and gave great scope to Theiler. He had less than a year to prepare. Now, surrounded by his family, he sat in his hotel, waiting for George Turner to keep his appointment. They waited all morning  
34 but their 65-year old friend failed to appear. He was afraid, he later wrote, that he might communicate his leprosy to the children. He died 18 months later, his work in South Africa soon forgotten.

Stimulated and excited by his new state of preparedness and the heady experience of consorting with European experts in his field, seeing and hearing the latest developments in Art, Culture and Music, Theiler longed to resume his own action. The 17-day voyage by mailship was too long and he was irritated by the delay. On the 29th September 1913, the family returned to Onderstepoort, eagerly awaited by a number of persons for a variety of reasons.

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36 Great changes were visible in Pretoria, now assuming its rôle as administrative capital of the Union. Conspicuous in Princes Park stood Anton van Wouw's statue of Paul Kruger donated to the City five months earlier by his friend Samuel Marks. On Meintjes' Kop, Baker's magnificently-conceived Union Building, still surrounded by rubble, dominated the metropolitan scene. All the Union Government departments had already moved into it including Agriculture. Theiler would regularly have to visit it. Its small army of civil servants (who called it 'The  
37 Acropolis') complained about its isolation, inaccessibility and lack of creature comfort. Trams staggered up the steep hill which some motor cars failed to climb. Those who worked there had a lurking feeling of existing in vacuo. It was all of a piece with the prevailing administrative chaos.

Eager to put his new policies into practice, Theiler surveyed the Onderstepoort scene directed by the limited Robertson who, originally hipped at being supplanted by Gray for appointment as Principal Veterinary Officer for the Union, now realised that even Assistant Director of Veterinary Research was beyond his capacities. Everything at the Laboratory, said Theiler  
38 charitably at first sight, had been done to his satisfaction. The illusion was evanescent. 'It was  
39 high time he came back', Emma wrote Alfred, 'things were already amiss and his deputy seemed to have dragged the place well into the mud.' It was now a moot point whether any single man could command the empire which Theiler had constructed. Robertson, upon medical advice, immediately threw in his hand and returned with his aged mother to his old fief to direct the  
40 Graham's Town Laboratory. For Theiler, the loss of a deputy was a bitter blow. He had hoped

to devote himself exclusively to research along stimulating new lines. So far from going forward he had retrogressed to an overburdened bureaucrat.

41 Disenchantment possessed him. The whole country needed him but Africa, he said, 'no longer pleases me'. 'This monkey country', he later called it in mounting disillusion. There had been welcoming letters including one from Vryburg's Butler. Theiler had replied appreciatively and expansively, promising an early visit. Butler then proudly claimed that his *Northern News* was the first newspaper in the Union to report the forthcoming arrival of Professor E. Hedinger of Basle University to investigate Lamziekte for six months at the huge fee of £4,000, the appointment of 'Professor' H. H. Green and the two South African 'students'. Salvation for Bechuanaland was on the way.

42 The reality was very different. The Miners' Strike had crippled the economy and worse depression ensued. Hertzog, banished to the political wilderness, had not faded but was gaining support and challenging Botha's control. Turbulence belonged to every phase of life. Resignations continued, many of South Africa's best men enriching the Colonial Service in Africa and abroad. Theiler caught the infection. He made his disquiet known. Ostensibly Onderstepoort went on as usual. The whole staff was very active in their prescribed work; but Theiler soon cancelled the issue of Horse Sickness serum. Owners clamoured to send their horses for treatment, gladly paying a considerable fee; but the mortality rose to 12% despite allowance for different strains of the virus and Theiler surmised that some factor was intervening. Back barely a few days, he outlined for Kehoe a series of elaborate experiments which ultimately identified a disease - Infectious or Pernicious Anaemia differing from Horse Sickness and Biliary (Equine Piroplasmosis). Horses by the hundred were immolated in the process.

43 In his soured world of constant absence, endless administrative duties, maintaining maximum vaccine production, countering departmental difficulties, longing for research and lacking sufficient assistants, Theiler had one unexpected relief. A few days before his return, Botha had reconstituted his Cabinet and allocated Agriculture to a single Minister H. C. van Heerden, a dyed-in-the-wool farmer of Tarkastad in the Eastern Cape and a staunch Party patriot who was well versed in Parliamentary procedures and department red-tape. When he paid his first official visit to Onderstepoort on the 22nd October 1913, Theiler was astonished to meet both an amiable and friendly man and a highly-professional and progressive farmer. Contrary to his expectation, the neatly-bearded knowledgeable Afrikaner was sympathetic and understanding. In other circumstances, Theiler's spirits might have risen (they had been cheered the following day by the visit of members of the British Parliamentary Association escorted by Mrs Louis Botha); but events proved overwhelming.

44 Locals returning from Europe invariably suffered acute fastidium rerum domesticarum and found South Africa second-rate and unattractive for a considerable period. Typically Theiler yearned for his learned circle in Switzerland, the sophistication and the cultural amenities, even the snow and stimulating low temperatures (for the first time, he complained about the heat in Pretoria which even stopped him working - 'the perpetual sunshine has got on my nerves', he said). He might have emerged in due course, as others did, into a state of acceptance but his exacerbations were too great. Now he was merely a routine work-horse, seldom at home and always en route in stifling dirty trains to the institutions he was supposed to direct.

45 Within a month of his return (during which he had discussions with Stead), he arrived at Vryburg via inspection of the farm Kaffraria near Christiana where Andrews was still conducting feeding experiments. Butler and his colleagues were delighted to see him but Theiler's view was jaundiced. He proposed closing the drought-stricken Armoedsvlakte where Sharpe watched over empty paddocks; but changed his mind after visiting it and (probably egged on by the eager Butler) decided to use it for inoculation experiments on cattle lent by local farmers, Mr McKee

being agreeable to making the place available for a further 18 months. Theiler had found that coarsely-ground visceral material from East Coast Fever victims could transmit the disease when injected into the jugular vein. He wanted to determine whether the same technique would obtain for Lamziekte. If inoculation were successful and the disease artificially transmissible, a solution of the problem would be in sight. On the same night, he returned by train to Pretoria via Mafeking and a deeply-disturbed Johannesburg. Under depressed conditions, 'labour unrest' was being rapidly fomented. Then he was off to a steamy Natal to look at Allerton.

Theiler had not tried to contain his disgruntlement. He had complained acidly to F. B. Smith who conveyed his feelings to his superiors. Whether as *douceur* or otherwise, Botha may have made representations to Gladstone and, hardly more than a few weeks back at work, Theiler received official intimation that the King intended elevating him to K.C.M.G.. He was not averse despite having drafted a letter to Smith advising him of his intention to apply for the position of Professor of Pathology and Dean of the Faculty of Veterinary Science at the University of Melbourne which his colleague of The Hague Conference, Professor J. A. Gilruth had vacated to become Administrator of the Australian Northern Territories. There would be other such sticks with which to beat the Government – now, Theiler admitted, confronted by calamitous difficulties. Hertzog and his new party had become a real threat; the bottom had fallen out of the ostrich feather market with enormous loss of revenue; the railwaymen, inspired by the miners, planned to strike; and the seasonal rains failed to fall with consequent loss of agricultural production.

Struggling to initiate experimentation when overwhelmed by administrative obligations, Theiler was forced to write to Butler in the candid manner of their friendship that he had been unable to commence the Lamziekte inoculation at Armoedsvlakte for which the local cattlemen had provided animals owing to shortage of staff (Robertson had not been replaced), illness among available members and compulsory military service among others (Smuts was mobilising the Defence Force against coming troubles). Further, the sterilisation plant had broken down. 'Meanwhile', wrote Butler soberly in a leader, 'the disease is making rapid strides through the whole of the Union.'

Theiler's frustration and humiliation were momentarily mollified by the visit of men whose company he coveted. On the 13th December 1913, Samuel Evans of the Corner House, the Rand's most powerful mining group, brought to Onderstepoort Surgeon-General William C. Gorgas of the U.S.A. who had enabled the building of the Panama Canal by eliminating the mosquitoes which infected the labour force with deadly diseases. The Corner House had persuaded the Chamber of Mines to commission him to advise on the high mortality rate from pneumonia of mine native labour recruited from sub-tropical territories and other health problems. He brought with him Dr Samuel Darling, a distinguished pathologist and chief of the Board of Health Laboratory in Panama, and Major E. Noble of the U.S.A. Army Medical Corps. Absent from his successful entourage was Dr A. J. Orenstein who, since the completion of their task, had taken employment in German East Africa. These were men on Theiler's level to whom he was proud to show his Institute and who, in their talk, could reanimate his own aims. Their visit had important sequelae.

Further inflation of his ego followed almost immediately and to him, unexpectedly soon. His knighthood was announced in the 1914 New Year Honours and, Theiler wrote Alfred, 'this exceptional distinction has been received in South Africa with great satisfaction and for years, no Sir has been as popular as mine.' Even Selborne wrote him 'a really warm congratulation' and letters came en masse, including one from the Vryburg farmers. While Theiler wrote of being 'personally ennobled', the Swiss Press, unsympathetic to royal favour, treated it coolly with half-inch mention. The veterinary world rejoiced. It was believed that Theiler was the first



Colonial veterinary official to be thus honoured. Jealousy sprouted in the bosom of those who resented 'the foreigner'; but the impact of this strange award was largely lost in public pre-occupation with expected calamities.

59 In its economic straits, the Government intended summarily retrenching a large number of railwaymen at the end of 1913. Their Union invoked aid from its colleagues in protest. In the first week in January 1914, a Railway Strike was declared which developed into a General Strike throughout the country. In the second week, Martial Law was imposed and the prescient Smuts brought the Defence Force and Burgher Commandos into repressive action in support of the Police. All leaders were corralled and some summarily deported before order was restored but the effect on the economy and the temper of the country was disastrous. Parliament met on the 31st January to deal with the disreputable aspects of the affair, Gladstone resigned soon after (he had done so a year before but was compelled to continue) and 'Union' lurched further into insecurity. Sir Arnold Theiler had a specific rôle to play in restoring its economy.

60 His plans were approaching realisation. The lanky pale-faced H. H. Green had landed in Cape Town and taken the train directly to Vryburg. He was met by an over-worked Kehoe, first deputising for Andrews at Kaffraria and now standing in for Sharpe at Armoedsvlakte while he went on leave. Kehoe had addressed the Farmers Association and told them of local experiments with inoculation material. He also explained Theiler's new enthusiasm for the deficiency theory resulting in local cattle being doctored with Stead's yeast and put on special additional diets of treacle, linseed oil, rice, beans, etc. Hedinger, he said, would soon be there. In baking summer heat, Kehoe took the unacclimatised Green to 'Proverty Flats' on the 4th February 1914, explained its ghastly appearance as due to severe drought and outlined the experiments in progress in the neatly-fenced paddocks and stables now completed under Theiler's control. Losses from Lamziekte, the farmers had been told at the Annual General Meeting of their Association a few days earlier, 'had been enormous during the last few months'. Hope now rose anew. Theiler's letter thanking for their congratulation, was read at the next meeting. 'I am sure', he wrote, 'that no one can be more thankful than I am for all the assistance that I have received from your Association in the past and I sincerely trust that our very friendly relationship will continue.' Their Fund stood at £432 (including £156 from Gray's Veterinary Division) and Butler wanted to spend £200 of it on a car for Theiler's local use but was repressed. The Fund was for research, his colleagues forcefully pronounced. Green went on to Pretoria to begin his chemical investigations and Kehoe continued the nutrition experiments until Sharpe returned.

61 For Theiler, a change at least seemed to have come. He had been harassed by domestic troubles in Switzerland and at home. Hans had idled at college and, bearer of a famous name, had disappointed his professors. His father had written harshly and Hans had managed to pass his examinations. During the vacation, he had been remote and unapproachable but still talked about becoming a veterinary surgeon. Emma grieved that Arnold's fixed ideas and strict discipline had alienated his elder son. Within two years, the girls would matriculate. Max, spindly and agile, was entered at the Pretoria Boys High School and seemed to be broadening. He was a disturbing little boy, given to agonising bouts of abdominal pain which interrupted his schooling. Doctors failed to diagnose the cause and both his parents grieved, Arnold believing that the mysterious attacks which the otherwise lively child bore with fortitude, were stunting his growth. Like his sisters, Max never surpassed 5 foot 2 in height. Hans alone was taller than Emma by half an inch at 5 foot 4; but Arnold himself, thickset and burly, seemed hardly higher than his diminutive but determined family. 'Lady Theiler' sat strangely on Emma who, dutifully attending banquets at Government House and other official occasions, tended to withdraw more into her house and garden and the study of Arnold's scientific journals.

64 He was frequently away from home but it would have good purpose when Hedinger came. His staff at least was approximating to his needs. Henry Green, keen, clear-thinking and able, immediately grasped the Lamziekte syndrome and applied himself to the bio-chemical experiments that Theiler devised to establish this or that point or eliminate this or that supposed factor.

65 Gilles de Kock and E. M. Robinson would cut their teeth on other research problems, joining another compatriot Philip Rudolph Viljoen whom Theiler had posted to Allerton where he promptly and surprisingly had fallen in love with a patrician English-speaking young lady and become engaged for the customary two years. Theiler had plans for the able and thoroughly Afrikaner Viljoen but they must wait until Hedinger came.

66 Even in Parliament, his fortunes improved. Van Heerden, briefed with highly technical information, answered the inevitable questions on the spreading Lamziekte, new outbreaks of Horse Sickness and further quackery, with firmness and authority. His new Minister seemed a true ally. It was a hectic time of development under ominous political and economic clouds. Theiler's urge to have a hand in the growth of a new country rose again to the surface.

67 On the 26th March 1914, his chance came to prosper a special aim in his field. A further State Commission on Higher Education (known as the 'Universities Commission') arrived in Pretoria to take evidence. It was curiously constituted of Sir Perceval Laurence, recently retired from serving as a scholarly judge in South Africa, as chairman; John Perry, Professor of Mechanics and Mathematics of the South Kensington Royal College of Science; Melius de Villiers, previously Chief Justice of the Orange Free State; the patriarchal Ds H. S. Bosman of the Dutch Reformed Church in Pretoria whom Theiler had known for many years; and Wilfred Murray, secretary (later registrar) of the University of Cape Town. Apparently completely ignorant of Theiler's field, they asked fatuous questions but finally allowed him to speak his mind. He referred with pride to his three new South African veterinarians, trained in England, and hammered his point of a South African Veterinary College at University level as in Switzerland and newly, Germany. They let him expand it into a practical plan to which Theiler had for years given much thought by which veterinary students would study Chemistry, Physics, Botany and Zoology for two years at an established university and complete their specialised training at Onderstepoort.

The Commission was impressed. There might, it later reported, be some difficulty 'in linking up the work of a University with that of a Research Institute such as that which, under the direction of Sir Arnold Theiler, has acquired so high a reputation as Onderstepoort'. But they endorsed his plan, recording that 'the evidence of Sir Arnold Theiler deserves careful consideration'. Then they pontificated about the close connection between animal and human diseases, citing Sir Ronald Ross and Sir David Bruce, and suggested 'that in view of the high importance of the matter, the whole question of the correlation of University work with the higher branches of agricultural, veterinary and bacteriological research might be referred for special investigation and report to a small committee of experts'. It was hardly progress but Theiler had made his proposal in the proper place. Local and global events inhibited further advance.

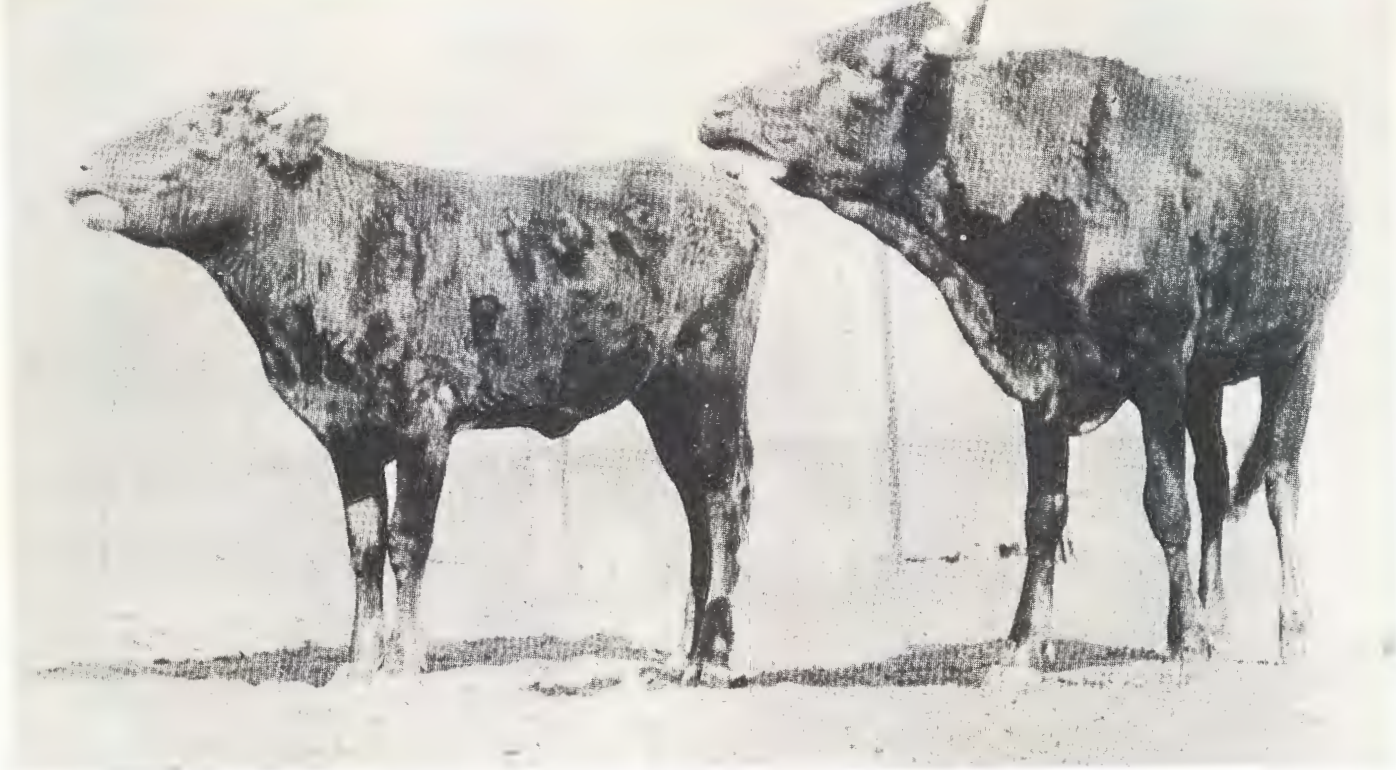
68 Almost immediately he left for Cape Town to meet Professor Hedinger, arriving by ship on the 31st March. Formally attired in frock coat and top hat, he warmly welcomed his friend from whom he expected wide enlightenment, if not solution of his pressing problems. Leaving him in the hands of friends and departmental officials (themselves agog at the arrival of the great and expensive man), he presented himself at Government House where the surly Gladstone invested him with the order of Knight Commander of St Michael and St George, and Theiler duly returned to his secretary, Herbert Stanley, the insignia of Companionship. For Hedinger's first day in South Africa, the aura was impressive but rivalled by the next. Theiler took him to the



*The Vice-Regal visit of October 1910 – H.R.H. the Duke of Connaught being conducted over Onderstepoort by frock-coated Arnold Theiler with the Duchess and Lord Bingham in the background.*

*Testing the effect of snake venom – a deadly puff-adder being applied to the shaven neck of a mule.*





*Pica* – the dread symptom of Phosphorus Deficiency – cattle laboriously but determinedly chewing old bones.

*Feeding experiments* – Muzzled cattle, fed only on fodder from Lamziekte-free areas and prevented from grazing locally, at a water trough where they could drink.



Houses of Parliament and presented him to the Prime Minister in his office. Botha's political position would be greatly improved if this foreign magician could lift the scourge of Lamziekte from the land. He took his guests to lunch in the House, accompanied by van Heerden and other Agriculture officials. There could be no doubt in Hedinger's mind that a wizard's wave of the wand was expected of him.

69 Theiler expected a great deal more. 'Our programme is widely comprehensive', he had told  
70 Alfred, 'and of the four weeks of April, we shall spend as much as half travelling because we  
71 want to make a whole series of pathological studies anatomically which do not necessarily  
refer to the study of Lamziekte.' (Alfred had already fulfilled a request for experimental snails  
which had arrived in torrid Pretoria dead and stinking). Theiler found Hedinger pleasantly  
congenial and mercilessly picked his brains. They occupied the early days of April in surveying  
the wide range of experiments in process at Onderstepoort. 'Professor Hedinger is very hard-  
working', Theiler noted approvingly, 'but I doubt whether we shall be able to undertake all  
that we plan to do. Still the presence of a *medical pathologist* is for us a great advantage and  
very exciting. I personally profit very much. The professor is very good company and we have  
much to tell each other.' During those days, they had significant visitors.

72 Surgeon-General Gorgas' impending report to the Chamber of Mines would forcefully re-  
commend the urgent instigation of health measures. Privily alarmed, the Corner House asked  
him to suggest a suitably-qualified medical officer to initiate them on its own mines. Gorgas  
suggested his previous assistant, Dr A. J. Orenstein and the mining house immediately wrote him  
in German East Africa in February 1914. Orenstein at once accepted and shortly after, came to  
the Transvaal. On the 11th April, accompanied by Professor A. Zupitza of Lomé, Tanga with  
whom he had been working on malarial mosquitoes and other tropical menaces to the labour  
building a railway in Tanganyika, Orenstein arrived at Onderstepoort on his first visit. The  
rencontrement with Theiler was almost comic. Tall, rangy and dynamic, Orenstein spoke in the  
same guttural Germanic tones and exhibited the same passionate dedication to the application  
of Pure Science to practical matters for economic purposes. He shared with his stocky host, 12  
years his senior, the same devotion to the endless study of scientific literature 'to keep up to  
date' and the same width of cultural interest. Of German origin but a citizen of the United  
States where he had qualified in medicine, Orenstein was later embarrassed in the pronouncedly  
British and stand-offish mining community and in 1915, went to England to obtain speedy  
British qualification. Thereafter he and Theiler saw much of each other and a fruitful relation-  
ship developed between them and the Onderstepoort staff.

73 In dwindling summer heat, Hedinger - astounded as most Europeans were by the conditions  
of farming and the profusion of diseases combatted by Theiler's men - was rushed through  
Middelburg in the Transvaal to the vastly different Natal where Theiler proudly exhibited  
further problems, particularly Stijfziekte, and collected pathological specimens (Hedinger  
subsequently confirmed his view that Stijfziekte was Laminitis and not connected with Lam-  
ziekte). Theiler had written Butler in Vryburg that after a brief interval on their return, they  
would visit Bechuanaland. New hopes had been engendered there by the local Government  
veterinary surgeon, a Hollander Goemans, announcing a 'cure' for Lamziekte for which he  
claimed £25,000. Stigmatised as 'a foreigner', he was unpopular among the cattlemen, now  
74 bitter about the lack of progress in solving their problem. Theiler's dilatoriness seemed accen-  
75 tuated by a Dr Mathias in the Western Transvaal who claimed that inoculation with the blood  
of Lamziekte victims conferred a certain immunity - a point pursued by Robertson with his  
inoculations with *Pasteurella bovis*, Redwater etc. The procedure involved great danger in  
conveying other diseases and the immunity was transient. Ranchers facing ruin nonetheless  
76 resorted to it. It was widely bruited that 'professional jealousy' was suppressing the emergence

of treatment or a 'cure' but Butler was at pains to deny that Theiler would be party to such a situation.

77 Hedinger and his host, accompanied by P. R. Viljoen who had been detached from Allerton for re-posting, began their tour of the Lamziekte area at Mafeking early in May, killing and dissecting afflicted cows on various ranches and arriving in Vryburg on the 12th. They attended the meeting of the Farmers Association on the following day and all were made heartily welcome. Viljoen, erroneously introduced by Theiler as 'the first South African to qualify as a veterinary surgeon' (he either ignored or forgot Jotello Festiri Soga who had qualified even before himself) was made an honorary member and Theiler informed the eager audience that he would now be in charge at Armoedsvlakte. With the appearance of a true son of the soil, thick-set and square-headed, the Dutch-speaking Viljoen seemed the ideal subject for Theiler's homily to the farmers to send their sons abroad to qualify in veterinary science. He went on to tell them frankly of the progress of his investigations, what Hedinger would do with his microscope and how Stead's theory was being tested at Grootfontein. So far, all approaches to the disease had failed. They quizzed him heavily. Finally the chair proposed a hearty vote of thanks to Sir Arnold and 'congratulated him on the manner in which he had withstood the bombardment'. The great men returned briefly to the district in June and Hedinger (who performed his own postmortems at Armoedsvlakte) at last could devote himself to his analysis. Things were not going well in Basle and he wanted to return by the end of September. His work was briefly interrupted in June when the leader of the Opposition, Sir Thomas Smartt visited Onderstepoort and complimented Theiler and Hedinger on their activities.

78  
79 Confident that his exhaustive attack on Lamziekte would at some point succeed, Theiler reconciled himself to the fact that the demands of his family now curtailed his freedom to walk out if he wished. None of his children could yet earn a living and Hans had entered a further phase of non-compliance and negligence of which his lecturers continued to complain. 'Hans seems to be the cross we bear', Arnold wrote Alfred on the 1st July 1914, 'Emma grieves greatly. My hope to be able to leave in three years' time when I am 50 years old will not be realised. Nolens volens I must now stay until I am 55 - still a long time if one has had too much of Africa as I have. It will probably follow that I shall not be able to come home. The children are getting older and costing more. One notices it.'

80 On that day, a strained and exhausted House of Assembly debated the Agriculture Vote. Niceties of speech were ignored. The Veterinary Service was heavily attacked for failing to curb recrudescing East Coast Fever with mindless regulations. Then Theiler's turn came. The members for Lamziekte areas had an obligation and brutally discharged it. Dr A. H. Watkins for Barkly in the Northern Cape uttered the ultimate heresy. 'In Sir Arnold Theiler', he said, 'they had one of the best experts in the world but the time had come for them to consider whether they should not put the Lamziekte investigation into other hands . . . Sometimes a man got lost in the mass of his own material. They should get a man who would be placed quite outside Dr Theiler.' His speech was featured in most of the following morning's papers. D. H. W. Wessels of Bechuanaland would not go quite as far but urged that 'the Government should get out two experts who could start in their own way to investigate the disease.' He implied that because Dr Mathias' method of conferring immunity for five months was in conflict with Dr Theiler's views, it was ignored. H. de Waal of Wolmaransstad (Mathias' constituency) came out with it - 'He feared that there was a good deal of professional jealousy about and whilst the experiments were going on, all the cattle were dying.' Van Heerden temporised and offered to extend Hedinger's contract while paying tribute to the valuable services Sir Arnold Theiler had rendered South Africa. No expense would be spared, he said. When Sir Thomas Smartt entered the debate, he endorsed all that had been stated with honeyed

words in no way lubricating his insistence that an overseas expert be imported to work exclusively on Lamziekte. The Vote was passed.

81 When Theiler read the Press reports, he reached for his pen in passionate indignation. Arnold Theiler, Director of Veterinary Research, recently knighted by His Majesty the King, and his distinguished compatriot Professor Hedinger had been humiliated and insulted in the very place where, a few weeks before, the Prime Minister himself had done them honour. Furthermore the whole country had read about it, including his staff. Three times he drafted an official letter to Smith in Cape Town. He was disgusted and downright discouraged, he said. Smartt's recommendation was an accusation of incompetency against his Division. His staff resented it as reflecting on their personal honour. What was its point anyway with Hedinger already in the country? What had imported experts done to commend themselves? The Minister had neither defended his staff nor agreed they were incompetent entailing sacking their Director. Sir Thomas, a scientifically-trained man, had visited Onderstepoort and, instead of criticising, had expressed appreciation of their endeavours. Why should he attack them when and where they were unable to reply and their Minister failed to defend them? The Government must either support the Director or get rid of him. And Theiler turned again to his explosion in 1911 – he had become Director of Veterinary Research against his wish and was now only too glad to vacate the position. If his Minister were willing to consider his retrenchment, he was willing to remain during the present crisis. He left that chink in the door – but the third draft, scribbled and amended like the others, was never sent. Smith had telegraphed, requesting a confidential report on the whole Lamziekte situation.

82 Theiler sent it on the 17th July and still fuming, composed another letter, first in his own angled hand which King, it was said, alone could read, then in a typed version further amended and finally on the 20th July, it was sent privately and confidentially to Smith. He asked for his Minister's consideration of the fact that his position had become untenable, Parliament had virtually passed a vote of 'no-confidence' in him, allocation of the Lamziekte work to someone outside his Division would cast a stigma on his reputation and he could never look the farmers in the face again nor confront his staff, his hands had been tied by lack of specialised assistants and now that he had them, no chance had been given him to make use of their work. In the eyes of Parliament, he had failed. 'As I have pointed out to you in previous years', wrote a combative and embittered man, 'the only course honourable to both parties is for me to be retired on pension with the thanks of the Government and not to wait until further developments in Parliament force the Government to dispense with my services.' He knew his power. Botha knew it too but his interpretation differed.

As a new but vitally important member of the British Empire, South Africa had contracted to fulfil wide obligations in a war, now inevitable, in which hostile forces stood on both its eastern and western borders. There would be armed conflict but, more important, there would be economic stress both for Britain and for South Africa with the possibility of blockade. When he returned at the end of July from a routine tour of his experimental stations in the Free State and Armoedsvlakte, Theiler was told.

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In South Africa, the immediate effect of Britain's formal declaration of war on the 4th August 1914 was a rush to enlist. The enthusiasm and loyalty of the 'colonials', many of direct British origin (including some of Theiler's staff) did not conceal from Botha and Smuts the possible reaction in some of their own compatriots, stirred and strengthened in their sentiments by Hertzog's successful campaigning. Momentarily nothing was overt; but prominent figures

flitted about the Transvaal and Free State and to those with a trained ear, a powerful susurrations was evident. Despite his vaunted knowledge of the Afrikaner, Theiler lacked that ear. 'It seems', he wrote Alfred on the 12th August, 'that for the moment, Race Hatred is buried and Boer and Briton are again united.'

The brute facts of the war situation had been made clear to him. Shipping, menaced by the German Navy, would be entirely devoted to war purposes. There would be no exports and with the disappearance of vital overseas trade, the country's revenue would dangerously dwindle. He had been told immediately to reduce his budget. The *Agricultural Journal* at once ceased publication and there was no outlet for his advice to farmers. His enormously-detailed Annual Reports would not be published. It was rumoured that all civil servants' salaries would be reduced. The innovative Income Tax that had come with Union would certainly be increased and living, let alone educating his children, would become extremely expensive. In the inevitable absence of imports from overseas, the South African agricultural industry would have to support the country and its newly-constituted armed forces. The remaining British troops were withdrawn for re-posting elsewhere. Theiler's task was clear. For South Africa to stand alone and assume military activities across its borders, his work and his Institute were essential.

For his difficulties, there could be little sympathy. He feared for his family lest Switzerland be involved but was soon reassured. In time, he feared for the continuance of his Institute. His staff was reduced to the minimum, research was with difficulty continued, supplies of vaccines (such as contra-Anthrax from the Pasteur Institute in Paris) would certainly cease, vital equipment – even bottles for providing sera and antidotes – were utterly unobtainable locally. He was cut off from his colleagues in Europe and their advanced scientific literature when he most needed their aid.

83 Theiler had embarked on a massive investigation using cattle, horses, sheep, goats, pigs and dogs and pigeons fed on a monodiet of polished rice which produced avitaminosis (or beri-beri in the East) to establish whether deprivation of vitamins resulted in the symptoms of Lam-ziekte. He needed to maintain close communication with overseas workers in this new and popular field. His isolation would be a serious disadvantage. There was now rigorous censoring. Anything written in German, even his own family letters, would be opened and read and at best delayed, at worst suppressed. Similarly the newspapers purveyed no real news – only hard facts like the landing of the British Expeditionary Force at Boulogne under the command of Sir John French whom Theiler remembered as a fellow-passenger when returning to South Africa in September 1899. The Defence Force had been mobilised principally, it was said, in case of native uprising. Rumours abounded. Hedinger became agitated about the feasibility of his return to Switzerland.

84 To coincide with the arrival of the new Governor-General Viscount Buxton, Parliament met in Cape Town on the 9th September 1914 for a week's essential business. Support of the British Empire was formally agreed. The signal had been given. Major J. C. G. Kemp resigned his commission in the Defence Force on the 13th. Two days later, Commandant-General C. F. Beyers resigned and rebellion began actively to be fomented. On the same day, in his company in a motor car, the volksheld General Koos de la Rey who had supported Theiler in the Volksraad, was accidentally shot dead by the Police when travelling to the military centre at Potchefstroom to intercede. Botha and Smuts were confronted by manifold new troubles including active insurrection in the Western Transvaal and Free State. 'Opsaal!' (Saddle up!), the rebels exhorted – why should they fight for a Britain which had beaten and humiliated them and still held them in bondage? Hertzog who had lit the fuse kept discreetly aloof, publicly stating that a Republic must be gained by other means. The 'Rebellion' gathered strength and Botha faced the prospect of shooting his friends and comrades-in-arms. His tactic was to reason with them.



For hundreds of hotheads, reason had no force. Beyers, General de Wet and Kemp met at Lichtenburg in the neighbourhood of Vryburg and issued a document demanding the cessation of hostilities and the withdrawal of Union troops from the German colonial borders. Rebel commandos were already being formed. Smuts moved to eliminate them with the mobilised Defence Force which, proudly disdaining British aid, was already in possession of the port of Luderitzbucht in German South West Africa.

85 Enlisting was lively. Eight of Theiler's men had gone. P. R. Viljoen in Vryburg had received his papers and was commissioned Veterinary Captain in the force preparing to invade South West Africa. Hans in Graham's Town had been called up. Hedinger had left, travelling from Cape Town to Madeira and thence to neutral Italy and Switzerland. With diminishing staff, Theiler had to plan for war conditions; the special demands of the military, still relying largely on horses, mules and oxen; and the possible consequences of the campaigns now being mounted in both east and west. There was Rinderpest in German East Africa which was likely to come to South Africa via Nyasaland. In the west was the eternal Lamziekte cancelling the cattle country and reducing the plains to a wilderness.

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87 Theiler wrote to Butler. He would come in November to tell the Farmers Association what progress had been made and how Hedinger had reported. Without word appearing, Vryburg, a mere 80 miles from Upington, the nearest railhead to the German colony, had become the agitated centre of opposing movements, its constant traffic containing both rebels and loyalists. General Manie Maritz had already crossed the border with 500 U.D.F. men to join the Germans and Kemp was planning a more arduous feat. Smuts proclaimed Martial Law throughout the country. Small commandos continued to assemble in the Free State and Transvaal. With remarkable audacity, two stood within striking distance of Pretoria - General Chris Muller at Bronkhorstspuit and Major Jacques Pienaar of the U.D.F. nearer the Capital. Theiler watched an armoured train rush northward through his Onderstepoort siding and imposed such security measures as he could to safeguard his vulnerable Institute. At Steenbokfontein near Rustenburg, Kemp and his 600 rebels began on the 2nd November 1914 an epic trek across the waterless Kalahari to join Maritz. Vryburg and its environs had become the enfevered centre of espionage, treachery and military activity. A Town Guard maintained order, all business ceased, the *Northern News*, much diminished through lack of advertising, carried blank spaces for censored items and Butler struggled to keep it going.

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91 On the 6th November, Theiler left Pretoria by train to keep his appointment with the Vryburg farmers on the 11th. At Mafeking, he sent a postcard to Alfred recording his 'journey of investigating research in Bechuanaland'. He got no further. The 'unsettled state of the country' drove him back to Pretoria with his carefully-prepared speech in his pocket. South of Vryburg, General de Wet was campaigning in the Free State amid high local tension. All the men in the dorp were mobilised and guards set to waylay him if he came. Botha in the field with a loyal force disposed of his commando and immediately travelled via Kimberley and Upington to catch Kemp. Motor cars were concentrated in Vryburg to help him pursue de Wet but Kemp eluded him, reaching German territory late in November. De Wet was captured. The tension in Vryburg somewhat subsided. Theiler sent his speech to Butler who published it serially in the *Northern News*. It was outside the comprehension of ordinary persons, let alone ruined and agitated cattlemen.

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94 Hedinger had worked in close coöperation with Theiler. As a pathologist, it was his business microscopically to examine the muscle tissue whose failure through some cause resulted in stiffness or lameness and ultimately paralysis. Under Theiler's tutelage, he had done extensive fieldwork and had considered all the current theories of the ingestion of toxic material through pasture-feeding. He examined the muscle tissue of both normal and afflicted cattle. In both he

95 found a well-known parasite, 'Miescher's Tubes' or sarcosporidia; but, he claimed, they were much more numerous in Lamziekte victims. Little was known of these parasites and he recommended a close study of them. The Government published his 'Pathological Investigation into Lamziekte' as a departmental paper with a foreword by F. B. Smith who had read it in manuscript before departing in August 1914 on leave to England (returning only in January 1916 but employing his time usefully there). The tone of his comment reflected Theiler's deep disappointment. Hedinger had in fact batted the ball back into his court and there then devolved on him the unhappy task of further disillusioning the Vryburg farmers and himself continuing the investigation under the most adverse conditions. Theiler's facility for lucid explanation 96 deserted him and his speech, also published as a Government paper entitled 'The Results of Recent Investigations into Lamziekte', required considerable knowledge of scientific terms. He described Hedinger's work as only one of many 'working theories' needing more laborious and complex investigations than ever. His own tests had shown that the vitamin deficiency theory had not worked - cattle fed with appropriate diets had not resisted Lamziekte. In essence no progress had been made. From time to time, word reached him from his colleagues in England of Smith's pilgrimage from laboratory to laboratory - Stockman's institute at Weybridge, Oxford, Cambridge, Rothamstead Agricultural Experimentation Station and others - looking for veterinary research officers and, they said, some specialist to deal with Lamziekte.

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97 It was not in Theiler's combative nature to take kindly to frustration and he tilted at all wind-  
98 mills, particularly the Censor who read family letters to a neutral country and sometimes  
99 mutilated the newspapers which Alfred sent. In anger, he refused to write anything but post-  
cards which all could read. At the end of November, he wrote on one: 'The Rebellion is a big  
fiasco!' and a day or two later, rebels raided the Onderstepoort veld and stole some of his mules.  
Early in 1915, many restrictions were relaxed and he was officially informed that German  
scientific publications might be sent him through Switzerland. His case was cogent and the  
Government arranged that such material should be sent to the High Commissioner (W. P.  
Schreiner) in London who would forward it under official aegis to Theiler. Alfred was instructed  
to order lavishly from his Berlin bookseller and in due course, both books and periodicals in-  
cluding the *Berliner Tierarzliche Wochenschrift* erratically arrived. Following the line of his  
Lamziekte work, Theiler demanded Durck's 'Researches into the Pathological Anatomy of  
Beri-Beri', 'Research into Osteomalachitis and Rachitis' and many other text books. It then  
became possible to correspond with enemy countries via a neutral. Theiler began sending letters  
100 to Knuth and his many other colleagues through Alfred and similarly receiving replies, some  
informing him of the progress of his protégé P. J. du Toit and others studying veterinary science  
101 in Germany. The Agricultural Department also maintained communication with du Toit  
102 through the Arnold/Alfred liaison and in time arranged for him to be supplied with money.

The consequences of the collapse of the Rebellion were almost more painful than the event. Commandant-General C. F. Beyers was drowned when trying to escape across the Vaal River. General de Wet and other patriots were in prison awaiting trial while Botha, assisted by the seizure of the enemy ports, girded himself to defeat the Germans in South West Africa and capture Kemp, Maritz and other South Africans who had joined them. The country was drained of horses, draught animals, foodstuffs, petrol and other commodities to mount the desert campaign. It was in no position to afford them. 'In the matter of Finances', the venerable Merriman wrote to Smuts, left in charge in Pretoria, 'what I can do to help, I will do cheerfully. I know what a position you are in. Huge deficiency, enormous war expenditure. Half the

producing population running about with guns in their hands destroying and not producing. The whole population in semi-hysterics calling on you to do some great thing instead of setting to work themselves. And the worst of all is the certainty that when the war stops, you will have to face a general impoverishment and a reduction of our purchasing power in both diamonds and ostrich feathers.'

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105 It was equally the background of Theiler's activities. Following his own earlier work in association with Robertson, Veglia ironically had completed his classic study of 'The Anatomy and Life History of the Haemonchus Contortus (Rud)', the wire-worm that had bedevilled the ostrich feather industry, now no longer a revenue-producer. It represented pioneering work in Helminthology which Theiler ardently pursued in relation to similar parasites in sheep, horses and cattle. He began a collection of Nematoda, a type of parasitic worm infesting mostly horses but also mules and zebras. Agricultural production, both for food and transport animals, had at all costs to be maintained and increased while pests and diseases were held at bay. Nature smartly riposted. Unprecedented rains descended upon South Africa, producing ideal conditions for a phenomenal recrudescence of Horse Sickness, Blue Tongue in sheep and other stock-destructive diseases. It was a time, not for creative veterinary research, but for factory production of sera and vaccines.

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107 Theiler's staff had long been occupied with prophylaxis - Green had investigated Sulphur Dips for Sheep and similar subjects including work on an Arsenical Dip Tester (the solution in a dip-tank progressively weakened in proportion to the number of animals that plunged through it and had constantly to be tested and strengthened to maintain its effectiveness). Bedford had made a comparative study of commercial brands and other types of dips. Now  
108 Joseph Baynes in a sarcastic letter denigrating the work done at Onderstepoort and the attitude of its staff, trumpeted that Horse Sickness could be prevented, like East Coast Fever, with regular arsenical dipping. His lengthy polemic was widely published in the Press. Over-worked as they were, Theiler was forced to detail men to test his assertion. At the same time, attempts were made  
109 to improve the Horse Sickness serum. Theiler experimented with inoculating two viruses, hoping for at most 5% mortality from the artificial infection. He achieved 3.5% though 'aanmaning' or recurrence of the disease in immunised animals continued. The baffling problem was now of highest importance.

110 While Smuts entered the conflict in South West Africa, embarrassed by Horse Sickness in his aim of joining Botha's forces, and the trial of the Rebels painfully continued in Pretoria, Theiler  
111 took time off to organise the 13th Meeting of the South African Association for the Advancement of Science in July in Pretoria. It was important that the delegates, representing the best  
112 scientific brains in the Union, should see his Institute. He himself gave a paper on 'The Problem  
113 of Horse Sickness' and was elected one of six vice-presidents. On the 7th July 1915, he welcomed a great contingent of his scientific friends including the botanists (Rudolph Marloth, C. W. Mally, Ethel M. Doidge, A. Bottomley etc) led by I. B. Pole Evans, now head of the Botanical Division; the chemist Charles Juritz; the Port Elizabeth herpetologist, F. W. Fitzsimons; and,  
114 significantly for the Theiler family, Dr Bertha Stoneman, botanist, lecturer and later principal of the Huguenot University College at Wellington in the Cape. The visit was a great success  
115 (with a special vote of thanks at the concluding meeting) but Theiler lamented - 'I was very occupied but now, thank God, this excitement is also over.' The Germans formally surrendered to Botha two days later in South West Africa and there was widespread jubilation. P. R. Viljoen would be demobilised and Theiler would see that he was returned to Armoedsvlakte and not swept up in the current urge to join the war in Europe or the forthcoming campaign in German  
116 East Africa. Sad lessons had been learnt in the West. Glanders, absent during the campaign, had suddenly broken out subsequently at Swakopmund and thousands of horses had had to be

116 destroyed owing to the wrecking of the ship *British Prince* bringing a veterinary officer with  
117 supplies of Mallein produced in vast quantities at Onderstepoort. Rinderpest also became rampant and threatened the Union, being kept at bay by rushed supplies of the Laboratory's reserves of serum. With the new campaign in view, Theiler's serum-vaccine factory would move into even higher production.

118 He could not ignore the local scene nor push research into the background of the colossal  
119 laboratory production of specifics. Three of his men had joined the overseas contingent destined for the Western Front. Willing workers remained, rendering faithful service 'during a period of constant disorganisation and at a time when routine duties were exceptionally heavy', he wrote appreciatively; but it devolved on Theiler personally 'to keep up to date' with developments in overseas research and to apply them to his mordant problems, especially Lamziekte. He received an astonishing number of German scientific journals including the *Zeitschrift für Infektionskrankheiten, parasitäre Krankheiten und Hygiene der Haustiere* published by his bookseller Richard Schoetz in Berlin and edited jointly by Dr E. Joest of Dresden, Dr Robert Ostertag of Berlin, Dr K. Wolfkugel of Montevideo and Theiler himself. As associate editor, 120 he was paid 200 marks a year and spent it on books and periodicals which irregularly reached  
121 him through the Union High Commissioner in London. When it came to considering Hedinger's hypothesis of Lamziekte's being caused by sarcosporidia, Theiler could state that other investigators had failed to elucidate the life history of the prolific parasite. He staged sufficient experiments to prove that 'they may be the cause of an illness or anyway a cause of poverty in animals but not a cause of Lamziekte with which the parasites have no connection'.

122 He therefore returned to his plant toxin theory and with the assistance of Pole Evans, began a series of herculean experiments involving the wholesale transportation of 'lamziekte soil' to  
123 Onderstepoort, the minute examination of plants growing in camps notorious for producing the disease and other exhaustive investigations. P. R. Viljoen whose ability had impressed him, was allocated Armoedsvlakte and skipped down to Pietermaritzburg to marry his briefly-affianced bride. There was no accommodation for them on the farm and the 20-year old Mrs Viljoen set up home in a rented house in the dusty dorp which, by a phenomenal feat of adaptation, she found lively and diverting, returning formal calls by Government horse-and-trap. Two years later, they moved into the house built for them on grim Armoedsvlakte. Viljoen worked late into the nights by the light of paraffin lamps, tabulating the complicated data of numerous experiments for his reports.

The prevailing war-time spirit of 'see it through' was punctuated by ugly dissidence. Before Botha and Smuts returned in ceremonial triumph from South West Africa, the trial of the Rebels ended on an iconoclastic note shocking to a large proportion of the population. General Christiaan de Wet was sentenced to 6 years imprisonment and a fine of £2,000 (he was released within six months). J. C. G. Kemp was fined £1,000 and sentenced to 7 years (serving only 17 months). The old hates simmered on, strengthening Hertzog's hand in the coming election. 124 Theiler noted the seething under-current and, perhaps worse, the onset of a disastrous drought.  
125 On the 23rd September 1915, Smuts, electioneering in Johannesburg a month before the event, barely escaped three revolver shots aimed at him at a riotous meeting inflamed by propaganda against his repressive tactics and Imperialism. Other mobs produced unpleasant scenes. Tempers were short and violent incidents commonplace. Theiler found them 'uncongenial' but was confident that there would be no change of Government. The election in fact was profoundly disturbing. In 1910, every seat but one in the Free State had gone to Botha. In October 1915, every seat but one went to Hertzog. Botha's party with 54 seats could not command a majority over all other parties and must rely on the support of some.

South Africa had now to fulfil its war commitments. Troops had already been sent to England

for the European front. Recruiting entered a frenetic stage. Thousands of men left their rural and urban occupations for service abroad and in East Africa where, based on Nairobi, Britain was containing the German forces (consisting largely of trained Askaris) in Tanganyika with Indian, Belgian Congo and other ill-spared troops. South Africa had undertaken to deal with German East Africa – a fiercely tropical region, luxuriant in disease for man and beast and subject to intolerable humid heat varied by torrential rain which acted as an incubus for every conceivable affliction and impediment. The terrain was such that the few tracks in the wilderness were negotiable only, at best, by horses, mules and oxen and, at worst, by recalcitrant bearers.

126 Theiler had been warned of his duty well in advance and had already inoculated 2,000 Defence Force mules while preparing massive amounts of Horse Sickness serum and Mallein, and interminable antidotes for Redwater, Gall Sickness, Blue Tongue and other local cattle diseases. His mind was almost totally diverted from research to the industry of prophylaxis and as time went on, his disgruntlement grew. Woefully diminished in staff, stores, glassware, equipment and facilities, he envisaged himself as merely a foreman in a mass-production factory. 'It is really repulsive', he wrote Alfred in November 1915, 'how the commercial conversion marches and how Science becomes a cow which has to be milked at the right time! Our annual report will soon appear. It contains various interesting subjects but one must not talk about them.'

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128 Three days before Christmas, the Governor-General Viscount Buxton, Viscountess Buxton and their eldest son Denis (who was killed two years later on the Western Front) came to Onderstepoort. They were escorted by an official of the Department of External Affairs, P. Horsfall who, married to a Swiss, became Theiler's lifelong friend. Buxton saw an unusual and meritorious feature of the South African war effort. Sadly, Theiler's annual report reflecting two years' research was not yet printed and he was compelled to state – 'Unfortunately our researches have been pushed into the background by routine. Serum and Vaccine rule the roost. The Laboratory now is just a factory and I am the factory manager – uncongenial and ungladdening.' At least Pole Evans was being an active collaborator. Confronted by a mysterious sheep disease, Theiler had gone with him to a local scene of incidence, a farm Witfontein 20

129 miles south of Pretoria and had asked him to examine its plants. Pole Evans ultimately produced ' "Gouwziekte" (Quick Sickness) Veld – Its Vegetation and Flora' while Theiler conducting endless eliminating experiments, was finally able to inculcate *Vangueria pygmaea* or 'sand apple' as the cause.

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131 Simultaneously in December 1915, 'Geel Dikkop' (Yellow Thick Head) in sheep of which Theiler had been aware since his early days but never investigated because of its rare incidence in the Transvaal, suddenly became epizootic and threatened the whole mutton, wool and hide industry. There sprang to his mind his botanical studies in Switzerland but they had been inadequate to covering parasitic diseases through plants. Alfred must at once send him relevant

132 books. In the meantime he began his own study, as he always did, with recourse to Hutcheon and found that as early as 1886, his great predecessor had been told by farmers that a plant with a yellow flower was probably the cause of Geeldikkop. Hutcheon's men had later identified it with the *Dobbeltjiedoorn* (little double-thorn) or *Tribulus terrestris*. But Theiler's perennial enthusiasm for animal diseases caused by plants sank again before his current obligations.

133 'Our Factory goes at full tilt', he wrote, 'The production of vaccine exceeds hundreds of thousands into millions, and we make serum at the rate of hectolitres. And that is in spite of the war and with reduced staff as several have left for Europe and East Africa. We have heard that our Afrikaners do not go to Flanders but to East Africa.' Soon their difficulties and the appalling drought at home would threaten the economy even further.

134 In time of war, leave was a luxury afforded to few. Absences from the Agricultural De-

partment were almost invariably owing only to illness and Smith, recently returned from England, paid high tribute to his staff. It might have been better if he had appealed to his Minister to force his over-worked and over-wrought Director of Veterinary Research to take recuperative leave. Too much piled upon Theiler and, given to emotional flights under stress, his resolution wavered. 'In the laboratory, still always over-work and no end in sight', he reported, 'regrettably research must suffer. Production comes first. As discouraging as the one side is, the other is urgent. One is still just a manufacturer.' He was making enormous quantities of serum for the horses necessary to the East African Campaign (to which the British Government had appointed Smuts, promoted to Lieutenant-General, as Commander-in-Chief) and telling the Vryburg farmers that he could therefore supply none to them. The problems of Armoedsvlakte were increased when its custodian, now Captain R. R. Sharpe, went to war and Theiler had to detail Gilles de Kock to take charge of it. P. R. Viljoen, frequently at Onderstepoort to discuss disappointing results, came back to tell the farmers that in addition to the shortage of bottles delaying the supply of urgently-needed Blue Tongue antidote of which Theiler himself had written them, there was a shortage of transport to bring the sheep to the Laboratory to make it. But for a lack of pathologists, the Lamziekte investigation would have got much further. As much as Theiler's mind seethed with work waiting to be done, his hands were tied by factors outside his control.

Worse, his emotions were assaulted and his pride humiliated by family affairs. His luckless and beloved sister Marie had lost her daughter Margaret after a long and distressing illness. All his own children were now home from school and College. Hans wanted to enlist in the Artillery for overseas service and re-kindled Arnold's own martial ardour. Without opposing him, he waited to hear how his children had maintained their illustrious name. When the examination results came in February/March, the blow to his amour propre was grievous. Hans' results were insufficiently high to compensate for his previous low levels and he had failed to gain his B.A.. Margaret had come down in one subject (Dutch) in matriculating which Gertrud (possibly similarly handicapped by their distracting year overseas) had attained only third-class, a pass which Max had managed. The glorious achievement which most fathers envisage for their children, the coaching, the encouragement, the sedulous training in natural sciences and academic matters of interest, the confidence and hopes were now dust and ashes in the mouth of a proud parent. In fairness, he understood that the examination system was notoriously bad but other children had passed. There were scenes and tears and Emma was hard put to maintain balance and reason. Her husband was a hurt and angry man, exhausted by his own exertions and frustrated by their limitation. Tout d'un coup, his pride was restored.

At that moment early in March 1916, Theiler received from the Imperial Indian Government a letter offering him appointment as 'Imperial Bacteriologist' or Director of Veterinary Research in India. It seemed like escape from the net about his feet - an end to the pettiness and disloyalty of political and Parliamentary manoeuvring. He discussed it openly with Emma and the children. He wanted to go, he said, and they agreed. In honour, he told Smith of his intention. Smith telegraphed van Heerden, his Minister in Cape Town for the Parliamentary session. Van Heerden went to the Prime Minister. Botha sent for Theiler.

At that time of anxiety and stress with great issues hanging perilously unsolved, Botha must bitterly have resented the stocky stubborn little man whose contrariness and combativeness again converted him into a blackmailer. Theiler poured out his case, harping on his enforced rôle as factory manager instead of research scientist and on his need for an administrative assistant. There was no gainsaying his integrity. He had worked like a thousand demons at his appointed tasks and produced both results of manifest value and a constant service of treatment and prophylaxis which now were indispensable. He had his difficulties of course like all the

Divisional and Departmental heads; but what seemed to rankle with this self-important scientist was lack of confidence. He minded that his Minister had not defended him in the House; he minded that there was always talk of 'importing experts' as if he were no good; he minded that Smith in England had 'hawked the job of someone to investigate Lamziekte' and thus blemished his own work and good name; he minded most of all that his own Government was not loyal to him and constantly hinted at superseding him with someone better. In such circumstances he preferred to go to India. Botha bought him off.

143 In his own words (written with an eye on the Censor), Theiler later stated 'General Botha begged me in the most impressive manner not to leave South Africa in the lurch and promised me a series of concessions to lighten my labours. The most important concession that I obtained is that I can withdraw from the Service at the age of 50 in 1917 or at any time thereafter with the promise of a pension due at the age of 55. It is actually very possible that I shall withdraw from the Service before I attain the specified age of 55 . . .' his pride was restored and his persona flourished anew. Shortly after, he went to Pietermaritzburg to attend the Annual Conference of the Natal Agricultural Union with his old colleague S. B. Woollatt in the chair. Theiler gave an address on his work, particularly Horse Sickness, and begged the farmers to have equal confidence in his finding a solution to Lamziekte. From the chair, Woollatt announced to applause that Sir Arnold Theiler had been offered a high appointment in the Imperial Indian Service but had preferred to remain in the Union and, seeing Sir Arnold acted loyally, it was incumbent on the farmers to act loyally toward him. On that day, the East London Farmers Association was told that Lamziekte was spreading throughout the Union and that losses were rising. The cloud still loomed.

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Theiler was doing important and innovative work in a wide variety of fields. His small but expert and enthusiastic staff pursued the lines of investigation which he ordained while he himself, in close alliance with Pole Evans, developed his plant toxin theories and prepared (largely through the amassing of collections of specimens) for an attack on the diseases caused by parasites. It was as if his attention had moved from the microscopic examination of bacteria, protozoa, trypanosomes and viruses to the more palpable bodies infesting animals' entrails. In concert Onderstepoort engaged the whole gamut of stock diseases on a far wider front than ever before. Its isolation was crippling. For the first quarter of 1916 (when Theiler agreed to remain in South Africa), the losses in British merchant shipping totalled 325,236 tons and by the end of the year, 1,497,848 tons. There was no hope of his receiving the sophisticated apparatus he required nor the scientific coöperation he had always enjoyed. Some of the equipment he needed had not yet been manufactured. In 1917, merchant shipping losses reached the highest total of 4,009,529 tons. Weeks went by without ships arriving. Improvisation had become the order of the day at Theiler's laboratory. Nothing it required for either research or the 'vaccine factory' was manufactured locally.

The research staff consisted of:

- |  |   |                                      |
|--|---|--------------------------------------|
| <i>Director of Veterinary Research</i> | - | Sir Arnold Theiler K.C.M.G.          |
| <i>Veterinary Research Officers</i>    | - | Graham's Town - Mr William Robertson |
|  | - | Pietermaritzburg - Dr D. T. Mitchell |
|  | - | Onderstepoort - Mr J. Walker         |
|  |   | - Mr W. H. Andrews                   |
|  |   | - Mr D. Kehoe                        |

Bio-Chemist

Economic Entomologist

- Armoedsvlakte
- Onderstepoort
- Onderstepoort

- Dr F. Veglia
- Mr E. M. Robinson
- Mr G. de Kock
- Mr P. R. Viljoen
- Dr H. H. Green
- Mr G. A. H. Bedford

One of the terms of Theiler's agreement with Botha had been that he should be liberated from administrative duties as soon as possible by the appointment of an Assistant Director. He considered the most appropriate to be R. Eustace Montgomery in Nairobi – a man versed in African conditions and with high scientific qualifications. Smith began the formal inter-departmental pourparlers. Meanwhile Theiler rued the decline in research through lack of 'professional staff' and the distraction of his attention by extraneous matters such as the building of a laboratory to manufacture Anthrax vaccine. The import from the Paris Pasteur Institute was reduced to a minimum. Its quality had not proved altogether satisfactory at a time when it was most needed. 147 During 1916/17 Anthrax accounted for a greater mortality amongst livestock than the whole of the other contagious diseases combined. There was also need for a capacious Postmortem Hall but Treasury, overwhelmed by war expenditure balked at authorising it.

On the outbreak of war, the printing of Divisional Annual Reports was cancelled which, with the disappearance of the *Union Agricultural Journal*, was particularly grievous to Theiler who customarily informed his colleagues overseas of the activities of his Institute by circulating copies. An attenuated Annual Report was permitted for March 1915/April 1916 and continued on that basis. It had no scientific standing in that it reproduced no 'papers' or 'notes' or 'observations' or comprehensive accounts of investigations. Theiler struggled to resume the 'Reports of the Director of Veterinary Research' of which the First and Second had been published in 1911 and 1912. The Third and Fourth reflecting the greatly widened scope of the Institute's work, edited and approved by him, were printed at the end of 1915 and impressed those worldwide colleagues whom it reached. (The contents were totally unintelligible to the 148 Parliamentarians who commented on his affairs.) It became an abiding passion with Theiler to record his work in this manner for present and future reference; but the next sequence of beautifully organised and comprehensive material with graphs, statistics and illustrations, was not printed until 1918 in his Fifth and Sixth Reports. The frustration of a bushel of obstruction hiding his candle constantly irked him.

Revived in spirit by Botha's promises, Theiler undertook the work of ten men. Noting the 149 25th anniversary of his arrival in South Africa, he had set his own house in order as best he might. Scholarship was not for Margaret who lacked the courage to show her true hand to an angry father. He set her to learning shorthand and typing with French as an auxiliary subject at the hands of Emma (Alfred had suddenly to send French grammars). Margaret was destined to become her father's secretary at Onderstepoort and dutifully plodded her way through hateful office tuition. Max was a different problem. A resolute character, he clearly stated that he wished 151 to study Medicine but continued periodically to be tortured by mysterious agonising pains. Gertrud, equally robust in stating her aims, declared for the study of Biology. Theiler sent them both to Rhodes University College at Graham's Town where Gertrud could keep a careful eye on Max taking virtually the same course for his first year in Medicine. They enjoyed their studies and the venue but Max was not free from his affliction. It was a constant sorrow to his 152 family. 'One is never sure with him', Arnold wrote Alfred, 'His suffering suddenly comes upon him. He bears it with great courage but suffers terribly under it. He remains so small; but his spirit remains vital and his joy in living very great.' In Graham's Town, Gertrud was often



distracted by Max's attacks. When they came home for the mid-year vacation, Arnold took him to Johannesburg to consult a Swiss surgeon, Dr Pettavel who diagnosed kidney damage but could neither surmise the cause nor prescribe treatment. Back at college, Max was so frequently  
153 incapacitated that his father brought him home without writing his final examinations. Gertrud successfully sat them.

154 Hans, with quiet obstinacy in the face of his father's constant disparagement of the profession of veterinary surgeon, had altered his intention of enlisting for overseas service and joined up as a 'veterinary dresser' in the South African forces setting forth to conquer German East Africa. First coming to light in Kenya, he was frequently incommunicado for months on end; but Arnold, knowing his commanding officer and now speaking proudly of 'our soldier son', tried not to worry about his first-born. There was good cause for concern. The popular view that 'the Boer fighters' (particularly the mounted regiments under Generals van Deventer and Coen Brits with their mule-drawn batteries, led by that wily tactician of guerilla warfare, General J. C. Smuts) would soon put an end to a 'jungle campaign' conducted by Askaris and a few Germans, was speedily dissipated. Animals died in droves and men went down with fever by the hundred, Hans included and possibly similarly falling into the capable hands of his father's old enemy, Dr Alexander Edington, now administering with distinction the Military Hospital at Dar-es-Salaam.

The East African campaign marked the doom of veterinary and medical reputations. Theiler's specifics were useless. Oxen, mules and horses had an effective life limited sometimes to days.

155 Francis Brett Young, a medical doctor and himself the victim of fever, watched the immobilisation of his ambulance as its mules succumbed - 'Already more than one of them showed the slight puffiness beneath the chest which is one of the first signs of trypanosomiasis. The very road on which we left the ambulance swarmed with biting tsetse flies.' The South African

156 mounted regiments soon became infantry. On Christmas Day 1916, Colonel Hartigan confronted a German force with the 1st, 4th, 7th and 9th South African Horse, dismounted to a man as all their horses had died. The task of the Remount Department was hopeless. Toward

157 the end of 1917, 10,000 horses, 10,000 mules, 11,000 oxen and 2,500 donkeys died during only two months of the dwindling campaign. Aeroplanes, motor cars and wireless were used and Smuts himself careered about the terrain in a trusty Vauxhall; but Hans, labouring in an Augean stable and making useful veterinary notes of his experiences as Theiler had taught him, declined into a broken man, riddled with fever.

The unremitting strain on Theiler, already emotioné by the scene with Botha, domestic troubles and mounting restrictions on money, staff and facilities, expressed itself in recurrent  
158 disenchantment with Africa, a hankering after 'the homeland' and a readiness to take offence where Botha had hoped to mollify him. Always touchy, his pride now reacted ridiculously to supposed gibes. On the 18th April 1916, at Question Time in the House, Sir Abe Bailey asked

159-nd the Minister of Agriculture whether he would put a sum on Additional Estimates to investigate and find a cure for Lamziekte. Van Heerden, confined to a direct answer, replied - 'I am quite  
160 prepared to find the money but the difficulty is to find men qualified to undertake the work . . .

a veterinary pathologist and other assistance for Sir Arnold Theiler. Owing to the dislocation caused by the war, our efforts have been fruitless.' Smith and Theiler met shortly after attending the Royal Natal Agricultural Show at Pietermaritzburg. The newspapers had reported the question under the headline - MINISTER CATECHISED - THE CURE OF GALLAMZIEK-  
161 TE and Theiler told Smith how much he and 'several of his officers felt aggrieved at the Minister's statement'. Then Viljoen at Vryburg added fuel to the flames by sending the newspaper report to Theiler protesting at its reflection on his work. There ensued an acid correspondence between Theiler and an increasingly-nettled Smith on the much-laboured point that Theiler

162 did not mind being 'assisted' in work which, had he time, he could do himself but strongly objected to being 'superseded'.

He was in fact firmly grasping his nettle. Feeling among the ranchers in the Northern Cape (many had enlisted) and elsewhere had become further jaundiced. Theiler frequently visited Vryburg with Pole Evans and, in addition to the herculean and expensive experiments of transporting 100 tons of local 'infected' soil to Onderstepoort (where cattle grazing on it failed to contract Lamziekte), he decided to build a laboratory, stables, houses for staff and other necessary amenities at Armoedsvlakte. During May, June and July 1916, always with Pole Evans and once with Harry Green (to study the chemical composition of the Lamziekte veld), he devised on the unprepossessing property (still rented from McKee at £50 a year paid by the Vryburg Farmers Association) a comprehensive attack on the baffling disease. The confidence of the cattle-owners, even Butler, was wearing thin and dissident voices soon arose. Parliament heard them too. Sir Abe Bailey, Sir Thomas Smartt, even Danie Wessels speaking for the ruined Bechuanaland, urged the Minister to do something. A lone voice (J. Joubert, member for Pretoria North where Theiler was registered) praised him, feared that he was leaving and asked the Minister to give him such a salary as would induce him to stay. Van Heerden now knew his prickly man. They were all agreed as to the good work being done by Sir Arnold Theiler, he said. The Government was fully alive to the Gal-Lamziekte position and was in communication with Mr Montgomery of British East Africa to get him to visit the Union to carry out investigations. Theiler met the Executive Committee of the Vryburg Farmers Association a few days later but desperation had sapped its faith.

Major R. E. Montgomery on active service in East Africa was given permission very briefly to visit Pretoria early in July. Theiler had known him and the quality of his work since May 1907 and had personally selected him as suitable to relieving him of administrative and other duties – 'my work at the Institute will be sizeably lightened and I shall be able to devote myself to my own researches', he confided to Alfred. Montgomery was offered appointment as an Assistant Director and accepted subject to release from his military duties (Botha himself had gone to Tanganyika to join Smuts owing, it was alleged, to the appalling 'wastage' of men and animals). Long casualty lists were now appearing in the newspapers, covering the Western Front (where the British alone lost nearly half a million men on the Somme) and Central Africa. No word had been heard of Hans for two months and Theiler was grateful to Montgomery for offering to seek him out. Many months passed before he could keep his word.

While the Government was considering Theiler's plan to buy Armoedsvlakte and convert it into a minor Onderstepoort, the patience of the cattlemen ran out. The Vryburg Farmers instructed their chairman G. D. Smith to present at the Annual Congress of the Cape Agricultural Union at Kimberley a resolution that 'whereas the discovery of the cause of the disease Gal-Lamziekte has so far baffled all the powers of research by scientists in the Union, and as the disease is apparently spreading all over the Union and the losses of stock and consequent impoverishment of the cattle industry in South Africa is increasing, this Congress respectfully requests the Government to consider the desirability of offering a substantial reward (say, £20,000) to any qualified scientist who can (say, within 5 years) discover the cause of the disease and produce an effective (and cheap) preventive, subject to such tests and experiments as the Government may see fit to impose'. Theiler was told. The whole country was told. It was common cause that Vryburg in spirit and deed had led the battle against Lamziekte. Danie Wessels came to the next meeting to hear what further they were doing and told them what the Government planned for Armoedsvlakte but they repented not of their resolution.

172 The Congress at Kimberley early in September 1916 was an important occasion. It was opened by the Minister of Agriculture with F. B. Smith and Theiler in attendance. G. D. Smith moved

the Vryburg Farmers' resolution and spoke to it. The Congress boomed. Speakers stated that he was casting a slight on Sir Arnold Theiler, 'a slur on our experts' and 'indirect censure of the Department of Agriculture'. Smith manfully replied that no one had done more in the matter than the Vryburg farmers. Sir Arnold rose to his feet to reply. Of his finest hours, this was certainly one. He told them how P. R. Viljoen at Armoedsvlakte used 254 head of cattle on the experiments he devised. 'Each experiment is a question and every answer is some contribution to the problem.' Lamziekte was non-contagious, non-inoculable, non-communicable and capricious in its appearance even on the notorious Armoedsvlakte. The cause existed either in the pasture or the soil. Pole Evans did the botanical research and Green the chemical. Experiments were similarly made at Besterput in the Free State and on farms near Graham's Town by W. Robertson, a total of 438 cattle being used which was beyond the resources of any single scientist. The theory of deficiency in vitamins and other dietary factors had failed. He had discussed the problem in London, Paris, Berlin, Vienna, Budapest and 'with my old professors at Zurich and Berne. Nobody was able to make any suggestions except what we were carrying out'. He went on to tell them what he had proposed to 'a sympathetic Government'. 'Gal-Lamziekte', he concluded, 'will be solved one day but not by the offer of bonuses.' (Applause) F. B. Smith gilded the lily - 'When I was in Europe', he said, 'I was told that we could not do better than to support Sir Arnold Theiler.' G. D. Smith withdrew the Vryburg resolution (it should never have been brought, he later said) 'having every confidence in Sir Arnold and his staff'. Caught in the same wave, van Heerden assured the Congress that 'what the Government could do to assist Dr Theiler, they would do'. The purple passage came near to lacking substance.

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Expenditure on the buildings Theiler required could not be incurred until formally approved by Parliament in the new year. The delay was maddening but the Vryburg Farmers rose to the occasion. With their 'Lamziekte Experimental Fund', they had built the galvanised-iron sheds and stables at Armoedsvlakte in 1914. Now they gave them to Theiler. His own staff managed to put up rondavels for the labour and more stables without benefit of Public Works. He might not have authority to build but the Minister of Lands had authority and funds to buy farms. Theiler immediately told him to buy Armoedsvlakte. The Minister was a limited Afrikaner, Hendrik Mentz, practising as a lawyer in Pietersburg. As a Transvaal burgher, he had fought for the Republic in the Jameson Raid and in the War where he had served as a guerilla under Botha whom he deeply admired. A member of the Transvaal Legislative Council and later of the Union Parliament, he enlisted in the Defence Force in 1914, helped to quell the Rebellion and again served under Botha in South West Africa, attaining his colonelcy. Botha rewarded him in 1916 with Cabinet appointment. What happened between Colonel Mentz, the tentative and unimaginative new Minister of Lands, and Sir Arnold Theiler, the Director of Veterinary Research became local legend awesomely repeated long after both were dead. Theiler asked that Armoedsvlakte be urgently bought from the McKee brothers. Mentz said Nonsense, he could buy much better farms more cheaply in current depressed times. Theiler said there was nothing better for his purposes than Armoedsvlakte because of its susceptibility to Lamziekte. Mentz refused to understand. Using his usual weapon, Theiler immediately resigned. Armoedsvlakte was quickly bought at a high cost from the canny McKees at the end of September 1916. Much development could now begin.

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Theiler was now doing the work of more than ten men. With his Kimberley triumph behind him, he had gone straight off on a long motor tour of the Kaap Plateau (Griqualand West) to investigate a new disease 'Slapziekte' in horses which he identified as Dourine. Returning via Bloemfontein, he had delivered an address on 'Unsolved Stock Diseases in South Africa'. Lecturing in his guttural tones from carefully-prepared texts, all taking time and buoyancy of

180 mind to compose, had become second nature. For recreation, he lectured the Biological Society  
 181 on extraneous subjects that interested him. (The original Transvaal body had now been merged  
 in the South African Biological Society whose foundation members recorded their particular  
 interests. Theiler wrote HELMINTHOLOGY.) He talked freely to everybody, particularly to  
 182 farmers, Pole Evans with his flaming red hair and treble voice, and other scientific colleagues.  
 He read assiduously. In due course, he perceived with pride in the *Zeitschrift für Infektions-*  
*krankheiten* with his own name on the cover as associate editor, the paper submitted on the  
 15th September 1916 by his protégé P. J. du Toit under the aegis of Professor P. Knuth of the  
 Tropical Division of the Health Institute of the Royal Veterinary School in Berlin on 'Con-  
 tagious Rinderpest'. Marooned in Germany, du Toit was doing valuable work on tropical  
 diseases.

As factory-manager, Theiler dealt in new dimensions of production and difficulty. From April  
 1916 to March 1917, he was responsible for the production inter alia and the issue of doses of  
 vaccine for

Blue Tongue	–	1,240,050
Redwater and Gallsickness	–	18,069
Anthrax	–	696,850
Black Quarter Evil	–	223,896

183 and thereby safeguarded and developed the livestock industry in time of war and, he reported,  
 'frightful drought'. His 'factory' staff was minimal but efficient, zealous and loyal. Theiler  
 could almost unexceptionally command such qualities from his men; but he could not dragoon  
 184 the farmers into helping. Time and again, Butler in his *Northern News* begged for the return  
 of vaccine bottles and wire-worm tins, and other newspapers likewise but carelessly, the farmers  
 threw them away and ignored instructions. An admonitory *Agricultural Journal* would have  
 helped; but the war still prevented its issue. The time came when the supply of vaccines was  
 curtailed through lack of receptacles.

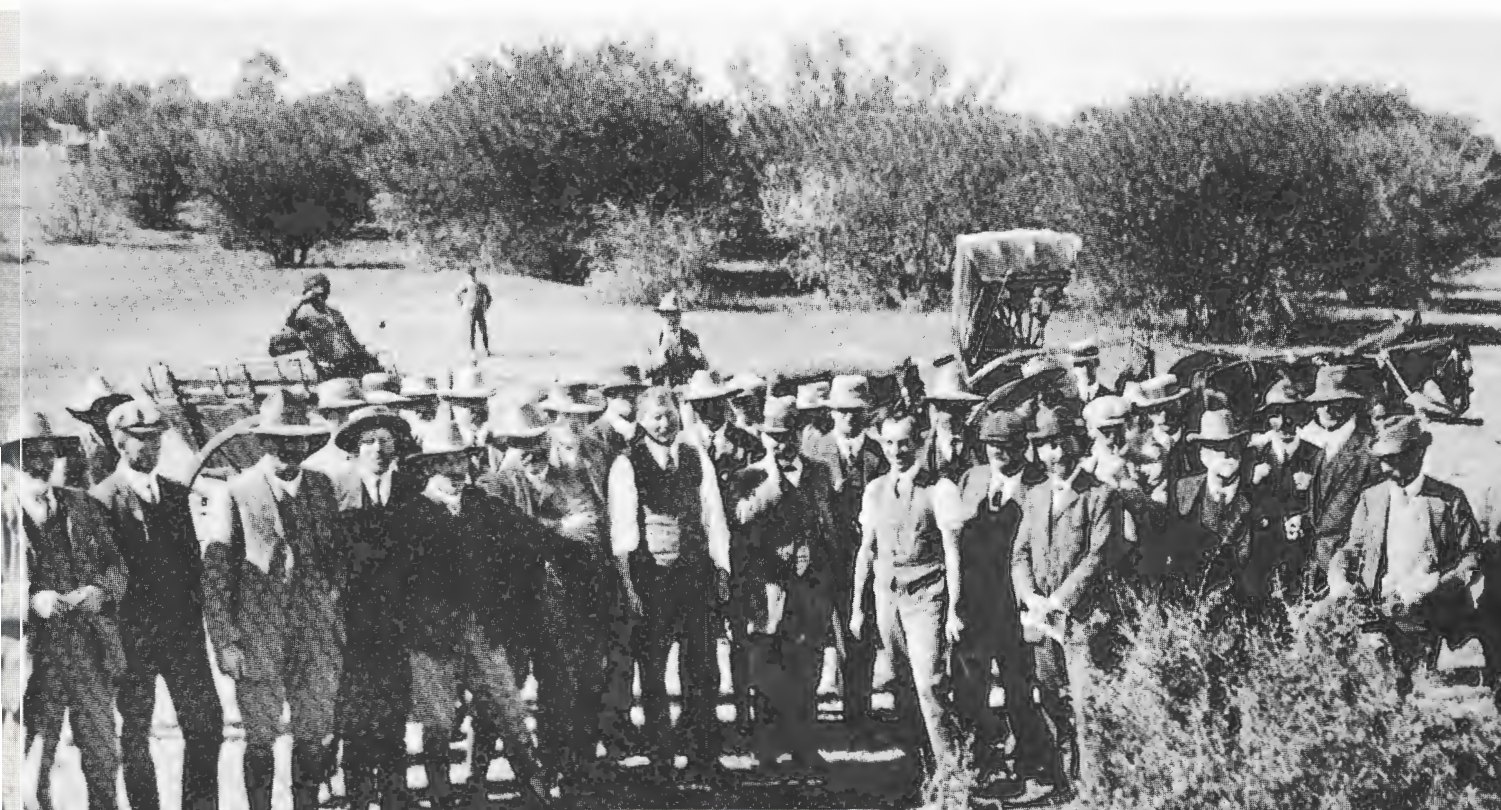
185 Sir Arnold Theiler as a public figure had perforce to continue his rôle and sit on platforms  
 and attend banquets, meetings, agricultural congresses and funerals. Concerned at the expense  
 of educating his children, he was also specially exposed to public donation. When the Governor-  
 General's War Fund came to Onderstepoort for instance, five guineas was expected of him but  
 only two each from his research staff, dwindling to half a crown from others. A month later, the  
 186 South Africans were immolated at Delville Wood. He worried about Hans who had lapsed  
 into one of his long periods of silence after writing that the Imperial Commander in East  
 Africa was General A. R. Hoskins who, as a major on Maxwell's staff in 1902, had given the  
 Theiler children a pony.

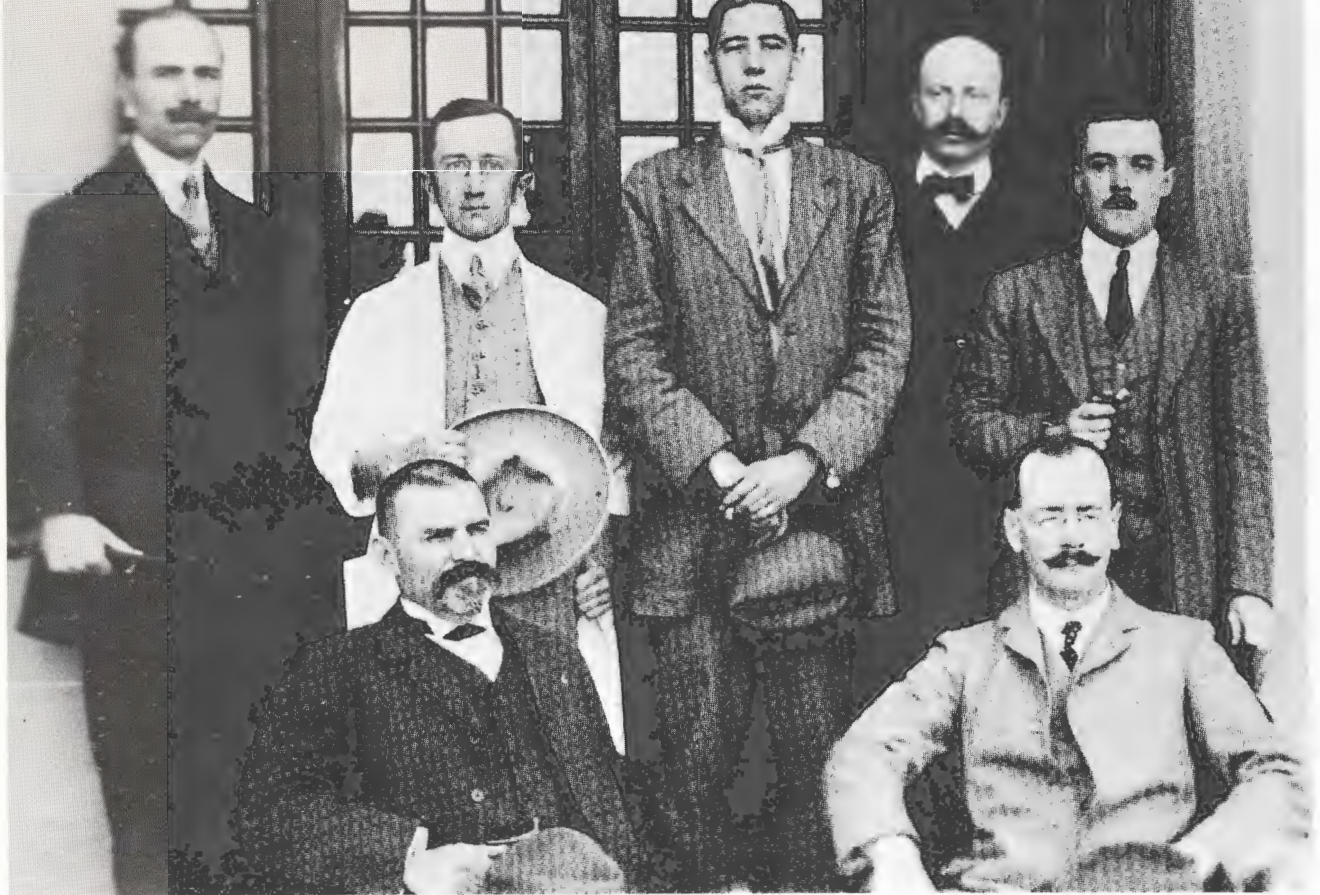
187 Botha had returned from East Africa. Smuts' pursuit of his elusive foe – 'that brave German  
 Commander', as he then publicly described von Lettow Vorbeck – would soon succeed and he  
 could leave the conclusion of the campaign to others. Theiler had done his best for it and failed  
 calamitously. He had successfully inoculated thousands of Defence Force horses against the  
 Sickness. There had been none of the dreaded 'aanmaning' but, suddenly and unexpectedly  
 after an interval, all the horses had been incapacitated by Staggers. It was a public humilia-  
 tion and, according to F. B. Smith, 'a great disappointment to Sir Arnold'. Theiler surmised  
 188 that the virus was not the cause; but the fever produced by the inoculation conduced to the  
 development of Staggers which otherwise might have remained dormant. 'The outbreak of this  
 new disease was a very severe blow to me and is, in fact, the most disheartening incident that  
 has occurred in the whole of my investigation into Horse Sickness,' he reported and forth-  
 with took steps to combat it.

*Charles Butler* whose persistent efforts to bring the fight against Lamziekte to Vryburg finally persuaded Theiler to establish the crucial experiment station at Armoedsvlakte.



*The historical moment in June 1911* – Theiler conducts a postmortem for the benefit of Vryburg stockmen and townsmen. Left to right: centre in shirt sleeves, Ted Pavitt who despatched the cow; Theiler with his hand to his face; Elphick in short sleeves who dissected the cow; and Charles Butler in Homburg hat holding papers.





*Some of the senior staff at O.P. in 1913 – seated: Theiler (left) obviously disgruntled after his return from Europe, and W. Robertson who directed Onderstepoort during his absence. Standing (left to right) – Frank Veglia, parasitologist; Daniel Kehoe, pathologist; G.A.H. Bedford, entomologist; and two others.*



*Modern Equipment at Onderstepoort when it opened in 1908 and continuously in use thereafter – a turntable to which animals were strapped when standing and then tipped over to permit horizontal examination.*

There were other fields in which, with his limited research staff, he could report success. The work on plant toxins was progressing favourably. Pole Evans travelled hundreds of miles with him to all parts of the country examining possible causes of stock diseases. Veglia, agitated by Italy's declaration of war on Germany on the 28th August 1916, was finding a chemical solution capable of killing wire-worm in sheep. Henry Green was still busy with arsenic and dipping, Viljoen with Lamziekte, Kehoe with Anthrax, Bedford with Bot Flies, and other workers covering a wide field from Contagious Abortion to Dourine. Their meticulous papers with several of Theiler's would ultimately constitute his Fifth and Sixth Reports.

189 Onderstepoort was now a sprawling complex of many buildings designed for different duties. Hampered in every way, the staff at least enjoyed comparative freedom from visitors. The place had perennial fascination for farmers but few were not involved in the war. Consular parties continued to come and occasionally special visitors such as the horse-loving Colonel C. Gutsche, 190 Officer Commanding the Cape Garrison Artillery and Table Bay Defence, with Major P. L. Lovelace. On the 11th December 1916, Sir Abe Bailey who had stated in Parliament that he was 'going to try to ginger up the Government' about Lamziekte, came to see for himself what Theiler did.

191 'The old man' as he was beginning to be called, was planning for his retirement. He would soon be 50. One by one he was losing his early friends and supporters – his first patron D. J. E. Erasmus in 1914, Melt Marais, Veldcornet for Pretoria during the terrible Rinderpest days, in 192 May 1916; his first 'boss' the Landdrost C. E. Schutte in October 1916; and in March 1917, the 193 Scots lawyer Mark Greenlees who had twitted Milner in 1902 and whose funeral Theiler attended as a chief mourner. It made him feel his age and the need to rest. He was collecting his unpublished work at Onderstepoort for final preparation and contemplating a happy relaxed life in 'the old homeland'. Would the Basle Natural History Society accept him as an outside 194 member? he asked Alfred (now a man of scientific stature with the opening of his hydro-biological laboratory under Professor Bachmann). He was greatly gratified when they later 195 made him a corresponding member – 'an honour from home and for me, one of exceptional 196 value'. 197

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In momentous times, the old dichotomy still possessed him. Smuts returned from East Africa in January 1917 and left almost immediately for England to join the Imperial War Cabinet. Milner would be his colleague as Minister without Portfolio (later Secretary of War). Theiler 198 went to the banquets féteing the commanders returning from East Africa. Hans, silent for three 199 months, had been in hospital with fever. Montgomery had seen him and reported favourably. With his eyes longingly on Switzerland for a winter holiday visit during the Peace that never came, Theiler had asked his Minister for £50,000 for administration and £20,000 for buildings in projects which captivated his interest and enthusiasm. 'I shall probably myself head the re- 200 search and then terminate my South African career', he wrote. (He had been so sure that Peace 201 was imminent toward the end of 1916 that when Max came home and disagreed he bet him a hat that the war would be over when 1917 began. Max made the most of it and selected 'a first-class hat' costing an extortionate thirty shillings.)

Theiler's Minister was taking him very seriously and, upon the invitation of the Municipal Council (the first town to invite him, he said), paid a ceremonial visit to Vryburg. All the dignitaries – Danie Wessels M.L.A., D. G. Smith, the magistrate and leading farmers – accom- 202 panied him everywhere and Viljoen awaited them at Armoedsvlakte (where Lamziekte had perversely disappeared) to conduct them over the establishment. 'It is impossible', van Heerden

203 said in his luncheon speech, 'for the staff with the means at present at their disposal to get anything like adequate results.' Parliament had not yet met but in due course, it would fall to him to get the Vote passed for building. £11,644 was on the Supplementary Estimates. Vryburg grew restive. The galvanised-iron lean-tos and the primitive rondavels which Theiler's own men had built remained the sole equipment. The Viljoens continued to live in the dorp. At a Farmers' meeting at the end of March 1917, G. D. Smith announced that the Government, it was being said, intended only temporary structures. Incensed at this disparagement of their importance (they had spent years getting the farm bought), the farmers addressed a lengthy and fateful resolution to the Government concluding with 'this Association desires to point out that, considering the extensive area of Bechuanaland and the western portion of the Transvaal, it is in need of an experimental station for the scientific investigation of all and every disease affecting stock and considers that such a huge portion of the Union with its great livestock industry would be well served by the establishment of a permanent investigation establishment as was originally intended . . .' It was many months before the building of a permanent laboratory, dwellings, stables and a small-animal house began at Armoedsvlakte; but the Vryburg Farmers' dream was in the end realised and developed.

204 Theiler was in the Free State with Pole Evans trying to identify the precise circumstances in which *Tribulis Ovivum* (dobbeltjiedoorn) caused Geeldikkop in sheep, now dying in large numbers in the Luckhof, Fauresmith and other districts. Hutcheon, the flock-owners and other sources had provided him with a wide variety of hard facts and hypotheses. Typically Theiler listed them all and devised experiments to test them. It was an extraordinarily complicated investigation concluding with qualified result – the plant caused the disease only in the flowering stage but sun and wind somehow played a part. Theiler could at least advise the farmers on preventive and curative measures. There were many other such quasi-botanical problems with which he and Pole Evans grappled – so many that Theiler secured the transference from the Botany to the Veterinary Research Division on the 1st April 1917 of A. O. D. Mogg as ecologist. 205 Then 32, Mogg long outlived his two proponents on his way to becoming a centenarian and his country's oldest practising botanist.

206 Theiler himself celebrated his 50th birthday on the 26th March 1917, a continuing prey to his dichotomy. His personal troubles were principally financial. As there was no Medical School at Graham's Town, Max had gone to Cape Town to attend the University of the Cape of Good Hope which offered courses. Gertrud perforce accompanied him as guardian, happy to pursue her passion for zoology in especially engaging conditions. They rowed and bathed and climbed Table Mountain and enjoyed themselves but it was all very expensive. Hans was still lost with his unit in Tanganyika; but Margaret, painstakingly equipped in uncongenial skills, was now a shorthand typiste employed as Librarian at Onderstepoort at £10 a month. She had finally asserted herself and persuaded her authoritarian father to allow her to train as a physical culturist as soon as passage could be obtained to England. The future academic education of 207 at least three children for several years would be a heavy burden if he went on pension now.

208 Other burdens were thrust on the portly and greying Director whose new enthusiasms for ecological and parasitological investigations were constantly frustrated by dutiful journeys to Armoedsvlakte and elsewhere, lectures to Agricultural Societies, attendances at Congresses and a dozen different distractions. His old enemy Rinderpest duly appeared on the Tanganyika border with terrifying implications for the Union. C. E. Gray, the Union's Veterinary Officer, went at once to Nyasaland with two veterinary surgeons to combat it with serum provided from stock by Onderstepoort. Slowly the effective production and research staff were being diminished. A lay assistant S. Howell was killed on active service. Then Frank Veglia, invaluable parasitologist, was compelled to go on leave through urgent private affairs, having every intention of



209 returning. The war was going ill for Italy, culminating in the rout at Caporetto on the 24th October 1917 and Veglia, conscripted into the forces, was lost to Theiler indefinitely. Worse followed in the deterioration in health of one of his best research assistants, W. H. Andrews who finally broke down in October 1917 and was sent to England for six months sick leave extended to eight.

210 As much as manpower declined and research was curtailed, demand increased. The usual clamour arose in Parliament with Danie Wessels bemoaning the ravages of Lamziekte and Abe Bailey again 'gingering up the Government'. Theiler's Vote, as always, was approved and at least his buildings at Armoedsvlakte and Onderstepoort, including the Postmortem Hall, could now go up; but there was little help in his fields of research. He had found a means of avoiding post-inoculation Staggers in horses by resting them for several weeks and reopened his immunisation service with that proviso. 'There was a very hearty response from the farmers in reply to my circular containing these conditions and I was unable to accommodate at the Laboratory all the horses that were offered for inoculation', he reported. A roster was opened and all proceeded successfully until a horse brought Strangles with it and infected all its fellow candidates. Theiler temporarily closed the service. Horse Sickness, his longest scourge, still belaboured him. Meanwhile progress was being made with the routine cattle diseases, particularly those due to suspected plant-poisoning. The new refrigerated ships opened untold opportunities to South African cattlemen and by the middle of 1917, export of meat to England had begun. Theiler's rôle in his country's economic development was heavily underlined.

212 It sat now too heavily on his shoulders. He had had no leave since 1912. His work was overpoweringly demanding and though he gave no sign, he was a tired and dispirited man. 'The enormous expansion of my job has spoilt my love of it', he wrote Alfred on the 15th July 1917, disclosing his intention soon to retire on pension and to capitalise the education of his children by finding a new appointment for four or five years until they were on their way and he could settle in Switzerland. Immediately at hand was the Faculty of Agriculture of the Transvaal University College (elevated to independent university status only in 1930) which had been inaugurated on the 17th January 1917. Its supporters in a land struggling for educational advancement and now deprived even of overseas experts to assist, regarded him with particular interest. The ideal of an Agricultural Faculty with associated Veterinary College had first been expounded by F. B. Smith in his report to Milner in 1902 and sedulously propagated by him subsequently. It was no coincidence that he should return to it at length in his Annual Report for 1917/18. Pretoria looked to Theiler but there were other eyes upon him. 'Something is in progress', he wrote guardedly, not wishing to reveal that pourparlers had been initiated by the Victoria College (elevated a few months later to the University of Stellenbosch) at the Cape, 'It still needs the agreement of the Government which I may not leave in the lurch.'

214 With the East African campaign virtually concluded, Montgomery now became available to assume appointment as Assistant Director of Veterinary Research. Correspondence passed between him and the Agriculture Department in the course of which Montgomery made a volte face and announced that he was not prepared to accept appointment as Assistant Director but only as Director. It was an unhappy time for Theiler. Alfred had written him of the death of his sister Marie, 'the comrade of my youth', and he was deeply distressed. It smote him that he had not been able to return to Switzerland in time to see her. Simultaneously the Department of Defence delivered to him the wreck of his son after a final three weeks' hospitalisation in Durban, with the endorsement 'unfit for further service'. Hans, his father noted with pride, had served for a year and 201 days. Now he was perpetually incapacitated by Malaria and Tick Fever but undaunted in his resolve to go to London to qualify at the Royal College of Veterinary Surgeons. Theiler, trying to dissuade him by advising concentration on the medical

217 aspect, had no alternative but to support him, characteristically organising his future by planning his first long vacation as a visit to Alfred to learn French. In his own trouble, precipitated by Montgomery's ultimatum, his hand was forced. If he did not create a vacancy to accommodate him by retiring from his post, the country would lose a valuable man and there was no other in prospect to continue the work at Onderstepoort. To a large extent, his decision was made for him. At the end of September 1917, he informed F. B. Smith of his intention to retire at the end of the year. He asked that Montgomery be appointed immediately and soon assume duty so that he might induct him in his work. Smith took action accordingly. Quickly the news seeped out.

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218 In common with most visionaries, Theiler gave the impression of organising everybody in accordance with ends which he clearly saw but which were not necessarily acceptable to those concerned. Oblivious of fallible human nature and physical frailty, he saw only the rightness of his purpose and was uncomprehending of anyone who didn't. By them he was therefore considered domineering, even a bully. The tale was recounted that when he fetched Andrews from Pretoria station in 1910, he employed the 10-mile drive to Onderstepoort in informing him of his duties which would take every hour of every day, concluding with '. . . and in your spare time, you will study snake-bite venom'.

219 By the same token, believing implicitly in the multi-disciplinary approach to problems, Theiler expected its varied exponents to be equally interested in his, and particularly the activities of Onderstepoort. (He was not disappointed in his new friend, now Major A. J. Orenstein serving in the Defence Force Medical Services who took the liveliest interest in all his affairs.) The meetings of the Biological Society palely served the same purpose by comparison with the active participation in each other's disciplines which he envisaged for his colleagues and their staffs. On the 3rd August 1917, he staged an occasion which he hoped would be constantly repeated. Led by Pole Evans, the entire staff of the Botany Division came in cars on a Sunday morning to the Theiler mansion where Emma had prepared tea. The customary jollity of the two heads was emulated by their respective assistants who willy nilly were then exposed to more serious claims on their attention before the rest of the day could be enjoyed. They were all directed to the lecture room in the main building where Theiler delivered himself of a peroration on the work of the Veterinary Research Division illustrated by slides with special reference to those aspects in which it depended on the coöperation of the Botany Division. The audience, duly released to tennis in the afternoon, promised to 'retaliate'. This heavy-handed mission-mongering had somewhat afflicted Pole Evans' staff which included as Keeper of the Herbarium Sydney M. Stent, the versatile niece of Vere Stent of the *Pretoria News* to whose columns she contributed.

220 The amiable occasion had been a relief to Theiler at a sad and troubled time, accentuated by the dilemma developing from Montgomery's attitude. Hans had relapsed into Malaria attacks and blood tests showed the 'tertiary parasites'. Early in September, he left for Cape Town to spend a week with Gertrud and Max (who had passed their mid-year tests) before embarking for England. Until the end, his father had tried to dissuade him. Now Theiler and Pole Evans set off again for the worst Lamziekte region, travelling south from Mafeking to Vryburg. They heard on the way that cattle grazing on brak (saline) soil were less liable to Lamziekte and a new field of enquiry opened. Theiler asked for soil samples for testing. He confided his troubles to Butler, now an old friend. If an Assistant Director had been appointed, he would have left Onderstepoort and come to live at Armoedsvlakte until the Lamziekte pro-

blem were solved. Now he had made up his mind to retire for the sake of Montgomery and was negotiating with Stellenbosch and Pretoria for academic appointment. Somehow he must complete his Fifth and Sixth Reports reflecting the Institute's important work during 1916/17 before he left at the end of the year. Butler was aghast and lent his ear to all the rumours that would be current when the event became known at the end of September. Theiler himself admitted to Alfred – 'I hope I shall never regret my decision though the giving up of my appointment and the going away from Onderstepoort will still fall a little heavily on me.' He had decided to accept appointment as Professor of Animal Health et al in the Agricultural Faculty of the University of Stellenbosch

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222 The news broke early in October. 'To South Africans, it came like a bolt from the blue', he wrote, 'particularly to the Pretoria people who wanted to keep me for the Pretoria University College.' Reaction was sharp and significant. It was supposed that Theiler had finally failed to 'get on' with F. B. Smith and was being 'axed' like Burt-Davy (who had in fact resigned), the Free State Director of Agriculture, Palmer and others. It was said that other officials were far more expendable. The Agricultural Societies and Unions were urged to take action 'to save Sir Arnold for the country'. Butler, knowing more than most, thundered on about Sir Arnold sacrificing himself for the sake of retaining Montgomery.

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225 Influential citizens called on the Mayor of Pretoria, C. W. Giovanetti (later a member of Parliament) to convene a meeting to frame resolutions to induce Sir Arnold to remain in the Transvaal. F. T. Nicholson, still secretary of the Transvaal Agricultural Union, summoned his Executive Committee to empower him to take action. Other agricultural organisations including the closely-implicated Vryburg Farmers, framed hotly-phrased resolutions. The whole country buzzed.

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Sir Arnold, relieved and relaxed after coming to his decision and perhaps enjoying the brouhaha, was diverting himself at the 'retaliatory' party given on the 13th October by the Botany Division in Vredehuis below the Union Building. Emma and he in evening dress were saluted by a welcoming chorus sung by the staff. Pole Evans in scarlet socks to match his hair, followed precedent and delivered a short lecture on Plant Geography with slides and the evening deteriorated into gaiety. There were songs and dances culminating in a dramatic sketch 'Who is to win Him?' written by Sydney Stent satirising Pole Evans' continuing bachelor state in which Mary Holder (of the staff but later a well-known actress) played the lead. Theiler guffawed so loudly that the voices of players were inaudible. Supper prepared by the culinary and botanical expert (also a notable singer), Dr Ethel Doidge followed. Pole Evans made a sad speech, referring to the shock of Sir Arnold's resignation and hoping he would be retained in some capacity having relation to the Botany Division. Theiler replied non-committally, saying his plans for the future were still undecided. J. A. L. Findlay, a prominent Pretoria citizen, hoped Sir Arnold would join the legislature.

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Two days later, the Mayor presided in his Parlour at 'an extremely representative gathering of citizens whose unanimous feeling was that a post be created for Sir Arnold Theiler at the Transvaal University College; but in view of the fact that detailed proposals would shortly be submitted to the Government by the College authorities themselves, it was decided to word a resolution in general terms'. Unprecedentedly proposed by Sir John Wessels, judge of the Transvaal Supreme Court, chairman of the Council of the T.U.C. and a member of the Council of the University of the Cape of Good Hope; seconded by Johann Rissik, Administrator of the Transvaal; and supported by Eddie Rooth, lawyer and local member of Parliament, the resolution was forthwith sent to the Prime Minister, all members of the Government and to Sir Arnold himself. It read:

'That this meeting of representative citizens of Pretoria, appreciating as it does the invaluable

services rendered to the country by Sir Arnold Theiler and the honour it has been to the Capital to be associated with scientific work of worldwide reputation and significance, expresses the earnest hope that the connection of so many years will not be broken but that Sir Arnold Theiler will see fit to complete his life's work amongst the conditions and surroundings which gave it birth.'

228 Botha received other such representations. The Transvaal Agricultural Union asked for 'your influence in retaining in the Transvaal Province the services of Sir Arnold Theiler. His valuable life work has been accomplished in our midst, the Transvaal has become his home and his departure would mean the severance of associations which make for the general good and the progress of the farming community of the Transvaal whose confidence in and respect for Sir Arnold are of the highest character.' The Prime Minister, van Heerden as Minister of Agriculture, F. B. Smith, Members of Parliament and other public figures were approached from all sides. 229 They were saved the earnest plea of Theiler's Vryburg aficionados that he be induced to withdraw his resignation, failing which a public enquiry be held. Hearing of the resolution to be moved at their meeting on the 29th October, Theiler telegraphed Viljoen to attend and to tell them the truth - he was retiring so that the country should not lose the services of Montgomery. The farmers were not consoled. They asked him to attend their next meeting. He replied that as he did now know when Montgomery would arrive, he could not accept.

While the buzz persisted, Theiler (still covertly hoping for some change in the situation) addressed himself to the herculean task of making his multi-faceted Institute intelligible to Montgomery and preparing his Reports for publication. It was difficult to push the enormity of his decision into the background of his mind and the emotional aspect of his tough constitution began to supervene. Further to distress a nature now taut with tension and strain, Onderstepoort was put on show at an event which Theiler himself had devised in the best spirit of his calling.

The splendid Postmortem Hall, palatial in its equipment and dimension, was at last complete and ceremony was organised to celebrate its opening. Theiler made it a grand occasion, inviting members of the Pretoria branches of the British Medical Association and South African Biological Society, the Transvaal Veterinary Medical Association and a host of notabilities including A. Macdonald, director of the British East Africa Agricultural Department; Colonel J. Irvine Smith of Johannesburg; the directors of the Transvaal Museum and Pretoria Zoo, Drs Breyer and Haagner; military officers and scientists, some with their wives. His purpose was to parade his Institute's work, heedless of the pain which the thought of his imminent withdrawal would bring. In concert with Emma and his men, he had organised it down to the last detail.

230 By comparison with its predecessors and ever after, the Postmortem Hall was a remarkable structure greatly redounding to the credit of Cleland and the Public Works Department during time of war. High, airy and full of light, it easily accommodated Theiler's guests. He told them that in the 9 years of his Institute's operation, 9,649 postmortems had been performed on 5,339 horses, mules and donkeys, 1,048 cattle, 3,030 sheep and 231 pigs and ostriches, or about 3 a day. He used as his theme Pernicious Anaemia in Horses on which he and Kehoe had worked in 1915, publishing a definitive paper in his Fifth and Sixth Reports. A horse which had died that morning of the disease lay on the autopsy table and to the horror of some of the guests, two assistants dissected it while Theiler described the difficulties of investigation - a causative ultra-visible virus beyond the magnification of any microscope and passing through the finest porcelain filter set to trap it. Organ by organ, he demonstrated its effect on the horse while Gilles de Kock displayed its anatomy on two models in the hall. Elsewhere Kehoe was showing lantern slides of pathological anatomy to another party; Henry Green was conducting tours of the buildings where the secretarial staff led by King and Hinds took other parties; E. M. Robin-

son (who later described the affair as 'almost a State occasion') demonstrated microscopic work; and Theo Meyer showed the marvels of the Photographic Room. A display of Agricultural Department publications on veterinary research and practice was mounted in the foyer.

The outside parties were beaten inside by heavy rain and 'pigeon's egg hail', finding Theiler in the lecture room upstairs speaking on the pathology of South African stock diseases illustrated by colour microscopic slides. It was all very advanced and impressive, indicating an unparalleled regimen and discipline in scientific research – the creation of one man whose example as yet had hardly been followed in the world at large. Between downpours, Theiler took his distinguished guests to tea with Emma at 'The Residency', soon to cease to be their home.

231 Two weeks later, Botha sent for him. With Smuts in England and only F. B. Smith (also retiring) and van Heerden to consult, he had decided to deal with the troublesome luminary of his Agriculture Department. Theiler, crushed like Smith by the weight of the war and its enormous demands and difficulties which had eliminated all chance of recuperative leave, was now in a highly emotional state. Botha expressed grief at his decision and Theiler blurted out that he wanted to go home. With an almost Freudian lust for 'the motherland', he wanted to leave. He could hardly explain himself even to Alfred – 'the reasons for my decision are for the most part psychological and are not rooted in the least in current events. Since the outbreak of the War, I have had a great longing for the old home. I always felt I should be there. The more the time went, the more I felt I was a stranger here and that I could not fully and completely accustom myself to local conditions. In short, I felt at times forsaken and unhappy and, be it understood, not because I was in any way or form put upon. I felt that I was not among like people. I felt a certain want which was not filled by all the friendliness and forthcomingness of my friends and acquaintances. In short, I felt that as a true Swiss, I belonged to the Swiss.' In later times, a psychiatrist might have told him that he was rationalising feelings of rejection and insufficient appreciation, even disguising folie de grandeur, and that all he really needed was a long holiday.

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233 Botha, in his infinite patience with humanity, listened to it and made his own deductions. The Transvaal was deeply hurt that Theiler was leaving it to accept appointment at the Cape. The old animus between north and south remained active, stoked at this time by jealousy in university development. The Transvaal felt ignored and disparaged, left on its own to struggle toward academic development. Theiler would have been a powerful pawn in the game but here he was, childishly saying that he wanted to go home but in fact was going to the University of Stellenbosch to pay for the education of his children. Somewhere there was affronted pride. Botha offered him vaguely a new appointment; but Theiler repeated his ultimate desire to 'go home'. In a difficult situation where money seemed cardinal, Botha negotiated a new agreement with his obstreperous servant which would obviate the accusation that the Prime Minister 'had let Theiler go'. It was altogether in his servant's favour.

234 So far from leaving at the end of 1917, he would remain Director of Veterinary Research until the 31st March 1918 or such time as Montgomery were successfully installed as Director. He would then be employed on full salary for six months (at Cape Town to be near his children or wherever suited him) to prepare his Reports for printing and put his Institute's records in order, all being the property of the Government (no doubt cannily insisted by Smith). Six months leave on full pay would then be allowed whereafter he would be granted an honorarium of £3,000 which Lady Theiler would inherit if he died interveningly. Theiler calculated that these arrangements plus his pension of £800 per annum which would fall due on his 55th birthday (the £3,000 bonus to serve as a salary during the intervening years) would meet his financial needs and that the Stellenbosch appointment could lapse. The Cape and the Transvaal would gladly wait for him. He went home and telegraphed Veterinary Surgeon Jones in Vryburg to tell his farmer friends that he would not be leaving until the end of March. Smith occupied

235 himself with persuading the Secretary for Finance to authorise the expenditure involved in the Prime Minister's proposals. On the 7th December 1917, he confirmed them in a letter to Theiler. Botha presently left for the Parliamentary session in Cape Town.

236 Theiler justifiably was a tired 'old man' whose zest for work now lurked in his mind in the form of plans for a future in Switzerland. His plans were always all-embracing, regardless of the wishes of those concerned. He would realise a lifelong ambition and write a definitive work on Stock Diseases in South Africa (or 'Colonial Animal Health' as he sometimes called it) and then devote himself to parasitology, particularly Nematoda especially (in horses) in which Emma would be his assistant and the two girls perhaps help. He tried to make these and other dreams (especially of Oriental travel) dispel the horror of leaving Onderstepoort but as it ate into his consciousness, his composure declined. Trying though the past, the present was worse and his over-strained stamina and morale could hardly sustain it.

237 Montgomery and his wife arrived on the 16th January 1918. Neither fish, flesh nor fowl till Theiler ceased to be Director, Montgomery was whipped off within three days on the first of a series of inspection tours which took them through the Cape. Theiler called on the Prime Minister in his Parliamentary office in Cape Town. Botha was nettled by the strong pressure 'to retain Theiler's services for the country' and by the reproaches that he had not done his utmost to persuade him to stay. He understood Theiler's desire to go back to being a Swiss but neither could make it public. They came to an agreement by which 'if I should again think of returning to South Africa, my services would at first be at the disposal of the Government and that I should again be appointed to a position which in status and salary would not be less than the present. I have therefore not burnt all my boats.' Meanwhile wishful thinking flourished in the Press and various newspapers published announcements that Theiler's services were being retained. 238 Butler in his *Northern News* openly stated in a leader that rumours long current affirmed that 'Sir Arnold Theiler is going to take up his residence at Armoedsvlakte shortly to devote his whole time to investigating Lamziekte'. Defending his friend's failure to find an immediate solution, he made an unusual point - 'Scientists the world over have been trying for centuries to solve the cancer problem but so far without success.'

240 Although he admitted that he had 'a consuming need for a change and once the Reports are finished, I must have a change of air in every direction', Theiler made insufficient allowance for the toll on his mental and emotional resources. He confessed that 'it goes hardly with me to leave Onderstepoort'. The strain of inducting Montgomery was heavy. There were also his private affairs. Gertrud and Max, on vacation from Cape Town, joined Margaret in helping Emma plan the dismantling of their home. Some of their things would be sold, some stored against future disposal, some 'bartered'. The children - Margaret was going to the Cape Town University as a 'listener' - would look for suitable lodgings for their parents in 'the mother city' when they returned. Arnold was concerned with what he considered his private possessions such as the specimens of Nematoda collected on his Institute's premises. His local investments were also a problem. As stress mounted, he became irritable. Innocuous occasion detonated an explosion symptomatic of his state of mind.

241 At its annual general meeting at the end of January 1918, the Vryburg Farmers Association (now including Dutch-speaking cattlemen) elected a new president, P. H. de Kock, a lawyer who also farmed. In his presidential address, he hazarded the view that the Lamziekte problem was not being properly approached. If the disease were a toxic poison, he said, they did not want a veterinary surgeon (Viljoen) to find it but a chemist. They ought to have a first-class chemist and botanist and it would do no harm if some of the experts became cattle-herds which would assist them in finding the cause of the disease.

242 Theiler conceived the view as a direct insult to himself and his staff, particularly Henry Green

243 and Mogg, and lost all self-control. In a sarcastic ill-tempered letter in the worst taste (possibly drafted by King) running to 1,000 words which Butler reprinted in full, he vented his rage in a personal attack on de Kock. 'There is an ancient adage', he concluded, 'concerning the shoemaker and his last. We do not suggest that it applies to the lawyer and his brief. Doubtless Lamziekte will in time yield its secret to patient experimental enquiry but if the forensic insight of our critic can guide us in a short cut to the solution of a problem which has so far baffled every veterinary surgeon and stock-owner in South Africa, which has so far baffled the Government botanist and chemists, entomologists and parasitologists, and which baffled the consulting pathologist (Hedinger) recently brought from Europe especially to investigate Lamziekte, he will earn the gratitude of the country, of the harassed scientific workers, of the Vryburg Farmers Association and of your sincerely - A. THEILER.' De Kock replied temperately and with dignity. His colleagues, shocked by Theiler's letter, supported him and formally resolved that his remarks had not reflected on Sir Arnold's work. But there remained in Theiler's mind the fateful phrase - 'it would do no harm if some of the experts became cattle-herds'.

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Of the little time left, much was spent in travelling with Montgomery to inspect Allerton, Graham's Town and Armoedsvlakte (where Theiler did not make his presence known and, lamented Butler, deprived the farmers of taking leave of him). The burden of organising their departure fell on Emma while Arnold made fanciful plans of taking her on a voyage to the East when he had completed his Reports, and occupying her in Switzerland in his work on Nematoda which he longed to attack.

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The emotional atmosphere being generated at Onderstepoort as the final day approached was reflected elsewhere, even in Parliament where, steadfastly hewing to his task of curbing Government expenditure, J. W. Jagger took exception in Committee of Supply to the amounts of £1,500 for 6 months' employment of Sir Arnold Theiler and £3,000 for a bonus. Botha let the debate run on. Sir Abe Bailey wanted to know who would replace Theiler. Van Heerden replied, supporting the bonus and emphasising what he had done for the country, particularly in his new remedy for wireworm in sheep. Jagger was not appeased. He formally moved the deletion of the £3,000 bonus from the Estimates - it was Theiler's business to discover cures and he was paid for that purpose. Botha was at once on his feet - 'I hope', he said, 'that nobody seconds the amendment' and launched into an historical panegyric - from Transvaal Republican days to the present - on Theiler's services, straightforwardness, sacrifice of lucrative overseas offers of employment, and success with many diseases. Members took fright. Sir Thomas Smartt wanted to know why Theiler was going. The Pretoria North and South members (L. Joubert and D. W. Drew) joined by Germiston's van der Walt, lauded him extravagantly. A heated atmosphere developed. Abashed by the Prime Minister's and other fervour, Jagger grudgingly stated that while he held that an extremely bad precedent was being set up, he would in all the circumstances withdraw his amendment. The House rejoiced. The debate was given wide prominence in all major newspapers in both languages with headlines:

FIGHTING THE PLAGUES OF SOUTH AFRICA  
THE SERVICES OF SIR ARNOLD THEILER  
THE ENCOURAGEMENT OF SCIENCE  
SIR ARNOLD THEILER EULOGISED  
SERVICES OF SIR A. THEILER  
JAGGER WITHDRAWS AN AMENDMENT  
etc. etc.

all very satisfying to Theiler's wounded pride but perilously stimulating to his emotions.

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He returned to Pretoria after his last exhausting tour with Montgomery and King – Port Elizabeth, Graham's Town, Bloemfontein, Vryburg – on the 8th April 1918, less than a week before Emma and he would take the train to Cape Town. The susurrations which for months had been heard among his friends now became articulate in a series of moving ceremonies. The South African Biological Society had decided to pay him its highest tribute at an occasion staged on the lawns of the Botany Division on the 11th April attended by Mrs J. C. Smuts, Mr and Mrs Montgomery, numerous departmental officials and Pretoria pioneers. The president, A. J. T. Jansen was, with Theiler, one of the founder members of the parent Transvaal Society in 1908. He explained how the award of their medal had evolved from the widow of Robert Scott asking that their contribution to the Memorial Fund be retained in South Africa to commemorate him in some form. Janse called on Pole Evans as chairman of the Scott Memorial Committee to make the first award to Sir Arnold Theiler which he did very formally with particular reference to Botany and Biology. No one, he said, 'could more fittingly be the first recipient of the Scott Medal which I now present to you in recognition of your valuable services to Veterinary Science and to our Society'.

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Forewarned, Theiler was nonetheless deeply moved. 'The Scott Memorial Medal for Science was founded in England', he exclaimed, 'and awarded to me! I am not an Englishman, nor a South African. I am a foreigner; but Science knows no boundaries, no countries, nothing but Science alone . . . Reading Livingstone's Travels made me long to live in this wonderful country and the dreams of my youth have been fulfilled and I have had complete satisfaction where my science has been concerned.' He thanked everybody with whom he had worked and in a sentimental gesture he presented to the Union Herbarium the collection of Swiss plants that he had made as a schoolboy in the neighbourhood of Frick, Aarau, Berne and the Bernese Oberland and Foralps. Mrs Smuts, herself a child of nature but wise with inside knowledge of the situation, thanked him with engaging simplicity, firstly for the Herbarium and then for his services. 'Now I am speaking for the farming community, myself being a farmer's daughter and a farmer's wife. I don't think we have always appreciated all Dr Theiler has done as we farmers usually think we know everything better than anyone else. I think Sir Arnold has often felt himself that we have not been very grateful. But we do appreciate what he has done and we do know what he has done for South Africa, how many cures he has found for diseases in cattle and how he has saved the Government the loss of thousands of pounds. And we hope that when he severs his connection with the Government in this, he will still go on with his research and help the Government in that way. And I feel sure that after living so long in Pretoria, he will never be happy anywhere else, not even at the Cape, and will spend the rest of his life among us.' Instinctively she had put her finger on the dichotomy that had racked the man all his life.

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He touched on it a day or two later when the Transvaal University College, a Dutch-speaking institution, assembled its staff and students to hear him lecture on his career. He ranged over his association with Kruger and Leyds and his participation in the Boer War. His audience would not lightly forget, it was reported, how he said quite simply – 'Ik deed mijn plicht jegens mijn aangenomen vaderland' (I did my duty toward my adopted fatherland). He did not continue the theme of doing his duty under its British rulers. In truth, Science was his God; but, like everyone who had set foot on the sub-continent, his heart remained in Africa.

Saturday the 13th April was the Theiler's last day at Onderstepoort and Pretoria. It demanded all their fortitude. The whole staff assembled in the Postmortem Hall and the senior research officer, James Walker stepped forward to speak on behalf of the scientific members. He was succinct but moving, hoping that the Institute would always be a worthy monument to its founder who had trained them all – they would maintain 'the Theilerian tradition'. Then he presented a view of the main building from a photograph taken by Theo Meyer, etched on gold



252 by a local artist Decker for Mappin & Webb and mounted on mahogany. Theiler took it wordlessly. Then Gilles de Kock advanced to represent the Dutch-speaking research workers, couching his praise in the taal in warmer, more appreciative terms in respect of the young Afrikaner veterinary surgeons and students who had benefitted and of the country and its people whose development had been promoted. Our folk are stubborn and stiff-necked, he said, but in the distant districts, the farmers talk of 'daardie ou kêrel Taylor' (that old chap Taylor) who had converted them with his work, his personality and his drive. To Lady Theiler too, the supporting pillar of the family circle, he offered praise and gratitude. The lay staff were not to be gainsaid and White spoke for them, twitting Theiler for driving his men to the limit. Sir Arnold, he said, had always succeeded in reconciling his interest in the personal welfare of his staff with his exacting demands as Chief, the staff silently conceding that he held place of honour as past master of a difficult art.

253 Theiler replied in the terms expected of him – his men had helped him develop a great Institute from small beginnings. They must support Montgomery. He and Lady Theiler were leaving Pretoria but wherever they went in the world, they would welcome the Onderstepoort men in friendship. He hoped only that they would be as loyal to his successor as they had been to him. He handed the master keys of the Institute to Montgomery and wept. The staff stood glumly and one by one, shook hands in farewell with Arnold and Emma as they circled the hall. As his last gesture, Theiler wrote in the Visitors Book in an unusually large hand:

*On the day of my departure from Onderste Poort, I take the opportunity to place on record the loyalty and support shown me by my staffs during my tenure of office of Vet. Research.*

*God bless South Africa!*

*Onderstepoort 13 April 1918*

A. THEILER

254 That night a great crowd of their friends and official associates assembled on the station platform to bid final farewell to Sir Arnold and Lady Theiler as they left for Cape Town. No one had thought to signalise his departure from Onderstepoort by re-naming it 'The Theiler Institute'.

## 'VENI, VIDI, VICI!' 1918-1920

1 'IT WENT', he said, 'more hardly with me to leave the Laboratory than I ever imagined but it happened and we have left Onderstepoort forever.' The amputation was radical, the veins still bleeding. Even alone, severed from his beloved Institute, stripped of his august title and authority, aloof in Cape Town, Theiler remained a commanding personality locally and abroad. His men would never forget him nor could he cancel the living connection with the staff he had trained. He wrote Viljoen (employing his last days at Armoedsvlakte preparing his paper on the relation of sarcosporidia with Lamziekte) and Viljoen replied emotionally, thanking his 'old chief' for commending him for appointment as Professor of Veterinary Science at the Transvaal University College. Nor did he lose liaison with his local scientific colleagues such as Pole Evans and A. J. Orenstein, now Deputy-Director of Medical Services and promoted to Lieutenant-Colonel. He kept in communication with his colleagues throughout the world, particularly Australia where lively interest in his Lamziekte work had arisen in Tasmania, stricken by a similar 'Midlands Disease'. Theiler had associated it with drought which was now corroborated there. The 'frightful drought' which he had feared for South Africa was taking terrible toll, begging thousands of black and white stockmen beyond hope of recovery. When it ended in 5 1919, 5½ million animals, large and small (excluding the Transkei) had died. Worse, the progeny of the living had failed to survive. The meat industry that was to save South Africa came near to annihilation.

Upon arrival, Theiler had taken two weeks leave to accommodate himself to the felicitous conditions which his children, his Department and the Cape had contrived. The 'Old Colony' and its capital differed in every way from the Transvaal and Arnold and Emma delighted in all of it, even their lodgings in Wilton House in Union Street which was close to the University buildings in The Gardens and its hostels where Margaret, Gertrud and Max boarded. Behind them rose the majestic bulk of Table Mountain; before them, the shambling sun-bleached town; and beyond, the shimmering sea of Table Bay. It amazed them that there were two Art Galleries (the Michaelis Collection in the Old Town House and the National Gallery in The Gardens) and a City Orchestra giving concerts twice a week which they enthusiastically attended. There were historical buildings and the excellent South African Museum close at hand. Everything was older, more settled and mature despite the seething activity of the harbour town in wartime with thousands of sailors and soldiers thronging the streets when troopships docked.

6 There were many compatriots in industrial and commercial pursuits notably the Bothner family of Lausanne, purveyors of musical instruments who became close friends. To the intelligentsia of the University were added leading exponents of Arnold's first love - Rudolph Marloth, the chemist turned botanist and Harry Bolus, the businessman-botanist whose daughter-in-law Louisa Bolus had already attained high stature in the botanical field. Arnold had no defence against the distractions they encouraged him to seek and, inevitably, Emma began an Herbarium. He rejoiced when in July, Pole Evans finally succeeded in persuading Botha to appoint an Advisory Committee for a National Botanical Survey. It was composed of Louisa Bolus, Rudolph Marloth and Selmar Schonland for the Cape; J. W. Bews for Natal; and G. Potts for the Free State. The Director of Veterinary Research was appointed to serve on it.

8 Always, even in English, an able hand at expressing himself, Arnold grew lyrical in Spring when the Cape flora revealed itself in all its wonder and diversity - 'This country is a floral magnificence that smiles one's heart into bondage and makes one feel in Paradise', he wrote

in German, 'especially now in Spring when all the wild plants unfold and everywhere there are lilies and irises and amaryllis and orchids in unbounded number and beauty, and with them Compositae, the ericas, the proteas, all growing together in bright profusion.' At weekends, the whole family went 'botanising' even in winter and Arnold forgot his official duties, transacted daily in the office provided for him by his Department in Cape Town. The Fifth and Sixth Reports on which he had long been working, were soon on their way to the Government Printer; but the Seventh and Eighth, including the long and complicated epic of Horse Sickness, entailed much more work. He realised that his estimated six months to reach the Tenth would be totally inadequate and he would have to use some of his leave.

9 Life became idyllic. During the mid-year University vacation, Arnold took the whole family on the long train journey to Rhodesia, visiting Bulawayo, the Matoppos and the Khami Ruins, the Victoria Falls (which deeply impressed him), Fort Victoria and the Zimbabwe Ruins. When they returned, the Spring was beginning. All three children were doing well at the University and the news of Hans, intermittently hampered by attacks of fever, was good. Sooner or later, the War must end, possibly sooner. No one had paid much attention to a newspaper paragraph published inconspicuously late in May - 'Mysterious Epidemic in Spain - 30% of the Population Stricken' or to the subsequent spread of the disease through Europe.

10 Theiler knew that Montgomery was in difficulty. The number of his trained men was dwindling steadily and Onderstepoort already limped. The senior research officer, James Walker, had gone to the Kabete Veterinary Station outside Nairobi as Veterinary Pathologist. Mitchell was brought from Allerton to replace him (though covertly hoping for Colonial appointment in the newly-conquered Tanganyika) and Andrews, recently returned from long sick leave, went to Pietermaritzburg in his place. Viljoen would soon leave Armoedsvlakte to join the staff of the Transvaal University College, creating a serious situation - there was no one to replace him to continue the Lamziekte research. Young Daniel Kehoe who had some experience in it, was on the point of leaving for Ireland to become Professor of Pathology at his alma mater, the Royal Dublin Veterinary College. (On the 30th September 1918, he wrote in the Onderstepoort Visitors Book - 'One who, leaving South Africa, will ever look back with affectionate memories upon his association with the country, his colleagues and his friends there.' He kept in correspondence with 'his old chief'.) Gilles de Kock who might have served, had declared his intention of leaving to study Medicine overseas. Veglia was still on active service in Italy and, so far from the War being virtually over, the mailship *Galway Castle*, packed with notabilities including a Union Cabinet Minister, was torpedoed and sunk on its way to the Cape with the loss of mail and much else. Theiler went on with his Reports while Montgomery travelled ceaselessly between his experimental stations, realising that the Lamziekte situation, still devoid of its promised laboratory, was drifting beyond his control. He conceived a radical solution and in September 1918, arrived in Cape Town to see his Minister.

12 Theiler had seldom been happier. He was doing the 'literary' work that he had longed for years to complete. Cape Town and its people were exceptionally congenial. The country was ablaze with wild flowers, the oaks in The Garden came into leaf and the whole family rejoiced in its work, its sport and its 'botanising'. Through his friends and children, Theiler also walked in the groves of academe and beyond. He attended with mystification and admiration the annual Inter-Varsity Rugby Football Match between Cape Town and Stellenbosch, marvelling that so much verve, bonhomie and noise could be created without the stimulus of beer as in his own student days. The Cape Town students' Engineering and Scientific Society invited him to address them with heady result. 'I had a tremendous reception', he wrote Alfred, 'and a grateful audience such as one seldom finds. I feel myself still young when I come among youthful people and I very much like to lecture receptive young people.' Even more amiable, he was wanted outside his

familiar circle. British East Africa asked him to interrupt his proposed journey to India and the Far East by a professional paid visit to reorganise its Veterinary Research services, now in Walker's charge as Montgomery's successor. Australia continued clamant. Queensland wanted him for a few months to advise on Animal Diseases and Tasmania assured him of its Government's assistance in continuing his researches there. He could accept no proposals until he had discharged his duties to his own Government which would take at least a year. In the middle of September, his Minister sent for him. Absorbed in Smuts' despatches from London and impending high affairs of State, Botha had left a matter of moment to his minion.

14 Theiler found van Heerden in his office with Montgomery who had persuaded the Minister to arrange the interview and primed him with inducements. He asked Theiler to re-enter active Government service on an entirely new basis – he should devote himself solely and exclusively to the solution of the Lamziekte problem as a special expert with all facilities provided. As he would certainly succeed, great credit would redound to him. Theiler, always mourning a job half-done as in the case of Horse Sickness and his unfinished Reports, did not decline. Typically he made conditions. They were exigent. He must have an entirely free hand and be answerable to no one. He must have trained and lay staff, a laboratory fully equipped to deal with the disease, unlimited funds for the purchase of stores, fodder, experimental animals, etc and complete freedom from administrative responsibilities. Van Heerden agreed to everything. Theiler estimated that the defeat of the disease would take about two years all of which he would have to spend in isolation on the arid 'farm' of Armoedsvlakte. Until the laboratory was completed (Montgomery, returning north, forthwith told the Vryburg Farmers that it would be 'in a few months time'), no date of departure could be fixed.

15 Rationalising as usual, Theiler explained it all to Emma and the family. His proposal to travel in the East was not really feasible. With the War still on, he would be 'a suspicious foreign neutral' with unpleasant implications. He might even be taken as a spy. Secondly, his famous zest for work had been rekindled and he was ready and anxious for scientific research. Thirdly, two or three years at top-notch salary would be adequate to seeing his children through college and to assisting Klärli, Marie's daughter, whose luckless father continued an inadequate provider. Fourthly, the challenge of an implacable enemy was irresistible and all the charms and comforts of the Cape could not dissuade him. As Emma and the children considered Arnold's sudden readiness to exchange Elysium for two years as a hermit in the horrid wastes of Armoedsvlakte, the Spanish Flu with paralysing speed took the whole of South Africa in murderous grip.

16 Decent well-to-do people died in the streets. The poor perished in hovels and holes, their stinking corpses declaring themselves when no one remained to deal with them. Young robust individuals of all races were particularly susceptible and died in large number. Whole families in the platteland were found dead, their untended cattle mad with thirst and hunger. In the towns, the hospitals were immediately full. The Health Department called on anyone to serve as nurses. Max Theiler as a medical student was enrolled for service in the notorious District Six jammed with Cape Coloured and emerged unscathed. Arnold and Emma escaped but Gertrud was severely stricken and Margaret lightly. People were forbidden to congregate. All places of entertainment were closed. The postal service ceased. Transport in all forms became irregular. The supply of coffins was quickly exhausted. Corpses were hurriedly buried as soon as they were found. The baboons came down from the Magaliesberg in the Transvaal and the mountains of the Cape to die in hundreds in common with dogs, cats, pigs and other small stock. A huge mortality was general throughout South Africa and no one knew how many natives had died.

18 At Onderstepoort, the whole black staff and 75% of the white were afflicted. Montgomery, travelling about Bechuanaland with Viljoen and intending to attend an Agricultural Congress

19 in Cape Town, got back to Pretoria and took to his bed. Viljoen reached Armoedsvlakte and was totally incapacitated with the severe low-temperature variety of the epidemic. Alone on the station and herself unaffected, Mrs Viljoen nursed him. There was no known antidote except whisky. The native staff lay in rows in the makeshift laboratory building in the charge of a foreman who drank the whisky issued to save them and became completely incompetent. On the farm tracks outside, the bodies of black victims lay putrefying and the Divisional Council sent  
20 carts to collect them. In Vryburg, the organisation of the community virtually ceased. The Mayor, Crosbie, lost his second son and then his wife. The Deputy-Mayor Max Sonnenberg (later a member of Parliament) took his place and with his wife, rendered heroic service. A handful of others helped. Butler took charge of Native and Coloured welfare in the locations and managed to keep his paper going, sometimes with large blank areas through the machine operators succumbing. For weeks, only odd members of his staff could help him. The cattlemen and their wives on distant ranches died with the rest. Hundreds of notabilities – Mrs Mentz, wife of the Minister of Lands; Long Piet Marais whose family had founded Les Marais; and untold others – disappeared from the South African scene when nothing but rejoicing at the forthcoming Peace should have characterised it. Theiler took his family to Smith's Farm at Cape Point, a wind-swept wilderness of botanical richness at the southernmost tip of the Peninsula, to recuperate from the epidemic. Gertrud's attack had been all but fatal.

21  
22 The temper of the survivors became exasperated. A deputation of Pretoria citizens visited Sir Thomas Watts, Minister of the Interior and Health, and accused the Government of apathy and inefficiency. Shutting the door after the steed had fled, Sir Thomas cast about for men to  
23 form a Commission of Investigation. He had the utmost difficulty in finding them owing to the dislocation of the War (25% of the Union's medical men were actively involved), the effects of the Flu, the preoccupations of men of standing, and the fact that 'there was no money in it'. The country grew increasingly restive while overtures were made.

Theiler had remained at work in his office in Cape Town. On the 30th October when the town had almost returned to normal, he and Emma went down to the Docks to bid farewell to Kehoe as he sailed hopefully home (via Sierra Leone, Lisbon, Madrid, the Pyrenees, Paris and Le Havre). A. E. Mettam, the principal of the Royal Dublin Veterinary College, had died and Kehoe, only 30 but glorified by the lustre of Onderstepoort, expected to be in the running to  
24 succeed him. Typically Theiler loaded him with duties – to continue his South African work in Dublin, to see Hans in London, convey greetings to M'Fadyean, Stockman and others, buy books and send them out, and numerous other requests. The isolation which the War had imposed on South Africa had been hard to bear. On the 11th November, the whole family joined  
25 the crowds in Adderley Street celebrating the Armistice. (Kehoe's ship reached Sierra Leone on that day and, hearing the news, sailed on without the awaiting convoy.)

The news of Theiler's assignment to Armoedsvlakte leaked out in the *Johannesburg Star* and  
26 the exhausted Butler published it joyously in his *Northern News*. Conditions on the ghastly farm had somewhat improved and the Viljoens no longer depended on assistance from Vryburg. No one knew when Sir Arnold would come. His own plans had been knocked away. Sir Thomas  
27 Watts had made the obvious choice of 'the distinguished bacteriologist than whom there was no greater authority in the country' and invited him to join the 'Influenza Commission'. It became his first duty but when Montgomery came down to the Cape on the 21st November to  
28 finalise the details of the Lamziekte assignment, it proved possible conveniently to dovetail the two.

Theiler's demands for the operation of Armoedsvlakte were of an expansiveness accorded only to a privileged man authorised to cope with a national emergency. His white staff would number twelve – himself, two research officers, one scientific assistant, one clerical officer, two laboratory

assistants, one stockyard assistant and four yard-foremen and animal-attendants. All required housing as the station would become a permanent Research Laboratory. In Montgomery's situation of steadily dwindling staff with no hope of replacement, this planning was laughable; but Theiler assured him that he would get assistants from Switzerland where alone they were available, both for his own purposes and to restaff Onderstepoort. Theiler forthwith wrote to Professor Zschokke's qualified son Walter at Zurich, offering immediate appointment and enquiring about other candidates while Montgomery went back to Pretoria to write his monstrous requisitioning minute to Smith (shortly due to retire and harassed by his crippled Department), demanding the immediate building of housing at Armoedsvlakte. Smith endorsed it with a query about the necessary financial authority and £25,000 was duly placed on the Estimates 'for special investigation into Lamziekte'.

There ensued for Theiler a period of frenetic activity fulfilling his recaptured 'zest for work' and surpassing the worst exigencies of the Rinderpest epidemic. Gazetted on the 6th December 1918, the 'Influenza Epidemic Commission' appointed on the 3rd, had met beforehand and thrown him into strange company. Its chairman was Paul Cluver, ex-mayor of Stellenbosch and, renowned for community consciousness, chairman of the Cape Municipal Association. In an effort to cover town and country, Sir Thomas had included Senator E. R. Grobler, Commandant J. L. Hamman M.L.A., Mr M. G. Nicholson and J. H. Nicholson. Because of his scientific interest in bringing out Surgeon-General Gorgas, Samuel Evans of the Corner House was added together with Alpheus Williams of diamond mining fame who had fought the disease in Kimberley. The sole medical men were Dr Hugh Smith and Colonel A. J. Orenstein, now Director of Medical Services of the Union Defence Force in Pretoria. (An esteemed figure at Onderstepoort where he had made many friendships, he had stood up as bestman to Henry Green when he had married an English teacher. The Greens were widely cultured and Orenstein enjoyed their books and conversation.) The members of the Commission moved like a whirlwind. No Government Commission was ever known to have worked so hard and so fast.

Theiler arrived in Pretoria on Thursday the 5th December and sentimentally put up at the Grand Hotel. The Commission began its work on the same day and from the 6th to the 11th interviewed dorp doctors (including the pioneering Dr Jane Ruthven of Middelburg), Drs Frederick Lister and Wilfred Watkins-Pitchford of the Medical Research Institute, the Administrator of the Transvaal A. G. Robertson, and many others. On its first free day - Sunday the 8th December - Theiler took some of the members to Onderstepoort. He described the visit as 'a happy reunion with my old friends and assistants. The place looks the same as before but the people have suffered severely from Flu'. By then the death-roll in the Union had reached 150,000 and cases still occurred but not 'explosively' as at the outset. The sophisticated methods by which Onderstepoort combatted disease were an object lesson to a Commission virtually instructed to ascertain why the Public Health Department had failed to halt the Flu. Theiler wrote his name in an unduly large hand in the Visitors Book as coming from Cape Town, followed by Cluver of Stellenbosch, J. H. Nicholson of Durban and H. Smith of Cape Town.

Three days were spent in Johannesburg and, by overnight train, the Commission reached Durban on the 16th for two days' interrogation followed by a further two days at Pietermaritzburg where Theiler confronted his old rival, Dr Alexander Edington, now giving evidence as director of Grey's Hospital. On the 21st, they adjourned for the festive season and Theiler briefly returned to Cape Town to take leave of Max who was to sail for England on the 31st December to continue his medical studies at St Thomas' Hospital in London. During the short Christmas relaxation with his family (Gertrud had obtained her B.A. and now wished to qualify as a teacher), Theiler was shocked to hear of the sudden death on Christmas Eve in Graham's Town of W. Robertson, recently at Onderstepoort for consultation with Montgomery. Another of the



*'The Old Man'* outside his headquarters – a rare snapshot of Theiler on his way to his house for lunch.

*At Home* – Sir Arnold and Lady Theiler with a guest in the garden of their house at Onderstepoort.





*Routine work at Armoedsvlakte – cattle approaching a prophylactic dip to guard against insect pests.*

*Taking the plunge at Armoedsvlakte.*





old vanguard had gone and, with no replacement possible, Montgomery would be hard put to maintain the Eastern Province Research Station.

39 Time was now of the essence for all purposes. Leaving Emma to see Max safely on his ship, Theiler and his two daughter took train to Vryburg where Montgomery was waiting (with Butler hovering in the background). On the 30th and 31st December, long discussions were held at Armoedsvlakte between Theiler, Montgomery and the departing Viljoen whose patient experiments in feeding carcase material to animals had resulted in reproducing Lamziekte artificially. In his customary manner, Theiler had made detailed plans for the grand assault. It fell to the over-burdened Montgomery to ensure their implementation by the provision of housing, local labour, laboratory equipment and everything else he might need. They graciously gave an interview to the ubiquitous Butler, emphasising that it was useless for the cattlemen and the Press to clamour for constant progress reports. They departed for Pretoria for consultation with F. B. 40 Smith (who had lost 28 of his staff from the Flu) and then Onderstepoort where Theiler left his 41 daughters to spend their University vacation with friends. Then he caught a train to East London to resume his place on the Influenza Commission sitting on the 7th and 8th January 1919.

By hectic car and train travelling, the Commission then spent two days each at Bloemfontein and Kimberley, arriving in Cape Town for its final sittings from the 17th to the 30th January. Montgomery came down from Pretoria to join a number of expert witnesses on bacteriology and research. By the 28th, the members were considering the terms of their report and by the 8th 42 February, it was written and signed. Theiler, true to his Swiss heritage of the liberty of the individual, was joined by Dr Hugh Smith and Nicolson in dissenting from the Commission's proposal that the Government be empowered to commandeer private persons in an emergency. They said it was unnecessary, the public had already shown the utmost willingness to coöperate, commandeering was destructive of good spirit, compulsory labour was inefficient and it were better to devise efficient methods of operation than to tinker with the liberties of private persons. The past master of extracting maximum work from willing victims gladly set his hand to the minority statement. In its indictment of the negligence and inefficiency of the Union Department of Health, the Commission's Report shocked the general public and compelled its legislators and administrators to take urgent action. Theiler, still busy with his own Reports, was now free to plan his entry into his small kingdom at Armoedsvlakte.

\* \* \*

Peace brought a great movement among the people of South Africa. Botha had left immediately for London to join Smuts at the forthcoming Peace Conference. Those on active service and seconded to war activity returned in due course to their regular occupations and tried to rebuild the country's economy. Smith, who had been vilified and abused for the inefficiency of his Department regardless of his superhuman difficulties, at last had hope of restoring it before his departure on retirement. Lack of staff would bedevil the Government for many months to come. South Africa had lost the elite of its youth and the men who came back, many severely mutilated or malaria-stricken, were poor material with which to embark on reconstruction. The pressing need for education and training became acute. Little was to be had locally.

43 In the general adjustment to a new and crippled world, Theiler put his domestic affairs in order. Kehoe had written him at great length and reassured him that Hans was getting on well at College, was liked by his professors and had called on Sir Stewart Stockman and Sir David Bruce. Kehoe had also delivered messages to Sir John M'Fadyean, Stockman and others, all of whom hoped soon to see Theiler, and conveyed a good deal of professional news. Max had not 44 yet arrived but Hans was looking forward to meeting him. The Theiler daughters had disposed

45 themselves. Margaret would temporarily teach 'gymnastics' in Pretoria pending passage to England in August and Gertrud would start the two-year course at the Cape to gain an M.Sc. in Zoology and to qualify as a teacher. Emma, docile collaborator in all he did, would come to Vryburg which the Viljoens would leave on the 1st February. The problem now was staff.

46 Montgomery's situation was pitiable. In 8 months, he had lost Walker, Kehoe, Viljoen,  
47 Robertson and now Gilles de Kock. His research staff consisted only of Mitchell, Andrews (at  
48 Pietermaritzburg), Robinson, Green, Bedford and Mogg, the last three effective only in special-  
ised fields. He was short of an Assistant Director and seven research officers. The Graham's  
Town Laboratory (where the yard-foreman J. A. Dickason had died of the Flu) would have to  
be closed, Armoedsvlakte also – were it not for Sir Arnold whose 'public-spiritedness', according  
to Smith, ensured its retention as a research centre. With his erstwhile empire tottering before  
him, Arnold did more. On Smith's authority, he wrote Zschokke in Zurich offering appointment  
to four or five young Swiss veterinarians and to Alfred in Lucerne asking him to ascertain from  
Professor Knuth in Berlin what had happened to the brilliant young P. J. du Toit and whether  
he was returning to South Africa – 'he is one of the people whom I have nominated as in prospect  
for my work in Vryburg', he wrote, 'but we know nothing of him.'

49 Sir Thomas Smartt did know something. In a vitriolic speech in the House on the Vote for  
Agricultural Education, he revealed (without mentioning his name) that since achieving his  
doctorate in Veterinary Medical Science in Berlin in 1916 (with a thesis on leucaemia in cattle),  
du Toit had received an allowance of £20 a quarter from the Union Government to continue his  
studies and do veterinary research. He had accepted official German appointment, relieving a  
German for active service while being paid by South Africa and had worked for the enemy.  
The information came from the Netherlands Consul. It was, said Sir Thomas, 'a scandalous  
state of affairs' and remained mysterious. This petard notwithstanding, Theiler trudged along  
his newly-appointed paths with unwavering determination and surprising vigour in a man past  
retiring age with an exacting career behind him.

50 The Theilers arrived in Vryburg on the 24th February 1919 and drove to Armoedsvlakte.  
Emma had never seen the featureless place nor imagined how she would live in a small brick  
house, forebodingly protected by mosquito-netting, distant 7 miles from the dorp, through ex-  
tremes of heat and cold. There was no electric light, only paraffin lamps but hot water was  
available. Surface soil barely covered the dolomitic rock but Mrs Viljoen had pioneered a  
'garden', even growing sweetpeas. Arnold would have unusual difficulties with his single hand  
51 but Emma resolutely refused to shave him, thus ensuring that at least once a week, she would  
be taken to the dorp by Laboratory horse-and-trap when he visited his barber. He went the next  
day (25th) to attend the monthly meeting of the Vryburg Farmers Association when a new presi-  
dent, Fincham, took the chair.

52 Reverently welcomed and elected an honorary member, Theiler then made a speech typical  
of the ambivalence which his emotions imposed. Parliament had heard a few days before that  
53 'in the Western Transvaal, Bechuanaland and other parts, cattle farming in a thing of the past  
as a result of Lamziekte'. Fincham hoped he would be with them for a long time. Theiler said  
he hoped not (laughter). He had always been greatly struck by the district which he considered  
the best in the world for cattle. For years he had wanted to study Lamziekte personally but had  
not been able to do so. Thanks to Mr Montgomery who six months previously had approached  
him, his scientific curiosity could not resist trying to solve this mysterious riddle which had so  
far baffled everybody. He looked upon it as a duty which he had to perform for South Africa.  
Both English and Dutch had been extremely kind to him during his many years in the country  
and he was proud to call himself a South African. In the old Transvaal Republican days and later  
under Crown Colony and still later under Union, he had been treated very well and he recognised

it was a duty he owed South Africa that he should not give up this investigation until he had either discovered the cause of Lamziekte or was fully convinced that the problem was insoluble. He then repeated his speech in Dutch and was enthusiastically applauded. The cattlemen still trusted him.

With Emma settled into the rudimentary P.W.D. house, Arnold set out to survey his dismal domain and to muse on all that was known of Lamziekte. He remained on the land until night fell, never returning to the house in daylight. The flat dispiriting area tuftily covered in coarse grass and contorted bushes had been fenced and re-fenced into experimental plots in the hope of identifying the particular pasturage and its plants responsible for the disease. Theiler wandered with the grazing animals – an expert became a cattle herd. A vast mass of knowledge occupied his mind – disparate and diffuse in the recorded views of the early travellers and cattlemen, precise and exhaustive in the detailed observations of Hutcheon and the tedious negative experiments of Walker, Mitchell, Andrews and Viljoen. ‘Each experiment is a question and every answer is some contribution to the problem’, he had said; but all the answers had added up to nothing.

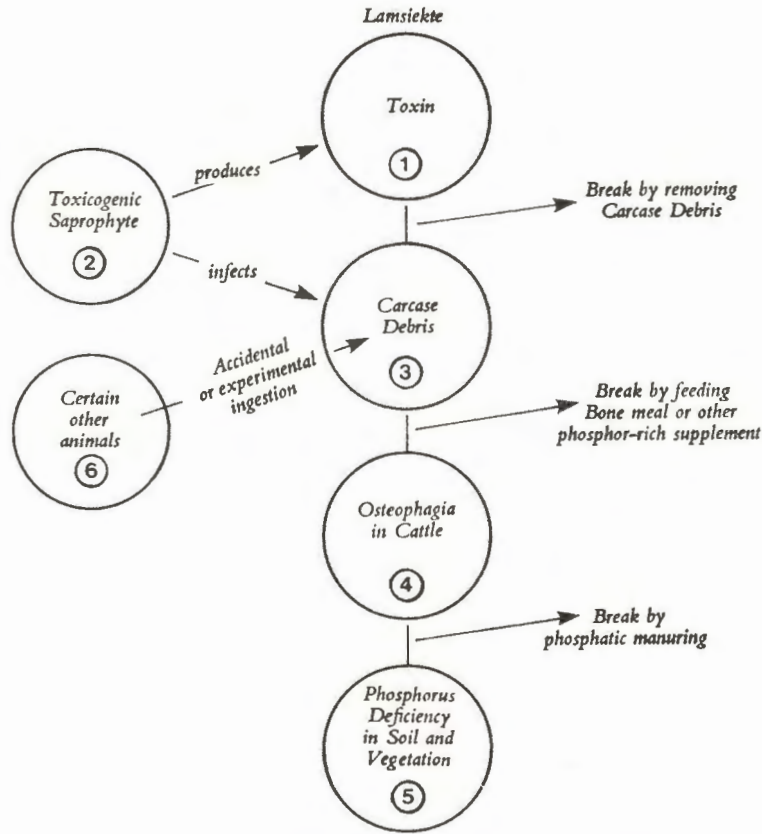
54 In his four years at Armoedsvlakte, Viljoen had done admirable work (embodied in his ‘Investigations into Lamziekte in Cattle’ published that year in Theiler’s 5th and 6th Reports). He had sought the cause in plant toxins, mineral deficiencies, physiological peculiarities (active oxen seemed less prone than those not working), soil poison, Hedinger’s sarcosporidiosis and a dozen different hypotheses all painstakingly tested and negatively recorded. ‘The writer cannot agree with other observers that signs of Pica, craving for bones, etc can be included in the premonitory symptoms of Lamziekte’, he reported, ‘On Armoedsvlakte, an excessive craving for bones has not been noticed and in fact, in one small paddock where carcasses were strewn broadcast, we had great difficulty in getting the animals to chew the bones.’

55 Strolling among the cattle, keenly observing every movement and idiosyncrasy, Theiler noticed exactly the opposite. ‘I was so forcibly struck’, he said, ‘by the abnormal craving of which farmers had spoken to me but which I had never seen in such an extraordinary manner that I could not help but attach importance to it.’ Within less than a week of his arrival, he mounted experiments to record and observe it. Cows ravenous for rotten bones were fed carcase material. Others were 56 drenched with crushed carrion. Lamziekte declared itself within 4 to 10 days. ‘Veni, Vidi, Vici!’ carolled Theiler and telegraphed for Montgomery. In one stroke, like Sir David Bruce’s ‘flash of lightning’, all the elements of the Lamziekte syndrome had fallen into place.

57 Barely returned from closing the Graham’s Town Laboratory, Montgomery took the first train to Vryburg, arriving on the 14th March. Theiler met him with an analysis of the syndrome which indicated the means by which the whole problem could be solved. He had reduced it to the simplest logical sequence, demonstrable as a diagram, which any stock-owner could understand:

1. Soil and vegetation deficient in phosphorus (remediable with phosphatic manuring) produced Pica or Osteophagia in cattle compelling them to find phosphorus in putrid bones and carcase material (remediable by feeding bonemeal and other phosphor-rich material);
2. The poison in carrion of all sorts (dead meerkats, spring-hares, ostriches, tortoises, household refuse, etc) – a ‘toxiogenic Saprophyte’ (later identified as the cause of a form of botulism) could be eliminated by clearing pasturage of all such material.

(Viljoen’s cattle had shown no enthusiasm for putrid bones because at that time, their grazing was not phosphorus-deficient.) Much experimental work over a very wide field would be necessary; but the holy grail of a ‘preventive’ had at last been found. (No one remembered ‘the old



man' who had written in 1912, clearly describing it – Page 278.) Theiler and Montgomery telegraphed Pole Evans and Green in Pretoria to come at once.

On the 16th March, Montgomery caught the de luxe (always late) train to Cape Town and rushed to van Heerden's office on the 18th. When the House of Assembly met the following day, the Minister of Agriculture interrupted its business to make a dramatic announcement – 'The Division of Veterinary Research is confident that the cause of Gal-Lamziekte has been discovered. Suggestions as to methods of prevention will be available shortly. A report on the investigations will be issued probably within a few weeks as soon as the experiments have reached a stage that the evidence is incontrovertible.'

58 The news was telegraphed throughout the Union. It reached Butler in Vryburg on Thursday the 20th March. He rushed out to the nearest official of the Farmers Association, the immediate past president P. H. de Kock sitting in his lawyer's office. They went posthaste to Armoedsvlakte to find an exuberant Theiler. Butler took down ipsissima verba what he said and published it on the 23rd March 1919 under a banner headline

#### CAUSE OF GAL-LAMZIEKTE DISCOVERED

It was the first published authentic account of a discovery that affected the economic productivity of the world.

Justice was also done and seen to be done. 'It was most gratifying during the course of our interview', Butler wrote, 'to hear Sir Arnold admit that Mr de Kock was right in his contention that individual animals must be followed up.' Theiler had been in the veld at dawn and stayed day after day following the cattle and watching their habits, returning at night too tired to work

59 on his beloved Reports. Theo Meyer had helped him test his hypothesis experimentally and now a vast field of investigation clamoured for qualified men. In his first exposition of the situation, Theiler was emphatic in acknowledging the contribution of Pole Evans, Walker, Mitchell, Andrews and Viljoen, sustained after his departure by Montgomery. Butler could not refrain from mentioning the Vryburg Farmers Association. It met in large numbers on the 25th March, expecting Theiler to attend to receive its congratulations; but he was too busy. The whole district palpitated with excitement. Endless prospects revealed themselves. Theiler put on a show. Butler  
6061 whose paper had come to be called 'The Gal-Lamziekte News' was there to record it.

62 Theiler always had a fine sense of drama. Some of the cattlemen had gone home after the previous day's meeting but at least 50 townsmen and stock-raisers journeyed to Armoedsvlakte on Wednesday the 26th March to hear him expound his discovery. He awaited them on the steps of the newly-completed laboratory dressed, not as Sir Arnold Theiler K.C.M.G. but as a working scientist – tieless, collarless, in shirt-sleeves and wearing his famous white apron. Before he could begin, Fincham asked Butler, the Association's secretary, to read its congratulatory resolution to him. In reply, Theiler disclaimed personal credit, ascribing the advance to the work of the whole Veterinary Research Division. Then he took them among the kraals and paddocks where, helped by Theo Meyer, he had dosed cattle with putrid carcase material and watched them contract the disease. Dramatically some of the beasts were at various stages which the cattlemen immediately recognised. All of them remembered facts that fitted the picture. One of the white overseers, forced to drive the herds when the whole black staff was sick with Flu, remembered seeing an ox chewing up a rotted spring-hare and dying 8 days later of Lamziekte. Theiler himself told how he had immediately banished all 'Kaffir dogs' from the Armoedsvlakte area as they found and distributed bones and carrion. He reminded them that Man had deprived Nature of salutary forces, exterminating as vermin natural scavengers such as jackals, vultures and other animals. The future of animal husbandry now lay in their own hands – they must clean their lands, vast though they might be.

63 Both business- and stock-men plied him with questions. If what he said were true, the realms of economic exploitation which he had reopened, were waiting and boundless. Theiler answered them all. Fincham who came as a sceptic, pronounced himself a convert. When the gathering departed, a fuse had been lit and the whole area exploded into speculative life. Farms which had long been offered for sale were hurriedly withdrawn. The value of properties shot up. Dairy  
64 farmers within a limited radius of miles, came together and planned a cheese factory. Cattle breeders throughout the country rejoiced. 'At the moment, I am the most praised man', Arnold  
65 wrote to Alfred. Butler's account of the demonstration which Theiler himself checked, was published in the *Northern News* on the 29th March 1919 and was sent all over the world. Theiler sent it the next day to Alfred and to such of his professional colleagues as remained in communication with him, including, he told the proud editor, Tasmania whence he had that week received  
66 a cable asking when he was coming. New Zealand too was afflicted by the disease. Weeks later the first ripples lapped his shore and soon became demanding waves.

67 The claue that had remained in the background suddenly became vociferous and embarrassed Butler with a stream of letters to his paper. 'Butler's Battles for Bechuanaland' were widely vaunted. Theiler was asked to name some feature of his work as 'the Butler cure'. Armoedsvlakte must be re-named 'Battling Butler'. Nothing would have been done without Butler's starting the Experiment Fund and over many years, never wavering in his advocacy. But the little man persisted in his resignation as secretary of the Farmers Association on the grounds that 'a younger man is needed'. He stayed on until one could be found; but overpowering Depression lamed the Association.

Regardless of his 'discovery', the moment marked a watershed in Theiler's life. On the day

68 after his demonstration, Pole Evans (shortly to be the second recipient of the Scott Medal) and Henry Green arrived to discuss the implications of the new situation. Why was the pasturage periodically phosphorus-deficient and productive of Pica? Was it due only to drought conditions or some metamorphosis in the soil or the plants themselves? And how could it be compensated? Must cattle constantly be dosed with bonemeal or phosphorus itself in palatable form? Whence would such vast quantities come? Who could survey the multi-faceted features of the syndrome now revealed? – Plant Physiology? Soil and Animal Chemistry? Relative productivity of treated animals? How should the whole attack be planned? The answer was expert staff and the coöperation of industry. They were wanted *now* and one – long-term and closest to Theiler's heart – was nearest.

The clamour for veterinary training that had found fertile field in the Transvaal University College in Pretoria had reached the point when Theiler received an invitation to inaugurate a Faculty and become its Dean. It was commonly known and widely published. The move was nationwide. Stellenbosch appeared temporarily to have fallen by the wayside (the University later made an approach to P. J. du Toit when he reached London) but Johannesburg, struggling to establish its University of the Witwatersrand, buttonholed Theiler in the middle of April as he passed through during a visit to Pretoria, and offered him appointment as Dean of the Veterinary School which it was proposed to found under the Faculty of Medicine. He refused it, having already committed himself to Pretoria (with usual category of stipulations) and knowing that other influences were at work.

It was common cause that the country's agricultural economy could be rehabilitated and stimulated only by scientific research and practice. Chemistry lagged but Pole Evans had gone far with his Botanical Division and the new national survey. The concept of 'The Theiler Institute' had been frustrated and had gone into decline through lack of staff in common with the whole Department of Agriculture where F. B. Smith bemoaned the unfulfilled need of trained assistants (his best men were lured away by higher salaries elsewhere). Now the Minister of Education F. S. Malan, bowing to heavy pressure in the House and from his Agricultural colleague van Heerden appointed a departmental committee to inform the Government on the advisability of a School of Veterinary Science. It consisted of the Under-Secretary of Education G. Hofmeyr; Sir Arnold Theiler; the Director of Veterinary Research R. E. Montgomery; and a distinguished luminary of Stellenbosch University, A. I. Perold, Professor of Viticulture and Oenology but also a renowned proponent of higher education. With Zschokke's cable in his pocket advising the selection of five Swiss veterinarians willing to come to South Africa and the High Commissioner in London instructed to facilitate their passage, Theiler could perhaps devote attention to grand future plans. The committee would not meet until July.

His dream was evanescent, his difficulties too great. With no one but the versatile Meyer to help him, he set about organising Armoedsvlakte for new extensive experimentation, ordering more fencing, more cattle, more supplies of suspected poisonous plants. He was out all day watching his experiments in the sharp autumn air, returning 'in the evening so tired that the writing progresses slowly'. He worried about Zschokke's choice of Swiss – would they present problems like Frei and Meyer? He had been reluctant to send for them and, officially pressed in time of need, had done so unwillingly. Week followed week and there was no sign of their coming. There were 10,000 awaiting passengers including returning troops who made transit from England impossible. They would have to come via Lisbon, some with wives. Little could be done without their help. His real hope lay with P. J. du Toit who had apparently reached London but was stranded without money. Later he heard that the High Commissioner had given him funds 'to complete his work' but no one knew when he would be returning. By July, du Toit was still completely incommunicado but Theiler doggedly continued in his pursuit. 'He is not

only very industrious', he claimed, 'but also very intelligent and I hope that he will become the Director of the future Veterinary Faculty, if not of my old institute. He has the knowledge for both posts.'

77 The farmers were doing as they were told and cleaning their lands. Some of them clamoured for a 'cure' as well as a 'preventive'. Silent wastes populated by wild animals suddenly became delectable cattle country. Theiler recorded with pride that 'the price of farms in Bechuanaland has already risen 50-100% and even more. The people who previously abandoned it are now coming back and companies for cattle products are now envisaged on a grand scale. The last hindrance to cattle farming in South Africa has now been cleared up and this country will become one of the biggest producers of meat.' Until assistance came, he could do little; but other men, equally visionary, were busy about the future he had unfolded.

78 One was K. B. Quinan, manager of Rhodes' Cape Explosives Works, a self-taught engineer of American origin whose drive, technical skill and lively imagination had caused his seconding to the British Government at the outset of the war to advise on munitions production. A voracious worker, he had rendered such distinguished service that Britain, unable to reward a foreigner with the customary accolade or peerage, conferred on him the rare award of Companion of Honour. Quinan returned to his dynamite factory at Somerset West, Cape in February 1919 with his resignation in his pocket and an inflammatory idea in his mind. His directors allowed him to expound it. In brief, he proposed that his factory, serving mostly the mining industry, should diversify into the production of super-phosphate artificial fertilisers and other agricultural chemical products. (In 1912, Quinan had contributed articles to the *Union Agricultural Journal* on 'The Use of Dynamite in Agriculture'.) His directors agreed and construction began on a vast works at Firgrove near Somerset West whose products would be precisely what Theiler needed to rehabilitate both pasturage and animals. The paths of two dynamic men crossed eighteen months later.

79 While the Union wanly contemplated celebrating the Peace which Botha and Smuts were helping to conclude at Versailles, and the erection of monuments to the fallen, Theiler's life oscillated between the isolation of Armoedsvlakte and the activity of Pretoria. His mood flitted over many peaks and hollows. Enormous fields of work lay to hand and abroad (Tasmania pursued him ardently); but 'the old man' sometimes grew tired and hankered again after his  
80 'homeland'. He was trying to induce Lamziekte artificially by injection of bacteria from the  
81 carcase of a victim having failed with the toxin itself. His Reports moved slowly until King came to call, professing unhappiness at Onderstepoort. Theiler took the hint and arranged his secondment from September whereafter all was much easier. Every other facility was likewise given - a motor car, electric light and an excellent stove for Emma which also heated bath-water.  
82 A freezing winter was upon them but neither minded 'living in loneliness in first-class comfort'.  
83 It evoked from Arnold one of his graphic passages - 'Despite its name, Armoedsvlakte has its charms. It is a huge plain bounded almost everywhere by the horizon. To the north, a hill rises and to the east is the Marikani Ridge, a flat range of hills. When the air is still, we have almost every morning the most beautiful appearance of Fata Morgana. Our farm is then an island surrounded by reflecting lakes with numerous trees on the banks, all reflected in the water. Or the water is absent and everywhere stand trees and woods and bushes all of which have the peculiarity of being of equal height and cut off flat on top. Or the whole landscape is lifted up, the mountains disappear and next to them, new ones which at other times, one does not see. There are all kinds of variations of these optical illusions which give a different character to the country at different times.'

He was occupied with the isolation and identification of the bacterium causing Lamziekte which he could soon readily produce with a culture. A bacteriologist could get on with it when

84 one became available. In the meantime he was closely studying Pica by observing the onset and degree of craving for carrion in a large herd of cattle. 'A "mild craver" is fastidious in its selection of clean weathered skeletal debris', he later reported, 'but "an extreme craver" has even been seen crunching a living tortoise with the blood dripping from its jaws, or eating pieces of hide with adhering putrefying flesh.' In the end, he could draw a curve correlating its highest point with the absence of grass during winter and its lowest in spring when the young grass was luxuriant. Pica or Osteophagia as such was curable with phosphate-rich foods such as bonemeal but the cost was initially high. Further research over a year-long period was necessary. It was a long laborious process and Theiler was frequently away.

86 In the middle of July he was for a week in Pretoria and Johannesburg 'visiting all my old friends' and fighting a hard battle on the departmental committee considering the Veterinary School. He insisted on basic courses in Botany, Chemistry, Anatomy and Physiology at a University and specialised courses at Onderstepoort whose Director would have to reorganise the work of his senior staff and himself accept the duties of Dean of the T.U.C. Faculty of Veterinary Science. Theiler, himself disinclined and longing for 'a quiet life in Switzerland', had loyally told the College earlier that he would accept the post of Dean if he were first allowed to go overseas. Now his attitude hardened and he decided to decline it, finish his Government work and return to Switzerland. The Committee was not wholeheartedly in favour of the dual rôle of the Director of Veterinary Research entailed by his plan. 'In my opinion', he wrote, 'it is the best for the interests of Onderstepoort and the Faculty. It only begs the question whether my successor is the man for it and there, I am afraid, this is unfortunately not so. I hope however that by no means in the far future, Dr du Toit will come to this post and then, I think the man will be found. General Botha arrived yesterday (24th July 1919 in Cape Town) and I think he will be first asked, before the design or rough plan as we have outlined it, will be accepted.' Montgomery's aversion to wildly extended responsibilities had been palpable.

Countrywide rejoicing over Peace and the return of the Generals whose arrival in Pretoria was planned as a triumph, had an extension in Theiler who at last heard that three of his five Swiss veterinarians had sailed from Lisbon and were due in Cape Town at the time that Margaret would leave. He had been excited to find that his friend Percy Horsfall, now secretary to the High Commissioner in London, had visited Alfred in Lucerne and had written a long well-informed letter to the *Cape Times* on the international political situation (he later contributed numerous articles). Max had steadily passed his examinations and was already visiting hospital clinics but Hans had been prevented from writing his by recurrent fever. Impressed by Gertrud's enthusiasm for teaching and love of Science, Theiler offered her a seminar in Switzerland. The future as a whole seemed more promising and must improve now that the Generals were back.

92 They came from the Cape by train on the 8th August 1919, dismounting at Fountains to enter horse-drawn carriages which bore them in triumph through the decorated streets of Pretoria to the Amphitheatre of the Union Building on Meintjes Kop. A large assemblage awaited them and 'a royal reception' was given South Africa's two helmsmen. Smuts went straight to his office in the Department of Defence but Botha, looking strained and worn from severe influenza in Europe whose effects the voyage had not cured, left for his farm Rusthof at Standerton. The Cape, Free State and Transvaal had saluted Smuts and him - now Natal impatiently awaited them. The biting winter weather of the Highveld afflicted him and, weakened by a chill, he would have to forego the Natal journey. Smuts would do duty for both of them while Botha returned to the warmer climate of Pretoria.

93 Arnold, Emma and Margaret left Vryburg on the 14th August for Cape Town. The Portuguese ship duly arrived but there were no Swiss veterinarians on board. Communication with Europe was still bad and transport chaotic. Margaret safely embarked on the *Edinburgh Castle* to meet



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95 het brothers in London and begin her training at the Anstey College of Physical Education at Sutton Coldfields in Warwickshire. Like Hans, Gertrud and Max, she received £20 a month from her father whose heavy financial burden was only fractionally lightened by his hermitic life in Bechuanaland. Arnold resumed acquaintance with all his Cape Town friends and arrived back in Vryburg on the 28th August. Shock and gloom possessed the dorp. Louis Botha had died in his sleep the night before. None – his wife, his doctor, his family nor visiting friends – had anticipated it. An overtaxed heart had simply ceased to function. For Theiler it was an emotional shock and a bitter blow – ‘A great loss to us all and also to me. He was a good friend to me and his death is perhaps not without consequence for my future. When there was disagreement, I always had his help and now I have lost it.’

Buxton immediately sent for Smuts and the previous Cabinet was sworn in with Smuts as Prime Minister. There was absolutely no similarity between Botha and Smuts except love of their country. Theiler knew that he would now confront a diamond-hard man impervious to melodramatic tactics and prone to draconian decisions. Smuts’ approach to affairs was fundamentally dissimilar from his predecessor’s.

96 Botha, equally preoccupied with affairs of State, would spend unlimited time with any old Boer who was free to walk into his office for a chat. Smuts would stare steely-eyed at interlopers or officials wishing to discuss trivia and coldly dismiss them. Orenstein who knew them both, relished describing the difference by an incident of the early days of the 1914 Rebellion. With Kemp in open revolt, Botha and Smuts were conferring in a rebel farmhouse with a guard outside. The boy came in with his rifle in the middle of the night to say that despite extreme cold, the wife of the rebel farmer had refused to give him some coffee. Smuts leapt white-faced with rage to his feet but Botha pulled him down and told the boy to fetch the woman. She came truculently and Botha asked her whether she had any sons. She said Yes. He then asked her whether she would allow them to stand outside in the bitter cold without coffee. She said No. The boy got his coffee.

97 Botha had temporised with Theiler in the same manner, emphasising that he ‘must not leave the country in the lurch’; but now it would be different. ‘General Smuts, the new premier, is likewise well known to me’, he wrote Alfred forebodingly, ‘but the friendly relationship which existed between me and General Botha has never existed with him. Still I know he holds me in very high esteem and greatly values my work. He himself once told me so and in a great speech in Parliament, he quite recently made an allusion to my discovery which showed that he is now fully au courant. Still, my future is still somewhat uncertain.’ Reassuringly Tasmania kept writing. His ‘discovery’ had now been applied to the local ‘Midlands Disease’ which had been found to be similarly caused through Pica and cattle eating dead rabbits, and was in fact identical with Lamziekte. The Australian farmers had resolved to invite Theiler to advise them. ‘Perhaps the journey will eventuate sooner than I myself imagine’, he wrote.

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99 The disaffected Montgomery had gone to F. B. Smith (recently awarded a niggardly C.M.G.) to demand six months leave. He left in September for British East Africa and England. D. T. Mitchell was gazetted as Acting Director of Veterinary Research in his place. It was an open question whether Montgomery would return. Widespread change was in the air.

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100 Smuts had a farm at the picturesque and historic Barberspan (Barber’s Lake, converted many years later into a Wild Life Reserve) in the Lichtenburg district of the Western Transvaal bordering on Bechuanaland and not far from Vryburg. He took his family there on the rare long weekends and other holidays permitted him, camping in the open, tramping the veld among his

cattle, watching the rich bird life and botanising. Popularly known as a 'dorpsboer' or 'town farmer', he had a real knowledge of stock-raising on the farms which Mrs Smuts managed in his frequent absences abroad, and a close consciousness of the importance of Theiler's work both at Onderstepoort and now at Armoedsvlakte, a few miles south of his Barberspan property. Personally enamoured of and academically trained in the Humanities, Smuts was tending toward a livelier appreciation of Science and the contemplation of Metaphysics. He now accepted that Theiler and Theiler alone (since Montgomery had openly expressed his aversion and was now unavailable) could develop the country's animal husbandry and provide the men to do it.

101 In the middle of October 1919, he wrote him at Armoedsvlakte, ingratiatingly applauding his  
102 feats and suggesting an interview in Pretoria to discuss Veterinary Education and Research. At the same time, F. B. Smith who had been considering prestigious offers from England, was persuaded to continue in office for an additional year. He would devote himself to extricating his Agricultural Department from the chaos which had long characterised it and to implementing the grand visions which Smuts and Theiler now shared.

In his remote command post which he now frequently left, Theiler at last felt that he was going forward. King was with him and lightening the burden of the Reports which weighed on him as his first and heaviest obligation. The proofs of Nos 7 and 8 had come and work was proceeding on their successors. Infinitely better was the arrival at Armoedsvlakte of the first three Swiss veterinarians - Drs H. Meier, Marcus Zschokke and J. R. Scheuber. They stayed a week and Theiler scanned them keenly, selecting Meier to remain with him on Lamziekte work and sending his two colleagues to Onderstepoort for investigations under Mitchell's direction. (Their arrival was not welcomed by some of the local staff who resented the intrusion of German-speaking foreigners.) Best of all was a letter from P. J. du Toit as he left England on his return to South Africa to visit his alma mater, now the University of Stellenbosch which had written to offer him the professorship of Veterinary Science that had earlier come near to acceptance by Theiler himself. Du Toit, responding to Theiler's persistent pursuit, wanted to visit him before committing himself and Theiler, contemplating the possibility of his long-laid plans materialising, was much exhilarated.

103 Even his paternal troubles were allayed. Among his usual massive mail was a letter from Sir  
104 John M'Fadyean warmly defending Hans whose malarial attacks had prevented his writing his R.C.V.S. examinations but who had successfully sat London University examinations for the first part of a B.Sc. degree of which Arnold knew nothing. Hans had wanted to surprise his father who now ate humble pie and deeply regretted having done his son 'a downright injustice'.

106 At the end of October, Theiler met Smuts in Pretoria. Their talk was straightly to the point. They were dealing with grand matters in the grand manner regardless of trivia such as Montgomery's disinclination and unsuitability for participation. Smuts offered Theiler joint appointment as Dean of the Faculty of Veterinary Science of the Transvaal University College and Director of Veterinary Research at the Onderstepoort Laboratory. It would not be re-instatement but a kind of promotion in a dual rôle with extended responsibilities. As the architect of the scheme and with the majority of the Veterinary Education Committee in support, Theiler could not affect surprise. As usual, he made his conditions.

He was 'an old man', past pensionable age and already postponing retirement at Government request. He would accept the offer with three basic stipulations - he would fill the dual rôle only until the first students qualified in four or five years time; during the preliminary two years while they completed their basic courses at established colleges, he must be allowed a full year for study overseas to prepare himself for academic duties, together with such members of his staff, notably Viljoen, Andrews and Robinson who would serve as specialised lecturers; and he must be allowed to employ and train P. J. du Toit as his successor. Smuts, virtually in a cleft stick,

agreed to these and other minor conditions, asking only that Theiler immediately prepare a memorandum outlining the proposed inter-organisation of Veterinary Education and Research with estimates of costs in buildings, salaries, equipment, etc, and at the same time draft curricula for veterinary courses.

107 It was a heady experience for them both. In his various capacities from 1907 onward, Smuts had worked toward establishing a University of Pretoria separate from Johannesburg. After Union, he had introduced legislation enabling the foundation of the Transvaal University College which in time would become a full University of which he would justly be called 'the original creator'. When T.U.C., became a State-subsidised institution in 1917, its development continued his personal concern and now, through Theiler, he was extending and enhancing it in the most meritorious manner.

For Theiler, it was the consummation of a life's ambition, the negation of the lurking feeling (so frankly stated by Mrs Smuts) that his work was 'unappreciated' and the fulfilment of the Theiler teaching tradition, long suppressed and emerging only vicariously in Gertrud. If visions of an ultimate 'Theiler Institute' still haunted his mind, there was now little time for them. Practical arrangements had immediately to be made with his Minister H. C. van Heerden and the Minister of Education F. S. Malan and his subordinates, as well as the providentially-retained F. B. Smith whose knowledge and ability to cut endless red tape would be stretched to the full. Looking down the dark tunnel of time to 1902, Smith too knew that a feature of his own life's ambition was being fulfilled. Theiler telegraphed P. J. du Toit in Stellenbosch to come at once and returned to Armoedsvlakte. He had attention for nothing but the drafting of the enabling memorandum.

108 Du Toit arrived at Armoedsvlakte early in November for a day and a night before going on to Pretoria to meet the Ministers of Agriculture and Education and their officials. He was warmly welcomed by Arnold and Emma with whom he stayed. Torrential discussion occupied almost the entire time. Arnold had long looked forward to hearing his War experiences in the enemy country; but du Toit was reticent except in regard to his scientific work with Knuth in Berlin. He had been almost exclusively engaged in the study of Tropical Animal Diseases (which in a sense liberated Knuth for fieldwork on Horse Sickness and other diseases with the active forces 109 at the behest of the German Army) and together they had compiled the 869-page 'Tropenkrankheiten der Haustiere' ultimately published in 1921. Apart from his work on Leucaemia and Rinderpest, he had published many papers on animal parasites, the combatting of tick infestation and equine diseases. His range was wide and his methods sound and thorough. Theiler faced a mature research scientist, eager and anxious to sit at his feet and to make his way in his own country. Neither, despite having met only once seven years previously, was disappointed in the other. Theiler also faced a married man of 31 spurred by family obligations. While studying in Germany, du Toit had met an English tourist Dorothy Jakeman and declared his feelings. 110 They were married in London as soon as he reached it in 1919. Now his wife waited at Stellenbosch while he determined which should be their future home.

Theiler explained how he had prepared the ground for du Toit's appointment as a veterinary assistant and sent him on his way with every hope that it would soon be confirmed. Then he returned to the all-important memorandum. Smuts had ensured that by Cabinet decision, a College of Veterinary Education would be established. The speedy submission of the enabling 111 measures was vital. When du Toit reached Pretoria, van Heerden was away but he had satisfactory discussions with F. B. Smith and with Malan who agreed that he should begin work at Armoedsvlakte on the 1st December, it being generally understood that the new Faculty would be administered by Agriculture and not Education. By the 10th November, du Toit had returned to Stellenbosch and, following the advice of Smith and Malan, informed the University that he

would not be accepting its offer of appointment. The effect was painful but he was somewhat consoled by the sympathetic understanding of Theiler's colleague on the proponent committee, Professor A. I. Perold. Then he waited for the expected telegram from Pretoria.

112 Theiler's memorandum reached van Heerden on the 13th November but silence continued. By then, news of the Cabinet decision had been published and electrified the Vryburg Farmers who, already cock-a-hoop about their part in the Lamziekte 'discovery', now developed a bad case of folie de grandeur. No less a personage than the Minister of Education F. S. Malan (duly lunched by the Mayor, Max Sonnenberg) attended their meeting on the 19th November, vaunting his part in the miracle and announcing the academic appointment of Theiler who was present and unamused at the Minister's credit-snatching. Replying to Malan, he announced in his peculiar and gutteral English that 'he had always had a heart favourable to the South African boy. He was worth lifting up. The South African youth had brains equal to or better than boys in any other part of the world. He was born amongst Nature and was therefore the very best material for training in Veterinary Science. He considered it a great honour to have been asked to do so.' Malan dashed off to a series of meetings including a visit to Armoedsvlakte where Mitchell and Viljoen were conferring with Theiler. Exalted by the current highmindedness, the Vryburg Farmers resolved to ask the Minister of Agriculture to establish the new College of Veterinary Education at Armoedsvlakte where appropriate buildings and other facilities already existed. Greater glory might yet be theirs. In time van Heerden replied that he considered Onderstepoort preferable.

113 As November ended without word from Pretoria, du Toit grew desperate. He had telegraphed Smith who had replied reassuringly but inconclusively. Now he appealed to Theiler to intervene. Not until the 2nd December did he receive a telegram: 'Offer you post as assistant to Theiler £700 per annum plus free quarters.' He accepted. On the same day the news that Theiler had been appointed Dean of the new Faculty and would resume control of Onderstepoort became known through the Minister formally advising the Transvaal Veterinary Medical Association whose secretary was Mitchell – and 'the bombshell exploded!'

114 The anti-alien feeling generated by the Lusitania Riots throughout the Union four years before was still latent. Aversion to 'foreigners' had been further stimulated by the fierce campaign, accentuated by Hertzog and his following for the employment of South Africans in Government posts. 'Jobs for Pals' had long been a political scandal and those already occupying them felt confident that their future was assured with better prospects than before. Notch by notch, they could attain the heights of the Civil Service. Now suddenly, foreign and German-speaking Theiler was promoted above the hierarchy of the Onderstepoort staff when the way had seemed clear for their own advancement. Mitchell, Acting Director of Veterinary Research and already irked by the importation of Swiss assistants, felt it keenly. He had had every reason to suppose that in the obvious circumstance of Montgomery's defection, he would be appointed in his place. Some of the staff were also unhappy but Theiler's cronies rejoiced. Some wondered how Montgomery, still in Government service, would be affected.

115 His mind buzzing with plans and figures, Theiler now travelled constantly between Armoedsvlakte and Pretoria. For the building of accommodation for the first enrolment of students, two years was hardly time enough. He was in consultation with Cleland of the Public Works Department in Pretoria when du Toit and his wife arrived at Vryburg on the 11th December 1919 – the first overt step in his desired direction. Cleland agreed that land adjacent to and leased by Onderstepoort should be bought albeit at the high cost of £5,000, for the new buildings. Theiler 116 accordingly wrote to Smith for his Minister's sanction and hastened back to Armoedsvlakte 117 for a weekend's discussion with du Toit before he officially commenced his duties on the 15th December 1919. It was an historic moment in his visionary planning and in the development

118 of Veterinary Science. Smuts, contemplating his strategies for the forthcoming General Election, intended forgetting them at Barberspan over the Christmas holidays.

New and heavy responsibilities and constant train travel began to tell on Theiler. He was no longer able to sustain the intense summer heat and desiccation of Armoedsvlakte to which the tropic torridness of Pretoria provided no relief. 'It is almost impossible for me to display my usual zest for work', he wrote Alfred (now meeting Max for the first time as an adult in Switzerland), 'and much time is thereby lost which, under more favourable climatic circumstances, would be completely filled.' His estimates for the new Veterinary College were enormous – £175,000 for the buildings and research facilities at Onderstepoort, £7,000 for equipment and about £8,000 for staff salaries. Maddeningly no authority had been given for the purchase of the land and he wrote repeatedly to Smith begging that Smuts' personal intervention be sought to finalise the matter. The Prime Minister, facing a crucial post-war election – the first after Botha's death – had no attention for trifles.

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In the meantime, Theiler laboured with du Toit and Viljoen (specially seconded from Pretoria) to outline the first courses of study. There were endless distractions. A German chemist, Dr R. E. Hartig operating from the Cape, claimed to have invented a 'cure' for Lamziekte (regarded with outspoken suspicion by Butler). Van Heerden summoned Theiler to meet him in the ministerial office in Pretoria and upon his advice, counselled Hartig to patent his 'cure'. (Highly vociferous and commercially inspired, Hartig long remained an irritant until disillusion drove him back to Germany.) Theiler returned to Armoedsvlakte with J. M. Sinclair, Rhodesia's Principal Veterinary Officer. The dispiriting place with its interesting experimentation was beginning to prove a magnet.

The organisation of the new Faculty was a long and involved affair. In March 1920, Theiler took du Toit to Pretoria to arrange procedures with the Transvaal University College and organise services at Onderstepoort (where the remaining two Swiss veterinarians, G. G. Kind and R. Sharrer, had arrived). Du Toit would act for him when he went overseas, hopefully in September. They were in the Capital when the General Election was held. Smuts himself was handsomely returned but his South African Party gained only 40 seats while Hertzog's Nationalists held 43. There was an ominous post-war swing from Empire idealism to local patriotism. Smuts could govern only with willing outside support and Buxton sent for him. Among the fallen was Theiler's Minister, H. C. van Heerden. Parliament met on the 19th March with otherwise the same Cabinet and on the 14th April, F. S. Malan was formally appointed to the Agriculture portfolio. Malan had held the post in the old Cape Government but had none of van Heerden's practical experience.

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The climactic point had now come. On the 1st April 1920, Theiler formally assumed office as Director of Veterinary Education and Research, having fixed the future preliminary teaching staff of the new Faculty:

*Dean* – Sir Arnold Theiler K.C.M.G., Director of Veterinary Research

*Acting Dean* – Dr P. J. du Toit, Sub-Director of Veterinary Research

*Professor of Bio-Chemistry* – Dr H. H. Green, Sub-Director of Veterinary Research

*Professor of Veterinary Anatomy* – Dr Gilles de Kock

*Professor of Physiology* – Dr W. H. Andrews

*Elementary Veterinary Science* – C. P. Nesor (seconded from an Agricultural College)

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On the 9th April at the annual Graduation Ceremony of the Transvaal University College under the aegis of the maternal University of South Africa, Theiler made his debut in mortar board and gown as Dean of the Faculty and delivered an address on 'Veterinary Education and Research in South Africa' detailing the steps by which the Faculty had been founded. A pioneering

seven students subsequently enrolled and began their basic studies while the Dean pursued their advanced courses overseas in company with Andrews, Viljoen and Robinson.

128 An anomalous witness of these epic events was R. E. Montgomery who, returning to Pretoria at the expiration of his six months' leave at the end of March, formally resigned from the Service. He spent some days settling his affairs and then left for East Africa to become Director of Veterinary Services for Kenya, Uganda and Tanganyika, his path again crossing Theiler's some years later. It was commonly supposed at the time that he neither wished nor was able to step into the seven-league boots with which his predecessor had made such impressive strides.

129 The forward movement which seemed at last to be prospering Theiler's hard-won aims was at the same time supported by the re-appearance after six years of the *Journal of the Department of Agriculture*. He could at last communicate some of his work to his colleagues overseas. Its first issue carried his account of 'The Causes and Prevention of Lamziekte' which aroused widespread interest and was widely reprinted. Butler published it in the *Northern News* and in his leader, urged his dorp and district fearlessly to develop.

130 While Mitchell reconciled himself to the humiliation of posting to Armoedsvlakte and the Director's house at Onderstepoort was readied for its original occupant, Theiler shouldered his grotesque double duties. He went down to Natal to see what Andrews was doing at Allerton and what Professor J. W. Bews, the Pietermaritzburg botanist had meant by causing Mitchell to telegraph early in December 'Bews had identified plant causing Staggers in Cattle'. Andrews, Mogg and Bews had long been working on Bovine Staggers, ultimately inculcating *Matricaria nigellaefolia* (Stootziektebossie or Staggers Weed). They were now using it to experiment on other animals. In this dearly-beloved field of toxic plants, Theiler with his associates, particularly Pole Evans, had rendered distinguished services to the world at large.

131 In Pietermaritzburg he met the Natal Farmers who eagerly questioned him about the serious recrudescence of East Coast Fever. For Theiler, the research problem had been solved by eliminating the carrier-ticks with dipping and quarantine, and had become an administrative matter for the Veterinary Department. The farmers were insistent. 'Is it possible', they asked, 'that owing to constant dipping for the last ten years, we have been breeding a tick that is arsenic-resistant? Is it possible that the disease as such has changed and become chronic?' It was indeed possible (as Bruce had found with trypanosomiasis) and Theiler would mount experiments to test the hypotheses and generally reopen research, dormant for 8 years.

132 While in Natal he continued to grapple with the Lamziekte problem. Word reached him that the Cape Explosives Works' sister dynamite factory at Umbogintwini on the coast was about to convert to fertiliser production (the factory at Firgrove near Somerset West was under construction but not in production). Its representatives told him that in the near future, the Natal factory would undertake the manufacture of phosphates at a cheap rate which would result in great saving to farmers in the prevention of Lamziekte. Butler recorded it gleefully after Theiler had told him on his return to Armoedsvlakte in the middle of April. He had also told the *Pretoria News* that the cost of accommodating the new Faculty at Onderstepoort would not be as high as he had at first supposed.

133 Emma had been packing their few possessions, leaving the P.W.D. furniture and equipment for Mitchell's occupation. The Vryburg farmers were desolate. For more than a year, the great man had been among them, visible in his motor car in the dorp and glad to greet visitors at the experimental station. The sceptic J. F. Pentz had recently inspected the work - 'an eye-opener', he said and urged his brethren to see for themselves how Theiler had solved the Lamziekte problem. They had wanted to give him a farewell dinner but were too poor to afford it. Instead they passed post hoc a touching resolution of congratulation on his two appointments and thanks for the work he had done.

137 On the 21st April 1920, Sir Arnold and Lady Theiler left Armoedsvlakte to resume their residence and duties at Onderstepoort.

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138 Only a man of Theiler's vision and attainments could have grasped and commanded a situation demanding academic scientific instruction and research, bio-economic as much as veterinary. He had done his best to prepare for both by ordering through the unprotesting Alfred and his Berlin bookseller a large number of scientific textbooks but time for study grew progressively less. In the isolation of Armoedsvlakte, it had been easier and he had left the uningratiating place with genuine regret but 'prepared to carry the new yoke without rancour'. He faced its enormous stresses and tensions, its wide and endless demands, with calm courage in that they were part of exalting his own persona (then enhanced by his promotion by the Société Centrale de Médecine Veterinaire of Paris from corresponding member since 1906 to full membership, and the seat on the National Botanic Survey Advisory Committee vacated by Montgomery). His thoughts still flickered toward peaceful retirement but with the great guerdon of national and international acclaim before him, were wistfully extinguished by fanciful projects. 'I cannot complain about my stay in Bechuanaland', he wrote, 'a year of farming with 600 head of cattle has awakened a great desire for this profession. Perhaps I may still farm at the close of my life in South Africa.'

141 Mitchell, banished in his place to the outer marches, had maintained Onderstepoort as best he might with miserably reduced staff (Veglia was still on active service in Italy) and Swiss acquisitions who took long to adapt themselves to local conditions. Sharrer and Kind had been joined by R. W. M. Mettam from Ireland and Dr Gill who was employed at Allerton. It was still a great factory for 'preventives' but in decreasing number, only an anti-anthrax vaccine showing a sizeable increase. Routine research, notably with Pole Evans on Gouwziekte in sheep, had been maintained and Bedford still searched among his ticks, flies and mosquitoes for the carrier of Horse Sickness. Theiler came now with a whole new field and Nature added some staples of her own.

142 Owing to flagrant neglect of Theiler's injunctions (according to enlightened farmers), East Coast Fever flared uncontrollably in Natal and the Eastern Transvaal while Nagana seized Natal and Zululand. Both should have moved from research into the realm of regulation and veterinary care; but, mindful of the Natal Farmers' representations to him, Theiler had reopened investigation into East Coast Fever in a possibly chronic form conveyed by arsenic-resistant ticks. All his regulations had been stringently imposed in the Transvaal under C. E. Gray's exacerbated aegis; but the farmers' reaction became so ugly that the Government was forced to appoint a Select Committee to investigate and report. F. S. Malan and F. B. Smith left the Parliamentary session to join Gray in trying to placate angry stock-raisers in the Transvaal while Theiler went down to the Cape to give evidence to the Committee. They heard him at his best - simple, straightforward, ranging over history, paying handsome tribute to Watkins-Pitchford's forceful pioneering of dipping, emphasising the need for constant alertness to Nature's vitality and endless mutations.

143 Theiler had a more pressing problem on his mind. He gave his evidence in Cape Town on the 18th June 1920 and returned to Pretoria a week later. During that time, he came to grips with one of the practical aspects of the Lamziekte syndrome whose multifarious ramifications were to absorb him until the end of his life. His main purpose, he always said in later years, was to improve economic conditions in South Africa and, by implication, not just to deal with disease.

146 Compensation for the phosphorus deficiency which caused Lamziekte by administering bone-

meal not only eliminated the chance of incurring the disease but also improved the physique and productivity of cattle. But bonemeal in necessary quantity was too expensive – outside the reach of impoverished stock-raisers. Theiler left Cape Town for Somerset West to consult with Quinan at the nearby Cape Explosives Works (still called ‘De Beers’ after Rhodes original dynamite factory). He asked Quinan whether his colossal new fertiliser factory could not produce cheap but effective phosphates (calcium, sodium, phosphoric acid, etc) to meet the need. Quinan thought it could and promised to engage in bonemeal production, the best means of administering phosphorus to cattle.

147 The time had come for Theiler to stand away from ten years’ fruitless work and 18 months of revealing observation and experimentation. In brief, the combatting of Lamziekte also indicated the most advantageous methods of stock-raising. He had now to plan and put into operation before he left, the investigations into climate, pasture, feeding, medication and generally treating cattle to attain maximum production. Mogg, for instance, must go immediately to Armoedsvlakte to study and analyse the veld plants for at least two years. What was further needed was a Plant Physiologist and one must be found. Green must investigate the optimum chemical diet. And so on. But even before launching this programme of work, he must carry the country with him – the farmers, the industrialists, the legislators and the general public. With his great gifts for simple explanation, Theiler was a born publicist and promoter. He set his mind to expounding, with the help of his leading lieutenants, the Lamziekte syndrome and what it implied. Loyally and with due notice though deeply preoccupied, he began his campaign at Vryburg (where he had recently sent P. J. du Toit and H. H. Green publicly to confront the assertive Hartig and witheringly to demolish his vaunted ‘cure’).

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150 On the 29th June 1920, about 300 cattle-raisers and townsmen assembled in the Vryburg Town Hall to witness what Theiler considered a proofing run for the exposition which F. B. Smith was organising for him in Cape Town on a far grander scale. His lecture was most meticulously prepared and supported by slides projected by Theo Meyer while P. J. du Toit repeated him in Dutch. He concluded to applause that De Beers Dynamite Factory was going to produce a cheap phosphate before long and that the gathering must next day go to Armoedsvlakte where Mitchell would demonstrate the administration of bonemeal. (Few did – the stockmen had left for their distant ranches to scan their cattle with new insight and to spread the good word while the frustrated Mitchell gave a detailed demonstration to a mere dozen.) The proofing run had been notably successful.

151 Parliament was in session in Cape Town and with some poignancy, F. B. Smith for the last time before his final departure, arranged a grand occasion for his colleague and collaborator of 18 years. He took the large hall of the Training College and issued invitations to members of both Houses. Led by the Speaker of the Assembly and the present and past Ministers of Agriculture, F. S. Malan and Senator H. C. van Heerden, they thronged the hall on the 21st July 1920 together with representative notabilities, farmers and reporters. The interest of any audience was transfixed by Meyer’s ‘magnificent slides’ showing Pica-ridden beasts with necks extended chewing putrid bones and garbage, then exhibiting the stiffness of gait, recumbency, inability to rise and, if lifted, to stand, declining into inertia with their heads alongside their bodies, and finally dying. But Theiler also spoke to slides showing graphs indicating the onset of Pica during dry months with diminution of phosphorus in herbage, and other results of his first experimentation. Large doses of bonemeal – as much as a costly lb a day – were necessary to prevent Pica and the ingestion of the disease-microbe; but much smaller – as little as 2 or 3 oz. daily – would keep it at bay. He stated fascinating facts. It cost £40 per annum to keep Armoedsvlakte clear of carrion. 600 beasts grazed on it and were thereby safeguarded at a cost of 1s.4d. each for a year. Their annual bonemeal ration to compensate for the seasonal diminished phosphate-content of





*The cattle queue* with each animal voluntarily positioned with its head turned toward the point where it will be given a spoonful of bonemeal.



*Bonemeal Administration* – cattle at Armoedsvlakte willingly entering a crush and queuing for dosage with their heads already turned to the right in anticipation of the desirable morsel.



*The climactic moment when, with a farmhand holding its tongue, the beast receives its allotted dose on a long-handled spoon.*

their grazing cost 5s.3d. per animal. For less than 7s. per head per year, cattle could be both protected from Lamziekte and improved in condition. He emphasised again the importance of bonemeal production at the Cape Explosives Works. Its application had been striking. In 1914, one third of Armoedsvlakte's cattle had died of Lamziekte. In 1919, after his coup de genie (in which Theiler always paid tribute to the work of Walker, Andrews, Mitchell and Viljoen – and Theo Meyer), when the lands had been cleaned and bonemeal feeding introduced, the mortality had fallen to 2%. In the seven months of 1920, not a single case of Lamziekte had occurred and othe stockmen had had the same good results.

Theiler, again translated into Dutch by P. J. du Toit, forthrightly admitted that as the causative bacterium had not yet been isolated and identified, no vaccine against it could be evolved. A recovered Lamziekte victim was not salted and could later die from a recurrence. Bacteriological investigation was continuing, he said; but similar work was urgently necessary in other aspects, including close collaboration with many disciplines. 'Lamziekte is only one of the many problems with which we are confronted', he concluded, 'The difficulty in the past has always been the lack of scientific collaborators. It is to be hoped that all these problems will be tackled and eventually settled when South Africa commences the training of her own veterinarians.' When Sir Arnold sat down after his 'very notable lecture', his audience was with him.

152 He gave it once more in Pretoria on the 24th August under the aegis of the South African Biological Society (of which he was Honorary President) with P. R. Viljoen, H. H. Green, D. T. Mitchell, P. J. du Toit, H. Meier and Theo Meyer in historic attendance. The Society recorded an illustrated summary in its Journal. (Even in abbreviated form, it remains a gem of Theiler's  
153 lucidity and directness.) In between he had gone to a Nagana Conference in Pietermaritzburg with C. E. Gray, du Toit and Bedford and taken leave of F. B. Smith when he came to Pretoria  
154 finally to clear his desk. No longer would the high squeaky voices of Smith and Pole Evans which Theiler's deep bass would rise to join, be heard in conclave at the Botany Division at Vrede House below the Union Building.

Parliament had paid tepid tribute to one of the architects and builders of Theiler's empire. Sir Thomas Smartt lamented that Smith had joined the procession of able men leaving the  
155 Agricultural Department when most needed. His Minister, F. S. Malan made passing reference  
156 to the transformation he had effected in '20 strenuous years'. (Numerous speakers inside and outside the House objected to Malan's holding the portfolios of Agriculture, Mines, Industries and Education and demanded a single Minister of Agriculture.) Smith, on the closest cordial  
157 terms with Theiler had accepted a Readership (associate professor) in Estate Management at Cambridge. The ideal of an Imperial Veterinary College still lived in his mind and he promised Theiler to do all that he could to help. He sailed for England on the 27th August 1920, three weeks  
158 before his friend. Confusingly he was succeeded by Mr P. J. du Toit (bearing no relation to Dr P. J. du Toit of Onderstepoort), a mild-mannered bureaucrat from the Cape Agricultural Department and long absent from departmental affairs as a member of the Public Services Commission.

Theiler had been dealing with the Acting Under-Secretary Colonel G. N. Williams D.S.O.  
159 He wanted still more land – an adjacent farm belonging to Watson York who demanded £7,000 for it. Williams conferred with his colleague in the Department of Lands and both were persuaded by Theiler that the costly property was essential for 'extensions to Onderstepoort'. A few weeks later, he asked for six more erven at £1,650. On a batter's wicket, the old man was determined to prepare for the future.

With P. J. du Toit and W. H. R. King ever at his elbow, he had also to envisage the apparatus necessary to equip the laboratories for the new Faculty. Du Toit, freshly experienced in the latest European technical advances, had difficulty in compiling lists of the material required which

Theiler would buy overseas – different types of microscopes, incubators, sterilisers, Röntgen-ray apparatus, a gas cell for Glanders, centrifuges, specialised flasks, balances and the most modern equipment. They knew that many of the best European suppliers were not yet in full operation after the War and there would be difficulties, including monetary exchange. Unsettled conditions on the other hand, might make recruitment of staff easier.

160 Theiler took his lists with him together with much other material including his long-cherished collection of Nematoda which had never lost its fascination. Had he had time before or after his 'retirement', he would have worked on it. (On the 2nd August 1918, he had communicated to the Royal Society in London an astonishing paper on 'A new Nematode in Fowls, having a Termite as an Intermediary Host' which arose from a farmer some years before alleging that a certain white or 'Houtkapper' ant harboured a worm in its bloated body. Theiler duly made investigation, remarking primly that 'it is most surprising to see a worm two or three times the length of the ant wriggling out of its broken abdomen.' Chickens died from eating such ants.) His work on 'The Nodular Worm and the Lesions caused by it' was published in the *Journal of the Agricultural Department* in January 1921 and many other such subjects awaited investigation. 161 Now Gertrud would get on with an aspect of his precious collection – the Nematodes and Strongylids. He had made an arrangement by which the seminars he had promised her in Switzerland had expanded into research work under Professor Otto Fuhrmann of the University of Neuchâtel, the leading authority on Cestodes (another form of worm parasite). Gertrude, now fully qualified as a teacher of biology and zoology, had expressed herself 'open to suggestion' and gladly accepted her father's proposal that she explore a new field after which he had himself hankered.

162 On the 15th September 1920, Sir Arnold, Lady and Miss Gertrud Theiler accompanied by Mr and Mrs P. R. Viljoen left Pretoria for Cape Town and P. J. du Toit, technically superior to the local staff with his German degree of Doctor of Veterinary Medical Science, took office as 163 Acting Director of Veterinary Education and Research. (P. R. Viljoen with longer service and a distinguished record in military and research work, never forgave Theiler for promoting du Toit above his head.) The party embarked on the *Balmoral Castle* on the 17th for England, Viljoen intending furiously to learn German en route for his doctorate studies at the University of 164 Berne and Gertrud equally furiously studying French for Neuchâtel. Depression was rapidly creeping over the land they were leaving.

## AMBASSADOR AT LARGE 1920-1924

AT THAT POINT in time (1920), the volume of work accomplished, the institution of meticulous procedures and exhaustive experimentation recorded in highly-detailed and commanding published Reports, the utilitarian success of the results obtained and the sheer charisma of the one-handed man were sufficient to ensure Theiler a notable place in Veterinary Science and the unspoken gratitude of his adopted country and others.

In his person in the early days, he had significantly diminished the obdurate resistance of the boere to scientific treatment and eased the way of the veterinarian. In more cognisant circles, he had made his case for facilities for scientific research. Through continuous private study and experiment, he had achieved a knowledge and expertise far beyond his original training and a conviction and determination impressive to a succession of administrations. Onderstepoort, the largest and best equipped veterinary research institute in the world, stood as testimony. Shortly it would become the only Veterinary College in Africa.

1 The country, its officials exulted, was free of Rinderpest, Lung Sickness and Foot-and-Mouth disease. Swine Fever, Mange, Glanders and epizootic Lymphangitis appeared infrequently. The causes of East Coast Fever, Red Water, Gall Sickness, Blue Tongue and Wire Worm in sheep, and other diseases – even Gal-Lamziekte – had been identified and treatment successfully applied. Other obstinate afflictions were succumbing to investigation. The vitiating factors in animal husbandry had been engaged and the economic situation taken in hand. ‘Worth millions of pounds every year to the country’, officials pronouncement ran, ‘these discoveries have now rendered possible the keeping of animals in parts admirably suited for stock which formerly could not be used, and generally have been the main factor in the gratifying progress in the livestock industry which is of such moment to the Union.’

2 Without changing course, Theiler now widened his horizon to give more extensive attention to veterinary training and to developing the positive aspects of his work. The animals saved from disease could be more fully exploited to economic advantage. To his formidable armoury of disciplines he must add bio-chemistry, plant physiology, toxicology, nutritional science and specialised pathology. He must also find the personnel to practice what he had begun to preach. Much in post-war Europe cluttered his aims.

3 The ‘old man’ was feeling his years. On the ship he had been too tired and relaxed in mind to read the books he had brought to study and even to remember the number of his cabin. In London, there was a joyous family reunion with Margaret, happy in her physical culture training; Hans, still hampered by fever and in poor shape for completing his qualification courses (though earlier favoured by Fellowship of the R.C.V.S. Student Association for a thesis on ‘Veterinary Service in the East African Campaign’); and Max, also hampered by his recurrent attacks of acute pain, contemplating transferring his attention from a future in medicine or surgery to research in tropical diseases which particularly interested him. London still suffered post-war stringencies and high costs. Theiler gave himself only four days to transact his varied business, thinking it ‘better to clear out before I was bankrupt’. He called on the South African High Commissioner Sir Reginald Blankenberg to arrange the financing through Swiss banks of his heavy purchases of equipment and met as many of his old friends as he could. At the Lister Institute, he was saddened to find Sir David Bruce (chairman of its governing body) very much aged. ‘I think he is about finished. He suffers from bronchitis and cannot longer stand the English winter.’ Bruce and his lady immediately left for Madeira.

8 The terrible effects of the Great War were everywhere evident in London – shortage of food, ‘Government Sugar’, ‘Government’ this and that in unrefined products, limited stocks of clothing, poverty, beggary, the war-wounded in rags seeking alms in the street. England had borne the brunt of the war but now the Empire must pull together to extricate them all from the economic consequences. Grandiose plans were being drafted in Whitehall and steps would soon be taken to marshal joint forces of rehabilitation.

The Theilers moved rapidly to Switzerland, their heavy luggage lost behind them at great inconvenience to Arnold. They took lodgings in Berne, dealt with their families and Arnold plunged into the winter semester at the University whilst Emma helped with his voluminous correspondence relating to the equipment of the new Veterinary College and laboratories. Every week he wrote to du Toit who answered likewise. There was difficulty over the buildings. Construction would not begin until December. Anthrax was still bad. Kind, in charge of making vaccine, begged for special flasks and virulent strains from various institutes. Certain chemicals were urgently needed. Mettam had accepted appointment as Professor of Veterinary Anatomy at the new Witwatersrand University. Lounsbury had tried to dominate the Nagana affair. Curson was being sent to Zululand to combat it. Reports, news, gossip and endless demands while Theiler attended his lectures ‘taking in as much as will go in . . . but I am no longer so young to stand all this great effort without its leaving some marks on me’. In the bitter cold, he worked as a student from 8 a.m. to 12.30 and from 2 p.m. to 7 while dealing with his commissions in staff and apparatus and accepting invitations to lecture veterinary and other bodies anxious to hear their successful compatriot.

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12 Viljoen applied himself with equal vigour at the University and went with his wife to the concerts and excursions to which the Theilers invited them. E. M. Robinson was likewise seeking his Vet. Med. doctorate at Berne University and H. H. Green would soon depart from Pretoria to study the latest advances of Bio-Chemistry in the U.S.A. and England. W. H. Andrews was studying advanced Physiology at London University. Other staff would follow later for specialised training. Gertrud struggled with Strongylids and Nematoda at Neuchâtel, having mastered the French language. When Christmas came, the whole Theiler family foregathered for winter sports but it rained instead of snowing. It was the last time that all of them were together. Arnold had made good his promise of responsibility for Marie’s daughter Klärli, an engaging adolescent, and now proposed that she return with them to South Africa. Klärli was delighted.

A treadmill developed which was hard to sustain. The ‘old man’s’ schedule of University classes, negotiations with suppliers of equipment, consultations with his academic colleagues as to whom he should recruit for his staff, advice to the nervous Viljoen and Robinson on their theses, endless letters and the frustrations wrought by distance (seven weeks would elapse before a reply could be received from du Toit), and finally the clamant demands from his admiring colleagues for lectures by their famous countryman, all bore heavily on him but were zealously discharged. It was perhaps the measure of Theiler’s ‘vanity’ that he refused no speaking engagements and took meticulous trouble to prepare his texts.

13 The first lecture was given to the Botanical Society in Berne on the 10th January 1921 on ‘South African Plants and Diseases’ supported by slides provided by Pole Evans (awarded the C.M.G. a few days before). Theiler found it difficult to speak in Hoch Deutsch but had a great success, repercussing on Pole Evans whom he asked to send plants to his new botanical friends. Thereafter a long programme of more arduous engagements lay before him:

14 19th February – East Switzerland Veterinary Association, Zurich (where he caught a cold and ‘had a rotten time in bed for two days, feverish and ill’ but went to Baden in Aargau to recover);

26th February – lecture at Lucerne (hoarse and coughing);

5th March – Swiss Natural History Society, Berne;  
 19th March – Berne Veterinary Association;  
 18th April – Colonial Office, London (Animal Diseases Research Committee);  
 20th and 21st April – lectures at Cambridge University;  
 May – Geographical Society at Berne  
 Oberlander Veterinary Association at Spies  
 Solothurner and Basler Veterinary Association at Basle  
 25th May – International Veterinary Conference in Paris  
 15th June – Waadtlander Veterinary Association in Lausanne  
 3rd July – District School Assembly at Frick

15 He took heart from the progress of the College buildings (Gilles de Kock, working hard at  
 16 Anatomy in the Postmortem Hall to prepare for professorship, wrote him that T.U.C. were  
 'very busy building the Dissection Hall but I doubt whether they will be ready for us in March' –  
 17 he would lecture on Osteology and Histology) and du Toit wrote him constantly about equip-  
 ment. The High Commissioner was being exceedingly difficult, refusing to authorise expendi-  
 ture and denying that Theiler officially represented his Government. Not until Viljoen went to  
 England to meet his wife returning from a brief visit to South Africa could he be argued out of  
 his position and induced to credit Theiler with £12,500 at a Berne bank. Viljoen himself spent  
 £1,000 on incubators, centrifuges and other apparatus in England. By the end of May 1921, du  
 Toit had received between 200 and 250 crates and stored them unopened under injunction from  
 18 Theiler that 'the wood would come in very useful for sheep boxes at Besterput'. Hardship was  
 everywhere and Onderstepoort suffered from increasing financial stringency. Even the cherished  
 19 'Pica Survey' that would reveal the conditions under which the craving arose, was perforce  
 abandoned.

Theiler kept au courant with every detail of his distant domain. Butler, now deputy-mayor of  
 Vryburg, sent him the *Northern News* with reports of Armoedsvlakte and, in addition to lengthy  
 20 letters, du Toit sent departmental papers. King, Theiler's secretary, dealt with his personal cor-  
 respondence, writing him in March that the Senate of the Transvaal University College had  
 offered him appointment as its Rector (or principal) and advising him to accept as it entailed little  
 and was good for the profession. Theiler was flattered but refused, wishing first to establish his  
 Veterinary Faculty and then to retire to write his long-contemplated 'Handbook on Colonial  
 Veterinary Medicine'. Other members of his staff wrote him. A general election had been held  
 on the 21st February and foreseeing doom in already strained circumstances, Theiler hoped that  
 21 'old Jagger will not be made Minister of Finance'. Smuts and his South African Party were con-  
 vincingly returned with an overall majority of 79 against Hertzog's National Party's 45 seats. A  
 steady course seemed assured for a distressed country, now enduring excruciating drought. At  
 long last Smuts appointed a single Minister of Agriculture, none other than its earlier fiercest  
 22 critic Sir Thomas Smartt – 'I think he will now shout less than before', Theiler wrote du Toit.

With most of his purchasing done (at the sacrifice of his University spring vacation), Theiler  
 could now turn his attention to recruiting staff. Better weather had done nothing to improve his  
 health or restore his spent energies. His uninhibited public lecture schedule imposed exacting,  
 sometimes emotional excursions every two or three days – to Zurich, to Aarau whose High  
 School had prepared him for University and whence he had made the long walks over the hills to  
 23 Frick to see Emma, to Lucerne and, on the 5th March 1920, the great occasion of his address to  
 the Swiss Natural Sciences Society at Berne. He had devoted special care to presenting his mater-  
 ial in logical succession; but he still had a cold. In a sense, his appearance before this august  
 scientific body must be a vindication of his earlier reputation as a student. The academic elite  
 honoured him with their presence, all the leading professors including Sahli of the Medical

Faculty crowding into the Zoological Auditorium. The Society had never before commanded so large an audience, Emma among them and Gertrud who had come specially from Neuchâtel. Rising to the occasion above his illness and the fear of making gaffes in Hoch Deutsch, Theiler had a succès fou. 'The applause was very strong', he wrote Alfred, 'Sahli came personally to congratulate me. I was in very good form, if still somewhat suffering from a cold'. (Gertrud had demurred at reading his speech for him.) He spoke on parasites and animal diseases in South Africa, later published in the Society's journal. It was a relief when it was over. One more lecture to the Berne Veterinary Society on the 19th March and he would be free for a month to devote himself to his own work before leaving for London and Cambridge.

24 Typically the honour and the 'being wanted' in his homeland produced in Theiler, not satisfaction but a revival of the dichotomy which he never conquered. A week after his triumph, he wrote at usual length to du Toit on their mutual concerns. 'In conclusion', he stated, 'I must tell you that I really am homesick for South Africa. I have nothing to complain about Berne, even the weather is unusually excellent but I am not so happy as I used to be on former occasions. I cannot tell you what it is.' His lecture a few days later was 'loudly applauded' and the Berne veterinarians made him an honorary member. Theiler was pleased but the voice he truly wanted to hear gave him greater pleasure – MICROBES SEND YOU HEARTIEST GREETINGS AND EVERY BEST WISH FOR 26th, the cable read. Onderstepoort had remembered his 54th birthday – a rite that was performed wherever he might be until his death. In thanking du Toit, Theiler wrote – 'Our time is drawing shorter and it will be with not much regret that I return to South Africa.'

26 When du Toit got his letter, he was only recently returned from representing Theiler on the Botanic Survey Advisory Committee in Cape Town and having discussions with Smartt, his new Minister. 'Just before leaving Cape Town', he wrote, 'I had an interview with General Smuts who made the appointment the previous night. He wanted to know all about Onderstepoort, how the work and the students and the buildings were getting on. He laid particular stress on the point that we should not take too many students. He enquired after you, how you were getting on in Switzerland and when you were returning. He still seems to take a keen interest in O.P. and again promised to help me if ever I needed it.' Smuts would soon be leaving for the Imperial Conference in London in June when the lines of Theiler's future might well be drawn.

27 F. B. Smith, privy to privileged sources of information, had thrown some straws in the wind. The English assignments he had made for Theiler related to the general move to increase the productivity of the Empire. On the 18th April, he was to give evidence to the Colonial Office's Animal Disease Research Committee and on the 21st, to lecture at Downing College, Cambridge on 'Veterinary Research in South Africa' and attend a formal luncheon. Smith had openly stated that the Colonial Office had enquired through him whether Theiler would accept veterinarians for training for work in the Colonies. 'I replied they would be welcome and that we would give them special opportunities for training in their new jobs. I believe we have in Smith a good supporter of O.P. who pushes the new Faculty for all he is worth', Theiler wrote du Toit (who was being similarly pressed from another side – the Transvaal Administrator, A. G. Robertson, brought the Governor-General of the Belgian Congo, G. G. Lippens and his officials to inspect the Institute and to enquire in depth about the new Faculty. He wanted all Belgian Congo veterinarians to spend some time there.) 'I believe', Theiler continued, 'that having me lecture in Cambridge was part of his scheme to draw attention to the South African Faculty of Veterinary Medicine.' It was all very gratifying; but the old man could not forbear to remark – 'he arranged all this as if he were still my chief' and went on to denounce the endless work that weighed on him without prospect of holiday.

28 He was dealing now with recruiting staff and kept several Swiss in mind as well as attempting



29  
30 to persuade Kehoe to leave Ireland and become a professor at the new College. Du Toit warned him that there was feeling against the Swiss. There had been criticism of the College becoming 'too Continental' and men attached to the new Johannesburg University had slung mud at the foreign element. (The South African Veterinary Medical Association duly protested to the Government against 'the preferential treatment of Swiss and German veterinarians which they regarded as an insult to their members'. The Public Service Commission had inadvertently advertised a higher salary scale than to local men - it was due only to special research officers.)

31 Theiler stuck to his guns and fearing failure with Kehoe, employed Dr W. Steck of Berne as lecturer in Pathology. For Plant Physiologist, he made enquiries about the plump botany student who had shared his studies and excursions at Basle in 1913. Marguerite Henrici, now touching 30, had proceeded from the study of botany, chemistry and zoology to specialising in Plant Physiology under Professor Gustav Senn at Basle where she was awarded a doctorate *summa cum laude*. Senn himself worked in the summer months on the transpiration, respiration and assimilation of Alpine plants (precisely what Theiler wanted for South Africa's arid pasturage) with Henrici as his private assistant. She was officially employed as a research worker at the Botanical Institute of Basle University when Theiler turned his beguilement upon her. His charisma, enhanced since 'the most important day in my life' when she had first met him, was irresistible and she accepted his invitation to join his staff. Unforthcoming Treasury authority and other difficulties prevented her departure for 18 months.

32 Some surcease in Theiler's wearying schedule came in April when a Miners' Strike in Britain threatened extension and all Smith's arrangements were cancelled. 'He will be furious', Theiler wrote, inwardly rejoicing. The news from South Africa was also bad. Deepening depression entailed frustrating economies. 'I do not remember any previous period when it was so difficult to get things done', wrote King, an experienced civil servant, and du Toit constantly complained of hampering restrictions. One hopeful sign was the continued construction of the gigantic fertiliser factory at Firgrove at the Cape which would supply all the phosphates that the cattle industry would require.

33 Theiler was employing his time studying the lecturing methods of Swiss professors, buying cameras for fieldwork and preparing himself for the lectures he would have to give in May. The High Commissioner had authorised him to attend the International Veterinary Conference in Paris as the official South African delegate. His correspondence was still enormous. In addition to his own affairs, he had become the consultant sage to all who had ever worked for him. The disaffected D. T. Mitchell had asked for support for his application to the India Office for appointment as biologist to the Veterinary Research Institute at Muktesar. Theiler wrote that he was probably the most suitable man that he could offer at the moment. Even Montgomery sought his advice on what equipment he would need for East Africa. In all the stress and strain and mounting exhaustion, he had one 'very great joy' - an official document signed by Professor Arbenz reached him conferring honorary membership of the Naturwissenschaftlicher Verein of Berne, the prestigious body he had recently lectured. It gave him particular pleasure and he referred to it again and again in Switzerland and later in South Africa. His own country was honouring him - 'Let them all come!' he exclaimed vaingloriously.

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38 A sudden fall of snow throughout Switzerland early in May with freezing temperatures badly affected a tired man struggling to attend University lectures and botanical excursions while delivering addresses to veterinary societies. Theiler's right lung showed signs of pleurisy and his symptoms included 'a very bad appetite and a bad temper as well'. Emma suffered but was powerless to prevent his maintaining his schedule. He managed to address the Geographical Society in Berne and to travel to Spies and Basle for his lectures to veterinarians. Then he was forced to take to his bed with threatened pneumonia. He could write no more than a postcard to

du Toit on the 16th May. A week later he felt well enough to get up intermittently to attend classes; but his doctors forbade the Paris International Veterinary Conference. Theiler duly advised the High Commissioner that illness prevented his representing South Africa. Blankenberg cabled du Toit and threw all Onderstepoort into confusion. As du Toit cabled back for further news, Theiler went on a recuperative excursion to the Jura Mountains. Sitting at the Champs du Moulin on the 29th May, Arnold, Emma, Gertrud, Phillip and Gladys Viljoen, and E. M. Robinson signed a postcard of false gaiety and sent it to du Toit.

39 The expedition was too much for the old man. It was too strenuous and exhausted his resources. The pleurisy returned with a high temperature and Theiler confessed to feeling 'really ill'. He longed to return to South Africa but felt bound by his uncompleted work and still struggled to get up for his University lectures. On the 9th June, he allowed himself to be examined by Professor Sahli who, knowing his man, advised him to go to a lower altitude to recuperate but 40 permitted him to continue attending classes. Emma waxed cynical about Sahli's diagnosis of 'Pleuritis, Bronchitis, Pharyngitis and other Itises' and could do nothing to stop her husband's 41 daily expeditions to the University. Pneumonia made him weak and miserable, he wrote du Toit, and he went to bed immediately he returned from classes. There he spent his feeble energies on trying to put Robinson's thesis into optima forma 'if he is to come back with a degree'. Viljoen needed no such assistance.

42 The old man had taken a fearful toss but claimed to have rallied. His devoted staff wrote him almost hysterically, Gilles de Koch pronouncing: 'Your presence in South Africa for a number of years is absolutely essential - only a strong hand can steer us now.' Theiler knew it was true, despite the loyal protestations that 'Dr du Toit is excelling himself in your absence'. A reed on which he was relying showed signs of breaking. Henry Green, conscientious and intense, returned 43 from the United States to London and wrote that he was on the verge of a nervous breakdown. He had been ordered rest but would certainly collapse from worry if he did not get on with ordering his equipment and preparing for his new tasks. His personal pleas to Kehoe to return had also been rejected. By the end of June, Theiler was sufficiently recovered (though plagued with buzzing in his ears) to conclude his purchasing commitments of drugs, chemicals and photographic apparatus and even to travel to Lausanne to give a lecture in French to the Collège Vaudois. He wanted also to honour his obligation to the Frick School. Viljoen's dissertation was accepted by the University and there were small celebrations with the new D. Vet. Med. and his wife. Robinson's was accepted in the middle of July. Theiler could somewhat 44 slacken his pace and relax with his family, travelling constantly through Switzerland to make his farewells. There remained only the disposition of his children.

It was Arnold's manner to plan everything and then dragoon the wary participants into doing what he had ordained. His orderly mind seldom took cognisance of human nature which, kind 45 and helpful though he were, he never fully understood. When the frail and exhausted Max came to Switzerland to relax, he found that Arnold expected him to leave the next day on a strenuous walking tour, meticulously planned. Max, a robust character, compromised by agreeing to do it by bicycle. Arnold had long lost influence with his second son who knew his own mind and intended following his own interests and inclinations. He now announced that in 1922, he would 46 enrol in a six-month course to obtain a diploma at the London School of Tropical Medicine, recently established by Lord Milner who, serving briefly as Secretary for the Colonies, had 47 characteristically promoted research. Hans, the fever-ridden irresolute war veteran, remained a 48 problem. Viljoen who had visited him in London at Arnold's request, found him making heavy weather of his veterinary studies and was embarrassed in reporting to his father. Typically Arnold made a plan in a situation demanding very careful psychiatric analysis, unavailable at 49 that time. Hans was to go for a year to work on a farm at Buholz in Switzerland to recover his

health and mental capacities and perhaps become a farmer. Alfred would take him into his home and watch over him. Hans began his bucolic labours before his parents left and telegraphed them – ‘Am blistered, aching and tired but otherwise well’. Arnold considered the problem fixed. Gertrud, toiling at Neuchâtel and Margaret, soon to qualify as a teacher of physical culture, presented no difficulties. The whole family had been happily reunited in Switzerland. Now Emma and Arnold were returning to a home empty of children but solaced by the quiet presence of their niece Klärli.

50 Frightened by his brush with pneumonia – the first illness he had ever had – Arnold now doubted his capacity to deal with his demanding dual duties. ‘I am afraid’, he had written du Toit, ‘that I have been hit too badly to be the same man I was before I left South Africa.’ To  
51 Alfred he confided on the verge of departing – ‘I have a certain fear about my new work as I feel that I am not as strong as I was for which my age is for the most part to blame. Still I do not  
52 lack the will to undertake this work and carry it out.’ On the 26th August 1921, Arnold, Emma and Klärli Mettauer, Dr P. R. and Mrs Viljoen, and Dr H. H. and Mrs Green sailed from Southampton for South Africa on the creaking *Walmer Castle*.

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53 It was noticed at once in Pretoria that Sir Arnold ‘had not yet recovered from the effects of an attack of pneumonia and pleurisy which he contracted in Europe’. He was pale and drawn but resolutely confronted greatly changed circumstances. Stripped of all but a few items of P.W.D. furniture (Arnold was unwilling to replace the Theiler pieces that had been sold until his future were clearer), ‘The Residency’ itself was a bleak place where Klärli wandered about, bored, he  
54 feared, ‘by being alone with two old people who speak as little as possible’. Drought and depression ruled a scene ripe for later calamities in locusts and outright revolution. Retrenchments, privations and disaffection among most sections of the community were routine ingredients of the moral climate.

Everything was different. There was a new Governor-General, the ultra-regal Prince Arthur of  
55 Connaught and his disdainful lady. The Theilers went dutifully to their first garden party and to subsequent dinner parties but declined the balls. There was a new Minister of Agriculture, Sir Thomas Smartt, proudly announcing that he had been a farmer since 1884 (at Britstown in the  
56 Northern Cape) who paid his first official visit to Onderstepoort accompanied by Imperial guests from India two weeks after Theiler’s return. (Visitors from all parts of the world now flocked to the famous institute, few bringing joy to its restored head with the exception of a distinguished  
57 party from the Robert Koch Institute in Berlin – Professor F. K. Kleine who had accompanied Koch to Rhodesia to investigate East Coast Fever in 1903, Drs R. Fischer and H. Ockelmann. Local celebrities also came in number but not the Governor-General.) There was a new Secretary  
58 for Agriculture in the colourless P. J. du Toit whose actions displeased Theiler and a new Principal Veterinary Surgeon replacing C. E. Gray – the veteran acolyte of Hutcheon, J. D. Borthwick whose senior staff included historic colleagues like Spreull, Power and Dixon.

There were changes among the Onderstepoort personnel. Captain Frank Veglia had returned  
59 from Italy, honoured by his King as Chevalier of the Crown of Italy for his military and veterinary services and, when Mitchell left for Europe, was posted to Armoedsvlakte. M. Zschokke,  
60 finding South Africa too small for so many Swiss, transferred his employment to the mandated territory of South West Africa. Drs H. Meier and R. Scharrer left on termination of their contracts; but Gerard Kind and J. Scheuber remained, recently joined by Dr W. Steck, also on contract. Du Toit had wrought diligently in maintaining research despite curtailment through  
61 diminished funds. ‘Restriction of research is not in the economic interests of the country’,

Theiler wrote severely in his 1921/22 Report though compelled to cut his cloth in conformity with the prevailing pattern. His mind was more on launching the Faculty in the new year and, once du Toit and he had shuffled the staff to do dual duty, his burden was increased by preparing his lectures. He had not fully recovered. In fact, he confided to Alfred, 'I am still not well. The catarrh still sticks in the upper air passages and as soon as I lie down, the whistling and hissing begins in my ears. Sometimes I feel really unwell despite my weight and body-size having considerably increased since my return. I am simply not well despite everybody congratulating me on my good appearance.' Emma's good Swiss cooking could not touch the seat of his trouble.

On the 12th November 1921, Smuts opened the fine new building of the Agricultural Faculty of the Transvaal University College in Pretoria. Within weeks, when the new term opened in February 1922, more students would enrol for the elementary courses in Veterinary Science and the pioneering seven would proceed to Onderstepoort for the advanced studies which Theiler and his colleagues had planned. In his dual capacity, he had deployed his forces as follows:

- 62
- Sir Arnold Theiler K.C.M.G. – Director of Veterinary Education and Research, Dean of the Faculty of Veterinary Science and lecturer in Pathology I
  - P. J. du Toit B.A., Ph.D., Dr.Med.Vet. (Berlin) – Deputy Director of Veterinary Education and Research, Professor of Hygiene, Infectious Diseases and Embryology
  - H. H. Green D. Sc. – Sub-Director of Veterinary Education and Research, Professor of Bio-Chemistry and General Bacteriology
  - P. R. Viljoen Dr.Vet.Med. (Berne) M.R.C.V.S. – Sub-Director of Veterinary Education and Research, Professor of Applied Research and Special Bacteriology
  - W. H. Andrews D.Sc. (London) M.R.C.V.S. – Senior Research Officer and Professor of Physiology
  - G. de Kock M.R.C.V.S. – Senior Research Officer and Professor of Veterinary Anatomy
  - C. P. Nesor B.A., D.Sc., M.R.C.V.S. – Research Officer and lecturer in Veterinary Medicine and Pathological Physiology
  - A. O. D. Mogg – Lecturer in Ecology and Mycology
  - P. J. J. Fourie M.R.C.V.S. (Dublin) – lecturer in elementary courses at the Transvaal University College
  - M. W. Henning M. R. C. V. S. – ditto
- Onderstepoort*
- Research Officers – G. A. H. Bedford F.E.S.
  - P. J. van Zyl B.A., Ph.D.
  - P. J. J. Fourie M.R.C.V.S.
  - M. W. Sheppard B.Sc., M.R.C.V.S.
  - W. Steck Dr.Med.Vet (on contract)
  - G. Kind Dr.Med.Vet. (on contract)
  - H. O. Monnig B.A., Ph.D.

*Armoedsvlakte*

Officer in Charge – Dr F. Veglia

*Allerton Laboratory*

Officer in Charge – E. M. Robinson Dr.Med.Vet. (Berne) M.R.C.V.S.

Research Officer – J. Scheuber Dr.Med.Vet. (on contract)

63 (Of Theiler's careful selection of lecturers for T.U.C., a story survived that he had asked one candidate whether he had had any experience. 'Oh yes', he replied, 'you see, I am a lay preacher.' 'Ah!' said Theiler, 'but in this, you have to speak the truth.'

64 Du Toit, Mogg, Fourie and other members of his staff had toiled at the College to prepare the first students for their specialised courses at Onderstepoort while its research officers dealt as far as they were able with Nature's usual vicious onslaught in difficult times. Anthrax and Nagana flourished while a cruel drought and monstrous swarms of locusts devastated the grazing over wide areas, severely reducing the population of sheep as well as horned cattle. Smuts described in Parliament the gravity of the situation - 'The farmers have been passing through a period of the greatest trial and difficulty . . . They could not sell their wool or their mealies or ostrich feathers - all our great staple products. The agricultural products of South Africa were practically unsaleable in the markets of the world . . . We have a country which is very largely a ranching country which is only fit for cattle and as a result of that, the meat industry ought to be one of the greatest sources of wealth for the farmers of this country. There is in fact total chaos and disorganisation.' He went on to urge the restructuring of the industry to ensure the capture of overseas markets and with it, the restoration of the South African economy. In the meat industry lay the country's salvation. It was the concern of Theiler and du Toit to safeguard its increased productivity and to promote its development.

65 The old man attempted to grasp all his nettles despite crippling reduction of funds. On the 3rd January 1922, he arrived at Armoedsvlakte with Green, Mogg and the handyman Theo Meyer. They were accompanied by Messrs Bennett and Cooper whom the Colonial Office had sent for some months' study at Onderstepoort before posting to the Lahore Veterinary College and the Muktesar Laboratory in India. A beginning had been made in Theiler's grand plan. The ubiquitous Butler noted that he looked well and professed benefit from his year abroad in new ideas and zest for his work 'but has evidently not completely shaken off the effect of his recent attack of pneumonia'. Mitchell, shortly departing for Europe to take advanced courses in bacteriology in London, Utrecht and Paris, could show gratifying, even astonishing results from the phosphate feeding with bonemeal at 3 oz. per animal per diem. Cattle developed in size and weight to the extent of 100 lbs in four months. Milk production increased by 45% and butterfat by 40% when 2 oz. were given daily to cows. Bonemeal not only prevented Lamziekte but greatly increased the value of cattle. It was then so cheap that 'a profit and loss account in some of the Armoedsvlakte experiments shows a clear profit of 300% upon the cost of treatment'. It was of course equally effective with animals in non-Lamziekte areas, even sheep and, continued  
66 Theiler's annual report (written by P. J. du Toit to cover the period of his absence), 'the disease itself, by focussing attention on greater issues, will ultimately prove to have been a blessing in disguise and the expenditure upon the present investigations be reflected in the beef export trade in the Union'. Theiler warmly congratulated Mitchell and regretted the reduction in his monetary resources which cancelled the Pica Survey, prevented more experimentation and might involve reduction in salaries and retrenchment of staff.  
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69 The party returned on the 7th January leaving Theo Meyer to assist Veglia. An old Daspoort and Armoedsvlakte hand, Meyer conceived the happy notion of asking the Vryburg Farmers to make good the station's financial plight by donating the balance of the Experiment Fund amounting to £55 to building a reservoir to enable certain grass experiments. Butler hotly opposed it. He said he had asked Sir Arnold before the War how he would like the balance spent and, with his mind on testing the effect of wind and the rays of the sun on pasturage he had replied that he wanted Metereological instruments. Now that such instruments were available, Sir Arnold had repeated his wish and undertaken to have a suitable tablet engraved recording the gift. The Farmers' meeting decided to seek confirmation from him. In March, du Toit came down to Armoedsvlakte with instructions from Theiler to confirm what Butler had said.

70 By that time, the old man's weakened constitution had failed to withstand the inordinate demands made on it and from early February onward, he had remained in bed. Du Toit, King and

71 others visited him to take his directions. His hand remained at the helm but it was du Toit who  
72 administered all affairs. During the eight weeks that Theiler struggled to recover his strength,  
the accumulating calamities reached their climax in civil war. While the Transvaal Administrator  
A. G. Robertson opened a desperate conference of the Agricultural Union to devise means of  
finding markets for wasting farm produce, a strike of coal miners on the Witwatersrand became  
militant and widespread. Armed commandos composed of Afrikaners as much as English-speak-  
ing, were formed along the Reef, the Defence Force stood by and aircraft practiced bombing  
outside Pretoria. By the middle of March, Colonel H. Mentz, now Minister of Defence, pro-  
claimed Martial Law and Union police and troops waged open warfare against miners and dis-  
sidents in Johannesburg and along the Reef. The newspapers carried casualty lists along with  
pitiful accounts of the victims of depression. There was no work in the towns and the farmers on  
their lands starved with the rest, few having the heart or the means to attend their Association  
meetings which fell dangerously into abeyance. Herculean efforts would be needed to drag  
South Africa out of the morass of paralysed industry and agriculture. Smuts' Government bore  
a Sisyphus burden.

73 As the 'Red Revolution' ended, Theiler got shakily to his feet, unable to discharge his re-  
74 sponsibilities in both Veterinary Research and Education. His doctor, like Sahli, prescribed a  
lower altitude and complete rest. He had no alternative but to comply. On the 6th April 1922,  
Arnold, Emma and Klärli left for Illovo Beach on the Natal south coast. They did not return  
until the 14th June. Du Toit, in the fullness of his powers, ran Onderstepoort and lectured the  
seven pioneering students in their first specialised year.

75 At a time of desperate depression and economic stagnation with graduates and professional  
men glad to do pick-and-shovel work and farmers so penniless as to be unable to pay the pittance  
for vaccines to protect their stock, there were few rays of light. Great efforts were being made to  
break the grip of world-wide slump. Smuts already knew of grandiose plans to stage a 'British  
Empire Exhibition' at Wembley in 1924. Publications in which South Africa would participate  
were also being drafted. Locally a little heart was given the cattle breeders - in a brave experi-  
76 ment, the Union Castle Line transported free of charge a consignment of pure-bred Friesland  
cattle for auction at Slough in England. They fetched high prices to the astonishment of all con-  
77 cerned and it was proposed to continue export. Both Theiler and now du Toit vaunted the pros-  
pects opened by enlightened feeding and, curtailed as it was by lack of money, Onderstepoort  
78 continued lengthy investigation into the optimum methods.

Nothing was allowed to impede the training of veterinarians, recruits being blandished by  
sizeable Government salaries if they qualified and the lecturing staff, now enlarged, being en-  
79 couraged to increase their own qualifications. In June 1922, Mogg went abroad for a year's  
80 specialised study of Botany followed a few weeks later by Gilles de Kock for deeper instruction  
in Anatomy and the acquisition of a D.Vet.Med. Science degree. Already in Europe on six  
months leave was Pole Evans who had astounded his colleagues and friends by marrying his  
81 long-time mycologist, Mary Thompson F.L.S. Always a frequenter of Government House and  
ministerial residences, Pole Evans was a particular friend of the botanist-premier and the cere-  
mony had taken place in his Cape Town house under the aegis of Mrs Smuts (the couple sub-  
sequently took up residence at Irene near Smuts' home at Doornkloof). Theiler had designs on  
his returning colleague.

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With his 'zest for work' fully restored by nine weeks' rustication and ozone, Theiler resumed  
his duties in the middle of June 1922 and was immediately involved in local and imperial tur-

82 bulence. There was the unpleasant affair of Gerard Kind which had been simmering since his return from Europe when, for the first time in history, Anthrax had infected the stables at Onderstepoort and one of the staff had contracted it. Du Toit blamed Kind for careless methods in preparing and packing the vaccine. Good if bad-tempered worker though Theiler claimed him to be, Kind was dismissed at the end of his three-year contract. He took the Minister to court for unpaid salary and Theiler was compelled to join du Toit in testifying. Much back-stairs vituperation was adduced as evidence which did neither Onderstepoort nor the Swiss any good at a time when Theiler had more momentous affairs on his mind.

83 The phosphorus-feeding experiments were proving highly rewarding but old enemies continued obdurate. In September, Theiler summoned Robinson from Allerton and Curson from the Nagana experiment station at Ntombanana (near Empangeni in Zululand) to concert an attack on the endemic disease. He devised a number of baiting methods to catch tsetse flies in various areas to establish their relation to vegetation, the presence of big game, humidity, temperature, etc and sent them away to record results. He found time to write to the moribund Vryburg Farmers Association about the anemometer (there were very few wind-measuring instruments in South Africa, he said, and Armoedsvlakte would become an important meteorological observatory) and to instruct King to commence the laborious procedures of ordering it, having the plaque affixed and arranging with the P.W.D. to build a solid stone platform to mount it. With Green he went to Armoedsvlakte in October and regretted that drought had interfered with the grazing experiments and that lack of finance would prevent much further investigation. Thence to Ermelo to examine an outbreak of Stijfziekte. There were his Faculty lectures and a growing stream of distinguished visitors including the ex-prime minister of Belgium, General Carton de Wiart and his suite, anxious about veterinary care in the Congo. Shape would soon be imposed on his cherished ideal of an Imperial Veterinary Institute. 'Throughout the year (July 1922/June 1923)', he wrote, 'inquiries were received from various sources concerning the facilities offered to foreign graduates for specialising in subtropical veterinary science and the question of running a special postgraduate course for overseas veterinarians is now under consideration. There is no doubt that with proper encouragement, Onderstepoort will become the recognised centre for the study of tropical and sub-tropical veterinary science in the British Empire.'

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87 Emma had again made a home of the house where Klärli Mettauer happily diverted herself as best she might. The family now were widely distant. In September, Gertrud submitted her thesis (in English by special permission but with a French oral) on 'The Strongylids and Other Nematoda' to the University of Neuchâtel and, now an addict of Helminthology, intended going to Liverpool to continue work on Nematoda under Professor Warrington York. Arnold read her dissertation with approbation, seeing himself worthily reflected in his diligent daughter and anxiously awaiting the academic verdict. At the same time, the maverick Max was making his hectic farewells in London, having obtained the diploma in Tropical Medicine and Hygiene. A co-student in the six-month course had been Dr Oscar Teague of the Harvard Medical School who had secured appointment for him to the staff of its bacteriologist, Dr Andrew W. Sellards. Max sailed for the U.S.A. early in October and, still plagued by periodic pain in his diminutive frame, finally found direction in his career. Hans however had lost it. Farming at Buholz had no attraction for him and Arnold had to face the recurring worry and expense of his elder son's enduring desire to qualify as a veterinary surgeon. Before long, unstable as ever, he was back in London at the R.C.V.S.

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90 Joy now entered the Theiler household with the arrival of Marguerite Henrici in November 1922. Arnold had made elaborate preparations for her coming. Escorted from England by the returning Pole Evans, she was met at Cape Town by Theiler's botanist friend, the German-speaking Dr Rudolph Marloth who put her on the train to Pretoria where Theiler himself await-

ed her at the station and took her into his home. Schwizerdutsch, ardently joined by Klärli, rang through the house. Africa in full summer heat was a new experience for the buxom botanist whom Theiler allowed 10 days to acclimatise herself and explore the wonders of Onderstepoort before taking her, accompanied by King, to arid Armoedsvlakte. Over a weekend, she surveyed its parched vegetation with professional interest. At some stage, Theiler told her, it became phosphorus-deficient and caused abnormal craving for carrion in cattle resulting in Lamziekte. She must examine the physiology of the plants that were grazed and determine which features influenced the process. Butler stood by, marvelling that a lady should be entrusted with such work.

She went back to Pretoria for final preparations and began her work at Armoedsvlakte at the end of December, at first abashed at the contrast between her secluded University life in Basle and this rude and torrid place infested with snakes, rodents and horrid insects and tended by black, brown and white men whom she barely understood. Of tough moral and physical fibre, Henrici soon accommodated herself and commenced producing a series of papers on transpiration, chlorophyll content, wilting, growth and other features of Bechuanaland grasses, some of which were published in Theiler's 11th and 12th Reports and some in Switzerland. Soon her field of work far exceeded the problems of Armoedsvlakte. She was always persona grata in the Theiler household and until the end of her long life, considered Arnold 'my best friend in South Africa'.

91 Secretly the old man or 'Oubaas' as his growing number of Afrikaner veterinarians trained overseas (P. R. Viljoen, Gilles de Kock, P. J. J. Fourie and others) called him, was bending before the blast. When Gertrud got her doctorate early in 1924, he tempered his delight that 'one of my children has obtained this academic distinction' with an urgent appeal that she relieve him of one of his grievous burdens – the care of Hans. He had taken to heart, he wrote, his son's various failures and acknowledged his many good points but he was still unable to earn a living. Gertrud must take him in hand. 'I am looking to you to see him through his studies. I am getting old and my health is no longer as it used to be. I am getting tired and I am looking forward to leaving O.P. to take up some less irksome work, to have the rest of my life an easier time than I have had in the past. But I cannot leave my job until Hans has finished his studies and is capable of looking after himself.' Gertrud shouldered the burden as she had in the case of Max and after 92 some months, transferred from Liverpool to the London School of Tropical Medicine to study Trematoda under Professor R. T. Leiper, the better to watch over Hans.

93 Theiler, supported at base by the diligent du Toit and a devoted staff, continued his routine duties throughout the country, visiting Armoedsvlakte, Ermelo and other experimental stations and immediately travelling to new outbreaks of disease. The onus was heavy enough but his attention was now diverted from his multifarious local obligations to the world at large. P. R. Viljoen could represent him at the Fifth Pan-African Veterinary Conference convened by the Kenya Governor, Sir Robert Coryndon in Nairobi in April 1924. More important tasks were allocated to his 'old chief'. The powerful move toward coördinating the Empire's efforts to extricate itself from economic stagnation was gathering momentum. Theiler's old Republican 94 friend, Leo Weinthal of the *Pretoria Press* had become, as editor of the *African World* in London a dedicated Pan-Africanist and called on him to contribute a definitive account of 'The Study and Control of Animal Diseases in South Africa' for a massive work in four volumes misleadingly entitled 'The Story of the Cape to Cairo Railway and River Route 1887-1922'. It was intended for publication prior to the opening of the British Empire Exhibition at Wembley in April 1924. Theiler produced a classic example of his gift for compiling and compounding masses of abstruse material and interpreting it in terms intelligible to the layman. It was published with an impressive portrait study of the closely-barbered author in the fourth volume toward the end of



1923 and Smuts, returning from high State occasion, could be proud when a copy was placed in his hands in London.

95 Smuts had ensured that Theiler be integrated in the drive toward the economic recovery of the Empire. An Imperial Conference of Prime Ministers preceded by economic discussion had been scheduled for October 1923 in London. Smuts who had intended pressing for Empire preference and particularly the right to export cattle and meat to England, planned a large entourage including Pole Evans. Great impetus would be given the drive to which Theiler himself would contribute. In striking recognition of his stature in the world at large which the Prime Minister fully appreciated, he had received an invitation from the Canadian Minister of Agriculture to address the Northern American Veterinary Convention in Canada early in September and another from the World Dairy Congress meeting in Washington and Philadelphia early in October which he was asked to lecture on 'Tropical Diseases in Dairy Cattle'. Theiler discussed them with his Minister, Sir Thomas Smartt. There were two issues involved: the poor standard of local stock - 'We have 9,000,000 head of cattle in South Africa', Smuts exclaimed in the House on the last day of the session, 'and they are scarcely fit for local consumption, leave alone for export' - and Theiler might learn much in better production techniques from conferences and conventions as well as visiting agricultural colleges and veterinary institutes. Secondly, Smuts 96 hoped to lift the U.S.A. embargo on importing South African stock and to make favourable arrangements in cattle traffic with Canada and the U.S.A. which Theiler might well facilitate by his attendance at the Veterinary Convention in Montreal prior to the Imperial Economic Conference. He was authorised officially to accept both invitations and to spend an additional three months examining veterinary faculties at various universities as well as scientific institutions in the United States. Thereafter he might go on leave for three months. 97 98 99

100 It was a gratifying assignment to a man frustrated by financial restriction and depressed by the shocking state of the country and the industry which concerned him most. As he made his elaborate preparations, H. Watkins Pitchford arrived from England to promote his stock-fattening foods marketed under the name 'Nutresco' in the hope that the Government would endorse them to improve the hordes of 'scrub cattle' to which Smuts had referred. He was disappointed and after some months, returned to England. The Government was dealing with nutrition and the 'mineral metabolism of stock', including sheep, at Onderstepoort and in any case, utterly destitute farmers could not afford such luxuries, even when produced in the Union. Large numbers deserted their farms, hoping for work in the towns. Derelict properties and animals 101 characterised the countryside. Donkeys in hundreds infested dorp commonages. Graaff Reinet was over-run with emaciated beasts sold at Is. each and the Town Council asked the Provincial Administration for permission to shoot them. Beaufort West's pound held 254 at one point 102 with no purchasers. A Namaqualand speculator offered 4,000 to the Firgrove Fertiliser Factory at 4d. each - to be driven down, shot on the hoof and converted into bonemeal. The offer was refused. Ruin was everywhere and hope glimmered only where export was possible. Wool from 103 improved sheep whose protection from disease Theiler had largely enabled, was slowly proving the point. 104

The Government was by no means opposed to commercial participation in the veterinary field. Patent medicines, vaccines and particularly dips had been recommended from Hutcheon onward. It was part of Theiler's duties to investigate their composition, efficacy and cost. Some flutter had been caused by his producing an arsenical dip cheaper than the companies'. 'Jeyes Fluid', 'Cooper's Dips' and other proprietary specifics had been bywords in South Africa since his arrival and he himself had sought vaccine and medicine manufacturers in Europe and the coöperation of the Cape Explosives Works and its Natal affiliate in the fertiliser and edible 105 phosphorus fields. Now he welcomed the arrival of Dr H. Burg of the Bayer Chemical Works at

Leverkusen in Germany who had come on a two-year visit to test 'the famous drug Bayer 205 on cattle and other animals infected with Nagana'. Du Toit would look after him while he was away.

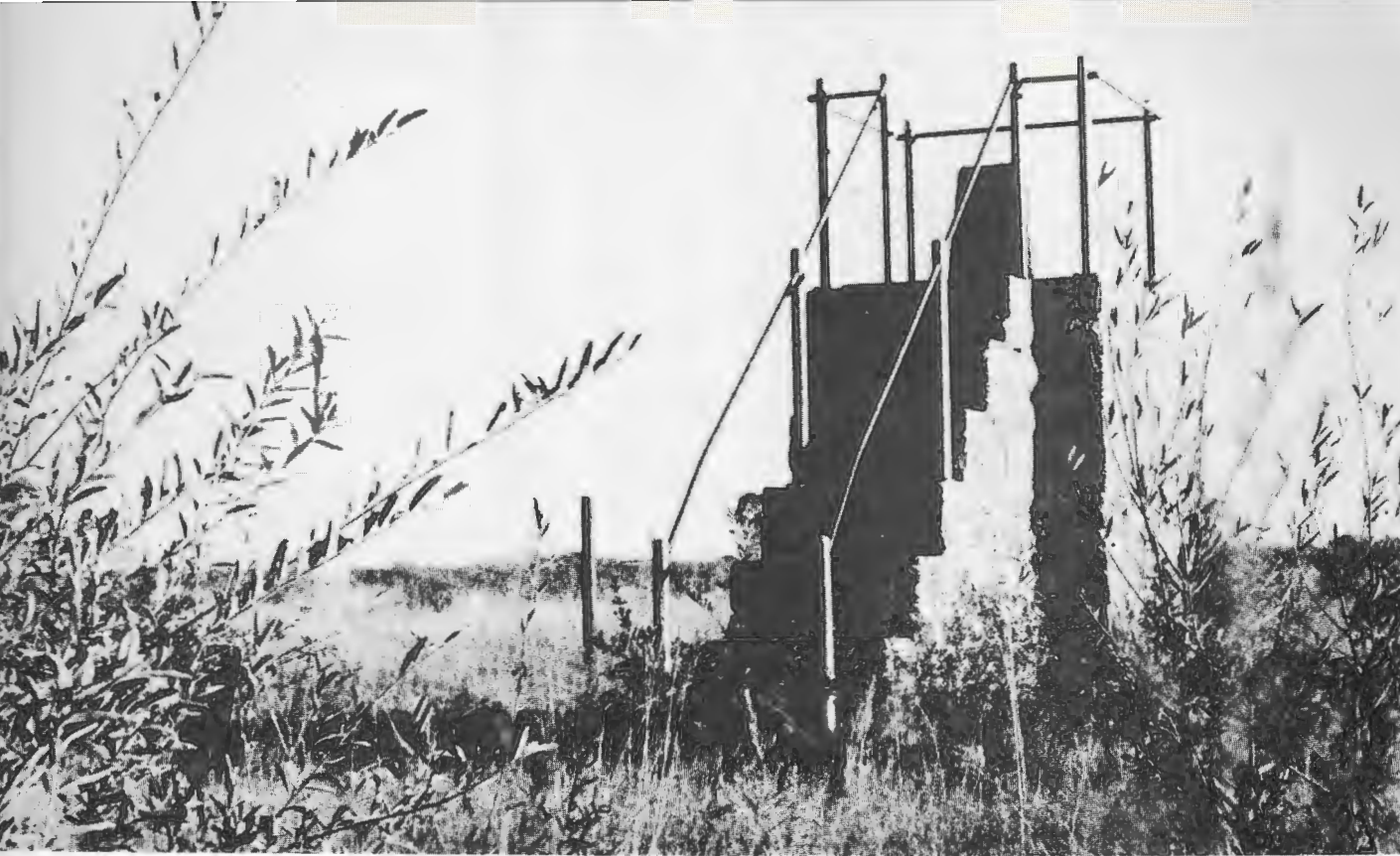
106 Smuts had indirectly underlined in Parliament the paramount importance of Theiler's work in rescuing and developing the country's stock industry. He praised it publicly when he opened the National Herbarium at Vredehuis in Pretoria in July, quoting Theiler as affirming after his survey in Europe that Onderstepoort was the finest institute in the world for investigating animal diseases. (Smuts added ruefully - 'This scientific work is all very costly and expensive but of the greatest value.') But the cattlemen needed more than words. Throughout the country, they were  
107 up in arms at the Government's failure to help them and at its policy of importing competitive cattle from Rhodesia and elsewhere. All Smuts' inveighing against the chaotic disorganisation of the meat industry had failed to produce improvement or to develop markets. At widespread meetings, violent views were expressed and strong anti-Government feeling was evident (placat-  
108 ed too late in 1923 with a 'Beef Bounties Act' subsidising at ½d. per lb all beef exported and ¼d. per lb on live weight). The ugliness of the time and the temper of its victims were exacerbated by  
109 an uncontrollable visit of the eighth plague. As the Theilers and Klärli left Pretoria to embark at Cape Town in July 1923, the lawns of Church Square were thickly covered with layers of locusts.

\* \* \*

World-wide economic trends of the time converged on disaster. Theiler had told du Toit to keep him informed despite the difficulty of a different address almost every day, and he would try to reciprocate. Travelling in the ancient Blue Funnel liner *Aeneas*, the family reached Liverpool early in August and were met by Gertrud (who duly escorted Klärli to Calais on her way home  
110 to Thun in Switzerland). Arnold had occupied the voyage with preparing his American addresses and put the finishing touches to 'Lamziekte' in Liverpool. Then the family went to London for the usual hectic round of visits and to see Hans who, thanks to Gertrud's influence, had passed  
111 his third year R.C.V.S. examinations. Arnold's presence was demanded at Cambridge where F. B. Smith continued to laud Pretoria's new Veterinary Faculty. Theiler was in his element among distinguished scientists in the congenial Cambridge atmosphere. They offered him a professorship in Veterinary Science for five years. Lesser men would have succumbed to the honour but Theiler, always well informed by his colleagues (Sir Stewart Stockman and many others) was wary, divining that a coterie of interested academics intended using him as a blind to operate against the existing veterinary authorities. Unbelievably to some, he declined the offer and play was later made of his refusing a chair at Cambridge.

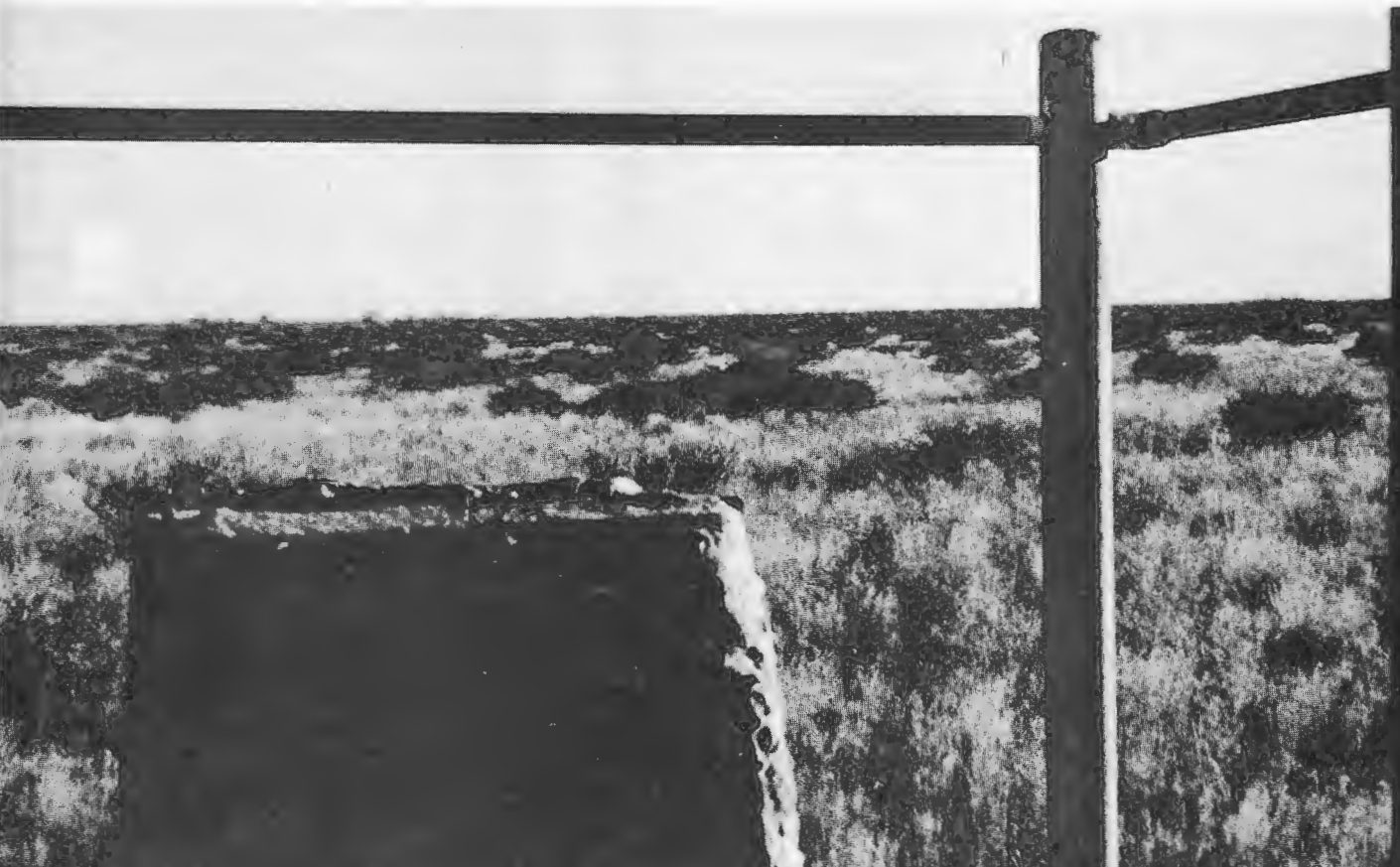
He was wanted everywhere and for all purposes. Leo Weinthal F.R.G.S. and exalted to C.B.E. for his wartime services, demanded letters during his forthcoming American tour for publication in the *African World*. Theiler agreed and forthwith travelled to York to attend the  
112 British National Veterinary Conference to which Professor Frederick Hobday had invited him. Many friends including Kehoe and Montgomery were present but it was a painful occasion through the gratuitous discussion of the affairs of the South African Veterinary Association, including its Onderstepoort members. Theiler and Kehoe pointedly withdrew. Kehoe remained for two days at Liverpool with his old chief before he and Emma embarked on the 17th August 1923. As *S. S. Regina* was warped away, Hans, Gertrud and Kehoe waved from the wharf. Arnold was  
113 never again to see Kehoe - he died on the 6th May 1928 at the age of 40.

Theiler had always wanted to visit the 'New World' and even as a student, had contemplated emigrating to South America. Now he came, decked with his country's embassy, to the North and an emotional extravaganza which he could hardly have envisaged. It began as the ship



*The Stone Platform* at Armoedsvlakte which mounted a wind-measuring instrument commemorating the cooperation of the Vryburg Farmers.

*The Plinth*, empty of its anemometer, at the top of the platform overlooking bleak Bechuanaland cattle country where the Fata Morgana made spectacular appearances.





*The experts at work in the veld at Armoedsvlakte – (left to right): Sir Arnold Theiler; Dr Marguerite Henrici, plant physiologist; and Dr Henry Hamilton Green, bio-chemist.*

*I. B. Pole Evans with Arnold Theiler in the grounds of Vredehuis (Union Building in the left background) where the work of the National Botanic Institute was begun.*



114 emerged from fog and extreme cold into the estuary of the St Lawrence River and there, on the wharf at Quebec stood Max, a man transformed since his parents had last seen him two years previously. Max had taken happily to the Harvard Medical School in Boston until struck down by a severe attack of his pain. It was a challenge to his colleagues. There emerged from their analysis that as a small boy, Max had broken family rules and waded in the Aapies River in search of aquatic life, contracting unbeknown the dreaded bilharzia (Schistosomiasis) carried by water snails. It had pursued its course, leaving him with a damaged bladder vulnerable through scar tissue. Under stress, the tissue ruptured causing pain. Harvard repaired it and there was never an attack thereafter. Max stood at the deckrail at his proud parents' side during 'the very grand voyage' up the river taking all day to Montreal where a deputation of five representing the Reception Committee and led by Canada's Chief Animal Pathologist, Dr E. A. Watson came aboard at night to welcome the great man. It was a sentimental meeting. When Watson had been a Canadian trooper stationed at Daspoort during the Boer War, Theiler had persuaded him to enter the veterinary profession. The Theiler family were taken to an hotel as the guests of the Canadian Government.

115 The North American Convention of Veterinarians opened the next day at McGill University and smote Theiler with the full force of his own stature. They gave him 'a most unexpected ovation. I hardly could find words to thank them for this most unexpected welcome.' (At the end, they made him an honorary member and he was likewise honoured by the Canadian Veterinary Association.) While Emma was taken to museums and art galleries, Theiler gave an address in French and the same evening, delivered his lecture illustrated by slides on 'Phosphorus Deficiency as the direct Cause of Disease in South African Cattle' - his staple piece on a long tour. Its novelty and success were remarkable in Montreal where it was considered 'the event of the Convention'. Many members then assaulted Theiler with invitations to their laboratories and institutions in the Dominion and U.S.A., particularly delegates from Texas who recognised in his description of Lamziekte a similarity with their own 'Loin Sickness'. In time an official invitation came from the Texas College of Agriculture. Further honour was done him when he was asked to reply to the toast of The Profession at the formal banquet. A patently sincere if gutteral and ungrammatical speaker, Theiler did it well and 'it had an excellent reception. I think I was able to dig myself a little into the hearts of our Canadian and American colleagues'. Smuts, preparing to leave for the Imperial Conference in London, would have heard by cable of the success of his emissary from his Trade Commissioner in Ottawa where Theiler then went.

116 Honour continued to be done him. The Minister of Agriculture, Mr Motherwell and his wife, called on him and Theiler felt obliged to make a speech about 'South Africa and its great premier'. Dr Watson took him about and he lectured the Government Pathological Division. During the few gaps in his demanding schedule, Emma and he industriously wrote to their family, to du Toit and King. They referred to the appalling earthquake in Japan which had then completely destroyed Yokohama and half of Tokio with a death roll of 90,000, many being victims of the uncontrollable fires that broke out. Japan was on their itinerary. In Ottawa, Theiler had the novel experience of addressing a Rotary Club (there were none in South Africa, he said but the first had in fact been founded in Johannesburg in 1921). Visiting experimental farms and veterinary institutes became commonplace but Toronto offered something new - the Canadian National Exposition where he was the guest of the president and had to make a speech. 'It was well received', he wrote Weinthal, 'and I realised that the applause was meant for South Africa as the youngest Dominion of the British Empire.' He was officially the guest of the Ontario Minister of Agriculture and addressed the Canadian Veterinary Medical Association which presented him with a silver cigarette case suitably inscribed. It was enough to turn any man's head. Notabilities took him here and there - the famous Guelph Agricultural College and Veter-

inary School, Toronto University with its laboratories, various institutions, sights and scenery. 120 Later he was to record that 'in both Montreal and Toronto, I was heartily welcomed and made the acquaintance of the veterinary authorities of Canada who showed me their scientific institutions and made me acquainted with the epizootic and enzootic conditions of Canada'. Emma constantly noted the names of those to whom they were obliged, intending many different forms of acknowledgement – books, curios, dried fruit, etc – when she reached home.

Mercifully an interlude of a day or two at Niagara Falls gave them some rest ('the Victoria Falls are sublime by comparison', they remarked privately) and then Max took them by train to Boston. It was an emotional moment when Theiler was introduced to his son's chief, the bacteriologist Dr Andrew W. Sellards at the Harvard Medical School. He lunched and dined with them and evidently held Max in high regard. His was Theiler's own field and the old man was 121 impressed with the whole School. 'I have seen some really very good work here which I am sure will benefit our researches in South Africa', he wrote, 'I cannot speak highly enough of the hospitality that has been extended to me by Canadians and Americans and I am surprised to see how well the work done by my Division in South Africa is known here. It is most encouraging and refreshing at the same time.' In person and accomplishment, he had become a father-figure in the world at large.

Plentifully endowed with 'neugierigkeit', the Theilers never neglected to see the sights and were widely conducted, filling in with art galleries, museums and cinemas when unaccompanied. They reached New York with Max at the weekend and made for Coney Island and other renowned vulgar recreations. On Sunday, the past came back to them in one of their earliest Pretoria friends, the Swiss Deschler who had served as cook to Theiler's unit encamped on Bulwana Hill above Ladysmith. The day was full of reminiscence and again before they left. (Later in Pittsburgh, they were also to meet Braunschweiler, a foundation member of the Schweizerverein Alpina in Pretoria.) They were a week in New York with Theiler's schedule filling rapidly. The U.S.A. scientists at the Montreal Convention had invited him to give lectures at their various institutes at a fee varying from \$50 to \$150 in the American manner – and Theiler tried to accommodate them with Emma keeping careful count of the money he made. 122 His fame had gone before and on the 18th September 1923, the great Theobald Smith, co-discoverer inter alia of the tick as the carrier of Texas Fever or Redwater (Bovine Piroplasmiasis or Babesiosis) and, according to Theiler, 'the father of tropical and veterinary medicine', came to see him and to take him to dinner 'at a very good French restaurant'. Then 65 and Director of the Princeton Institute for Research in Animal Pathology, Smith was a prince among Theiler's peers and decorated with almost ever honour in his field. It was a great occasion to meet him and they had 'long and agreeable discussions'. Smith invited him to give a lecture at the Rockefeller Institute and the next day, he was the guest of its director, Professor Simon Flexner.

123 Theiler knew that 'by appointing America's most successful investigator in animal pathology, Theobald Smith as one of its charter members, the Board of Directors of the Rockefeller Institute had implicitly accepted the principle that Human pathology cannot well be studied apart from that of the lower creatures'. By the same token, Flexner knew that what Theiler had achieved at Onderstepoort – 'a true research institute' – was of far wider significance than his official terms of reference. He kept him busy for two memorable days, doing him all honour and offering him all facilities including a typiste. They had one particular interest in common.

124 Theiler closely inspected the work being done by gifted scientists in many fields – Dr Louise Pearse on trypanosomes; the famous Japanese medical bacteriologist Dr Hideyo Noguchi (now 48 and about to leave for Brazil to investigate an outbreak of Yellow Fever) who showed him various cultures; Dr Edmund V. Cowdry, cytologist and Professor of Anatomy in Peking before coming to New York in 1921 when he applied himself to investigating minute intra-cellular

parasites of the Rickettsia group which caused Typhus and Rocky Mountain Spotted Fever; Peter K. Olitsky; and others. Theiler, eagerly accompanied by Max, had the time of his life in colloquy with colleagues at the summit of their common pathological profession. Cowdry showed him smears and specimens and his own preparations found in bearer ticks. Theiler promised that du Toit would send him ticks similarly infected with Heartwater. Olitsky demonstrated how he cultivated ultra-visibility such as Typhus. Various cultures were shown on what for Theiler was an esoteric holiday.

125 The inspection continued the next day when Theiler lunched with the Director. Rockefeller's Flexner ran the Institute on unusual lines, following a policy of inviting distinguished overseas and local scientists to work there as well as sending (less numerous) his own men abroad. Theiler now suggested that Heartwater might be caused by a Rickettsial organism and that he would welcome Cowdry at his own Institute if he came to examine the hypothesis. He would in fact welcome a general exchange of scientists. Flexner agreed to release Cowdry and exacted his own toll from Theiler in a lecture a month thence when his schedule permitted. It carried him the next day to the commercial Lederle Veterinary Laboratories on the Pearl River where he closely watched the manufacturing processes of vaccines. Only on the 22nd September, after viewing Manhattan Island by boat, could he sit down and write a long excited letter to du Toit retailing his recent experiences and charging him with sending cultures, infected material and other items promised to the Rockefeller Institute. Du Toit carefully noted them. It would be a triumph for South Africa if a Rockefeller Institute scientist came to work at Onderstepoort.

126 The Pennsylvania Veterinary Association had asked Theiler to deliver a lecture at Wilkes Barre on 'Tropical Diseases' (\$50) or what he called 'some of our South African problems'. Here he heard an address on 'Veterinary Education and the Future of the Profession' whose content he communicated to du Toit with the comment - 'There is no doubt the motor car has hit the profession in America most severely.' Many veterinary colleges had been forced to close.

127 There were only 100-120 graduates yearly to serve a population of 120,000,000 and cattle numbering 80,000,000. The horse had practically disappeared. Then he hurtled on to Philadelphia, a visit to Pennsylvania University, dutiful inspection of the Mulford Laboratories and the State Veterinary College, and finally a dinner given by the city's leading scientists whom he addressed on 'Phosphorus Deficiency'. Sustained by interest, adulation and the momentum of his journey, he was still in good fettle. Max had returned to Boston. It was time to go to Washington.

128 Simultaneously the Imperial Economic Conference opened in London confronted by post-war political and economic problems and with Britain staggering under its colossal war debt. Smuts spoke up for Empire preference to combat the U.S.A. trade drive and urged the subsequent conference of Prime Ministers to act as a single force in settling European affairs. A new concept of the British Commonwealth was emerging. Economic recovery preoccupied everyone; but Smuts devoted himself also to the selection of a suitable Governor-General to succeed the unpopular Connaughts. His choice was immaculate and influenced his country's recovery.

129 Emma thought Washington the most beautiful city she had ever seen. They had a weekend to visit its sights. Then the terrible treadmill recommenced. Theiler formally called on the Bureau of Animal Industries (admired in his formative years by F. B. Smith) and was introduced by its director Dr Moeller to the U.S.A. Secretary of Agriculture, Mr Wallace 'who offered me a hearty welcome and showed some interest in South African affairs'. He was told that the U.S.A. had lifted its embargo on the importation of South African stock and congratulations were offered on his success in combatting animal diseases. That evening, at the instigation of Professor H. B. Ransom, president of the Helminthological Society, Theiler addressed the staff of the Bureau.

130 The field of his famous host had long been of special interest to him (and latterly Gertrud) and

131 discussion was lively. Ransom intended visiting South Africa and hoped to spend some time at

Onderstepoort (he died in 1925 before he could do so). Theiler was made a corresponding member of the Helminthological Society.

132 The delegates of 43 countries registered the following day for the World Dairy Congress, the U.S.A. itself being represented by the State Secretary Mr Hughes, the Secretary for Commerce Herbert Hoover (later President) and the Secretary for Agriculture Wallace who opened the proceedings. The next day they all trooped to the White House to meet the President, Calvin Coolidge and visit the Capitol. Designed to give the international convocation the maximum view of the United States and its dairy industry, the Congress was peripatetic and adjourned after one session for the night journey to Philadelphia where it was re-convoked as the guests of the city for 'a day of real American hospitality'. Then it moved on to Syracuse and partially got down to business in the tumult of Parades on the Showground and other unusual distractions. On a Saturday morning, the Congress president suddenly asked Theiler to speak and 'for want of something better', he addressed it on 'Phosphorus Deficiency' which was always a novel and popular subject. The whole hullabaloo and the intoxication of being part of such a concert of eminence impelled Theiler to write the next night to du Toit - 'I have made up my mind definitely to stay in the Division and not to leave until the time is up I promised to stay'. He had spent the day on a motor tour of an Indian reservation.

133 Not until the 8th October did the Congress resume in full session only again to be distracted. Theiler had been elected honorary president of C Section dealing with Diseases of Dairy Cattle on which he delivered a paper on the 10th October on Tropical Diseases. Then the delegates were swept off to lunch by the University of Syracuse which staged a Graduation Ceremony on the Showground, awarding honorary degrees of D.Sc. to 8 distinguished scientists of France, England, Scotland, Denmark, Sweden, Canada, Switzerland and Theiler of South Africa. 'The man from South Africa' was much interviewed and photographed by the local Press. Despite 134 the overwhelming hospitality and constant distractions, Theiler considered the Congress 'a great success and marks undoubtedly a great day in the history of Dairy Science'. He had again been inundated with invitations.

Always escorted by local scientists or practitioners, he was taken to dairy farms and model estates before reaching Ithaca, seat of Cornell University which was inaugurating a new Dairy Building in the New York State Veterinary College which much impressed him. He had also to see the State's Agricultural Experimental Station at Geneva, lunch at the College, be taken for drives, watch football matches and be 'entertained'. 'I am tired and almost ill from all the rush', he wrote du Toit in a rare pause on a Sunday. He had been commissioned (\$100) by Cornell (whose students' work on calcium deficiency in hogs he had found impressive) to give an afternoon lecture on tropical problems. It was 'well attended and well received' and then it was the train again for Boston - 'Another hectic week in store for me. I am looking forward to a sea trip to have some real rest. I want to be a Nobody for some time. It is a hard job to be lionised all the time!'

135 It was fine to see Max again but an additional strain. He would have to make a good showing before Max's boss, Dr Strong whose guests the Theilers were and the occasion was auspicious, indeed itself an honour - the Cutter Lecture previously given by the most distinguished European and American scientists. It was held in the late afternoon and Theiler acquitted himself well - too well. The Harvard School of Tropical Medicine intended making the most of him. After dinner, he had to address an eminent circle of scientists and ladies chaired by Strong and the following morning, an equally demanding audience of professors and students. The Cutter lecture on 'Toxic Plants and Diseases caused by Them' had gratified him (and Max) with 'great applause'; but his appearance before his academic audience, speaking on 'Ultraviolet Viruses and Immunisation' with special reference to Horse Sickness and Blue Tongue in Sheep, had a



different reaction. 'It tickled the people very much' – so much that he had immediately to give another lecture on the same morning before catching the lunchtime train to New York. Theiler was always at his best when lecturing students – relaxed, simple, direct, homely, almost confidential in his approach – but he could simultaneously captivate academics. Du Toit was instructed to send Onderstepoort publications to Dr R. B. Strong, Dr Milton Rosenau, Dr A. W. Sellards and many others.

136 Max, pleased with Pa's success, remained with him and Emma (carefully noting that all four Harvard lectures amounted to \$150) on the journey to New York for the promised address to the Rockefeller Institute. Arnold was frankly frightened. He had 'to face the scientists who are foremost in experimental medicine and I was afraid of their critical mind'. He had chosen the effect of toxic plants on animals as being outside their field and probably of novel interest. The gathering itself was frightening – Theobald Smith had come specially from Princeton to join 'all the great men of the Institute' and the whole staff. But Theiler's story was worthy of a practical research scientist employing exhaustive methods to establish valuable conclusions. He spoke it like a man and was rewarded with triumph. 'It raised', he said, 'a great enthusiasm for our work.'

Flexner congratulated him warmly on his achievements in an unusual field. 'He saw and pointed out', Theiler recalled, 'the importance of the toxic action for general pathology and suggested to the physiological pathologists of the Institute to come to South Africa and make use of the opportunities existing there.' At last someone shared his vision. Theobald Smith took it upon himself to lecture the audience on the work done at Onderstepoort – 'the home of research in tropical diseases of animals' – and on its importance. Congratulations came dizzyingly from the great men he had feared. Max could be proud indeed.

137 Theiler spent two intoxicating days at the Rockefeller Institute. He was at the very apex of advanced work in his field. He talked to Dr Pearse about her work on trypanosomes. Alexis Carrel showed him his tissue cultures. Others made him party to their esoteric techniques. Flexner and Cowdry finalised arrangements for the visit to South Africa. Cowdry would leave in June to work at Onderstepoort on the possible association of Rickettsia parasites with some cattle diseases and to make other cytological investigations. Theiler exulted over the arrangement. 'I cannot tell you', he wrote Weinthal, 'how pleased I am to know that the Rockefeller people consider our place a suitable institution for the undertaking of such work.' To du Toit he wrote with equal enthusiasm, urging him to collect dog-ticks and others from Heartwater victims and to breed as many as possible in readiness for Cowdry's study of Piroplasmiasis in the Dog and Heartwater in Cattle. If he revealed Theiler's hypothesis as valid, it would be the first observation of Rickettsia in any animal other than Man.

138 For the following four weeks, Arnold and Emma pursued a schedule that taxed their tough Swiss constitutions to the utmost. They were always in trains, mostly overnight, and rarely able to recoup with rest in hotels. Deficiency diseases were de rigueur and every research institute and college wanted to know what Theiler was doing in South Africa. From New York, they went to Rutgers's Agricultural College whose principal had farsightedly booked him in a letter to Pretoria. Then back to New York where James Walker who had been visiting commercial laboratories to survey supplies for East Africa, awaited them at the hotel. He asked permission to spend two weeks at Onderstepoort on his way back to Nairobi. (When Walker reached Pretoria in 139 January 1924, he reported Theiler as looking 'fit and well' but the murderous momentum was beginning to tell.) Arnold and Emma had themselves written 16 letters the night before to firms purveying laboratory apparatus.

He paid a last visit to the Rockefeller Institute where a pathologist from Columbia University demanded a lecture. Theiler tried to accommodate it but was pledged immediately to go to Yale

in Newhaven and Johns Hopkins Medical School in Baltimore. Mendel at Yale felt he had been put out of countenance in his work on vitamins by Theiler's on phosphorus. At Johns Hopkins, he had been invited to give a prestigious memorial lecture, choosing 'The Etiology and Control of Animal Diseases in Warm Countries' as his title and suffering an introduction mentioning 'his refusal of a chair at the most distinguished university in the world - Cambridge'. It was an ordeal with almost all the Medical School professors present but also, joyously, a number of South African students who were held in high esteem. He had met them in other places, finding them 'highly spoken of and much respected. There is no doubt', he wrote, 'that the intellect of the South African student in America is considered to be a very bright one.' Max was to carry their flag highest of all.

140 The rigours of his particular 'lecture circuit' did not absolve Theiler from his official duties. He returned to Washington to make a formal call on the Bureau of Animal Husbandry and on the U.S.A. Board of Public Health where he observed experiments on dogs for Pellagra (malnutrition) which he had himself made some years before at O.P. (Theiler could put many overseas scientists out of countenance but professed humility as someone come to learn.) He was due at Pittsburgh the following day and found a large crowd outside his Washington hotel from which the flamboyant Lloyd George emerged and was driven away in a motor car. 'The old wizzard seems very popular over here', Theiler remarked, ignorant of the chaos he would create. 'The old wizzard' returned immediately to England and so confused the electorate with support of Free Trade and Empire preference that Baldwin's Government lost their overall majority at the December election and their Liberal opponents were equally unable to govern. A Labour Government under Ramsay Macdonald took office in January 1924 and all the work that Milner had initiated and Leopold Amery zealously continued at the Colonial Office was temporarily frustrated. The new concept of the British Commonwealth in which Onderstepoort would play a part endured only a few months hindrance.

141 Theiler's tendency to over-organise himself could have killed him had it not been for the importance and interest of his mission and the gratifying feeling of being wanted (and fêted) everywhere. Unceasingly he travelled, inspected, lectured and discussed common affairs with scientists across the United States - Columbus, Chicago, Lexington, Bloomington, Aimes, Kansas City, Dallas, Houston, Galveston. Interludes were rare. While in Chicago (inspection of stockyards, Armour Packing Company, University professors etc), a Swiss whom he had met in Montreal took him to Joliet to meet the American branch of the Theiler family who had emigrated in the 1850s. Einig as ever, Theiler as 'founder of the South African branch!' planned a grand reunion in Switzerland. At Aimes in Ohio, the South African students of the Veterinary Medical School entertained him to lunch and 'we talked Afrikaans to our heart's delight all the time!' By then he was 'almost tired out' but the worst was still ahead. His last official duty took him south to cattle country.

In Emma's view, Texas ranches looked like Bechuanaland. She noted too 'the oil farms' and 'oil-burning engines'. They were ceremoniously met at Dallas by a Scotsman, Mr Boag Scott with the resounding title of Chairman of the Texan Board of Livestock Sanitary Commissioners who drove them to College Station where the Veterinary College was run on military lines. The Governor of Texas having failed to appear, Theiler conferred with the professors and the following night, gave his first lecture on Lamziekte with slides. It astonished his audience who produced identical pictures of their 'Loin Sickness' or 'Down in the Lovers'. Much colloquy ensued from which it emerged that Texas ranches were so huge that it was impossible to clear them of carrion or corral cattle to feed them bonemeal. There was however an agitation for purification as Anthrax was also prevalent. Theiler gave two more lectures the following day (totalling \$250) which aroused equal interest and set off for Houston, arriving 'very tired'. A concourse of

cattlemen assembled to hear him on Lamziekte and 'they also recognised the disease and the condition to be identical and much appreciation was expressed that the Loin Disease had found an explanation'. Being in the Redwater or Texas Fever area, Theiler compared methods of dipping with his own recommended practices.

A final ordeal remained – the 57-mile drive to Galveston where at last Theiler met the Governor of Texas, Pat M. Neff, in town for a Baptist meeting (and 'he really did resemble one of our Takhaars in the Transvaal'). Then the train again but this time on leave and en route to the Grand Canyon, a journey of two days and two nights. Exhausted and longing for the sea, Theiler could feel that his mission was successfully accomplished. He had learnt much and the New World had been made aware of Onderstepoort and the level of its work. One day he must carry its flag to South America. Interesting work had long been done there.

'My visit to America was not a pleasure trip and certainly not a holiday', he wrote, 'I have given as much as I could give but I have also received as much as I could take in.' Now he intended relaxing but it was not to be. From Galveston to the Grand Canyon, the country reminded him of South Africa with the same scrub cattle in poor condition, probably suffering from phosphate deficiency; but their fate was different. They were sold in that condition to the corn States and there fattened for trade. California too looked like South Africa and Theiler hoped for agricultural hints. Arriving at Los Angeles, he was too tired to accept invitations but suffered two clamant reporters who wanted to know about his country 'which I cracked up all that I was able to do and told them certainly California was a good second!' At San Francisco, Berkeley University wanted lectures but providentially the Theilers found that their ship was indefinitely delayed and accordingly accepted immediate passage on *President Cleveland* whose badly-designed cabins, poor food and inscrutable Chinese stewards displeased Emma. The voyage was very rough and they were hardly able to stand, let alone write. Glad to get aboard, they soon longed to get off and put their feet on solid ground. Further, Emma told the children, 'Father was mad enough to have his beard cut off and looks horrible!' He was at first so tired that he could barely read or write and his mind went blank so that he could remember neither names nor facts. In time, their exhaustion disappeared.

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In his over-organising way, Theiler had planned their 'holiday' to cover the maximum number of scientific institutions in the Far East. From Honolulu they were buffeted for three days to reach the quake-wrecked Yokohama – 'eine schreckliche anblick' (a terrible scene), Emma wrote – before travelling to Tokio where they lunched at Frank Lloyd Wright's Imperial Hotel standing unharmed among the ruin. Thence by various ships to Shanghai and Hong Kong, purely as tourists and then to Manila where Theiler was duly met by the Principal Veterinary Officer from whom he learnt nothing.

14 2 Disenchantment with the Orient possessed them both and they returned glumly to Hong Kong where at last there were letters and a printed copy of Gertrud's thesis. 'You have done the Veterinary Science of South Africa a great service', Arnold brought himself to tell her, 'Your work will now stand in the Scientific Annals of South Africa alongside that of your father. I am really proud of you!' And then he climbed off his high horse and begged her to upbraid Hans (who had not written) for 'lacking the will power and energy which should be characteristic of his age and education' so that he might qualify to earn his living. Gertrud had transferred from her study of Nematoda (which was of great value to the horse-breeding industry) at Liverpool to the London School of Tropical Medicine to work on Trematoda under Professor R. T. Leiper. She had hoped to be better able to help Hans but her efforts seemed unavailing.

143  
144 There were letters too from du Toit, as yet unaware that the University of Berne had conferred an honorary D.Sc. on his chief. The news took long to reach Theiler whose elevation was celebrated in the Pretoria Press (which had published some of his 'breezy reminiscences' leaked from private letters) with the statements that he was now 'a D.Sc. of three continents - Africa, Europe and America. So far as is known, no other scientist holds this unique position'. Nor did he then know that Smuts had returned in exuberant spirits from the Imperial Conference exclaiming 'I've got you a jewel of a Governor-General!' and dismounted from his train at Irene to a military reception, the whole Cabinet, the High Command and the diminutive figure of Mrs Smuts.

Already tired of travelling, the Theilers took a river ship to Canton where they had an assignation on Christmas Day with an old acquaintance C. W. Howard, the entomologist of the Department of Agriculture in 1907 and now attached to the American Mission College in Canton. He showed them all the sights (the harbour was full of the warships of every nation against impending trouble) and gratefully, they embarked for Batavia, the only white passengers on a 40-year old liner. Entertained by local Swiss and assiduously touring, Arnold and Emma began their visits to Colonial laboratories and Veterinary Schools, continuing at Singapore, Kuala Lumpur and Penang where Veterinary-Surgeon Simpson of Daspoort days and later, Nairobi, met them.

The Orient had become slightly more attractive but not the veterinary facilities, except when they reached Burma and Theiler found himself among Pasteur Institute and Veterinary School colleagues at Rangoon. India was far more rewarding touristwise and professionally. Calcutta had a Veterinary College and Pusan an agricultural station. Theiler was aiming for Muktesar and passing through Benares and Lucknow, took train to Barilly where its director, T. E. Edwards met them and escorted them into the Himalayas in teeming rain. Arnold and Edwards rode ponies but Emma, thoroughly wet, was carried aloft in a 'dandy' or chair by four coolies. Reaching Edwards' house at 7,500 feet, they could hardly see the Himalayas for rain but all unpleasantness was compensated by their genial host.

Muktesar, Montgomery's original station, greatly interested Theiler ('that God-forsaken place', he called it). Edwards produced Rinderpest serum there and dealt with India's multitudinous tropical diseases. He came down with the Theilers to Lahore to introduce them to the Veterinary College where Britain, like South Africa, was training indigenous veterinarians. Theiler found it well-built and well-equipped - 'better than any other I have seen in my whole life including America'. He was appalled at the possibility that 'all India and all Asia represents a huge new reservoir of all possible diseases'. His earlier acolytes at Armoedsvlakte and Onderstepoort, Cooper and Bennett, were working on identifying them.

Sightseeing now preoccupied the Theilers except at Delhi where they officially met the Imperial Secretary for Education and Lands. Thence to Agra where the Taj Mahal in moonlight and by day produced 'the most overpowering impression' of their tour. They spent nearly a week in Bombay with Emma happily shopping and Arnold visiting the Veterinary College. Letters reached them from home, one bringing the joyous news that Margaret had got a job as teacher of physical culture at the Jeppe School for Girls in Johannesburg - for Arnold, one more step toward freedom. Only Hans and Gertrud needed to find their feet and release him for retirement.

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146 For six months, the Theilers had been travelling almost every day, always under strain and often in severe discomfort. The Orient had been disappointing. It was good to be going home. Theiler wrote James Walker in Nairobi that he would like to meet him as his ship passed through Mombasa. On the 20th February 1924, they embarked at Bombay. Arnold had caught a cold and developed bronchitis. His embassy was not yet over.

As *S. S. Karao* approached the African coast, Walker took quick action. Theiler's letter had stated that he would be in Mombasa on the 29th February. Walker took it to his superiors who referred it to the Governor. Sir Robert Coryndon immediately sent radiograms to the ship inviting Theiler to spend two weeks in Nairobi to confer with its veterinarians and to the Union Department of Agriculture asking authority for him to do so. Theiler received the invitation and his Department's permission at the same time at sea on the 26th February but his ship sailed past Mombasa and cast anchor at Zanzibar. There was a case of smallpox on board and the mainland was not risking infection. The delay was short and the Theilers landed at Mombasa on the 1st March with Arnold still bronchitic and coughing and 'very anxious to get home but I did not dare refuse the invitation'. He regretted missing his share of lecturing the veterinary students at the opening of the academic year.

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148 The Kenya Government's invitation 'to confer with the veterinary authorities in regard to the stock diseases of the Colony' was misleading. From the moment Alexander Holm, previously Union Under-Secretary for Agriculture (South Africa's trained men were to be found all over the world) met him at Nairobi station with accompanying officials, the Theilers were rushed about the Colony wholesale - Nairobi and the Kabete Agricultural Station, Lord Delamere's model farm, Nakuru, Lake Elmenteita, Eldoret, Kitale, Kapsabet, Kisumu and by train back to Nairobi where they dined with the Governor whom Theiler had first met at Daspoort in 1908 when he was Resident Commissioner for Swaziland. Then more excursions to Thika to see the sisal plantations and other developments, and finally a lecture at Kabete. The local veterinarians profitted from his presence (he advised Walker on the type of experiments he should conduct to achieve immunity to East Coast Fever) and Theiler, who had not visited East Africa since 1909 when he had gone to Uganda at Bruce's behest, professed 'surprise at the advancement in Kenya which was really amazing'.

149 Unable to curtail the voyage by disembarking at Lourenço Marques where his rail warrant had no validity, Theiler reached Durban on the 26th March and made straight for Onderstepoort. Only one continent had been omitted from his seven-month itinerary.

## 'THE THEILER INSTITUTE' 1924-1927

EMMA HAD WARNED Gertrud that all ships going and coming would be packed with visitors to the Empire Exhibition and she must return at once before it opened in April. Pa would provide the fare. The concept of a powerful British Commonwealth, inter-related in all fields while preserving local autonomy, was being sedulously promoted. Smuts still lived in its heady atmosphere. (Long before, he had arranged for a tour of South Africa in 1924 by Britain's best ambassador, the Prince of Wales.) He had returned to a sullen country, still soured by the ugly implications of the 1922 Revolution. It was foreign to his mood and he failed fully to grasp its dangers. Despite his rapturous reception late in 1923, there was strong feeling against his Government. Labour objected to the crude and violent methods used to suppress its militant demonstrations. Hertzog and his Nationalist followers regarded with suspicion his Empire orientation and his lack of enthusiasm for making 'the Afrikaner baas in his own land'. The farmers fastened on him all their ills of drought, pestilence, plague and lack of markets. The townsmen saw only economic stagnation and depression in his rule. Smuts himself was preoccupied with the realisation of grand concepts hatched abroad.

When the death of its S.A.P. member (elected by a slim majority of 50) caused a bye-election in the rural Transvaal constituency of Wakkerstroom on the Natal border, Smuts realised that a show of strength was necessary. He persuaded the Administrator of the Transvaal, A. G. Robertson, previously president of the Agricultural Union and popular among all sections of the community, to resign his office and stand for the South African Party against an unknown and unimpressive National Party candidate. (J. H. Hofmeyr, previously principal of the new Witwatersrand University, was appointed Administrator in his stead.) The bye-election campaign was reaching its zenith when Theiler returned. Parliament, opened on the 5th January 1924 by the new Governor-General the Earl of Athlone, was in session in Cape Town.

In the week prior to the result, Theiler brought himself abreast of developments during his 7-month absence. Du Toit had proved a worthy alter ego despite his wings being severely clipped by a drastically reduced budget. Du Toit was an admirable executive officer whose commodious mind could maintain surveillance of all of Onderstepoort's multifarious activities as well as the machinations of the Civil Service. He kept the vaccine factory at full tilt (a record number of 1,137,288 doses for Blue Tongue and 6,008,900 doses for Wire Worm in sheep were issued) and he maintained such research as he could. 1923 had been the worst year for Horse Sickness in human memory. Even donkeys had gone down. A large proportion of 'immunised' horses also died. Work went on to improve the method and the quality of treatment of other diseases.

Of prime importance was the elaborate series of nutrition experiments which Theiler himself had mounted at Armoedsvlakte. In retrospect, they appeared of unconscionable detail and thoroughness but they were typical of Theiler's exhaustive approach to a problem and on their results were founded the optimum methods of stock raising. The series began with D. T. Mitchell in 1920/21, were continued by Veglia in 1921/22, by P. J. J. Fourie in 1923 and were now conducted by J. B. Rodgers and others with Theo Meyer taking photographs and preparing charts. Du Toit had written a text and shortly after Theiler's return, there appeared in the *Journal of the Department of Agriculture* 'Phosphorus in the Livestock Industry' under Theiler's, his and H. H. Green's names. The veriest novice, aided by diagrams and striking photographs, could appreciate that a major advance had been made in cattle culture. A reprint went round the world and motivated widespread experiments on mineral deficiencies. To the eyes that had

long been fixed on Theiler, there were now added an international legion of nutritionists.

5 The time had also come to publish Theiler's 9th and 10th Reports which he had accumulated in 1923 and which the Government Printer succeeded in issuing in 1924. They demonstrated the vast range of his work and the accomplishments of his multi-disciplined approach. He himself contributed only a work on Gouwziekte in Sheep undertaken with du Toit and Mitchell while Pole Evans dealt separately with 'Gouwziekte Veld'. Du Toit reported his results with Sheep Scab and Sweating Sickness in Calves while W. H. Andrews dealt with 'Staggers' in Natal, caused, it was thought by a plant, and joined H. H. Green in assessing the toxicity of another plant. (Andrews, already failing in health, ended a 15-year association with Theiler both as Senior Research Officer and Professor of Physiology, soon after he returned and resigned from the Service in May 1924 to leave for England where he ultimately joined the Commonwealth Bureau of Animal Health at Weybridge.) 6 Gilles de Kock reported on Infectious Anaemia in South African Horses and C. P. Nesor on the Blood of Equines. J. B. Quinlan dealt with an aspect of bovine Contagious Abortion and R. W. M. Mettam, then attached to the Witwatersrand University, with 'Snotziekte', a sporadic cattle disease.

With his ready appreciation of meritorious work in other fields not necessarily scientific, Theiler included a classic historical review of 'Tsetse in the Transvaal and surrounding territories' by the entomologist Claude Fuller. True to his promise, he also published Gertrud's 'The Strongylids and other Nematodes in the Intestinal Tracts of South African Equines' based on his own collection of specimens made at Onderstepoort, and added 'South African Parasitic Nematodes' by the Institute's H. O. Monnig. Helminthology had made vast strides under Theiler's care and the combatting of internal parasites had substantially improved the agricultural economy. Veglia now lectured on the subject and published his 'Preliminary Notes' on two worms afflicting sheep. There followed reports on arsenical dips by the Institute's J. P. van Zyl. It was an impressive array of practicable work. To the world at large, it was also an exemplary display of meticulous method and exacting standard in scientific investigation. 7 The form of Theiler's 'Reports' had long been classic though some of their conclusions were later qualified.

Du Toit had also zealously fostered the Faculty of Veterinary Education and Theiler shortly officiated as Dean at the graduation of his first students, now numbering eight – J. I. Quinn, 8 M. Bergh, J. G. Williams, C. E. Maré, W. J. B. Green, J. H. R. Bisschop, G. Martinaglia and P. S. Snyman – under the aegis of the University of South Africa. Their presence had changed the very face of Onderstepoort with many new buildings including a hostel capable of accommodating 40 students. Its ceremonial opening had been delayed until Theiler's return and on 9 the 14th April 1924 – the day of the Wakkerstroom bye-election – he formally turned the key and joined the celebration. On that day South Africa changed course with fundamental effect.

A. G. Robertson, popular, bilingual, lifelong friend of the farmers, conscientious promoter of their interests and a Smuts man, polled 213 votes. His National Party opponent, A. Naude, unknown, inexperienced but a Hertzog man, triumphed with 1,429. The country reeled before, not a defeat, but a rout. Within hours, Smuts announced the dissolution of Parliament in the light of the result and declared a General Election in June. The Earl of Athlone, happily installed with his family in Government House in Cape Town and planning the visit of his nephew David, Prince of Wales (hurriedly advised of postponement), was compelled immediately to 10 move and take up residence in Pretoria. The Transvaal Administrator, J. H. Hofmeyr, and his mother, Mrs D. C. Hofmeyr urgently organised an official banquet to welcome him.

The Theilers first met the new Governor-General (whom Smuts had got to know when Athlone was attached to the staff of the Belgian King in 1917/18) and his vivacious gracious lady. Princess Alice, Countess of Athlone, grand-daughter of Queen Victoria, at the Provincial

Government Banquet on the 15th April 1924. Arnold had met his brother Prince Francis of Teck, at Daspoort in 1902. Athlone himself was an old Africa hand, having been stationed with his regiment, the 7th Hussars, in Natal in the nineties, participated in the Matabele Rebellion and served in the Boer War with mention in despatches and a D.S.O. Well acquainted with General and Mrs Smuts whom they soon visited in their ramshackle shanty at Irene, the new gubernatorial pair were widely informed on South Africa and keenly alert to its conditions and problems. It was not unknown to them that the indifference of their predecessors should be remedied and that the youngest Dominion in the Commonwealth should be encouraged to play its part. Athlone's sister, Queen Mary had accompanied her husband H. M. King George V when he opened the British Empire Exhibition at Wembley on the 23rd April 1924 (scheduled to last six months, it was formally closed in November but, such was the demand, immediately reopened and was not finally closed until October 1925). The climate of solidarity within the Commonwealth must be maintained, particularly South Africa. None could then suspect that its vice-regal proponents would fall in love with that unpredictable paradoxical land and its people.

13 While the country resounded to bitter electioneering (unknown to Smuts, Hertzog and Labour had a secret pact) and the people were reft on racial lines, public affairs were in a state of suspension. The Governor-General used it advantageously. On the 19th May, His Excellency and H.R.H. Princess Alice escorted by their A.D.C. Lord Bingham arrived at Onderstepoort to brief themselves on the work of which they had heard much. There was instant rapport with Theiler. He showed them everything. Keenly and intelligently interested, they watched horses being bled for serum, the manufacture of vaccines, the gory work ('oh horror!' Her Excellency later recalled) done in the Postmortem Hall, the dosing of the Wire Worm remedy by an ingenious assembly of spoons of varying size, the breeding of cultures, the stables whose every numbered animal Theiler knew in every detail of its case, the small-animal farm, the countless aspects of the world's most advanced veterinary research institute. They found it fascinating. In the six years of their service in South Africa, they kept it always in view, sending their distinguished guests (converted to propagandists) as a matter of routine to visit the Institute. Princess Alice often came with them - 'There was always something interesting going on', she said 50 years later, and Gertrud testified to the integrity of their interest. When they failed to understand the complicated scientific procedures, they did not hesitate to ask and Theiler with his admirable lucidity, gave further explanations. For the first time, the family went willingly to Government House - to garden parties and dinners where Theiler beguiled his hostess with tales of the Rinderpest and Kruger's prescribing a quid of tobacco under the tongue of each susceptible ox. His Institute with its ideals of international coöperation prospered by vice-regal interest and his life was sweetened in disillusioning times.

Dreams had become reality. Bayers' Berg was still working on Nagana in Natal. At Onderstepoort itself, Dr A. A. Ayres, a distinguished Portuguese veterinarian, arrived from Lourenço Marques in April to study research into animal diseases and stayed for several months. In June, Cowdry duly arrived from the Rockefeller Institute accompanied by his wife, both horrified that Pretoria could provide no pasteurised milk for their small son. (Max arrived soon after for a short holiday and Gertrud duly returned from England.) There followed Dr H. Schwetz of the Belgian Congo Government, seconded for special duty with a Katanga committee to study the structure and operation of Onderstepoort as a guide to instituting a similar research station in the Congo. He stayed until March 1926. Lacking specific information himself, Theiler then invited Dr Max Kupfer of the Federal University of Zurich to study the oestrous cycle (mating processes) of domestic animals. (He was accommodated at the out-station Besterput in the Free State and provided with numbers of horses and donkeys whose amatory adventures



he studied at dead of night with valuable result.) Delegates of the Empire Parliamentary Association also visited Onderstepoort with resounding effect. By then, the British Labour Government had resigned and Baldwin's Conservatives returned to their grand plans of closer coöperation within the Empire.

22 In South Africa, the flag drooped. The result of the Parliamentary Election was announced on the 18th June 1924. The South African Party had been defeated and Smuts himself had lost his seat in Pretoria West by 385 votes to the politically insignificant Labour candidate George Hey (he was almost immediately returned unopposed for Standerton and remained leader of his party, now in opposition). The Nationalist/Labour Pact had triumphed and the Governor-General sent for Hertzog. On the 23rd June, the new Cabinet was announced. The Minister of Agriculture was General J. C. G. Kemp, convicted traitor and notorious anti-Imperialist. Theiler shared in the widespread consternation. On the 1st July, the Governor-General swore in the new Ministry. 'It was', the vice-reine later recorded, 'an interesting but not entirely agreeable ceremony as he had to shake hands with and congratulate more than one rebel including General Kemp who was caught in German uniform and sent to prison by Botha for the part he played in the rebellion of 1914.'

23 The fanaticism and divisiveness of Kemp's patriotism – in terms of purging the country of all foreign influence and preserving it for the Afrikaner only – was common cause. His bitterness and abrasiveness repelled even Hertzog who concluded that his effect would be less damaging inside the Cabinet than out of it – but not with the Defence portfolio, a possibility used as a formidable repulsive device in the S.A.P. election campaign. Kemp was professionally a clerk and farmer with military training. It could hardly be contemplated that he would be a competent administrator of a vital State Department. Theiler regarded his appointment with distaste. 24 Eager, energetic, impetuous, very conscious of having power to wield, the man was uncongenial in every way. Without delay, he attacked the hallowed structure consigned to his care.

25 It was not a time of cool judgment. Racial passions ran high and everything Kemp did tended to be interpreted in terms of favouritism or gross ignorance of the issues involved. If he took 'the new broom sweeping clean' to extremes, his cause was often just though his execution lamentable. Even among his own people, there were jokes about his bias. A deputation of boere protesting against the appointment to the Agriculture Department of a man with an English name, claimed that he was not even bilingual. 'Bilingual?' exclaimed Kemp, 'Of course he's bilingual! He can't speak a word of English!' What he did to the Department was no joking matter to the old hands, including Theiler; but in principle, dictated by the appalling state of the country, some of his actions were defensible in the face of hot criticism in the House.

26 The country could no longer afford the elaborately-structured Agricultural Department initiated by F. B. Smith when its very life depended on the work of experts in distinct 'Divisions'. Bent on economising, Kemp justifiably abolished the Sheep Division headed by the popular war veteran Brigadier Barney Esselen, retrenching him and his senior staff. Howls rose from his supporters and Smuts fulminated against 'the breaking-down of the Department'. Kemp 27 gave notice in the House that he intended amalgamating the Veterinary Division and the Division of Veterinary Education and Research. He defended himself ably. The Public Service Commission had twice recommended such elimination of over-lapping functions and he had begun with the Sheep Division. For the time being, the status quo would remain. He defended himself less ably against bitter Opposition attack against the sacking of loyalists and the employment of erstwhile rebels. Kemp, like his colleagues, was besieged by Party supporters demanding Government employment.

The trend of event was profoundly disturbing to Theiler. While expected to continue the wide range of his work, his Vote was cut and cut again while Kemp moved forward to interfere with

28 his organisation. All the Government veterinarians were summoned to a 2-day meeting in the  
Union Building on the 24th September 1924 and visited Onderstepoort on the 25th. A week  
29 later, Kemp accompanied by his wife and family came to see for himself and to be photographed  
alongside Theiler, distaste patent in his expression, with the whole staff. Then the juggernaut  
began to move. Kemp convened a meeting in the terms of the Public Service Commission's  
recommendations, attended by all the Heads of Divisions (Botany: Pole Evans; Veterinary:  
Borthwick; Veterinary Education and Research: Theiler; Dairy: Challis; etc.), the heads of  
30 the five Schools of Agriculture, and departmental officials to consider economies and greater  
efficiency. 'Much divergence of opinion naturally arose', reported the wretched Secretary for  
Agriculture, P. J. du Toit; but Kemp was determined to reduce the number of Divisions from  
13 to 10. Theiler's and Borthwick's Divisions were to be amalgamated 'as soon as practicable'.  
Theiler had no cogent objection - his Institute did do veterinary work in prescribing and supply-  
ing specifics to stock-raisers without reference to the Veterinary Division and veterinary sur-  
geons did supply information for research purposes and other germane services. He had himself  
31 recommended amalgamation some years earlier; but his position was becoming increasingly  
uncongenial.

He continued his routine duties, frequently visiting Armoedsvlakte where, after the departure  
32 of P. J. J. Fourie, Henrici was now in charge. Some distance from the station stood the stone  
platform, with his anemometer suitably mounted, solidly built with a railing and fenced by the  
33 P.W.D. after much correspondence. Readings were taken every day and the Vryburg Farmers  
34 knew that their coöperation had been commemorated. Henrici had accommodated herself  
35 admirably to her new milieu and was doing valuable work, coming regularly to Onderstepoort  
to report to Theiler. Shortly after her arrival at Armoedsvlakte, a snake had fallen off a roof  
on to her as part of her bleeding. Now, when an assistant was bitten on the forearm by another  
of the prolific reptiles, she saved his life with sangfroid by the application of Fitzsimmons anti-  
36 venene. The mineral nutrition experiments were already producing highly interesting results  
which Theiler would in due course have to record and publish. Lamziekte had virtually dis-  
appeared and the bacterium causing it had been isolated and identified with the Botulinus  
group. Bitter distress continued to afflict the whole country, especially through drought in the  
Northern Cape, and political strife and tension bedevilled the lives of the people.

At a time of disenchantment and gloom, Theiler had compensations. Hans passed his final  
37 examinations and qualified M.R.C.V.S. The visit of the British Parliamentary Association in  
October with delegates from Great Britain, New Zealand, Australia and Canada accompanied  
by local members of Parliament and the Mayor of Pretoria had been particularly gratifying.  
38 Then, as proof of his serious interest, the Governor-General came again with his daughter  
Lady May Cambridge and A.D.C. Captain R. C. Hargreaves. Lord Milner was to be his guest  
39 a few weeks later but the ageing administrator was simply taken for drives and made no visit to  
Onderstepoort (he died five months later). The pleasures of dinners and receptions at Govern-  
ment House would soon end when the vice-regal party moved to Cape Town for the New Year  
session.

Theiler took the measure of his personal situation. All his children were now qualified to earn  
their living (Gertrud had been appointed teacher of Biology at the Jeppe High School for Girls  
in Johannesburg where Margaret was already securely installed - she remained for 28 years).  
He had discharged the obligations contracted with Smuts. The bogey of Lamziekte was laid and  
the development of stock-raising promoted, particularly in new tests on the efficacy of various  
minerals such as calcium. The Veterinary Faculty had been established and the first local stu-  
dents had graduated with many more enrolling to provide South Africa with a constant supply.  
Research was being hamstrung by lack of money but du Toit had shown himself capable of

40 continuing the work and contending with the very altered circumstances imposed by the new Government and its impetuous Minister of Agriculture. To a man of Theiler's stature and attainment, it was *infra dignitatum* to deal with such an upstart. He was anxious to continue research but not under the burden of crushing administrative work and constant interference from the Auditor-General, the Public Service Commission, Treasury and his Minister who made no secret of the fact that he considered him 'obsolete' and 'only fit for the scrapheap'. He was in any case beyond retiring age.

41 Toward the end of December 1924, he left for Cape Town for a month's local leave and to resolve his course for the future. During his absence, notification was received that the Société de Pathologie Exotique in Paris of which he had become a founding Associate Member in 1908, had elevated him to its maximum distinction of Honorary Membership in December 1924.

42 'This award', the *Pretoria News* noted (copied by other newspapers) 'which has been conferred on Sir David Bruce and a few other scientists, is for exceptional merit.' Theiler's image shone.

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43 On his return to Pretoria at the end of January 1925, Theiler resigned and Kemp in Cape Town sent for du Toit. It could be thought that there was some collusion in what transpired. Pretoria speculated that du Toit would be appointed Director of Veterinary Education and Research and that Kemp had accepted Theiler's resignation; but there was no confirmation and both went about their usual business. Theiler said farewell to Cowdry, departing for urgent domestic reasons after spending only 8 of his 12 months in South Africa but convinced that the blood of Heartwater victims contained *Rickettsia* parasites. It was of no immediate practical value but Theiler began experiments to determine whether a vaccine might be prepared. There was also 44 the excitement of the arrival on the 2nd February of Dr Max Kupfer and his assistant Welti. Kupfer was elated at his promotion at the early age of 37, conveyed as he embarked at Southampton, to a chair among the august academics of Zurich. His keenness was tonic.

45 On the 17th February 1925, Kemp let it be known that he had asked Theiler to reconsider his resignation and there was some overt rejoicing. Theiler maintained a dignified silence which was variously construed. In his own mind, his long-range plans should now be realised. He had accomplished everything he had promised in the teeth of harassment from Government agencies, particularly Treasury, and from politicians. He was, according to Orenstein who had watched for a decade, an amateur in administrative matters and tended to react emotionally to red-tape frustrations instead of accommodating himself to them or devising means to circumvent them. He was intolerant of Civil Service procedures and temperamentally incapable of descending to the level of ingenuity or otherwise dealing with them. A typical case was the abolition of free quarters for certain veterinary research workers. Theiler was not prepared to accept it and 46 proposed 'a very strong protest demanding the right of Onderstepoort to be put outside general arrangements by reason of the nature of its work, by its traditions, by its standing in the scientific world and its outstanding success . . . It has the right to have its own way - the psychology of scientific workers should not have to give way to the general machine-like way of working of the Treasury, the Auditor-General and the Agricultural Department.' He fought blindly for the welfare of his staff and students, his own combative 'psychology' preventing recognition of the need to economise, the danger of precedent and other problems of Union administration.

48 In the wily King he was well served in bureaucratic matters; but he planned that the whole burden of administration should be borne by du Toit while he devoted himself to specific fields of research which his work had revealed and the writing of much-needed text books. His achievements stood around him. Hardly a day passed without distinguished personalities from every

49 part of the world visiting the famous Onderstepoort. Its staff of 29 research officers, distracted by extra-mural public relations work (contrived with some reason by Kemp), was inadequate to demand but – of special joy to Theiler – was now fortified by three of his first graduates – J. Quinn, W. J. B. Green and C. Maré who, upon transference to the field staff, was replaced by J. H. R. Bisschop. It might be forgiven him if he had undue sense of his own importance. It were a feasible attitude in any but the public service which – the thought now seldom entered his mind – had given him all his opportunities.

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51 Nonetheless he informed Kemp on the 18th March 1925 that he was prepared to stay another year until du Toit was ready to take over. Circumspectly Kemp spoke to the Press in eulogistic terms of the signal services of Sir Arnold Theiler. He could afford to wait, indeed had been compelled to stay his hand. Du Toit, the ideal Afrikaner successor, was neither as qualified nor as competent as the master to conduct a world-famous institution of incalculable domestic and international value nor the amalgamation of the two Divisions which was not yet 'practicable'.

52 While Theiler had no avuncular interest in du Toit, 21 years his junior, but preponderantly a great respect for the clarity and quickness of his perception (he was able instantly to grasp and comment on any scientific subject raised between them), their relationship was one of close friendship without emotional undertones. There were no secrets between them in their work and in the human relationships which it involved. Du Toit was totally Theiler's man; but if he were in the near future to direct the combined Divisions of Veterinary Education, Research and Services, he would have, like Theiler with his endless private study and overseas sabbaticals, to travel abroad to bring himself abreast with modern developments and to make good the gaps in his training. There was no prospect of such an arrangement. The Minister was implacable. With only one year's further service, Theiler would take all the local leave due to him and then retire at the age of 59.

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53 In the event, it proved a stimulating time. When the 1925 term opened, the new veterinary students included the first woman, Joan Morice who staunchly and solitarily stayed the course under Theiler's benevolent eye. Her presence among men in a susceptible field produced embarrassing incidents of earthy humour but in due course, she qualified with Theiler's support. He himself was honoured in April 1925 by the University of South Africa with the honoris causa award of the first doctorate in Veterinary Science. There were four other honorary awards (D. Litts.); but in his preliminary address, the Administrator (J. H. Hofmeyr) mentioned 'the high importance of the connection of this University with the Division of Veterinary Research'. Theiler was obviously the cynosure and Hans, on a four-month visit, was there to see it and to read a 'Men of the Moment' article in the local Press about his father. (Hans left in July for the U.S.A. to serve as an assistant under Theobald Smith at Princeton in the Division of Animal Pathology of the Rockefeller Institute of Medical Research. A year later, he went to Cornell at Ithaca on a year's Fellowship for further studies in Animal Pathology at the New York Veterinary College and was ultimately awarded an M.Sc. for his work at Cornell.)

54  
55 With du Toit shouldering an administrative burden increased by Kemp's innovative ideas – a 'Demonstration Train' publicising the Department's services took some of the ill-spared staff and later, Kemp himself dramatically entered the field as officer commanding the forces combatting a serious locust invasion, incurring vast and unauthorised expenditure – Theiler could devote himself to his students, his continued investigation of diseases and now, of foremost importance, the effects of various mineral deficiencies on stock. Henrici was withdrawn



*Theiler in the Twenties* – harrassed, beardless and with his hair en brosse, the Director of Veterinary Education and Research confronts a host of problems.



*'Saved to be Slaughtered'* drawn by the botanical artist Beryl Kaye for display at the meeting of the South African Association for the Advancement of Science in Pretoria in July 1926.



*The Old Man* watches at Onderstepoort (Pyramid Hill in the background) the tests for phosphorus craving in cattle.  
Left to right: Dr P. J. du Toit; Sir Arnold Theiler in his classic white apron; and Dr Henry Green.



*Dosing goes on* – the administration of bonemeal became widespread and experiments continued to determine its maximum efficiency and its effect on weight, productivity, milk production in cattle, sheep and other animals.

from Armoedsvlakte (where J. R. Scheuber took her place) and posted to Ermelo where similar experiments on sheep had long been conducted. Theiler, usually accompanied by Henry Green and/or C. Hinds (junior assistant to King) frequently visited both stations, noting remarkable improvements in productivity and condition by the administration of selected minerals. It was a new and highly rewarding phase of his work which attracted interest in a world already diverted  
58 by the study of 'vitamines'. Theiler found them negligible in the diet requirements of cattle.

A breeze now fluttered the Empire flag in South Africa. Athlone had approached the Prime Minister, General Hertzog, noted for his courtesy and culture, about the postponed tour of the Prince of Wales. Demurring only to consult his Cabinet, Hertzog formally invited the Heir Apparent to visit the Union. He landed in Cape Town on the 30th April 1925 and, hardly entered  
59 on his official ardours, was reduced to a wreck by Princess Alice whom he unwisely invited to join him in climbing Table Mountain. On a gruelling tour, the young Prince, fresh in face and manner dutifully and efficiently justified his reputation as the mother country's best ambassador. Hate and bitterness notwithstanding, the Empire and its agencies, even the British and their institutions, were still persona grata in the Union. Much was to be gained by maintaining the association (particularly in respect of the British Navy).

The Athlones moved to Pretoria to receive their nephew when he arrived there on the 19th June. They gave 'a brilliant State ball' at Government House. Breaking their custom, Sir Arnold and Lady Theiler attended (Emma had none of her daughters' disdain of dress as merely a body-covering and was modishly gowned in cinnamon marocain with gold lace godets. She was equally attentively garbed at the Royal Garden Party at Government House in November.)  
60 After covering an enormous area and hobnobbing with every kind of inhabitant, the Prince went his way, having enhanced the congeniality of the Empire connection. The Athlones remained to support it and Theiler, conditioned by his travels and overseas associates, was soon involved in active participation.

With du Toit increasingly in control, he was able constantly to visit his experimental stations  
61 and discharge his duties to his students who, fearfully in awe of 'the old man', were conscious of his genuine interest and kindly encouragement. In the mid-year vacation, he took some local leave with his family on a 'Round in 9 Days' railway tour with a stop at the Sabi  
62 Game Reserve (the train whistled once for lions to be seen on the right and twice for the left). Since his earliest years in the Transvaal when he had hunted and sent skulls, skins, snakes and insects to his scientific friends in Switzerland and had taught all his children how to skin and  
63 mount birds and small animals for museum display, Theiler had been interested in South African fauna. He had sat for many years on the committees of the Transvaal Museum and Pretoria Zoo whose director A. K. Haagner was also president of the Wild Life Protection Society of South Africa and Vice-President of Theiler's cherished Biological Society. Never sticking to his last because of the width of his interests, Theiler gladly coöperated with Haagner in his capacity of Director of the National Zoological Garden of South Africa in promoting the conservation of indigenous fauna. He wrote to the aged botanist Professor Carl Schröter of Zurich who, a noted conservationist, served on the Commission Suisse pour la Protection de la Nature, and obtained both advice and papers. Together Theiler and Haagner submitted a memorandum to the Union Government urging various measures and the appointment of a National Committee to investigate the whole subject of National Parks.

The director of the Sabi Game Reserve, Colonel J. Stevenson Hamilton, was struggling to induce the Government to declare his domain a National Park. He met Theiler's train when it came to an overnight stop at Skukuza, his 'capital', and they had particularly congenial discussion. Stevenson Hamilton wanted his Game Reserve greatly extended even unto the borders of Mocambique by the Government's purchase of privately-owned land but was strenuously

64 opposed, principally by the owners and by veterinarians who regarded wild animals as carriers of diseases of domestic stock. Sir Arnold Theiler, he later wrote, 'confided to me that his anxiety lest a great permanent wild life sanctuary right up against the border of a foreign country with which, in the nature of things, we could have no control over diseases, would prove a permanent danger to farming operations in the whole Transvaal by providing a corridor through which various plagues could be introduced. Stock movements may be controlled but not those of wild creatures.' Massacres of game were contemplated and even undertaken later; but Stevenson Hamilton persevered with good reason and finally attained the Kruger National Park.

65 Refreshed, Theiler returned to his duties and a report of unusual utterances by his Minister in the House. In Committee on Estimates, his predecessor Sir Thomas Smartt had affected nervousness in addressing questions to the 'overpowering' and 'terrorising' Kemp. He wanted to query the cost of a workshop, smithy and other buildings at Onderstepoort and elsewhere. Kemp replied with typical violence - 'I just want to tell the honourable member for Cape Town (Central)', he shouted, 'that Onderstepoort is of great value to South Africa and I think we dare not be so negligent as to fail to continue the work. The institution must be properly equipped and the various cattle diseases must be duly enquired into. Does the honourable member know that this is the best institution in the world? He shakes his head but people who have come from overseas acknowledge it. Now he attacks us about the building of houses for the staff to the extent of £1,750. If officials are appointed there, we surely cannot dump them in the veld!' Impetuous, choleric, posing as a kampvegter as he then dashed off to fight the locusts in the field, Kemp had initiated some excellent measures including the Division of Agricultural Economics and Markets. He made good use of its statistics. Agriculture, he trumpeted at farmers' meetings, accounted for £81½ millions in the Union's economy and mining only £49 and one third millions. At the last census in 1921, it was calculated that of 1,000 male whites, 374 were farmers and only 46 miners. (The platteland or rural vote was of prime importance.)

66 Further disastrous drought-stricken months from May 1922 to August 1923, together with 67 disease, had imposed heavy stock losses - 535,787 head of large stock and 5,207,680 of small including sheep. Nonetheless production of wool stood second in value only to maize - £9,512,989 as against £11,237,774. Theiler could but did not claim great credit for the result. Vigilant eyes were on him and duly publicised his contribution in combatting disease in sheep and promoting their increased production. Theiler himself drove on with helminthological studies. Of this 68 time, P. J. J. Fourie later wrote - 'My personal association with the Ou Baas had its ups and downs but I shall never forget the inspired leadership he gave me when I approached him for a problem for a thesis for a Doctor's degree. I can still see him clearly in his laboratory working at his microscope when I put my request. He turned round and looked me straight in the face and without hesitation said "My boy, we in the practice know that when a sheep has worms, it develops an anaemia. Find out which worms cause the anaemia and how this anaemia is produced." No details discussed. To him, the directive was clear enough. All facilities were placed at my disposal - stable accommodation, as many sheep as I required and no limit to any equipment I needed for my work.'

69 Under Theiler's eye, research flourished in all fields at Onderstepoort and sometimes with novel facilities. J. I. Quinn, one of the first students who had qualified with honours, was assisted in his work on Sterility in Cows by a lady-artist who, in the absence of adequate colour photography, Theiler employed in 1925 to draw and paint postmortem specimens of cysts, tubercular conditions and other microscopic pathological items. Cythna Letty executed exquisite water-colours for Quinn. Her meticulously-drawn and coloured pathological work was also transferred to slides. A spirited woman, she was not above drawing Theiler's attention to certain features (or 'knobs' as she called them) which he might not and indeed had not noticed



on a microscopic specimen. She remained at Onderstepoort until 1927 when she was transferred to the Botany Division, later becoming South Africa's foremost botanical artist.

70 In the humming arena which they both controlled, time was running out for Theiler and du Toit. The old man had told his Minister that his year was about to expire and he was ready to go on pension. Kemp had not yet amalgamated the Veterinary Divisions nor solved other problems. He asked Theiler to stay for another year. It was far from Theiler's sentiments to agree to such a request but he found a way out and accepted 'to oblige my successor'. It was possible now for du Toit to go on an extensive sabbatical and gain the widely diverse knowledge necessary to control and develop Onderstepoort. The 26th February 1926 was fixed as the date on which he would sail. Theiler planned a last local leave in December 1925 to marshal his forces for lone direction of the great Institute and determined his departure by the arrival of an important visitor.

As a student at Glasgow University, Henry Green had formed a friendship with a beetling-browed volatile Scot, John Boyd Orr who shared his physiology classes. Their ways had parted but their interests remained common, particularly in regard to nutrition. Orr had pursued his to the point of becoming director of the Rowett Research Institute at Aberdeen which had attained worldwide reputation for its study of nutrition, especially in mineral deficiency affecting humans and animals. Green, occupied similarly in the domestic stock field, had helped to establish Onderstepoort's international renown in the same area. Orr, with the great Empire urge and its financing of research behind him, was able to come to South Africa 'for the useful exchange of information and ideas between Sir Arnold Theiler, myself and Harry Green'.

71 He arrived with his wife in December 1925 and stayed with the Greens while the discussions lasted. His heavy Scots accent hardly deterred Theiler who conducted him over his Institute. Orr was profoundly impressed and in his manner, vociferously expressed his views in all quarters. Theiler immediately left for the Cape on the 14th December with his family and Dr Henrici on 'a botanising excursion' Green took his exhilarating visitor to the torrid Armoedsvlakte where Orr dizzied Butler with details of mineral deficiencies and their consequences throughout the world - lack of lime in the Falkland Islands and parts of Scotland, iron in parts of New Zealand, iodine in parts of Wisconsin, and so on. He was, he said, on his way to Kenya via Rhodesia to examine the interesting unstaged experiment contrasting the maize-eating Kikuyu and the meat-eating blood-drinking Masai ingesting few carbo-hydrates, each with different diseases. Orr visited Smuts at Irene, maintaining a relationship of mutual interest, and lunched with 'a rather sticky' Governor-General. Athlone was out of his depth with mineral deficiencies but brightened over horticulture. Already an apostle of Empire collaboration, Orr prospered its cause on his return to England in discussion with Walter Elliot, then Under-Secretary for Scotland and a leading supporter of research.

73 At a time instinct with international economic doom, the Empire was showing remarkable vitality and drive, particularly in the Dominions and Colonial Office in London directed by L. S. Amery. Onderstepoort was in the minds of purposeful men in all quarters. Returning on the 10th January 1926 well primed from his holiday. Theiler shortly received another significant visitor in this context - Dr A. E. V. Richardson, professor of Agriculture at the University of Adelaide and Director of the Waite Agricultural Research Institute, who had been appointed to a Royal Commission to investigate agricultural research in South Africa, Europe, the U.S.A and Japan. Richardson professed himself immensely impressed by Onderstepoort in experiment and practice - 'the chief of the laboratory, Sir Arnold Theiler, explains in his person the success of the institution. In addition to his high technical ability, he is a wonderful organiser and seems able to keep track of all the experiments under his charge.' Then he was taken to Armoedsvlakte 76 where the new editor of the *Northern News* (Butler had resigned to accept appointment in Cape

Town) reported his special interest in bonemeal feeding as large areas of Australia were similarly phosphate-deficient. He expected that the method would be applicable in Australia and that stock owners would be keenly interested. 'He expressed himself in enthusiastic terms on the scientific vision and organising ability of Sir Arnold Theiler and the manner in which the work of the staff he had gathered around him bears upon every aspect of the livestock industry.' Richardson kept it all in mind for future reference. Great developments were en tapis. Theiler developed a perceptible swagger.

At the end of February, du Toit departed for England and for specialised studies at the Pathological Institute of the University of Basle under Professor Rössle and the Parasitological Institute of the University of Paris. Theiler charged him with a myriad of personal duties and began the weekly ritual of exchanging lengthy letters, now dictated to King.

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'So far as the Colonial Empire was concerned, I inherited from Lord Milner the conviction that the twin keys to development were improved communication and research', wrote L. S. Amery, Secretary of State for the Dominions and Colonies when he resumed the reins after the return of the Conservative Government. With the aid of experienced and talented men - W. Ormsby Gore (later Lord Harlech), Walter Elliot, Lord Lovat and others - he wrought mightily in both fields to achieve politico-economic unity and development within the Commonwealth. In addition to establishing Research Committees for medical, agricultural and general purposes which soon became effective, Amery drove toward a practical coöperative agency, the Empire Marketing Board founded in May 1926 to which he appointed Stephen Tallents as secretary. Its vitality and imaginative achievements were phenomenal, particularly in public relations, then a nascent technique. 'For those of us who played any part in all the outpouring of creative original work which characterised the Empire Marketing Board', Amery wrote, 'it was "Heaven to be alive" during those years.' Less spectacular was the work of the main Research Committee whose report was presented to the Imperial Conference held in London in November 1926. A. J. Balfour had written into its introduction the memorable phrase - 'Let us cultivate easy intercourse and full coöperation will follow.' Du Toit, summoned from Paris by Hertzog, was present and attended a meeting of the Committee in a climate of dynamic effort.

Immediately on his arrival in England, du Toit had sensed the temper of the times. Following Theiler's directions, he had called on Sir Stewart Stockman in London and found him broken in health (he died two months later), proceeding thence to his Weybridge Laboratory operated by the Board of Agriculture and Fisheries of which he was head. Du Toit continued his rounds to the London School of Tropical Medicine, the Wellcome Institute and other bodies, all sending messages to Theiler. For the whole of his overseas sabbatical, he trod in the steps of his master and reaped the benefit of reputation and relationships already made. When he reached Switzerland to study at Basle, Theiler was making new ones.

Incongruously but in the spirit of the great Empire urge, a large party of British farmers toured the Union. The English market was highly desirable and every courtesy and facility was accorded them. Theiler went to Johannesburg to attend a welcoming dinner at the Rand Show. Onderstepoort had been readied against their visit, each Section mounting a special exhibition for their information. Theiler was proud of his staff's performance. The farmers said it was the outstanding feature of their tour. They impressed it forcibly on Kemp and carried their views home. Kemp instructed his private secretary to thank Theiler and later, at a meeting of Divisional Chiefs (now a routine), spoke 'very flatteringly' of the whole affair. At the same time, he made it clear that veterinary students who were not bilingual could not expect Government appoint-

ment when they qualified. Theiler ventured the view that it was his and the Government's fault that Afrikaans-speaking students from the rural population had not been attracted to enrol. Tuition was in both languages.

83 The old man was riding high. He was, he wrote du Toit, 'in excellent health and it is a long while since I have been so fit. My friends embarrass me by making remarks on my robust appearance and all tell me I am getting younger every day . . . I am thoroughly enjoying the work and could go on for another ten years.' He was now completely king of his castle. He had presented his latest batch of students for graduation, worked on the publication of his next Reports, opened new avenues of research, and appeared extensively at garden parties and receptions.

84 Taking their cue, the Pretoria Committee organising the forthcoming conference of the South African Association for the Advancement of Science contributed two long articles to the *Pretoria News* extolling the economic value of Onderstepoort and Sir Arnold. If the main products of its 'vaccine factory' had not been issued free, it would have shown a handsome dividend; but, they said, 'the indirect benefit reflected in the prosperity of the country is vastly greater than any direct revenue could ever be . . . Vaccines have rendered sheep-raising possible in areas previously unfit for it, have therefore opened up new tracts of country and so indirectly increased the national wealth still further.' They went on to deal with research and assessed the effect of the Lamziekte and nutrition work - 'an increased annual profit of four million sterling would be a very conservative estimate'. In empurpled prose covering Kruger to Kemp, they pronounced that 'in Arnold Theiler, they had a man of wide scientific vision and restless driving force who could be counted upon to express his science in terms of economics'. Significantly they observed that 'there are scientists all over the world who know the name Onderstepoort much better than they know the name Pretoria'. When the Conference met in July (Theiler delivered two papers in association with P. J. du Toit and E. M. Robinson), his colleagues were less kind. A botany artist Beryl Kaye produced caricatures of the leading scientists including Theiler, Green and Pole Evans and the image of the great man was projected in unflattering pose on the Conference screen and published in the *Rand Daily Mail*.

85 Even his family were a source of joy. Hans was safely at Princeton. Margaret had excelled at her games and, representing South Africa at hockey against a visiting English team in 1925, would continue a Springbok on the first such overseas tour in 1927. The highly-qualified Gertrud (no mean sportswoman herself) was looking for fresh fields to conquer. At the end of 1926, she left the Jeppe Girls High School to take charge of the Zoology, Physiology and Biology Departments of which she was sole lecturer, at the Huguenot University College at Wellington, Cape. An institution for the higher education of men and women, the College had established a good reputation under the University of South Africa. Gertrud was to develop and enhance its scientific aspect. And Max? Theiler glowed at the thought. Idly he wrote du Toit - 'It may interest you to hear that my son Max is going on an expedition to Central Africa. The Medical School of the University of Boston is sending it across Africa and it is expected to take about a year. The party intends landing at Mombasa, going across the Lakes and Katanga down to Boma and up to Liberia. Max is very enthusiastic about it and I am very pleased indeed that such a wonderful opportunity has come his way at such a young age.' In fact, the expedition led by Dr Strong proceeded in reverse. Max, aged 27, was assigned 'protozoological studies of blood' and human trypanosomiasis including Yellow Fever on which he had been working with Sellards at Harvard. Noguchi had considered a bacterium its cause but they believed it a virus.

88 Though cases were not available, Max enjoyed a rich experience of very varied nature on the expedition and found his future.

The Empire ferment continued active under unusually unpropitious circumstances. In May

1926, the Great Strike crippled England, interrupting communication with South Africa where Hertzog had chosen to introduce his inflammatory 'Flag Bill'. Incensed by the proposed elimination of the familiar Union Jack with its implied severance from what many people still called 'the home country', zealots protested violently and some left the country for Rhodesia and other 'loyal' lands. Hertzog had disturbed a hornets' nest which poisoned the Union for many unhappy months while a Commission sat to resolve the flag issue and Athlone temporised behind the scenes. Commonwealth coöperation steadily continued with its ripples lapping Theiler's door.

89 Walker came down from Nairobi on one of his 'refresher' visits to Onderstepoort and divulged a grandiose plan for a combined East African Veterinary Research Institute 'practically hardly second to our own', Theiler noted, envious of the bounteous money that would be devoted to it. There was even an enquiry from Egypt as to whether their veterinary officers might be trained at Onderstepoort. Momentarily too, the shade of Soga loomed. The Bunga or Transkei Native Council recommended that two native veterinarians be trained for work in their Reserve. Theiler was asked for his opinion but, recognising a matter of policy, referred it back to his Minister. Privately he thought it 'interesting in the present trend of ideas and South Africa will have to face the position sooner or later since by law all races are equal and I do not see how the native can be rightfully prevented from qualifying . . . It is a problem for our politicians to solve.' His Minister had already referred him to the Imperial Economic Conference in November and Theiler had composed a memorandum on Inter-Dominion work, exchange of literature and pooling of resources for the study of diseases of common danger. It was discussed 91 by the Heads of Divisions in July. Despite the odium he had created, Hertzog had every intention of joining his Empire colleagues in London.

Du Toit was filling every moment of his sabbatical. Arriving in Zurich, he and Kupfer (for whom Verney had invoked Theiler's aid in despatching a Basuto pony to Zurich) sent a joint cable of good wishes to the old man and Lady Theiler. (Kupfer had written for publication by the *Schweizerischer Landwirtschaftlichen Monatsheften* a splendid and lengthy account, lavishly illustrated by Theo Meyer's photographs, of 'The Theiler Research and Training Institute for Veterinarians and Biology in South Africa'.) Then du Toit began his pathological studies under Professor Rössle at Basle where he shortly received a cable from John Boyd Orr 92 (a special protégé of Amery's Research Committee and particularly active in scientific circles) stating that the British Association for the Advancement of Science had fixed a date in August for the presentation at its Meeting at Oxford of the Theiler/Green/du Toit paper on 'Phosphorus in the Livestock Industry'. It was a high honour for South Africa. Du Toit himself would read it but momentarily he trod further in the footsteps of the old man.

93 He addressed the Basler Naturforschender Gesellschaft on 'Veterinary Problems in South Africa' illustrated by 65 slides ending with one of Theiler himself which was received with great applause. Nostalgically and professionally, he visited Munich, Leipsig and Berlin (missing Knuth who was away on leave) and unsurprisingly, began to fail in health. Returning to England on two weeks sick leave, he began another round of official visits - Sir John Russell's agricultural experimental institute at Rothamstead, F. B. Smith at Cambridge where he also inspected Buxton's Laboratory, the Bio-Chemical Institute of Sir Frederick Hopkins of 'vitamine' fame - before going to Paris at the end of July to attend an Empire League Conference at which he represented the Transvaal University College.

94 Providently Theiler was preparing for his final departure. The Nationalist Government had appointed a Select Committee to examine State pensions. Its recommendations resulted in the Transvaal Republican Officials Act No. 49 of 1926 by which inter alia the length of service of Kruger's men was added to their service under Union (with some notable results - Leyds,

living in Holland, received a sum of £10,000 and his pension was increased from £700 to £1,300 per annum; his assistant C. van Boeschoten's was similarly increased plus £3,000; and P. W. Grobler, Kruger's protégé, received £2,000). Arnold's pensionable period now included his republican service from the 10th May 1896 to the 31st August 1900 when, after the British Occupation, the Government ceased to function. He had long discussion with Emma on the financing of their retired life and the need to safeguard her future if he predeceased her. They decided he would commute his outstanding leave pay and part of his pension. They had in mind to buy a house in Switzerland.

95 Before he could discuss his request, the Secretary for Agriculture, P. J. du Toit, suddenly died at the age of 54 and was given 'an impressive funeral'. He was succeeded, after much speculation, by his assistant and early Cape colleague, Colonel G. N. Williams with whom  
96 Theiler pursued what emerged as a complicated request. In the end, he was allocated £3,614 in commutation of a third of his pension which was then diminished from £1,166 a year to £764, both payable by the High Commissioner in London. Hope still lingered in his mind that he would not be 'thrown on the scrapheap'. Onderstepoort was now entering into its apotheosis and it seemed inconceivable that he should not return there after his leave. He had work to do – perhaps  
97 not in research which might interfere with current operations but certainly in writing his 'Handbook on South African Stock Diseases', and otherwise recording a lifetime experience and knowledge. He would need his Institute's records to accomplish it.

Du Toit who knew all his plans and intentions, had left France for Oxford to attend the meeting of the British Association for the Advancement of Science. Amery's adjutants – Ormsby-Gore, Under-Secretary of State for the Dominions, and Walter Elliot for Scotland – well aware  
98 of the importance of Onderstepoort to their grand schemes and primed by John Boyd Orr, accosted him and urgently besought him to serve their purposes by postponing his return to South Africa. They wanted him to make a short tour of Nigeria to report on its stock-raising. Du Toit was taken aback but forthwith advised Theiler.

The B.A.A.S. meeting was 'perfectly organised', according to du Toit who was intermittently harangued by the Empire Marketing Board's proponents on the significance of their Board and its intention to coördinate Veterinary Research. They attended the session on the 9th August together with Orr, T. B. Wood of Cambridge, A. E. V. Richardson of Australia, Golding of Reading and other Imperial and Colonial scientists who constituted a large audience when du Toit read the paper now called 'The Mineral Requirements of Cattle'. It was received with great acclaim, no discussion ensued and delegates demanded copies. Noting the considerable stir  
99 caused by South Africa's contribution, the *Pretoria News* scoffed at 'the tardiness of British scientists in recognising this work' and mentioned par contre that a French scientist from Algiers was coming to Onderstepoort to study the subject. Theiler had then completed his 11th and 12th Reports. The second volume consisted entirely of 'Lamziekte (Parabotulism) in Cattle in South Africa' under his name 'in collaboration with P. R. Viljoen, H. H. Green, P. J. du Toit, H. Meier and E. M. Robinson'. He signed it on the 14th September 1926 and it was published in January 1927 – a masterpiece of detailed experimentation conducted by many  
100 hands and minds under his direction. Robinson long continued work on the various types of botulinus and ultimately isolated those causing Lamziekte from which a successful vaccine was prepared.

Du Toit, returning to Europe on holiday, visited Bruges, Brussels, Dresden and Vienna before reaching Switzerland where he spent a day with Alfred Theiler, finding him very similar to Arnold. He then went to Dusseldorf for a Veterinary Congress attended by many of Theiler's  
101 confrères – Ostertag, Roller, Zwick, Knuth and others – who charged him with sending greetings, and delivered an address on Onderstepoort and its director. At the same time, Amery

wrote formally to the Earl of Athlone requesting his intercession in obtaining du Toit's services for a visit to Nigeria.

102 If Theiler's heart were rejoiced by these events (including the arrival at the Cape of his old  
friend Professor Carl Schröter on a long tour which would bring him to Pretoria), his daily por-  
103 tion consisted mostly of exacerbation. At this bitter time with the Flag Commission sitting and  
Athlone exerting himself to find a via media, Kemp was laying about him in the most authori-  
tarian manner. Without reference to Theiler he appointed P. R. Viljoen and Major A. Goodall  
(of Borthwick's staff) as a commission to investigate an outbreak of East Coast Fever in the  
104 northern Transvaal. At the monthly meeting of the Divisional Heads, he arbitrarily announced  
the amalgamation of the Veterinary Divisions to take effect on the 1st April 1927. ('There are  
times', du Toit wrote Theiler, 'when I think we made a big mistake in proposing the amalga-  
mation scheme.') When Kemp received from Athlone toward the end of October, Amery's  
request that du Toit be seconded for a three week tour of Nigeria before returning to South  
Africa, he replied, without consulting Theiler, that it was impossible owing to Theiler's depart-  
ure at that time. If du Toit went to Nigeria, Theiler would have left before he could hand over  
Onderstepoort to his successor. It was the kind of impetuous irrational decision that Kemp  
customarily made with a logic based on superficial premises. Had he consulted Theiler or asked  
for recommendations, he might have gained some insight into the Commonwealth coöperation  
105 in which his superiors were anxious to participate. In September when Amery had written his  
letter, Theiler had received from the Empire Marketing Board the visionary plans of its Research  
Committee to coördinate work and research. Already he was part of the synthesising scene.

Du Toit, anxious to know what Theiler thought of the Nigeria proposal, was now in Paris  
106 concluding his work with parasitological studies at Brumpt's Institute and calling on Mesnil  
at the Pasteur Institute. Theiler was entertaining the venerable Dutch botanist, Dr J. P. Lotsij  
107 and his daughter whom he took to Irene to meet Smuts and would shortly go on the same errand  
with Professor Carl Schröter who had now reached Johannesburg and would soon stay with him  
in Pretoria. The Imperial Conference had opened in London with South Africa represented  
by its Prime Minister General J. B. N. Hertzog and its Minister of Finance N. C. Havenga and  
staff. The climate was warmly conducive and unscheduled discussions took place. Du Toit  
was peremptorily summoned from Paris to attend formal meetings of the Research Committee  
of the Dominions and Colonial Office (he agreed with Theiler that elimination of 'overlapping'  
108 in research was not necessarily desirable - 'let them all try', Theiler had said). During these  
proceedings, he met Havenga and discussed his activities in the context of the Conference,  
Havenga raised them with Hertzog and together they over-ruled Kemp's decision and authoris-  
ed du Toit to accept Amery's invitation to make a survey of Nigeria's stock-raising industry.

Kemp in the meantime had delivered his coup de grace. On the 9th November 1926, the  
Secretary for Agriculture, G. N. Williams, wrote Theiler - 'I am directed by the Minister of  
Agriculture to advise you formally of the fact that on the attainment of your 60th birthday on  
the 26th March 1927, you will be retired from the Public Service on the grounds of superan-  
109 nation, the age mentioned above being the statutory retiring age in your case.' He added -  
'I am to say that the Minister desires particularly to place on record his high appreciation of the  
services which you have rendered South Africa during your tenure of office in the Public Service  
and I trust that you will permit me to add to this, an expression of my own and the Depart-  
110 ment's appreciation also.' Theiler's bitterness burst its bounds. Kemp had kept him, he wrote  
du Toit, merely on sufferance to fill a gap before placing him on the scrapheap conveniently  
on his 60th birthday. 'The last two years have really been a unique experience and will perhaps  
furnish me with very interesting subject-matter when I come to write up my memoirs.'

The 'crucifixion' followed. At the monthly meeting of the Divisional Heads from which

111 Theiler tried to absent himself but (with Borthwick, also retired) was specially summoned by the Minister, Kemp delivered a panegyric on Theiler's services from Kruger's regime onwards. He referred with fullsome praise to his saving the country millions of pounds, to the fact that his name would live on for 50 or 60 years and that the country was grateful. 'He regretted very much', Theiler recalled, 'that he had to sack me but that reaching the age of 60 meant the inevitable . . . This was the funeral which I had to attend as a living corpse. I could have done without it all and I still wish that the General had seen his way to have avoided crucifying us . . . All the way through, I have the feeling that destiny should have willed it that I died at Onderstepoort. I still cannot help having that feeling after the crucifixion.'

112 There stuck in his mind Kemp's statement that although he had the power to retain service after 60 years of age, he felt that the older men should make room for the younger. It was typical of Kemp's logic. The alternative of emeritus appointment in a consultative or other capacity would not occur to him (though Theiler had hopefully suggested it to du Toit before he left on his sabbatical). He may have wanted to save an additional salary. Rigorous economy was the order of the day (the stylish *Journal of the Department of Agriculture* which had carried Theiler's reports overseas, was now replaced by the cheaper *Farming in South Africa*). But he 113 may equally have contributed to the view then current that a dispirited civil service was subordinated to the whims of politicians. In Theiler's view, Kemp wanted to get rid of an Uitlander. 114

115 On the point of du Toit's going to Nigeria, Kemp had been forced by Havenga to retract and to inform the Governor-General that permission had now been given him to extend his leave accordingly. Theiler seemed indifferent 'It will probably be a long time before we see each other, perhaps never'. His bitterness was being temporarily mollified by unusual pleasures. 116 Always a favourite with the Athlones, he had enjoyed their garden party - 'thousands of people' and Emma specially noticed as 'wearing a handsome gown of black-embossed georgette with a chenille design - her smart hat was also black'. Then Schröter and his daughter and son-in-law 117 came to stay with much festivity among the local Swiss and a special 'Botanic Evening' given in his honour by the Biological Society (at which the Scott Medal was presented to Henry Green). Smuts, enjoying indulgence in his favourite hobby, spoke most appreciatively of the Swiss contribution to South Africa and 'some very nice things were said'.

Theiler spent two days showing Onderstepoort to Schröter and was compelled to account for his leaving it, concluding rather lamely that he would continue his scientific work elsewhere. 118 'This did not go down with old Schröter who is himself a very virile man at 71', he told du Toit, 'and who would not understand that youngsters of 60 should have to be put on the scrapheap.' The venerable Swiss botanist continued his exhaustive tour to Swaziland, the Victoria Falls and beyond while 'the old man' felt a sudden wave of nostalgia. Simultaneously Sir Robert and Lady Baden-Powell arrived to stay at Government House (veterans of the South African Constabulary foregathered to meet him) and Milner's Kindergarten re-appeared in Pretoria in the 119 persons of Lionel Curtis, Phillip Kerr and Lionel Hichens. Men had been men in those days and he had been among them. Now he was the prey of ninnies.

120 Like a caged animal, his mind hurled itself against the bars of his dismissal. The affront to his pride was intolerable, the hurt hardly less. If South Africa spurned him, there were other countries which knew his value. On the 7th January 1927, two months before his scheduled departure, he wrote to the Southern Rhodesian Minister of Agriculture, J. V. Downie, offering his services in active employment as against retirement. 'I am more anxious to utilise my ideas and experience in some capacity which would be congenial to me. With sufficient assistance, the problem of endemic East Coast Fever as well as the problem of the presence of Koch's bodies in diseases other than East Coast Fever, would be a very fascinating one and, given assistance and time, it should be possible to solve them in Rhodesia.' Cruelly there was no reply.

- 121 Du Toit had already sailed for Nigeria after lunching with Walter Elliot in the House of Commons. Max had reached the Congo and might be in London in May. Margaret was already there, playing hockey for South Africa. Gertrud would soon leave for Wellington, Cape. Emma made difficult decisions about family property in furniture, books and records which should be stored as possibly useful to the girls or to Arnold and herself when finally they settled somewhere.
- 122 Enervated by rage, grief and frustration, Theiler ordered his last affairs at Onderstepoort, including preparing his 13th and 14th Reports for printing and collecting pathological material
- 123 for his proposed study of Stijfziekte and Osteoporosis in horses and donkeys at the University of Basle where Professor Rössle would welcome him and accord facilities. He intended keeping au courant with his previous work through du Toit whom he continued to treat as an acolyte.
- 124 The University of the Witwatersrand offered him an honorary D.Sc. which he could not accept as he would already have left by the time of the ceremony. Advice reached him in January 1927
- 125 of his election as an Honorary Fellow of the Royal Society of Tropical Medicine and Hygiene
- 126 in London. He would not give in. 'It would be a waste of time if, on my retirement', he wrote du Toit, 'I should cease all my activities simply because I have been discouraged and disappointed at the end of 34 years work in South Africa.'
- 127 The emotional strain rose to crescendo. The popular *Farmers Weekly* (a commercial publication) took from the short valedictory in the Annual Report of the Secretary for Agriculture published in December 1926, the phrase 'the progress which Onderstepoort has made since its inception is indissolubly associated with the name of its founder and director, Sir Arnold Theiler' and suggested that it be changed to 'the Institute Theiler' as the country's tribute to
- 128 the man who built it. Du Toit had earlier had the same idea. *The Star* professed itself dissatisfied with the reason for Theiler's retirement and suggested emeritus appointment. Theiler's gall
- 129 rose and he gave a bitter question-and-answer interview to the *Farmers Weekly* which was
- 130 published after his departure. In a more measured moment, he wrote - 'The scientific world in Europe will have difficulty in understanding why Theiler should have been put entirely on
- 131 one side as a necessity of reorganisation'. Ironically at that moment, a representative compatriot of that world, Dr Arnold Heim of the Swiss Geological Survey, a passenger on the historic Mittelholzer seaplane *Switzerland* traversing Africa from north to south on a scientific expedition, was duly fêted by the local Swiss in Pretoria and continued his journey by land to Cape Town.
- 132 Theiler had used his remaining local leave to terminate his service on Saturday the 5th March 1927, three weeks before his 60th birthday so that he could reach Basle in time for the opening of the University courses he wished to attend. Each succeeding day was more harrowing than the last. The farewell ceremonies and presentations of 1918 could not be repeated. Times were in any case too bad. Fundamentally an emotional man, Theiler wrote to the secretary of the Governor-General, then in Cape Town for the session, on the 18th February notifying his final departure and asking that his gratitude and appreciation be expressed to His Excellency and Her Royal Highness Princess Alice for their continuous kindness and interest, and sending his best wishes. It had been a ray of light in one of the darkest periods of his life. Hargreaves replied
- 133 immediately - 'Their Excellencies ask me to convey to you their best wishes for your future welfare. His Excellency would like to know if you and Lady Theiler intend passing through Cape Town on your return to Europe as, should you be doing so, he would like to bid you farewell in person.' It seemed an impossible assignation. His train would reach Cape Town at 10.30 a.m. on the 7th March and his ship *S.S. Toledo* of the Deutsch Ost-Afrika Linie would sail at 4 p.m., Du Toit (and Margaret returning from England) would land from *Balmoral Castle* early on the same morning and he must have long talks with both. Lest he miss du Toit,
- 134 he wrote him a final letter on the 3rd March asking him to try to find a place for Hans at Onderstepoort - 'it would be easier now'.



135 Kemp fulsomely fulfilled his official duty in a long letter conveying the Government's gratitude for his services and treading heavily on tender points. 'I regret that the passage of time has rendered it necessary to bring your services as an official to a close. Your loss will be greatly felt but on the other hand, I realise that it is owing to your foresight and the advantage of training under you that I have a successor in your post in whom I can repose full confidence and who will become a worthy successor to his Chief . . . I hope that ere long on the completion of your studies in Switzerland, you will return to the Union which can ill afford to spare one of its most distinguished citizens . . .' He ended with warm expressions of goodwill and best wishes. Probably Williams, the Departmental Secretary, wrote it for him.

136 Sadness pervaded Onderstepoort, even among his students whom he had encouraged, cherished and protected. They clubbed together and arranged a small dinner party at which they presented him with the classic Burchell's 'Travels in the Interior of South Africa' of 1811-15 which they knew he wanted for tracing early mention of animal diseases. He could not conceal his bitterness from them - he had wanted to stay on as a guest-worker. He felt, he said, like an orange or a lemon which had been squeezed out. The research staff had given long thought to a suitable parting gift and presented to Lady Theiler a small green-stone triangular obelisk mounting in bas-relief a profile of Sir Arnold. The lay staff who had been with him from the earliest days paid their tribute with a card inscribed 'to "the Founder of Onderstepoort" from a few of your "Daspoort Uitlanders" in sincere appreciation of all you have done for us and with deep regret at the enforced termination of our official relationship'. It was signed by H. W. R. King and his assistant C. F. Hinds, the veteran F. T. Mauchlé, Captain W. F. Averre in charge of animals, and R. J. White. The Biological Society presented a picture by the local artist Pierneef. On the 4th March, all the staff and Theiler's Divisional colleagues met informally in the administrative building when affecting speeches were made and final leave taken. The old man and Emma were profoundly moved. The next afternoon, they left by train for Cape Town.

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142 Theiler fulfilled all his assignments, seeing du Toit (who remained shortly at the Cape for discussions with his Minister) and calling at Government House to take leave of his gracious patrons. Gertrud came in from Wellington to join Margaret in watching *S. S Toledo* being warped from the quay, taking their parents away for an undetermined period. Symbolically, loaded in its hold, the dismantled Mittelholzer seaplane *Switzerland* returned to its home country for re-assembly and further use. 'The Theiler Institute' was a vanished dream.

## A THRONE BETWEEN TWO STOOLS 1927-1932

NO ONE COULD take from Theiler his reputation as the leading expert on sub-tropical animal diseases and as a pioneering investigator of their bacteriological, toxic, parasitic and other causes. In a world striving for development in agricultural economy, there was no one with equal knowledge, experience and organising ability. Amery knew it. His satellite research scientists such as John Boyd Orr knew it. The Colonial Governors – Sir John Chancellor of Southern Rhodesia who visited Onderstepoort in Theiler's time, and Sir Edward Grigg of Kenya who came soon after he left – also knew it. Distantly in the Antipodes, responsible men both knew it and were taking action on a scale as grand as Amery himself. In May 1926, Stanley Bruce, Prime Minister of Australia, had introduced a Bill providing for a Council of Scientific and Industrial Research. He ensured that it operate directly under the control of the Prime Minister. Carefully he chose experts to inaugurate it – an academic professor, A. C. D. Rivett; a consulting engineer, George A. Julius; and an agricultural scientist, A. E. V. Richardson who had been to Onderstepoort and Armoedsvlakte in his preliminary survey. It was not long before they too were in pursuit of Theiler.

The old man was well aware of his value to the world at large but, baulked of a lifetime's scientific records now immured in Onderstepoort, had planned a future for himself sprung from genuine love of solving a professional problem. It had been in his mind since 1894 when, as a struggling veterinary surgeon in Johannesburg, he had crossed swords in the public Press with his competitor Hollingham on the subject of Osteoporosis – the disabling disease in horses that softened bones to the consistency of sponge. The 27-year old Theiler had then written lengthily and learnedly that 'it is hardly necessary to warn anyone with the slightest knowledge of pathology against considering every case of stiffness as ipso facto osteomalachia or osteoporosis' (which he purported successfully to treat by the administration of calcium and other 'phosphate salts'). He was aware then that mere dosing in water or solids did not necessarily fortify animal bone-structure and that the whole field of bone diseases was ill-defined and ill-understood. The problem of Rickets, Stifjiekte and other bone afflictions flittered on his periphery until the revelations of the Lamziekte investigation when he, du Toit and Green began to examine the effect of mineral deficiencies in cattle diet in respect of growth, bone formation, milk production and general health. Theiler selected as his particular future field the examination of bone structure and the determination and classifying of the various forms of bone diseases. He had collected massive equine and bovine material which he intended studying at Basle. He would be usefully and congenially occupied and du Toit would do what he could to help.

On his 60th birthday (26th March 1927), he and Emma arrived at the Foyer Suisse in London to the usual tumult of friends and colleagues. Almost immediately, Amery invited appointment and Theiler met the Colonial Secretary together with Sir Edward Grigg of Kenya in his Whitehall office. Their talk was of research into animal diseases and both Amery and Walter Elliot (whom Theiler later met) indicated that the British Government was determined to do more for scientific research in the future than it had in the past. Grigg mooted the Central African Laboratory which Walker had already described to Theiler. A very palpable straw flew past in the wind. ('The achievements of O.P. stand out as an inspiring example', Theiler later told du Toit, 'and may be emulated by some other Colony. Grigg speaks of a big laboratory for the whole of British East Africa where opportunities for research and training in Empire Veterinary Science

6 should be given.' It was all recorded in an official Colonial Office memorandum in most gratifying terms.)

Staring through his spectacles, Amery point blank asked him whether his services to South Africa were finally finished. Theiler said Yes. Amery asked whether they were at the disposal of the Colonial Office and Theiler again said Yes. Was he prepared to go out again into the Colonies? Theiler replied that he was prepared to go anywhere and undertake any work provided he could see that his service would be useful. Amery indicated that a proposition would be made him but not until after the Imperial Agricultural Research Conference to be held at Cambridge in October which he should attend. Theiler was delighted despite the fact that the six intervening months would be insufficient for his bone work. It was good to be wanted.

After two weeks in London, the Theilers went to Switzerland and were briefly immersed in personal and professional affairs before settling into lodgings at Basle. At the University, Arnold, ensconced in a corner of a laboratory with a lady assistant to section his bones, began his investigation and attended relevant lectures under his patron Rössle. Gratifying things continued to happen. Apologising profusely for the delay, Downie of Southern Rhodesia acknowledged Theiler's letter of January from Pretoria suggesting research, and asked for a memorandum outlining what he would require to implement his scheme. Ormsby-Gore, fired with Amery's urge to get something going, 'wrote him a very inspiring and enthusiastic letter'. Even Andrews at Weybridge wrote that 'things were now moving'. Theiler answered Downie very carefully, sending the requested memorandum but qualifying his original offer by retailing his discussions with Amery and Walter Elliot. The smart of rejection was being replaced by elation at being so much wanted.

With the best will in the world (his intention had never been firmer), Arnold had difficulty in getting on with what Emma contemptuously called 'his bones' - a matter in which, already occupied with his articles and correspondence, she became increasingly involved. Du Toit could have echoed Arnold's earlier protest against F. B. Smith's ordering him about 'as if he were still my Chief'. Theiler wrote him repeatedly, demanding more pathological material, results of experiments and, after a German tour meeting many colleagues, photographs and publications for supply to them. He regarded du Toit as an obedient accomplice in all his work. (Loyally, du Toit had found a place for Hans at Onderstepoort; but Theiler's ill-starred first-born who had meanwhile married an asthmatic German lady, had secured appointment as assistant in Comparative Pathology to Professor E. E. Tyzzer of the Harvard Medical School, Boston where he remained for several years. It was at once a solace to his father whose application to his own work now fluctuated.) Mid-summer public holidays interrupted his research and then there was Max.

When the Harvard Central African Expedition came to an end at Mombasa, Max left it to travel down the coast to South Africa. His intention was to see his sisters and to ascertain whether either the Johannesburg or Cape Town Medical Schools or Onderstepoort could offer him appointment in Tropical Medicine. None could nor, in severely depressed times, were prepared to consider prospect. Max continued his journey to Europe, enterprisingly using an aeroplane for part of the way, and arrived in Basle at the end of June 1927. Habitually since childhood, he settled down in his parents' lodgings to read, ostensibly to bring himself up-to-date, sometimes immuring himself for the whole day. Innured to his manner, they dragged him out after a week for a short tour of Germany in the company of Arnold's Boer War Swiss friend Kollmann and, soon after, a visit to Paris where Arnold bought books and equipment. Then they crossed the Channel at the behest and expense of the Empire Marketing Board.

Amery and an entourage including the Board's Gervas Huxley had left for a tour of South Africa and Rhodesia. (On the 9th September, General Smuts took them to Onderstepoort which

Amery later described in enthusiastic terms. The Colonial Secretary then carried his banner to Australia, New Zealand and Canada, promoting the Commonwealth all the way and returning to England in February 1928.) Theiler meanwhile sat in consultation in London at meetings with Lord Lovat, Ormsby-Gore, Walter Elliot, Orr, Stephen Tallents and others. With casuistic reasoning, he told du Toit he hoped his connection with colonial veterinarians in this manner would cast light on skeletal diseases; but in the meantime, the bones at Basle were being neglected. The Board had further pledged his time for a week's visit to Scotland. Emma worried about Max's still being with them. His return to Harvard was a week overdue – what would Dr Strong say? In time she learnt to accept the abstracted-scientist syndrome by which no deep-research devotee was held to account for breaches of regulation or service applicable to ordinary mortals. Max duly sailed on the *Berengaria* for New York and the Theilers went to Scotland for an arduous tour of the more usual sights in Edinburgh, the Trossachs etc and, the object of the journey, a visit to Aberdeen and the Rowett Research Institute.

15 Theiler who had confessed to 'the greatest disappointment' at Orr's report on Kenya during his 1926 visit to Africa ('he seems to have deficiency on the brain') was compelled to revise his view. He expressed himself 'very much impressed with the magnitude and scope of the Rowett Research Laboratory' and – further he could not go – 'experiments are made almost on as big a scale as in Onderstepoort'. Orr had all the fire and drive (and terrible temper) of the true apostle, meeting his problems headlong in open combat. Theiler tended to state his case with dispassionate dignity and to retire into sulks if it were not accepted. Both were indisputably masters in their fields and desirable to the world at large. Their brief association in Aberdeen had been exhausting and Theiler, after an unnerving Channel crossing when he and Emma were prostrate, returned to Basle tired and unsettled. He began to visit his laboratory only intermittently and to occupy himself with giving extra-mural lectures and writing articles which Emma copied. 'Pa is a restless spirit', she told the children, 'and no place pleases him for long'. He expected British Government appointment and a lengthy sojourn in London. All would be clinched at the Agricultural Conference in October. They crossed the Channel again on the 24th September 1927.

At few times in its history had 'Science' asserted itself more determinedly against 'Nature' than in the third decade of the 20th century. Einstein had propounded his theory of relativity. Rutherford was about to split the atom and countless physicists, chemists, pure mathematicians and germane brethren were working in fields hitherto unexplored. The charisma of 'Science' pervaded the whole world and its protagonists supplanted the exponents of physical feats as 'heroes' in the public mind. 'Science' was seen primarily as unlocking the secrets of the Universe but there was no lack of practical men who conceived it also as resolving the ills of humanity and securing a better life for all. It was in this atmosphere of new knowledge that the Theilers reached London and Arnold continued his service on Amery's Colonial Veterinary Service Organisation Committee with which was associated the Agricultural Colonial Service Committee, dealing with conditions of employment of vets. Also in London and active in the same ends was George Julius operating on instructions from the Prime Minister of Australia in developing the work of his new Council of Scientific and Industrial Research. Theiler, who anticipated being Britain's man, was soon aware that he might be Australia's.

18 The Imperial Agricultural Research Conference which opened at Cambridge two weeks later provided the ideal catalysis in the ideal setting for the ferments then current. Its president was Baron Bledisloe, Eton and Oxford, Parliamentary Secretary to the Ministry of Agriculture and with a long career of practical farming and association with agricultural organisations behind him. The conference was planned in the grand manner for a large convocation of Empire officials and scientists with their wives. It began with Cambridge University displaying its in-

stitutions and hospitality, interspersed with private parties which, for the Theilers, included twice dining with F. B. Smith at Downing College, the guests including the South African delegates – the Secretary for Agriculture G. N. Williams and the Director of Veterinary Education and Research P. J. du Toit. Talk was long and incessant. There was no idle moment and hardly a night was spent in the same bed. The Conference inspected every institution around Cambridge and then travelled north to Billingham to spend several days examining the Imperial Chemical Industries mammoth factory producing artificial fertilisers, its laboratories and various chemical processes. Emma trooped with the rest and confessed to understanding ‘herzlich wenig’ (jolly little). Thence to Scotland and innumerable agricultural colleges and research stations and finally back to London for the Conference’s concluding stages. By then, Emma knew that Arnold had been prevailed upon by the Australian delegates, particularly A. E. V. Richardson who later admitted to having originated the proposal. ‘It is possible’, she wrote on the 22nd October 19 ‘that Pa and I will leave for Australia for about 6 months at the beginning of 1928’.

Theiler who had caught the eye of Bledisloe (destined soon to become Governor-General of New Zealand), had enhanced his father-figure and become an indispensable consultant in the general drive toward improved agricultural production. The Conference itself made many recommendations relating to the inter-change of publications, research workers, etc and, of particular reference to South Africa, recommended the institution of a chain of research stations throughout the Empire. More specifically, the Union Government was to be asked to increase the facilities at Onderstepoort to enable it to undertake the functions of a Central Research Station in animal diseases. Theiler had seen to it that his cherished Institute should come into its own. The Empire Marketing Board immediately opened negotiations with Williams and du Toit while Theiler in London continued in consultation with Amery’s committees on the conditions of veterinary training and service in the Empire. He also spent time in Australia House in discussion with F. L. McDougall of the staff, George Julius of the C.S.I.R. and John Boyd Orr. 20 Julius was a notable negotiator and, once committed to Stanley Bruce’s vision of the application of academic science to agriculture and industry, bent his best efforts on eliminating local antagonisms and securing overseas experts to set the scheme on its way. He had been instructed to obtain the services of Theiler and Orr to examine the Australian stock-raising industry with Theiler reporting on the organisation of the veterinary service.

Julius put a plausible case. He offered Theiler £1,000 in cash for a six-month tour early in 1928 with all expenses paid for himself and Emma. It was now obvious to Theiler that Amery’s great schemes were still in their formative stage and that the Empire Marketing Board had yet to get into its stride. He was continually needed for advice on an ad hoc basis but the emerging structure as yet held no position for him. Williams and du Toit had pointedly distanced themselves, evidently occupied with seeking their Government’s consent to the implications not of use of Theiler but of Onderstepoort. He had no tie there and accordingly he accepted Julius’ proposal. Cables were sent to the Commonwealth Government requesting formal confirmation.

The month-long Conference at last came to an end with a full-dress reception at the Imperial Institute (where the Theilers met Sellards of Harvard, then on his way to Lagos to investigate Yellow Fever, who gave them cheering news of Hans and Max), ‘a very swanky lunch’ at the Savoy Hotel and final visits to laboratories. On their last night in London, the Theilers had Harry Green to dinner. He had been most of the time on leave in Glasgow where he had rashly accepted appointment without thought of the consequences and was now returning to South Africa with Williams and du Toit (who, no longer feeling obliged to pay his respects to his old chief, made his adieux vicariously through Green – Emma took it badly). By the time they left 21 London on the 1st November, their future had been further complicated by a commission from Amery’s office, all expenses paid, to utilise their voyage to Australia to visit Ceylon for Theiler

22 to report on local veterinary research. Orr with his wife was already similarly involved in a nutritional survey of Egypt, Palestine, India and Ceylon where he would meet Theiler and sail by the same ship to Melbourne.

The bone business would have to wait. In only three days in Basle, the Theilers read their accumulated letters and journals and packed for further travels. The news of Arnold's complicity in the Colonial Office's grand planning had been noised abroad together with the announcement that the Société de Pathologie Exotique in Paris had made the first award of its gold medal honouring Laveran to him. It was perhaps his highest professional honour yet and he would go to Paris to receive it. Meanwhile his friends wrote to congratulate him on appointment to the British Service, mistaking his retention as adviser for permanent employment.

23 Within the week, the Theilers were in Rome where Pa attended an International Veterinary Conference and Emma diverted herself in the Borghese Gardens, gallery and Zoo ('not as many animals as in Pretoria'). As the Conference ended, McDougall of Australia House formally confirmed his Government's invitation in the terms discussed. The Theilers were then in Milan on their way to Turin to see Frank Veglia who, leaving Onderstepoort in May 1927 after a 15-year association, was now a professor at the local University. When they reached Basle a few days later it was only to leave immediately for London on the invitation of the Colonial Office. Pa felt important but the going was hard. There seemed no end to constantly crossing the Channel.

24 The Colonial Office through its Research and Service Committees and the Empire Marketing Board (energetically organised by Stephen Tallents) were making the fullest use of his services in a wide variety of projects, organisational as well as scientific. When they came to fruition, there would surely be high place for him. Consultations sometimes took only two or three days. Within a week, the Theilers were back in Switzerland, spending the weekend at Zurich with Kupfer (longing in the bitter winter to be back at Besterput despite the dust and the heat and the loneliness), the failing Professor Zschokke, the venerable Professor Carl Schröter and Dr Albert Heim who aroused the old longing for Africa with fine colour pictures taken on the Mittelholzer flight. Back in Basle, letters demanded more consultations. Dr Rivett, director of the Australian C.S.I.R., wanted Theiler to concern himself with a particular disease of sheep. Australia House had outlined his itinerary. Tallents had received from Kenya's Sir Edward Grigg Theiler's memorandum to Downie on East Coast Fever with comments by local veterinarians. Grigg suggested close coöperation on the subject between Kenya, Southern Rhodesia and South Africa. Tallents asked Theiler to call to discuss it and other points. Within 10 days of their return, they were in London again. Theiler agreed to prepare a memorandum on Empire Research into East Coast Fever. The emissary from Australia House came to the Colonial Office to finalise his itinerary. Three days later, they were on their way to Paris. The old man threw on the busyness and importance but began to long for a home and a settled life.

The French did him great honour. He attended a luncheon given by the luminaries of the Institut Pasteur and in the late afternoon, the annual meeting of the Société de Pathologie Exotique. At its conclusion, the Laveran medal was formally presented to him with generous eulogia and he gave his address in French on 'L'Aphosphorose chez le bétail sudafricain'. Emma joined him in the evening at the main conference of the Société de la Science Coloniale where he was presented to the French President Doumergue and the Minister of Agriculture Perrier. The next day, they were back in their lodgings at Basle.

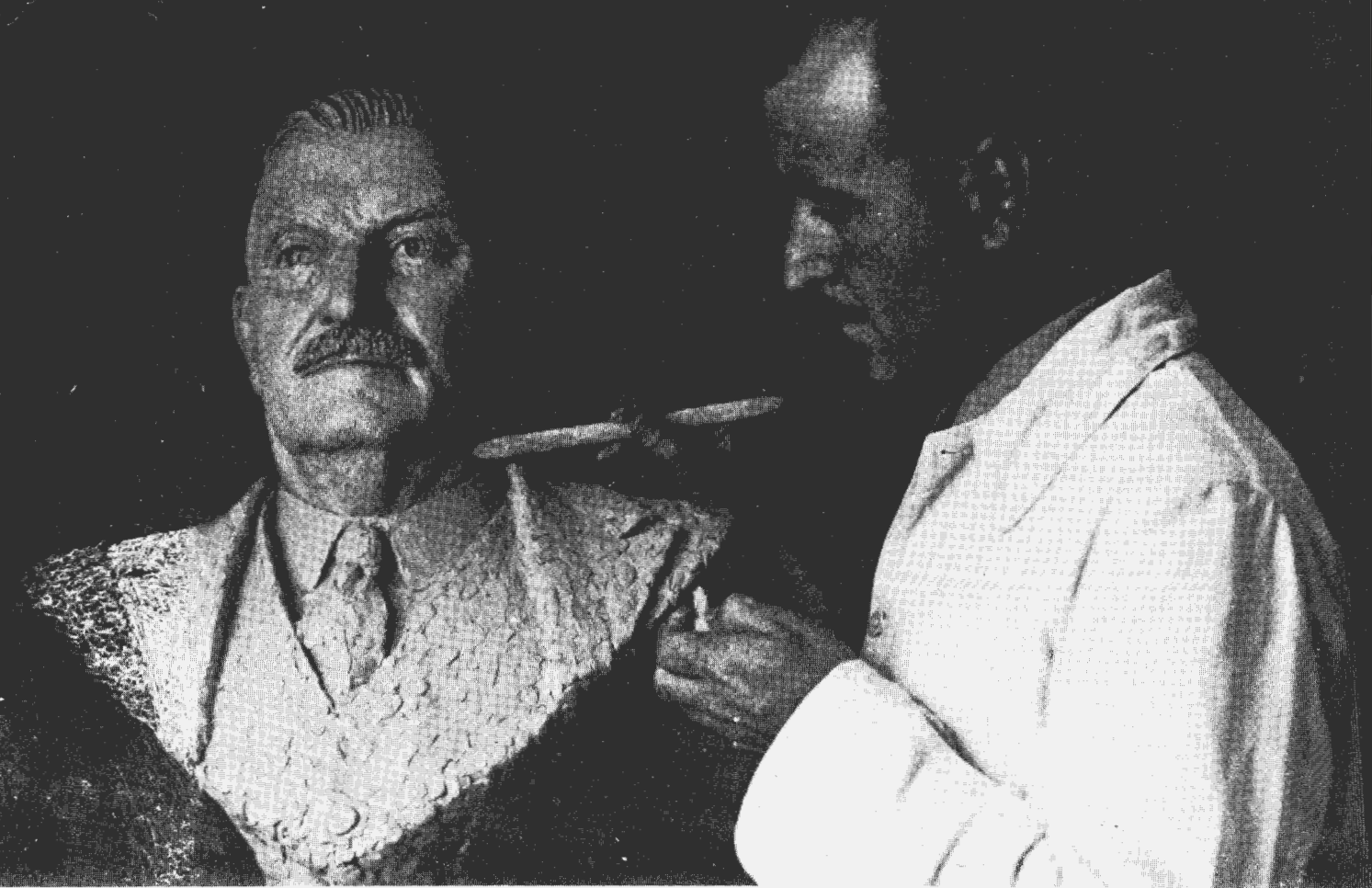
25 Theiler was still determined to finish his 'bone work' before he left for Australia in March 1928. Ten weeks remained and, deeply offending Alfred, his family and friends by refusing to attend Christmas festivities, he intended completing his observations after dealing with accumulated correspondence and commissions including the memorandum for Tallents on Colonial coöperation in combatting East Coast Fever. His connections at Onderstepoort wrote him con-



*Lady Theiler* – a portrait study made in New York in 1934.



*Man of Distinction* – Sir Arnold Theiler in London in 1934.



*The Sculptor, Coert Steynberg modelling in clay the bust of Theiler in London in June/July 1934.*



*The completed bust, an excellent likeness, later cast in bronze.*



tinuously. King had left Agriculture through force of circumstances and transferred to Education, now working in Cape Town where he had met Harry Green disembarking from England. Green was in two minds about his future – fearful of losing his pension at O.P. if he left for Glasgow where he had accepted appointment and basically wishing to remain in South Africa.

26 King correctly forecast that he would remain. The Governor-General was continuing his visits to Onderstepoort and had brought Lord Allenby. Princess Alice called with undiminished enthusiasm, bringing in January her cousin Princess Helena Victoria (Thora) who had scandalised  
27 Orenstein on the ship coming out by reclining in a deck-chair in knee-high skirts, smoking furiously and wondering what her grandmother Queen Victoria would have thought about it. Times were changing but the Empire was riding forward on a wave of energy and innovation greatly stimulated by the Empire Marketing Board. In London, Amery approved pioneering publicity schemes involving every kind of publication (books, pamphlets, posters), film productions (marking the birth of the documentary), exhibitions and other devices intended to initiate Empire-consciousness in the general public. Even for Theiler, it was 'Heaven to be alive' in a nascent new world.

28 He was steadfast in his aim to complete his comparative study of the influences on bone structure. Emma resented the money he spent on his laboratory and assistants, his books and journeys to consult bone pathologists when in other matters, he was downright parsimonious. Over the New Year in freezing cold, they went to Dresden to consult the most famous German expert, Schmarl who was most enlightening and inspired Theiler anew. Three weeks later, he consulted him again. In January, he was due in London for another meeting of the Colonial Office Service Organisation Committee but it was postponed and he was able to continue his bone work until the 23rd when he crossed the Channel again for a brief visit. The results of his  
29 microscopic investigation, he told du Toit, were 'startling'. Rössle wanted him to report them for publication but he had no time. He had found that Rickets in young animals was simply Aphosphorosis or due to deprivation of phosphates. He wanted du Toit to send him the results of the O.P. experiments on Aphosphorosis in foals. With no time on hand, it was insufferably frustrating.

On the 23rd February, a telegram came summoning him to London yet again, a bare two weeks before leaving for Australia. The great Colonial proposals hung in the air – a Tropical Veterinary School in London, a Central Research Laboratory in East Africa, an extension of the Bureau of Animal Health at Weybridge, a concert of Commonwealth effort on some undefined basis. But Emma, always with him (and busy buying formal apparel including a pearl necklace in London for their overseas visits) was peeved at all the talk and no propositions for Arnold. Fundamentally a realist of shrewd Swiss judgement, she complained to the children that they heard of no decisions, only rumours. Meanwhile, lunching with Mcdougall at the British Empire Club in St James Square, Arnold heard the final details of his Australian tour which Professor H. A. Woodruff of the Faculty of Veterinary Science at Melbourne University had arranged for him at the behest of Rivett of the C.S.I.R. Always anxious to brief himself beforehand, Arnold had asked for a book on Australian flora. All he got was a general handbook, the only copy in Australia House. Amery's great publicity drive had not yet struck the Antipodes.

They sailed from Naples on the 11th March 1928 on *S.S. Orama*, a bigger and more comfortable ship than any in their experience, and prepared to relax as far as it was possible for either. Arnold had bought a new toy, a cine-camera and books on learning Italian which he was determined to master on the voyage. The ship held only a third of its capacity for passengers and, progressing down the Red Sea into the Indian Ocean, gave the tired couple a chance to recover.

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30 Theiler was now a portly imposing figure, clean-shaven but for a neatly-trimmed moustache, and  
31 with his hair, grey at the temples, cut en brosse. He enjoyed returning to the tropical whites of his Transvaal days and, refreshed by the voyage, disembarked at Colombo to meet his colleagues and inspect their Ceylon Veterinary College. Confirming his forecast to du Toit, he derived valuable information on mineral deficiency in bovines and in due course, the resident veterinarians, Sturgess and Crawford, sent bone material to him in Switzerland. Orr and his wife, exhausted and depressed by the malnutrition and 'abysmal poverty' they had seen in Egypt, Palestine and India, came aboard from their last assignment at Madras and gladly met the Theilers. They had much in common and the voyage to Australia was very pleasant, no one being bored, Arnold noted appreciatively. They expected to arrive fighting fit at Melbourne, unsuspecting of royal welcome until Theiler received a radiogram at sea advising that he would be met at Freemantle.

32 Australia, despite the publicity deriving from its services during the Great War, was still very much 'the outback' attainable only by lengthy voyages (there were no transcontinental air services) and generally known as a huge and largely desolate area producing sheep where not populated by kangaroos, dingo dogs, emus and rabbits. Arnold had 'read up' as much as he could but was unprepared for the lavish attention and veneration shown him while Emma was confounded by the cultural differences which isolation imposed. At Freemantle, members of the local Veterinary Medical Association came aboard and took them to lunch with University professors and Agricultural officials. At Adelaide, they were met by A. E. V. Richardson of the Waite Agricultural Research Institute which they visited. Richardson made no secret of his designs on Theiler. On the 9th April they arrived in Melbourne where the C.S.I.R. secretary Lightfoot installed them temporarily in an hotel before moving them to official quarters. On the following night the Prime Minister himself presided at an official welcoming dinner whose guests represented the University and the C.S.I.R. Bruce and his wife were exceptionally amiable (Bruce had great hopes for the wand Theiler would wave) in the pronouncedly informal manner of his country where 'everything free and easy' astounded the withdrawn and conservative Emma.

Then it was work. The Orrs were carried off on a specialised six-week tour and Theiler was rushed about in a manner totally disregardful of his age and eminence. Always keenly interested, looking for material that might support his working hypotheses and observant of divergences from his own and world-wide practices, he could well blame himself. At no time did he call a halt in an itinerary that would have felled a younger man. Emma, plagued by colds and tonsillitis and much discomfited by primitive train travel (1,000 miles without a dining-car – only snatched meals at stations) was with him throughout and, as always, acted as amanuensis. Australia did not commend itself to her. She had difficulty in understanding the people 'whose speech was worse than the commonest Cockney' and learning a new vocabulary. A man with more than 1,000 sheep was not a sheep farmer but a 'pastoralist' and a cattle farmer was a 'grazier'. Culture was of no account and Europe was very very remote. Arnold liked the Australians and, ever responsive to challenge, was interested in their problems. From the outset, he knew that they intended employing him to solve them. So did Amery, not for a single country but for the whole Empire. The dilemma declared itself and the participants early took sides. Emma emphatically inclined toward the Colonial Office, Arnold toward Australia – with his usual conditions, now including employment for both daughters. Neither choice had yet come to the point but Arnold wrote to Margaret and Gertrud while Emma silently besought Amery to show his hand.

Theiler recorded every detail of his exhausting seven months travelling through Australia – every place he visited, every official and farmer he interrogated, every condition he found, every

33 postmortem made at his behest. His coming had been well prepared and he was saluted wherever he went – by his professional colleagues (in New South Wales, he encountered Major C. J. Sanderson, Veterinary Officer in charge of Tick Eradication, who had used the Daspoort Laboratory as sick lines for his horses in 1900 in temporary authority over Theiler before George Turner came – racy reminiscences abounded); by learned bodies such as the Royal Society of Tasmania to which he delivered lectures; by the vice-regal authorities everywhere (Lady de Chair, wife of the Governor of New South Wales, Sir Dudley de Chair, wrote Emma specially about her garden party – she was Enid, daughter of Harry Struben of the pioneering Pretoria family whom Arnold had known in the early days as an enlightened Transvaal farmer); by University authorities and Government officials and by farmers at every level from the impoverished drought-stricken pastoralists in the north to opulent owners running 50,000 sheep on huge estates and, in one instance, amazing Emma with a beautiful house, six servants, chauffeur and gardener. While the Australians spared him nothing in a 20,000 mile survey, they treated him like royalty throughout and engaged his best efforts. Slowly there crystallised in his mind the proposal to found an Empire Central Research Station, a second Onderstepoort, at Canberra of which it were foregone that he would be Director. Nothing could be settled until he discussed it with Amery.

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35 Orr returned to Melbourne in May and joined Theiler in discussions with C.S.I.R. officials. He had no interest in future prospect, being content with directing the Rowett Research Institute and other avenues of self-expression; but, like Theiler, was determined to promote inter-Dominion coöperation in research. On the invitation of the New Zealand Government, Orr and his wife sailed for Wellington in a ramshackle ship as a Seamen's Strike paralysed normal facilities and were lucky to reach it alive after severe storms. Similarly invited, Theiler was prevented by a further strike from reaching New Zealand but suffered dreadfully with Emma in a storm-ridden crossing to Tasmania.

36 He remained in communication with du Toit (to whom he referred countless demands for Onderstepoort publications, pathological specimens and other material for his Australian friends) and was distressed to note in a delayed letter from him that Harry Green appeared to be losing his reason. Green with his keen perception and over-conscientious temperament, had been a cardinal collaborator in some of Theiler's most important work. Now he suffered overpowering delusions of inefficiency and inaccuracy in his conclusions, rendering him useless as a scientific worker. Du Toit indicated that his mental state was deteriorating and Theiler replied that he was sorry that he could not see him as he felt that he could help him. There was a close bond between them founded on Green's exceptional meticulousness and reliability.

37 From the States had come exciting news. Sellards of the Harvard Medical School, returning from West Africa with Yellow Fever material, had met Max in New York and offered him the opportunity of working on it. Max had gladly accepted and his Harvard superior, Dr Strong, had given a champagne dinner to the staff to celebrate his advancement. The lethal nature of the disease was familiar to all of them but unbeknown to the celebrants at that moment was its latest victim, a co-worker and friend. Noguchi who had been working at the British Medical Research Institute at Accra as a guest-scientist from the Rockefeller Institute, left on his return to New York on the 19th May 1928, having injected himself with Yellow Fever from Indian monkeys to which he thought himself immune. Two days later, he died on the ship. Theiler first heard of it in Sydney in June and Emma, exhilarated by Max's enthusiastic letter, became fearful that even if his experimental animals were not monkeys, he might be infected by the mosquitoes with which he worked. There was now another to share her concern – Max had married an American girl, Lillian Graham, unbeknown to his parents, and was soon contemplating fatherhood.

On the long tour of Queensland and beyond, Theiler noted many familiar problems – toxic plants, mineral deficiencies, various forms of botulism, tick-borne diseases and, in an area deep in four years' drought, malnutrition and despair. Rinderpest had vanished and Scab in sheep had been eradicated but curiously, Trypanblue had not proved a specific against Redwater as in South Africa. Theiler surmised that the Australians were administering an ineffective type. The meetings of pastoralists convened for his benefit showed pathetic faith in his ability to wreak miracles and banish their troubles. Instead of informing him, they asked his advice, poignant in the presence of prolonged drought. 'People came from long distances to hear what I had to say and expected to leave with information which, as a matter of fact, I was unable to give', he said. It was not one of his functions but it added to his argument that a Research Institute should not interfere with the work of extension and administrative veterinary officers.

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39 Concluding his Queensland tour, he met the stocky little Sir John Russell, director of the Rothamstead Agricultural Experimental Station in England who many years before, had contemplated joining F. B. Smith's staff in Pretoria as a chemist. They travelled together from Brisbane to Sydney, comparing notes and confidences. (Russell in his eighties recorded the impression that Theiler 'was dropped from the agricultural service in South Africa' owing to a policy of employing only Afrikaner nationalists. 'When I met him and his wife in Australia, he was still sad at having to leave.') Together they attended an Executive meeting of the C.S.I.R.. Bruce was making use of every available expert to further his plans. Theiler was then escorted by George Julius, A. E. V. Richardson and Dr A. C. D. Rivett to Canberra to inspect the site chosen for the proposed Institute. He was much impressed but, worthy of his hire, raised problems of proximity of infectious diseases, disposal of carcasses and other disengaging features for the nascent capital. He had now definitely been offered appointment as its Director but had neither declined nor made conditions, deciding first to go to London to see whether the Colonial Office offered a better proposition.

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41 Then it was time to make the horrid crossing to Tasmania – 'the land of the wattles', Emma wrote, dutifully bouncing in motor cars throughout the island. Theiler was delighted to spend an afternoon with a farmer Broadribb who, years before, had consulted him by letter about a parasitic infection in his sheep. He had applied Theiler's advice 'with complete success to his flock' – a shining instance of Commonwealth coöperation. The relentless pace and comprehensiveness of their journeys were telling on the old man. At the end of exhausting days, he was drained of vigour and went straight to bed. Emma watched him carefully. He had been affected  
42 by the deaths of Stockman, Leischman the Scots bacteriologist, even his own Secretary for Agriculture, P. J. du Toit. Now there was Noguchi and soon after, young Kehoe. From Pretoria, he heard constantly of Green's mental collapse. Protesting that all his work was faulty and his results fabricated, Green would talk to no one but du Toit and a subordinate Graf. Neither could convince him that he was deluded nor in any way restore his self-confidence. He refused to  
43 work and his wife, detecting him burying phials of cyanide in the garden for future suicide, confided in Orenstein who recommended treatment at a specialised hospital in England. The corruption of his friend's mind saddened Theiler who hopefully sent messages via du Toit. More he could not do until his contracted survey were completed.

There remained South and Western Australia, beginning with a detailed examination of Richardson's Waite Agricultural Research Station at Adelaide. Richardson and his C.S.I.R. colleagues applied increasing pressure to induce Theiler to accept appointment. They assured him that he might employ Green as his bio-chemist and Gertrud as parasitologist; but Emma cannily noted that conditions were hard – only 14 days annual leave, no overseas sabbaticals, no chance to go to Europe. The assault continued during the last stages of their tour and with it, the tragic problem of Green. On the 15th September in Perth, Theiler received a cable from Mrs

Green – ‘Harry still very ill – can you possibly return via Pretoria – cable reply’. Much though she wanted to see New Zealand, Emma thought he should go – if Harry really were his friend. Du  
44 Toit confirmed the situation – Green had been absent from work on full pay for 8 months and the doctors had pronounced his case hopeless. He wished Theiler were nearer ‘owing to the great influence which you always had over him’.

Except in his appointed task – his own refuge from vacillation – the old man’s mind was a tumult of indecision. Emma had forthrightly declared her dislike of Australia’s isolation from the world as she knew it and expressed the hope that the Colonial Office would have something for Arnold that would keep him far from the Antipodes. The girls had shown no inclination to uproot their careers for a raw and unknown land. Back in Melbourne after the final tour of the west, Theiler sustained further assault. He was offered appointment as Director of the new Research Institute (on which he had not even begun to prepare his report) at £2,000 a year with house allowance. He might employ Gertrud at £500 a year as parasitologist and Margaret at £400 as private secretary. He might also employ the bio-chemist H. H. Green as assistant. Emma set her face against it. She hated Australia. Pa might find the work congenial but he would soon mind being banished from his overseas colleagues. The Colonial Office was the only hope. There was also Green to be saved and ‘his head put back’.

Theiler’s original plan had been to visit New Zealand and return to Europe across the Pacific, seeing Hans and Max with his new wife in the United States en route. He abandoned it because of Green (whose wife now qualified her cable with a written cri du coeur and the hardening determination to take him to England since he did no work at all and showed no improvement). Arnold now intended returning to South Africa after a trip to New Zealand but a Seamen’s Strike prevented the excursion and he booked directly to Durban. He had less than a month in which to complete his report (between the 25th September and the 23rd October when due to embark on *Ceramic*) and was constantly between two fires. The Colonial Office had expected him back at the end of September.

Emma ceaselessly promoted his prospects there. She would rather go to East Africa, she said, than return to Australia. The C.S.I.R. summoned him to Sydney for further meetings, adding to  
45 its blandishments. He could make his own terms but Theiler still havered – ‘I have so far only indicated the possibility of my accepting the appointment and outlined the eventual conditions which they would accept in toto’, he told Alfred, ‘I have however postponed my decision until  
46 my arrival in London.’ Australia had given him much. ‘I have received the hospitality of a prince, at times almost embarrassing and I have learned to like the Australians.’ They had offered a challenge and captured his interest in its grand solution. He had traversed their vast and varied agricultural regions both as observer and as pupil. He had made a special study of wool-culture which he found captivating in research possibilities. Responding to his enthu-  
47 siasm in addresses and personal interviews, the National Council of Wool-Selling Brokers of Australia had started a fund with a target of £100,000 to help him found the Research Institute he envisaged. It remained now to record his observations and make his recommenda-  
48 tions.

Merely to look at the Table of Contents of Theiler’s 46-page ‘The Health and Nutrition of Animals’ (Orr added an 11-page discursive account of his short tour) at once indicates the phenomenal orderliness of Theiler’s mind and his capacity to marshal a diffuse mass of facts into a coherent constructive plan. Simple, terse and direct, he surveyed the Australian stock-raising scene with the wide eyes of a topical Empire-addict. The climate of his times was assertively Empire-orientated. Australia under Bruce wished to join the coöperative conglomerate with its manifest advantages. Theiler saw it as having its own claims and likely to confer benis-  
ons on its brethren. Stock diseases were generally common to most of them but in Australia, ex-

perimental animals were cheaper and research could be more economical. The C.S.I.R. should draw the fact to the attention of the Empire Marketing Board.

49 The main recommendations were made in the grand manner of the senior statesman wisely considering the facts of the present in relation to the aspirations of the future. He proposed dealing positively with animal health as a whole. 'The Institute at Onderstepoort, South Africa which was founded and organised by me did not deal with all the aspects of animal health as I propose should be done in Australia. It dealt almost exclusively with disease. It is true that the activities were somewhat different inasmuch as they included services to farmers by correspondence; demonstration trains; the supply of serums, vaccines and drugs; testing dip materials; routine diagnosis; etc. There was attached to the Institute a Veterinary Faculty. It was carried on almost as a sideline to the research work. All these activities were a gradual development resulting from the research portion of the staff. Onderstepoort had the advantage of plenty of cheap labour and much of the routine work was done by trained lay assistants, leaving to the qualified staff the supervision and ample time for research. In comparing thus the two organisations, Onderstepoort was a much bigger one for a limited number of subjects. Yet the stock population of South Africa is much smaller than that of Australia. There are 30,000,000 sheep and 9,000,000 head of cattle in the former to 100,000,000 sheep and 22,000,000 cattle in the latter. The Institute at Onderstepoort was the result of a gradual development, beginning very moderately and finishing magnificently. It could not be foreseen to what the first enterprise would lead and its evolution was subsequently a natural one. Having had all that experience, I have applied it to the problems of Australia and have made a forecast of what I see will be the Institution of the Commonwealth (of Australia) when it is allowed a natural growth.'

50 He proposed the progressive development of a Main Laboratory for pure research at Canberra and of the existing veterinary institutions elsewhere for local requirements. 'My experience has taught me', he stated, 'that the more boldly a problem is attacked, the sooner it yields to the effort.' Its primary premise was the appointment of a Chief of a Division of Animal Health. Pending his assumption of duty, the local sub-stations could be developed. He begged the C.S.I.R. to recognise that Australia's main industries were based on the health of animals. Their care should be its first concern. 'Animal health', he wrote tritely, 'is national wealth.'

51 The text of his Report was in the Committee's hands before he left. In Melbourne to embark, he again met its members. Heavy pressure was renewed. For so visionary a scheme, only Theiler himself, originator of a famous analogue, could be responsible. 'The people here', Emma wrote her children laconically, 'want to have Pa back.' He would give no immediate answer. The Report, ostensibly confidential and considered of the highest importance, was rushed to the Government Printer. Copies reached Australia House in London in February 1929 and twelve were sent to Theiler at his Basle address. The siege continued.

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52 *S.S. Ceramic* left Melbourne on the 23rd October on the long voyage to South Africa. Burdened by the mass of papers Arnold had collected, the Theilers relaxed in utter exhaustion. 'They sat side by side on the deck for hours on end', a fellow passenger recorded, 'neither reading nor talking to passengers and resisting attempts to break the ice'; but on the 26-day journey, they recovered and landed in Durban on the 18th November in good order and, in Arnold's case, fighting fit. A welcoming telegram and two letters from du Toit awaited him, both regretting that he would be away from Onderstepoort on leave at East London until the 8th December and confirming that Green's condition was unchanged. The South African Press awaited him too.

Theiler made some provocative statements dear to the hearts of newspapermen. He said that

Stanley Bruce had asked him to become Director of Research in Animal Health to the Commonwealth of Australia but that he had not yet given his decision owing to his obligations to the British Government. Bitterness welled up within him and he recalled how Kemp had enforced his retirement 'to make way for a younger man'. He had been prevented from continuing his research work and even from completing his Reports. 'I have never made provision as many civil servants do, by acquiring a farm to which I could retire so I decided to go to Europe to finish some of my research. But, having no access to the records which I had carefully accumulated for many years, I had no opportunity of completing a work which had been the aim of my life - to give to the veterinary profession and South African farmers a treatise on animal diseases of South Africa so I had to abandon the idea.' (It was in fact then being compiled from his own records by one of his pristine staff, M. W. Henning.)

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54 This was manna for disgruntled editors. The Johannesburg *Star* in a leader pointed out that 'Sir Arnold Theiler is one of the two or three scientists who have made an international reputation entirely by work carried out in South Africa', that Australia had voted vast sums for research and had had the wit to consult and possibly employ him while South Africa had thrown him away at the height of his mental vigour and deprived him of his records. It was too much for Kemp. While Theiler dallied for a day in Pietermaritzburg meeting old colleagues on his way to Johannesburg, Kemp in Pretoria issued an official statement to the Press. Theiler, he proclaimed, had been generously treated with a £3,000 bonus, paid sabbaticals, and pension and leave concessions. He had never asked for access to his records. Equally combative, Theiler replied from Johannesburg where he had put up, a stranger, in the Carlton Hotel. He stated at length that he owed the Government for no favours and was 'ready to say more if necessary'. *The Star* returned to the charge that he had been jettisoned 'in his intellectual prime'. It was no atmosphere in which to effect reconciliation or to render easy Theiler's enforced visit to Pretoria (to sell his furniture and make other final arrangements) and to Onderstepoort in the absence of du Toit.

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61 Planning a two-week holiday at the Cape with Margaret and Gertrud before embarking for England to make their crucial decision, Arnold and Emma spent a week in Pretoria settling their affairs. (Theiler made a point of calling on General Smuts now, in opposition, devoting increased time to botanising and studying the Natural Sciences.) Rivett of the Australian C.S.I.R. cabled Theiler in Pretoria for advice about a staff appointment and he replied as if already attached. He made several visits to Onderstepoort to see the irremediable Green and to tell Gilles de Kock, Alexander, Bisschop, Hinds and others of the fascinating aspects of his Australian journey which they duly retailed to du Toit when he returned. Mrs Green had accepted Orenstein's advice to return to England and later made arrangements for committing her suicidal husband to the Maudsley Hospital in London. They would travel on the same ship as the Theilers and perhaps, in a change of scene, Arnold would at length prevail upon Harry, sunk in clinical melancholia.

The voyage, otherwise successful, was marred by Green's distressing condition. Theiler could do little with him. He oscillated between normality and periods of deep delusion in which he mistrusted all his work and remained locked in his cabin. His wife stood valiantly by him but Emma found it hard. Landing in England in bitter cold, he was taken quietly away by his two brothers-in-law to Cardiff. The Theilers, already victims of vicious winter weather, went straight to London where Arnold's 'chronic bronchitis' and rheumatism in his right shoulder almost incapacitated him. He managed to go to the Colonial Office to discuss his affairs and, meeting Ormsby-Gore, was advised to accept the Australian offer. Amery evidently had no position ready for him. He had fervently and secretly hoped to be appointed Veterinary Adviser to the Colonial Office. He felt too ill to deal conclusively with Australia House and McDougall did not press him for an answer, offering to come to Basle when he felt better.

64 In fact he was beset by indecision, hoping always that Amery would want him. Concertedly Emma, Margaret and Gertrud had set their faces against Australia though Emma conceded that they could save money there. Emma, since her early days in England as governess/companion, was English-orientated. So was Arnold since the Boer War when the British had treated him handsomely. But Australia was a challenge and a recognition of his capacity to meet it. The Gordian knot could be cut by his physician.

65 On the 16th January 1929, Theiler was thoroughly examined by Professor Stähelin in Basle and 'Röntgen-rayed' the next day. There was nothing fundamentally wrong with him – no trace of pleurisy in the lungs, the heart sound, a touch of arthritis in the right shoulder which would respond to hydro-therapy, a slight deafness in the left ear. Stähelin pronounced that there was absolutely no reason why he should not accept any appointment including Australia. Desperately  
66 on the night of the 17th Theiler wrote to the Empire Marketing Board, formally reporting his return, describing his investigations and the forthcoming publication of his Australian report.  
67 Tallents replied immediately and non-committally – 'I am sorry to hear that you were under doctors' orders while in London and I hope we may meet when you are next over here.' There  
68 was no way out. Emma was iller than he and coughed alarmingly. 'Pa is becoming a bore', she complained, 'He still doesn't know what he wants to do or rather, he doesn't want to say.'

Rivett wrote to Theiler, 'quite impatient to know what the decision is to be after your discussion with Mr Amery' and, unable to contain himself, cabled Mcdougall before the letter could arrive. Theiler, in reply to request, detailed his physical state for the pleasure of Mcdougall's riposting – 'the peri-arthritis and the lesions of chronic pleurisy would respond quite wonderfully to the Australian climate'. Orr, younger than Theiler by 13 years and much impressed  
69 by his scientific ability and dedication, was now invoked to force the issue while Rivett continued cabling 'great anxiety about Theiler's decision'. Coughing and sneezing in extremely cold  
70 weather, hating 'hydro-therapeutic treatment' which did his rheumatism no good, the old man's mind was further distracted by a cable announcing the birth on the 7th February of his first  
71 grandchild – a son to Max and Lillian who would be called Arnold Theiler, 'Noldi' for short.  
72 Orr and Mcdougall, deferring to the frigid weather, his ill-health and the pressure from Australia announced that they would arrive in Basle on the 16th February. He was cornered.

Over a long weekend during which the Theilers entertained the persuasive and distinguished delegation, the old man haggled desperately – his age, his health, his own work, his need for a specialised assistant now that Harry Green was unavailable, his fee, his travelling expenses, his  
73 lack of topical literature. He was overborne. Without waiting to return to London, Mcdougall cabled Rivett from Basle – 'Theiler definitely unable accept post offered owing desire undivided research, age and health. Theiler Orr agree Australian policy animal health should for some years be attack immediate problems with improvised field laboratories in two forms in Queensland and Southern Australia. They suggest Central Laboratory be deferred pending field operations and availability director. If Australia prepared to accept plan of immediate attack, Theiler prepared favourably to consider coming to Australia in July for one year to act as adviser to the scheme. Orr is prepared to supply a bio-chemist and to make Rowett laboratories available. Both urge plan of immediate attack for sound scientific and economic reasons. Am sending memorandum agreed by Theiler and Orr within two weeks.'

74 Rivett, considering half a loaf better than no bread, cabled immediately that though disappointed, he agreed to the one-year arrangement on the previous basis of £2,000 a year, rent allowance of £300 in lieu of a house and transport exclusive of Lady Theiler. Arnold made his own conditions – the journey must be via the United States (so that he could see his grandchild)  
75 and an allowance of £50 to buy literature for the C.S.I.R. He openly doubted whether one year  
76 only 'will do any good'. To Alfred he confided that there seemed 'no way out and we have al-



77 ready begun enquiries about the journey'. He wanted to return to his bones. Emma told the children that he was going 'very unwillingly and would much rather stay here'. They enquired tentatively about ships and Theiler (still plagued by his shoulder and Emma by her cough), between lecturing various bodies only too glad to hear the great man, fitfully worked in his laboratory whose female assistant he had hoped to take to Australia. Rivett had written with disappointment but sympathetically – he understood that Theiler had accepted only one year's appointment because of his health, his daughters' refusal to live in Australia and the inability of Green to be his second-in-command. George Julius (now knighted) had obtained Ministerial confirmation of the new arrangement. Macdougall reported from London that 'every letter and cable I receive from Dr Rivett shows how keenly Australia is looking forward to your visit'.

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80 The old man agonised over his decision. Bisschop on study-leave came to remind him of Onderstepoort and the happy days and to be helped as always by his 'old chief'. The bone work could never be completed before he left. He proposed travelling on *Ormonde* leaving for Australia on the 25th May. It was now too late to go to the United States and Margaret, arriving in the middle of April at Basle, would have to go alone. Sellards who had shared his work on Yellow Fever with Cowdry and Max (Cowdry kept in communication with Theiler, writing him at Basle), now left the whole problem to Max with, his parents later heard, disastrous results. Max caught the deadly disease and survived to become immunised.

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83 The net was closing. Australia required Theiler to select various instruments in Germany and to go to Bradford in England to inspect woolspinning machinery. Orr wanted to see him in  
84 London. Theiler agreed to a meeting on the 23rd April if his expenses were paid and cancelled the arrangement three days later. He offered the view that there would be difficulties in Australia in employing an English bio-chemist. Mcdougall discounted it and Orr confirmed obtaining a candidate. April was reaching its end and Theiler was compelled to ask Macdougall to make 'a provisional booking' on *Ormonde* for the 25th May. All the books and papers were already  
85 packed and his temper worsened. 'Pa complains that the Spring weather affects his shoulder and is in a bad mood because he cannot complete his beloved bone work and must now pack it all up. He has found an entirely new field of research and', wrote Emma presciently, 'if it ever comes to publication, will cause a sensation.' Only a deus ex machina could save him now. Stähelin provided it.

86 A month before his intended departure, Theiler consulted the professor on the state of his health. The prognosis was against his new occupation. He no longer had the constitution of a strong man, Stähelin said, and he had a kidney defect which required attention. If his strength were over-taxed, he would fail. 'It came to me as a real shock', Theiler stated and forthwith on  
87 the 27th April wrote to Mcdougall who immediately cabled Rivett that all arrangements were cancelled. Expressing himself profoundly disappointed, he wrote Theiler that he 'was sure Sir George Julius and A. E. V. Richardson would be very grieved. I hope your general health will improve and that you will be spared to continue your own research work and especially the magnum opus'. A month later, Stanley Baldwin's Conservative Party was defeated at a General Election and Ramsay Macdonald formed a Labour Government. Amery left the Dominions and Colonial Office and all his great schemes were consigned to less enthusiastic hands. Theiler had fallen between two stools.

\* \* \*

88 Almost the first thing he did was to resume relations with P. J. du Toit with whom he had not communicated for more than six months. At the end of a long letter describing his circumstances, he flew a kite – 'I am seriously considering whether I should not return to South Africa where the

climate suits me best and where I might yet find some research work to keep me busy.' Partly as a result of the Imperial Agricultural Research Conference in October 1927, Onderstepoort, cruelly short of funds, was about to undergo a renaissance.

89 At that time, Theiler had been much implicated in the Empire Marketing Board and had prepared constructive memoranda proposing the Board's subsidising research in certain fields at O.P. on a regular basis as well as encouraging Central Laboratories elsewhere in the Empire. The Conference had moved accordingly, formally requesting the Union Government to participate. Its representatives, G. N. Williams and P. J. du Toit then had detailed discussions with the Board which officially approached the Government in a despatch of the 31st January 1928 offering to pay for any additional general expenditure and suggesting that individual countries requesting enquiries into special veterinary problems should make their own contributions. With happy disregard of political animus, Hertzog's Government had accepted the proposal and undertaken to submit a detailed scheme. Prepared by Williams and du Toit, this was sent to Amery by Hertzog under cover of a note of the 5th September 1928. It involved an annual expenditure of £11,000 on services, equipment and buildings. Early in 1929, the Board approved it for a period of five years. Theiler had been in Australia while the negotiations took place but since his return, much activity had resulted at Onderstepoort.

90 Du Toit, involved in absorbing problems and planning, delayed his reply until after the South African General Election on the 12th June 1929 and Theiler, knocked off his balance by Stählerin's verdict and by impending eviction from his lodgings (the landlady had simply decided to give up), endured one of his periods of acute indecision. The family went visiting but once Margaret had left for the U.S.A., he returned to his muttens, saddened by the death of his earliest proponent and friend, Professor E. Zschokke at the age of 74. He was, said Emma, 'with the exception of his rheumatism, fit and well and it is really a pity he hasn't more work'. His kidneys didn't in the least worry him but it was as well he hadn't gone to Australia as he would have over-worked and broken down. Now he was 'working for dear life on his bones so as to reach a point by the end of June when he will no longer need a lab . . .'. Deprived of lodgings, 91 they contemplated various tours, first Scandinavia, then Italy. At the back of their minds was the thought that if Hertzog were defeated and the odious Kemp eliminated, they would return to South Africa. The result transformed them into wanderers. The Nationalists were returned with 78 seats against Smuts' Party with 61 seats (but more votes) and Hertzog was entrenched for another five years. Smuts resigned himself to more botanising and futuristic reflection (he was invited in July by Oxford University to give the Rhodes Memorial Lectures in November which 92 he gladly accepted). Du Toit then wrote to Theiler, noting the possibility of his returning with the forthright comment - 'I should like very much to welcome you back here'.

Theiler never left a problem once he had engaged it. Almost his entire professional life had been devoted intermittently to Horse Sickness and, if he had failed to find the fly believed to be its cause, he had at least devised an imperfect form of immunisation. By the same token he would not abandon his bone research once he had grasped the implications of the investigation. The different forms of malformation and disease at various stages of growth indicated valuable conclusions in feeding, particularly in remedying mineral deficiencies, and if he pushed on with his work, he might further revolutionise the stock-raising industry. Now he was homeless, all 93 his books, papers and correspondence locked in cases ('ich hasse die ewige Päckerei' - I hate the eternal packing, Emma confided to her children) and temporarily his life lacked firm direction. Scandinavia was abandoned but when Margaret returned from the States, they visited Germany and at Wiesbaden, stayed with Theiler's old East African colleague, Dr G. Lichtenheld. Arnold 94 had now decided to engage his rheumatism and resorted to sulphur baths at Schimberg. Both he and Emma became gravely ill with influenza and according to the unfortunate Margaret, 'it was

a waste of time'. They bade her farewell on her return to South Africa and feebly made their way to Aix-les-Bains for more dedicated treatment.

95 A month at Aix restored them both, even diminishing Arnold's rheumatism, and at last he found time to answer du Toit's letter. 'I was very pleased to read that you will welcome me back', he wrote and described his immediate plans – a long visit to Florence to escape another severe Swiss winter and a month with Rössle, now professor of Pathology at Berlin University, before returning to his bones. He had been diverted by du Toit's continued involvement in Empire schemes and his collaboration with Walter Elliott in arranging Research Fellowships at Onderstepoort for Imperial candidates. 'It is amusing', he remarked, 'to see that Kemp has after all swallowed the Imperial pill! At least I hope he is not letting you down!' The early founding work done by Theiler in London was now showing result. His reports were being printed and circulated (his definitive account of 'African Horse Sickness' would soon be published in Volume III of 'A System of Bacteriology in relation to Medicine' under the aegis of the Privy Council's Medical Research Council) and his recommendations were being put into practice by his successor. With Kemp providing no hindrance, Onderstepoort would be a changed place. 'The Theiler Institute' was certainly increasing its stature.

96  
97 A creature of enthusiasms (some for 'toys', as Emma called them – the cinecamera, invaluable in Australia, was not much used thereafter), Arnold intended devoting his sojourn in Florence to acquiring proficiency in Italian (the better to understand lectures in Pathology at the local University) and to remedying deficiencies in his knowledge of the humanities. Emma of course would do likewise. To her unconcealed joy, they boarded in a pension Beau Séjour near the University with a Swiss cuisinière and she was saved the arduous of housekeeping and cooking. Instead she became the slave of pen and typewriter. They arrived early in September in great heat when the University was still on Summer vacation and, comfortably if restrictedly accommodated in a small room where Arnold immediately mounted his microscope under the sole window, they began their study of Italian language and culture. Arnold early discovered that the Church was the best linguistic teacher – the monks and clerics spoke slowly and distinctly, articulating every syllable. They accordingly regularly attended early evening service and solemnly recited Paternosters and Ave Marias, varying the venue from Santa Maria Novello to St Annunciata to hear an outstanding choir. They visited all the galleries, museums and historic sites and buildings, text-books in hand, and when Bisschop came specially in November to take his leave, he was  
98  
99 astounded at their expertise in Art. 'I showed him my knowledge of Florence as cicerone in a very satisfactory way', Arnold crowed to du Toit.

A routine enthusiasm was for journals, professional and otherwise. In Florence, he received the *Berliner Tierärztliche Wochenschrift*, the English *Veterinary Journal* and later also the *Veterinary Record*, the London *Weekly Times* and later at Lucerne, *Farming in South Africa*, the Agricultural Department's journal. Leo Weinthal continued to send the excellent *African World* containing excerpts from South African newspapers. Theiler was always widely informed  
100 (which Princess Alice had noted, admiring also his 'great wit') and carefully watched current affairs. When Smuts arrived in London in October to give the Rhodes Memorial Lectures, he  
101 could not forbear, feeling it his duty 'to add my welcome to the many others you received from your old friends', to send him the rueful reflections of the rejected. He longed to return to South Africa for his health and interests 'but since Kemp returned to office, I saw no hope of linking up again with my old connections. It is better to stay away . . . I feel that I am gradually forgotten but this is apparently the way of the world and I am submitting to it with quiet resignation.' Smuts made no reply.

Typically his lectures at Oxford University kindled the minds of men with new ideas and set in train a grand concept. Africa, he said, was developing under the control of European powers.

Different and often conflicting principles were being applied by them in the administrative, social, educational and legal fields. There was no survey of what was taking place in Africa as a whole. He pleaded eloquently for the compilation of such a survey which would include a review of the extent to which modern knowledge was being applied to African problems. The gauge was picked up and with Carnegie and Rhodes Trustees' funds, 'An African Survey' under the direction of Sir Malcolm Hailey was launched. Theiler was invited to act as adviser on the relevant sub-committee which commissioned preparatory researches in 1933, and ultimately edited the chapter on 'Agriculture and Animal Health'.

102 The old man's thoughts gravitated too toward the einigkeits of his own family. He 'missed his girls', he said and confided to Alfred that he now understood why 'Father and Mother opposed my going out into the world'. It had been good to see Margaret. Hans was proposing to spend a holiday in Europe. Gertrud, grossly overworked at the Huguenot University College and at odds with her senior colleagues, was thinking of leaving but later repented. Closely cast in her father's mould, she was already a member of the Council of the South African Association for the Advancement of Science. Max in Boston was using Sellard's Yellow Fever virus to experiment on Rhesus monkeys; but Sellards, with a restricted budget, refused to supply additional expensive monkeys and Max was disgruntled. Emma kept in communication with all her children (though Hans seldom wrote) and grieved with Arnold that, wanderers as they had become, there was no home where the family could foregather.

103 A winter only slightly less severe than Switzerland now settled on Florence and with it, the reopening of the University. Veglia of Turin had given Theiler letters to the professors of Pathology and he now presented them. There was some consternation about accommodating him but by the middle of November, he was able to move his microscope from the pension room where he had worked with difficulty, to a corner of an ice-cold laboratory almost insufferable to a weakened old man. He attended the pathological lectures of Professor de Vecchi which he clearly understood but was confounded by the weekly discussion group when as many as seven disciples would simultaneously and emotionally declare their views in torrential Italian. Theiler had now conscientiously resumed the apparently endless task of analysing his massive collection of bone sections. The arctic conditions of the laboratory soon defeated him and he took his microscope back to the bedroom where he and Emma dutifully worked all day. She was checking and correcting his scribbled notes on his observations and typing them. They planned to leave in February and knew that his investigations could not be completed by then. It was in fact difficult to concentrate. 'He works very zealously on the bones and sits the whole day over his microscope', she told Alfred, 'but his thoughts are much more with The History of Art and the Italian Language.' At night, they went to concerts.

104 Emma regretted the waste of knowledge and talents. True he could occupy himself endlessly with writing standard scientific works but he was worthy of more. He should be an emeritus professor at some University which would give him time for his own ancillary interests. Both longed to settle somewhere. In December, they wrote to Alfred asking him to find a many-storied house in Lucerne which Arnold could buy, reserving some floors for himself and letting the rest. Emma mistrusted the scheme. Alfred's proximity would be pleasant but Lucerne's climate was not the best and, more important, it was not a University town. Arnold would be severed from his associates in Basle, Berne, Zurich and elsewhere. The brute reality was that a professorship in Tropical Medicine for Veterinarians which Amery had planned for London with his eye on Theiler had not eventuated by the time Labour had removed him from office. It might be established in the future but Arnold would then be too old to occupy it. Realist as she intrinsically was, Emma was compelled to accept Lucerne and Alfred went about his appointed task while the Theilers were reminded of happier days by touching and enheartening visits from

- 109 Dr and Mrs Gilles de Kock and J. Quin (the first to graduate B. Vet.Sc. with honours, and appointed to Onderstepoort), bringing his wife on honeymoon. Much domestic gossip was discussed including the belief that the ambitious P. R. Viljoen would leave to become Under-Secretary for Agriculture. Arnold, much helped in forgetting the bitterness of the past, promised to reciprocate the visits by returning at some time to Onderstepoort.

110 The pious Alfred, always put upon by his elder brother, spent much time establishing that no suitable house was for sale in Lucerne and offered a commodious flat with basement in a private house overlooking the lake. The Theilers gladly and gratefully accepted it on lease for one year and, having sucked Florence dry, moved on to exhaust the remaining winter months in Mediterranean travel. As always, it was a busman's holiday. They toured Sicily extensively, exclaiming at its similarity to South Africa and Arnold visited the Zootechnical Institute at Palermo. Returning to Italy via Naples, he called at the Institute of Infectious Diseases and the Veterinary School. Intending to stay for two weeks in Rome, they telegraphed Alfred to send his daughter Klara immediately to join them in their further tour. Arnold was much impressed by the Rome Zootechnical Institute, calling also on the parasitologist Dr Alessandrini whom he referred to the hapless du Toit. He then visited the International Institute of Agriculture whose excellent library he intended consulting when he spent the following winter in Rome. Klara saw all the sights and was then transported to Perugia, Siena, Florence, Pisa, Bologna, and Milan before returning to Lucerne. Arnold visited the Veterinary Colleges at Perugia, Bologna and Milan, gaining the interesting impression that Onderstepoort was well known to all of them, particularly its parasitological work; but no germane institution seemed to know anything of the work on Aphosphorosis.

111 They reached Lucerne on the 29th March to find Onderstepoort's customary birthday cable. Emma approvingly inspected the flat (samples of whose wallpaper Klara had brought so that all had been prepared and decorated from a distance) and got into the train again on the 1st April for Berlin. Rössle was in the chair of a Pathological Conference which Arnold wished to attend 'to bring himself up to date'. A week later they were in Basle for consultation with Professor Stähelin. He pronounced an all-round improvement but recommended more Aix-les-Bains. The rheumatism was decidedly better and the kidneys no worse. 'The rest has also greatly improved my mind', Arnold told du Toit in a lengthy letter, 'I have forgotten many things that embittered me and I am forgetting others as well. Generally I feel happier and more contented than I have been for many years!' On the 11th April they took occupation of their new home in Lucerne, confronted by the huge task of unpacking their own cases and those sent by the girls from South Africa, in expectation of visits from their two sons and their wives.

\* \* \*

112 With a variety of excuses (only two months leave, insecurity in his job, etc), Hans did not come. Gertrud intended a visit the following year and wrote of attending a vice-regal garden party in Pretoria. Hertzog had asked the Earl of Athlone to prolong his term for a further year and already the gubernatorial pair were grieving at leaving the country they had learnt to love. Princess Alice sat down with Gertrud (smoking a clandestine cigarette inside Government House) and chatted about her parents, wanting to know where Theiler was and what he was doing. She would remember him until the end of her days. Far in Europe, Pa was pleased when he heard. Emma, long severed from housekeeping, struggled to re-learn it under Swiss conditions and was soon saved by an excellent maid-of-all-work Lina. The flat had extra bedrooms and all must be readied for Max, Lillian and Noldi. Max, deprived of his monkeys, had been working on other experimental animals and had finally settled on rapidly-reproducing Swiss white mice. In a

115 series of highly-complicated experiments using the brains of these mice and cross-injections with monkeys and Yellow Fever victims, he was able to obtain a substance which protected the mice from the disease. Before leaving for Switzerland, he reported his findings for various publications and attracted the attention of the Rockefeller Research Institute whose investigators wanted to repeat his experiments. Max was never deviated from his course and despite the exciting potential of his discovery, clove to his plan to visit his parents in June.

116 In the short meantime, their flat and their modus vivendi became the scene of turbulence. Hardly installed, they were visited by Cowdry who, on his way to Kenya to make intensive study of tick-borne diseases, came specially to consult the master for a few hours before proceeding to Paris. (On his return via the Sudan and Egypt in September, he was unable again to visit Theiler but remained in close communication – with, Theiler told du Toit, controversial result.) The old man never lost his grip on the development of veterinary science and was determined to keep abreast of it. The failure of Trypanblue to combat Redwater in Australia aroused his interest in a variation called Piroblue manufactured by the Sandoz chemical firm in Basle. He agreed to promote it by submitting a report personally to the Société de Pathologie Exotique and by the end of April, Pa, Emma and their nephew Alfred were in Paris where they exhausted themselves showing their sibling the sights.

119 With one eye on his bones, Theiler kept the other on the momentous marches of Science that would be given expression at a series of Conferences from June to September which du Toit was coming specially from South Africa to attend – the Imperial Entomological Conference, International Poultry and Veterinary Conference, the meeting of the British Association for the Advancement of Science in Bristol, an Empire Wool Research Congress and finally, the routine Imperial Conference of Prime Ministers with adjuncts. It had evidently escaped du Toit, the old man remarked, that the first international Congress of Microbiologists under the presidency of Jules Bordet would be held in Paris from the 20th to the 26th July. He intended attending ‘to bring me up to date again in different subjects that I had to neglect since I left Onderstepoort’. Max would also be there.

121 Max, Lillian and Noldi arrived at Basle on the 10th June 1930. Theiler awaited them. He had not seen his son for six years and now there was a very American wife and a healthy engaging grandson. They reached Lucerne at midnight. Emma had made thoughtful preparations. Max, as was his wont, inclined to immuring himself and reading; but his wife had to be shown Switzerland. Arnold himself took them on a tour by lake-ship and train. In all the hullabaloo of their arrival, he managed to write to du Toit in London ‘to welcome you to the old country’ and mooted the possibility of attending the International Veterinary Conference there in August.

122 Emma was sceptical. Arnold was piqued that the Colonial Office had appointed Montgomery as its Veterinary Adviser without first inviting him.

Stress developed in the Theiler household where a clash of personalities early declared itself. Hot-tempered and volatile, Lillian thought Arnold arrogant and authoritarian. Closely congenial with Max, particularly in his new attack on immunisation against a fatal virus, Arnold could enter into no rapport with his daughter-in-law. Emma, withdrawn and non-committal, watched with hurt and amaze as resentment rose on both sides. Perhaps Paris would help.

123 Entrusting Noldi to a nurse and the faithful Lina, the four Theilers left on the 19th July 1930 for the historic first International Microbiological Conference which du Toit, taking Theiler’s advice, was also attending together with E. M. Robinson (in Paris with his wife on study-leave). It was Max’s first international conference and pure joy for the old man to introduce his already distinguished son to the great men in his field. (There had been significant developments in it. Ernest Goodpasture whom Theiler had met in Pittsburgh in 1923, had evolved a revolutionary technique of culturing virus in eggs. Mechanical facilities had also improved. Theiler himself

prospered from new staining processes for his bone sections.) Max 'enjoyed it immensely' and Theiler was happy to resume his relationship with du Toit, unaltered and stimulating. Du Toit persuaded him to go to London. After less than a week in Lucerne, Arnold and Emma crossed the Channel, leaving the young couple to divert themselves with tours and visits. Basle was already a busy airport. The Theilers had seen Graf Zeppelin cruising overhead in his airship but, their children's enthusiasm notwithstanding, they never took to the air.

124 The father-figure of Sir Arnold Theiler, pioneer in sub-tropical veterinary science and now engaged privately on pathological work of high general importance, remained an ornament of international gatherings and a special pet to their hosts. The usual receptions, banquets and ceremonial tours were staged in London and its environs and much valuable colloquy was held. While Emma investigated new sights, Arnold re-established relationships with his peers and entertained various proposals. Friends he had made in the United States enquired whether he would be prepared to spend six months or a year in California to assist investigations into Anaplasmosis. He was not averse, calculating that he would have finished his bone work early in 1931. The emissaries promised to confirm the proposal in writing on their return to America.

Together with Emma, he lunched in London with Sir Charles Martin, Director of the Lister Institute (soon to leave for Australia as Chief of the Division of Animal Nutrition and a member of the C.S.I.R.) and Sir David and Lady Bruce, both sadly failing in health. The Theilers had visited Harry Green in St Andrews Hospital where he was making notable progress toward recovery of his mental equilibrium. Du Toit, affairé and harassed, promised to visit them shortly in Lucerne before officiating at the Bristol B.A.A.S. meeting. It had all been very unsettling and confirmed Emma in the view that Lucerne was no place for Arnold. It was remote from his academic interests (Alfred was preoccupied with his own affairs and took his family away on holidays) and, lacking self-expression, he found little pleasure in fulfilment when driven in upon himself. Expecting a succession of visitors, they returned to their flat in the middle of August to confront a painful situation.

Admittedly the weather had been vile and the unilingual Lillian had been precluded from making the acquaintance of local Swiss; but neither factor seemed to justify the dikke luft that developed in the flat, hurtful to Emma and embarrassing to Max. With Arnold and Lillian at daggers drawn, crisis was inevitable. Arnold went to Basle to fetch du Toit and the following day, both accompanied Max and his family to the Calais train in Basle station in a sudden and wounding departure for England. Although there were other house-guests, constant visitors (including Schwetz of the Belgian Congo) and much enforced entertaining, the flat was suddenly empty. 125 'Without Noldi', Emma wrote, 'our house is as if dead. We miss him terribly and it is good that Miss Voss and du Toit are here to help us over the next few days.'

126 For Arnold, it was easier. All his sense of deprivation disappeared in the presence of the perfect person to understand his work, his problems and his needs. In one week, du Toit was rushed about Switzerland into Germany in an official car (provided by the State Veterinarian, Professor Burgi in exchange for Onderstepoort's assistance in supplying Redwater- and Gall Sickness-infected animals to immunise Swiss calves for export to Brazil) while Theiler talked torrentially and often far into the night. He opened his heart and his mind to his friend, telling him of his progress so far with the sectioned bones and outlining the further revelations possible if facilities were given him. Du Toit readily realised the importance of his work, the value to it of stored reservoirs of bone material at Onderstepoort that Theiler himself had cached, and the contribution which other investigations, notably at O.P., the Rowett Institute, Cambridge and other laboratories, could make. His interest and enthusiasm fired Theiler anew and they made plans 127 based on collaboration. Theiler proposed coming to Onderstepoort to extrapolate his quest and du Toit would assemble relevant experimental material of which Theiler would provide a list.

Their felicitous relationship was rekindled and they parted in a glow of mutual trust and respect. 128 Du Toit wrote of 'having enjoyed every minute of my stay and learned a great deal', being as 129 good as his word in immediately discussing with Orr in London the availability of a Cambridge analysis of pig bones. Theiler, he wrote, must now write to Orr. He himself would soon go to Bristol for the B.A.A.S. meeting at which, as president of the Agricultural Section, he would deliver a paper, now illustrated by the old man's slides lent in Lucerne (it was 'very well received' and was reproduced in *Nature*).

130 Over-run by visitors, Theiler took time to reply - 'I think often with pleasure of the visit you paid us here in Lucerne', he wrote, 'and I am pleased to see that things between us are as they used to be of old.' Emma rejoiced that he had so much enjoyed du Toit's brief stay and that 131 they had had time to talk themselves out. 'Pa has also become a little more reasonable', she told the girls, 'and is no longer so bitter.' Before he left England on the 24th October, du Toit 132 confirmed - 'I shall do my best to have everything ready for you when you come out and may I say again that it would give me unbounded pleasure if you could carry out your intention to come to Onderstepoort' - inspiring words for the old man.

He meant to go back to his bones but was constantly interrupted - lunch in Lucerne with Sir John M'Fadyean and the widowed Lady Stockman and suddenly in September, Dr H. R. 133 Seddon, Director of the New South Wales Veterinary Research Station and his frequent host and collaborator in Australia who 'talked shop until midnight'. Then the annual conference of the Schweizer Naturforschende Gesellschaft at St Gallen, a ceremonial and lengthy occasion which 134 exhausted them both and imposed a further week for recovery. 'Pa has now had enough holiday', Emma noted and returned to deciphering his scribbles as he recorded the microscopic features of countless bone sections. There was still the vexatious question as to whether he would go to California. The promoters had written asking him to consult a Dr Schilling in Germany but the proposal remained indefinite.

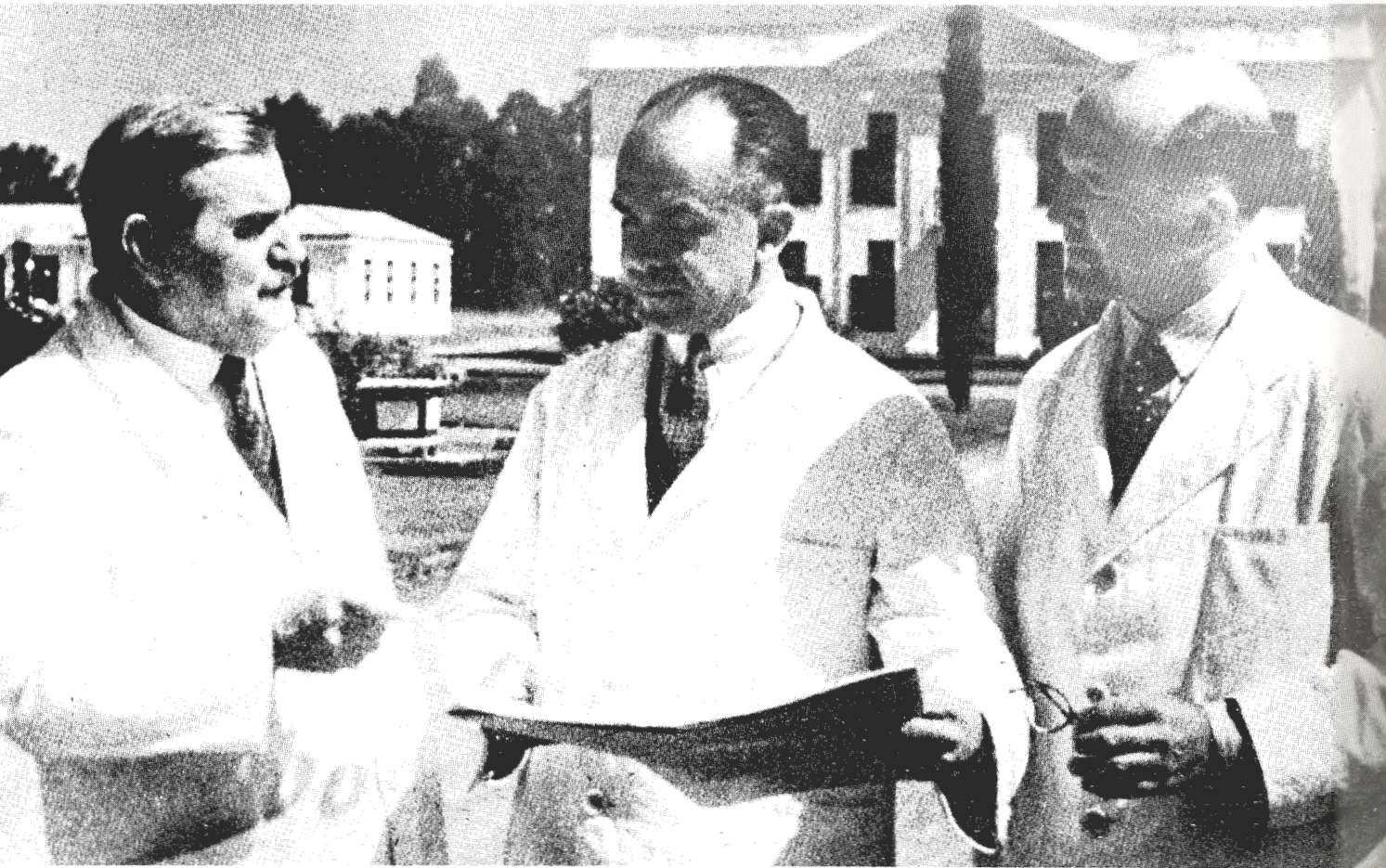
Max had returned to Harvard and wrote that he had twice seen Mrs Green in London and that she was delighted with Harry's progress, hoping he would soon be discharged. Max had 135 sent his parents a reprint of his work on Yellow Fever - 'a very good publication with a mass of work in it', they pronounced professionally; but he was now unhappy in his work. Strong had gone to South America and Sellards became acting chief of his department. There was no more money for experiments and Max was forced to continue the development of his discovery with mice instead of costly monkeys. Things were different at the Rockefeller Institute in New York. Many investigators had died from Yellow Fever and Max, accidentally immunised, was a desirable property to scientists determined to find a vaccine. He entered into pourparlers. Early in 1930, he was offered appointment under Wilbur A. Sawyer on his own terms. Lillian saw to it that they were double his salary at Harvard.

Theiler was now working hard. There was no question of escaping the winter abroad. The lease of their flat expired in February 1931 and, as all his bone material was already sectioned, he remained steadfastly within, comparatively warm, and had no need of a laboratory. He had examined and described his countless specimens, Emma had copied his notes and he had written an account of his observations which she also copied. Then he began all over again, reviewing 136 every specimen and making additional notes and corrections for amending the article. 'Pa's writing is so bad', Emma, a travel- and work-worn woman of 62, told the girls, 'that it is quicker for me to copy it by hand,' Finally she would have to use the typewriter, already constantly employed for his letters. His dedication was so strict that he had failed to advise du Toit of the deficiency experiments he must mount and the collection of bones he must assemble. 'I have 137 recently been busy all day writing up the results of my investigations with the histology of the normal growing bone', he at length wrote him, 'and have postponed correspondence'.





*General J. C. Smuts addressing Sir Arnold Theiler (left) before presenting the Gold Medal of the Royal British Agricultural Society at the Rand Show in Johannesburg in March 1935.*



*Historical Photograph* taken in 1935 when three directors of the National Veterinary Research Institute were together at Onderstepoort – (left to right): Dr P. J. du Toit (present); Sir Arnold Theiler (past) and Dr R. Alexander (future).

138 The first draft was entitled 'Die Rolle des fibrösen Bindegewebes in Dicken wachstum der  
139 Rinder Knochen'. His following letter to du Toit listed an enormous and detailed number of  
bones from cattle for the study of the growth of the bone. They included specimens from pigs and  
sheep suffering mineral deficiencies and Theiler gave greatly detailed instructions on how they  
should be prepared. Samples of wool and pieces of skin should also be taken from the experi-  
mental sheep. Du Toit, thinking of the expert assistants he would have to allocate to the old  
140 man's demands, recoiled at the sight but undertook 'to go very fully into the question of the  
necessary bones for your study of osteomalachia'. He was about to welcome Sir Charles Martin  
for a week at Onderstepoort, a visit to Armoedsvlakte and other centres before he assumed duty  
in Australia.

The old man now had some sense of achievement and laboured on to refine his results with the  
pistol of February departure at his head. He planned to finish the winter touring North Africa.  
141 Emma was not well. Her heart was troubling her. Nothing more had been heard of the California  
appointment and no obligation now lay upon them. Instead, further honours came. 'His  
142 French friends', as Emma called them - Roux, Calmette, Mesnil and Leclairche - secured his  
election as Membre Correspondent de l'Institut de France, tantamount to Fellowship of the  
Royal Society. It was one of the highest scientific awards and Theiler was justifiably proud,  
addressing himself with renewed vigour to his work. Then the Council of the British Association  
143 for the Advancement of Science asked him to accept a vice-presidency of Section M at their  
commemorative Centenary Celebration in London in September. Theiler knew that he owed  
the honour to the Section's president, Sir John Russell, a longstanding admirer who had at-  
tained his own eminence in agricultural research by a way almost harder than Theiler's. He  
accepted joyously, wanting to meet General Smuts who had been highly honoured by the  
144 Council's invitation to preside at the historic meeting. Soon after, the American Society of  
Parasitologists made him an honorary member. His name and attainments still lived in the  
145 United States. In February 1931, a cable came from Philadelphia similar to the California ap-  
proach, asking him to accept appointment as consultant. Theiler provisionally agreed and re-  
ceived a further cable. Philadelphia was not as attractive as California and he would wait to see  
what the confirming letter said. For the dwindling Emma, it was die ewige Packerei again.

In their last days at Lucerne protracted until the 8th March (they had renewed their lease and  
retained Lina) with snow falling heavily, Theiler all but concluded his bone investigation. It had  
grown into a lengthy work, too long for publication in a journal, he feared, and wanted only  
146 correction. It must wait until they returned from North Africa. Du Toit had wanted to send  
bone specimens selected by Gilles de Kock from deficiency experiments but Theiler stopped  
him. They and his other requests should wait at O.P. until he came in 1932.

Of their seven weeks absence in North Africa and France (while snow fell continuously in  
Switzerland), Theiler wrote so fascinatingly, both professionally and personally, that du Toit  
147 called a general assembly of the staff at Onderstepoort to read his long letter to them - 'every-  
body enjoyed it immensely'. Unrecorded in this communication were the 'Cook's Tours' by  
bus and motor car which Arnold and Emma dutifully undertook, some purveying belly-dancers,  
whirling dervishes and other local specialities. For the most part, Theiler was occupied with his  
colleagues who made much of him, drove him over their domains and showed him everything  
they were doing on the land in 'élevage' or husbandry and in their laboratories. Landing at  
Tunis enfeebled by seasickness but restored by the Hotel Splendide, he visited the local Pasteur  
Institut under C. Nicolle in charge of research with Balozet as chef de service, and the Institut  
Arloing. Emma was well enough to enjoy the motor tours and to rest in Algiers while Arnold  
was made welcome by his old friend Eduard Sergent, head of the Institut Pasteur who required  
148 advice on fly-traps and grasses for pasturage. The two men 'had a glorious time', Emma wrote,

'Sergent was very kind to us. We were his guests in the best hotel and every afternoon he fetched us in his car and took us far into the country so that we learnt to know the surroundings of Algiers for a distance of 100 kilometres.' Sergent profitted by much Theiler wisdom and du Toit suffered from hints dropped of observations that might be made on peculiarities that Theiler had noticed. In Algiers, Arnold received the customary O.P. cable on his birthday – he was 64, vigorous but very tired at night.

149 Then, still in funds and time, they took another tour to Morocco – Oran, Oujja, Fez, Rabat and Casablanca – which entertained them less. Again Theiler was made welcome at the Casablanca Institut Pasteur by its director H. Velu. He was also cajoled into addressing the local Société de Médecine et Hygiène and gave a more or less extempore 'causerie sur l'aphosphorose du bétail'. He was much impressed by the developmental activities of the various branches of the Institut Pasteur in French North Africa and their readiness to learn and practice the results of South African work.

150 Sailing from Casablanca to Bordeaux, they left immediately for Toulouse on the same tourist-veterinary errand. Arnold visited the Veterinary School and, acclaimed by its professors, was lunched by them with Emma enjoying red and white Bordeaux and champagne. Thence as tourists to Nîmes, Arles, Avignon and Orange on their way to the historic first veterinary college at Lyon whose Dean, Professor Porcher, had invited him when they met at the World Dairy Conference in Washington in October 1923. With his colleague Professor O. Marotel, Porcher did Theiler the honours becoming to a member of the Institut de France and du Toit suffered the consequences. Marotel was intrigued by Theiler's graded set of spoons for administering the wire-worm remedy (the object of widespread interest) and among numerous other requests, du Toit was asked to send several sets as well as the latest information on milk-recording in South Africa. By train to Geneva and Berne where Theiler was not yet done, insisting on visiting the Veterinary School and consulting with Professor Burgi over lunch. Back in Lucerne before the end of April, they found 'a mountain of newspapers' and letters but none from Philadelphia. Max imparted that he was very happy in his new job in New York, especially as he had been promised assistants. He had been cleared of all trace of bilharzia complications when he left Boston and the attacks of pain had long since ceased. His future was promising.

151 Dragged across North Africa and Europe, Emma had wilted. Their tour had been enjoyable but exacting and had done her heart no good. Walking still made her breathless and distressed. 152 Climbing the stairs to their first-floor flat became an ordeal. Shortly after their return, Arnold took her to Stähelin in Basle who diagnosed Ascitis and put her into hospital on a digitalis treatment. He said she had a heart defect of 20 years standing. Arnold returned disconsolately to Lucerne and during the two weeks of her treatment, visited her every few days. He was distracted in his loneliness by the visits of P. J. J. Fourie, now purporting to idolise him, and a younger research assistant of Onderstepoort, Bekker with their families. They talked of the menace of Foot-and-Mouth disease which was advancing south from Rhodesia and causing 153 du Toit much concern and travel. At O.P. there was more than usual chatter among the staff. Theiler was not surprised that Viljoen had forsaken Science for Administration as Under-Secretary for Agriculture, believing him more interested in power than professional prowess. Fourie himself had been promoted to a Sub-Director of Research over the heads of Curson and 154 Robinson. Both complained but said Emma, when told, 'it is Kemp who rules'. The desire to 155 return dwindled in Theiler nor would he go to America. When a copy came of Philadelphia's letter which had been lost (inviting him to make a study of Anaplasmosis and give some lectures), he refused.

Emma professed to be 'notably better' but exertion still distressed her. Arnold found it hard to continue his bone investigation. Their flat had become a magnet to almost everyone they had

- ever met and some of the visitors (including Alexander of Onderstepoort where the Empire Marketing Board was building a beautiful library) stayed with them. In the intervals, Arnold occupied himself with 'a new plaything' – a microphoto camera essential to the illustration of his work which took him long to master. After months of experiment, he made a routine of taking four microphotographs of bone sections each night and developing them in the bathroom, converted into a dark-room by one of Emma's O.P. curtains. By then a significant element had re-entered his life.
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- 157 Harry Green began writing him quasi-normal letters though still protesting that he wanted to expunge his 'crimes'. He asked Theiler's permission to quote him as a reference in an application for a Beit Scholarship to study at the Bureau of Animal Health at what Theiler, with his mind on O.P. and Armoedsvlakte, called 'Weighbridge'. Green was voluntarily 'trying his hand' there with his old colleague Andrews in charge. It was, said Emma, 'a happy piece of news'. There had been times at Onderstepoort when Mrs Green (who returned to school-teaching to support her family during her husband's illness) had alleged that Arnold 'exploited' Harry. Arnold, inspired by his vision of solutions to veterinary problems, drove all his men. (A few like K. F. Meyer and Marcus Zschokke, objected to his domineering manner and left.)
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- 159 The stronger shared in it and kept their character. The weaker, like Robinson, allowed themselves to be dominated. Harry Green was neither. Arnold considered him a coeval partner in important work. The malicious allegation that Theiler had been the cause of his losing his reason was unfounded. He became deranged almost a year after Theiler had left. Now he was all but restored.
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- 161 Du Toit too received lucid letters. The Theilers invited the Greens to spend a holiday with them in July.
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In the time intervening, Arnold cut a summer caper in which Emma refused to share. Having occasion 'to keep up to date' and check his bone work at the Alfort Veterinary College and Institut Pasteur as well as attend Journées Veterinaires Coloniales and a meeting of the Academie des Sciences in Paris, he invited his brother to accompany him. The sober pious Alfred who had never before visited la ville lumière, occupied himself with bus tours and even attended the Folies Bergères by himself. He went with Arnold to some of the meetings and to operas in the evening, returning to his school a day late and talking interminably about the pleasures of Paris. Arnold too was pleased. His colleagues had received him with homage.

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On the 28th July 1931, the Green family arrived.

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- Green was Theiler's touchstone, more evocative even than the 'brilliant' du Toit (who never acquired the old man's inspiring driving effect of his men). As Emma had surmised, Theiler was starved of scientific communication in Lucerne. When Green arrived, his mind was at once transfused with energy. Emma found Harry 'tedious' because of his habitual analytic approach – even in ordinary conversation when he would dissect the most trifling comment. For Theiler, that was his most valuable quality, short of the soundness of his work. They discussed the bone investigation in which Green, catching fire from his 'old chief', took the liveliest interest. They looked at the microphotographs of malformations and considered the problem of identifying their specific source, at what stage of growth, to what degree and to what extent preventable. Theiler read his bone sections like the rings of a tree. A vast field of research was revealed, as captivating to Green as to Theiler. They saw it all clearly and contemplated a programme of enquiry that would cover it, giving results of great value to veterinary science and to the livestock industry. Talking and making notes every morning and then with excursions intervening, far into the night, they proposed allocating sections of research to various institutes including
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166 Orr's with a grand plan for Onderstepoort. 'We hope', Theiler wrote to du Toit three months later, 'to establish the old trio - Theiler, Green and du Toit - although working in different parts of the world. I shall write you in full details and you will then be able to let us know how far you can join.'

Green was, in the Theilers' favourite phrase, 'as of old' - alert, prescient, exhaustive in his perception of the dimensions and intensity of the subject. If bones failed to grow or, having grown, became soft or stiff or rickety, it would fall to him to identify the chemical causes in every detail of circumstances and degree. Theiler had closely studied normal bone-growth the better to emphasise aberrations. He wanted specimens of those aberrations - Osteoporosis, Osteophagia, Osteomalachia and the like - which du Toit had already begun to produce experimentally at O.P. in readiness for his visit in 1932. His deductions from a study of them would be of the highest scientific interest. But there were personal problems. Green, connected only voluntarily with the Weybridge Bureau of Animal Health (the Beit grant was not awarded him) had no source of income beyond writing scientific articles and making abstracts from esoteric papers for veterinary journals. In straitened times, there was no appointment available to him. Theiler had accepted invitations which impeded his own work - the Centenary Meeting of the B.A.A.S., three lectures (paid) for London University, numerous addresses to scientific societies, attendance at conferences. He could not extrapolate his field until he had completed his basic histological study whose endless corrections tried Emma sorely.

167 Green left Lucerne re-animated by three weeks in a changed scene and an inflammatory mentor. They met a month later in London on one of the most glorious occasions in the annals of Science planned as only the British can to the last detail of exhibitions, tours, receptions, banquets, visits to laboratories, institutes, etc. and of course grand and sectional meetings. The President of the Centenary Meeting was General the Right Honourable J. C. Smuts P.C., C.H., D.Sc., F.R.S. supported by a host of Vice-Presidents including the Prince of Wales, Cantuar, Ebor, the Prime Minister Ramsay Macdonald, the High Commissioners for all the Dominions, the Earl of Athlone, Major-General Sir David Bruce and many other notabilities. Panoply and ceremony characterised the opening events. Smuts ('impressive in his defiant energy', as one observer noted) was installed in the Albert Hall as President of the Meeting in the presence of a distinguished audience including his friend Athlone who that night would take Princess Alice to the Westminster Central Hall to hear him inaugurate the sessions with a polemic address on 'The Scientific World-Picture Today'.

168 Smuts, deeply moved, was the lion of the moment as he generally was in London. He had given his best thought to a speech which, delivered to a concourse estimated at 5,000 of the world's most eminent scientists, would have appeared an effrontery from any other source. But it was the emotional significance of the event to himself and his country that most smote him. 'This day 40 years ago', he said in his high thin voice, clipped and accented, 'I sailed from South Africa to continue my studies at a British University (Cambridge) . . . Much has happened in my personal life. But nothing can equal this occasion where, in your desire to mark the Imperial character of this Centenary, you have chosen me as a Dominion representative to preside over it. It is the crowning honour of my life. South Africa looks upon this as an honour done to herself as as part of the romance of her own story.' He went on to deliver the speech of a visionary which, according to his official biographer, was still valid a generation later. Certainly it contributed to the glory and distinctiveness of the occasion (it was recorded on gramophone discs and placed on sale by the Association).

170 All the sessions at which Smuts presided were crowded. He was in the chair when Sir John Russell, a world traveller, gave his presidential address for Section M-Agriculture, cursorily surveying advances in all the Dominions. Theiler sat among the throng listening to his comment

on Canada, his mention of A. E. V. Richardson's contribution to Australia and then, at greater length, South Africa. 'The first to attack the problem (of the livestock industry) seriously was Arnold Theiler. It is difficult to overrate the value of the service he has rendered to South Africa as a country and to farm animals the world over' and Sir John detailed the diseases which Theiler had combatted and the Institute he had created, concluding elegantly with a tribute to his distinguished successor - 'Dr du Toit, in his brilliant presidential address to this section last year, set out the history and present achievements of veterinary science.' It was a proud moment for the old man. In the press around Smuts, he managed to exchange some words. Smuts told him that his friends at Onderstepoort were looking forward to his return.

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175 Theiler was one of eight vice-presidents of Section M but in Sir John's absence, it was he who took the chair. Green had put his paper - 'The Pathological Aspect of Mineral Deficiency in Cattle' - into good English and it was duly published in the *Veterinary Record*. It emphasised the effect of phosphorus deficiency on bone structure. 'Rickets and Osteomalachia in pasture cattle', Theiler said, 'must be considered as advanced stages of a true Aphosphorosis, by which term we understand a definite syndrome typical of phosphorus deficiency: Osteophagia, Osteoporosis, Rickets (in young) and Osteomalachia (in adult animals).' Orr was anxious to pursue the theme in his journal and discussed it with Theiler and Green. He wanted them to write a review of deficient pastures and their effect on cattle from all points of view. Green would compose it with Theiler's collaboration.

176 Since his Armoedsvlakte days, Green had kept Aphosphorosis in view and watched the work of other investigators in different animals in other parts of the world. His pitiable personal situation was suddenly ameliorated. The Director of the Wye College of Agriculture in Theiler's presence offered him a one-year appointment at £500 with promise of permanency (though he longed to be at Weybridge where he had a cottage) and here was Theiler himself, affirming unbounded confidence in his ability and prepared to associate his name with Green's authorship. Orr waited four months for Green's meticulously studied and elegantly composed paper. Theiler considered it 'excellent - as good or even better than any he has written so far'. Entitled 177  
178 'Aphosphorosis in Ruminants', it was published in July 1932 in Orr's *Nutrition Abstracts and Reviews* issued by the Imperial Bureau of Animal Nutrition of the Rowett Institute at Aberdeen. In common terms, it directed attention away from the currently popular 'vitamines' and calcium administration to the merits of phosphates in the diet of productive stock. For Theiler it seemed the prelude to resumption of 'the old trio' - Theiler, Green, du Toit. Carried away, 179 he urged du Toit to get a South African honoris causa degree for the English Green. In the political climate of the time, it was 'so very delicate a matter' that du Toit could hardly try.

As Smuts departed for his riven land, disastrously sunk in drought and the Great Depression accentuated by Britain's abandoning the Gold Standard two days before his 'crowning honour' (Ramsay Macdonald then led a 'National Government'), the Theilers were compelled to consider their own situation. Arnold's pension would still be paid by special arrangement in South African pounds but income derived from English investments (which, contrary to Emma's advice, he had made with money previously invested in South Africa) would now be paid in devalued English pounds. Impetuously he planned to leave Lucerne, donate his select library and live in London. At some time he would go to Onderstepoort to continue his osteodystrophic work. For the moment, with Afrikaner assertiveness obstinately paramount to the point of ruination of the country, he would not propose himself for a visit. Gertrud, who was making her way in esoteric circles in the Council of the South African Association for the Advancement of Science, would soon come on long leave and give an account of the local scene. She would also go to the U.S.A. and bring back news of Hans and Max. His parents were deeply concerned 180 about Hans - 'ein rechter Pechvogel' (a real unfortunate), Emma called him. His wife suffered

181 so grievously from asthma that she needed four injections of adrenalin a day and fought for breath at night so that Hans hardly slept. Max, happily pursuing his researches with mice (of such value to the African Colonies that the French and Belgian Governments sent men to study them), must do what he could to help them in Boston.

182 The stimulus to complete the initial stage of his bone work suffered from Theiler's intermittent assignments and occasional colds. Hardly had he resumed after the London visit than  
183 Paris called for a week's attendance at the Colonial Exhibition and other diversions. Upon return, he was invited, all expenses paid and a daily allowance, to attend as an adviser a conference of the Tropical Section of the International Agricultural Bureau in Rome (whose library he had recently visited) and deliver a paper. He spoke on the Osteodystrophic Changes on which he was working and the Conference resolved to enquire into them in tropical and sub-tropical countries. Braving a second winter in Lucerne, he laboured to put his text and microphotographs in optima forma for printing, distressed by the news that Lady Bruce had died on the 23rd November 1931 and Sir David four days later. Reports from South Africa were equally depressing - at a time of desperate economic stagnation with dreadful suffering at all levels, the community was reft by bitter racial and political animus. Contrary to Smuts' advice, Hertzog's Government stubbornly adhered to the Gold Standard and the country drifted into utter ruin. Theiler kept writing to du Toit about the experiments supporting the second phase of his work and du Toit kept asking when he was coming to Onderstepoort to pursue it; but Theiler maintained an enigmatic silence. In the meantime, with Emma's indispensable help, he managed to get his manuscript to the printers early in 1932.

184 Toward the middle of January 1932, Gertrud arrived in Paris at the same time as King, her father's previous secretary, and between them, they told the awaiting Theilers of the calamitous state of South Africa and of the obduracy of Hertzog and his advisers in clinging to the Gold Standard. There was universal suffering and rancorous division among the people. All sections of the population were without money and the Government drastically reduced its allocations for State services. The Governor-General the Earl of Clarendon voluntarily reduced his salary.  
185 Onderstepoort was lamed with the rest and du Toit wrote forebodingly that its experimental work including Theiler's requested tests, would have to be curtailed in 1933. Again he asked when the old man was coming; but on his birthday when the customary cable came, he was touring Spain with Emma and Gertrud to escape the worst of the Swiss winter. When they returned, the proofs of his lengthy 'monograph' were due to arrive for correction. Theiler was  
186 shocked by the death of Professor Burgi. One by one, his colleagues were going. The message was clear.

187 The old man tried to get on with further phases of his work but Green, 'extremely busy' at Wye and too punctilious to scamp an important concept, had not yet drafted the programme of enquiry which he and Theiler had discussed. Further, the distractions continued. In May, while Gertrud was still on her six-month visit to the U.S.A., he went with Emma again to Rome to attend a meeting of the International Agriculture Bureau and give a paper on the effects of mineral deficiency. When she returned bearing first-hand news of Hans and Eleanor, Max, Lillian and Noldi, they did a short tour of the French-Italian Alps before she left for South Africa. Emma then began the struggle of incorporating Arnold's numerous corrections and alterations of the printers' proofs which returned again for final approval.

188 Arnold began an examination of Osteofibrosis of the bones of horses supplied by his friends in Ceylon and Tasmania. In undistracted time, they both worked hard, their peace of mind  
189 temporarily disturbed by reading in the *Veterinary Record* that Montgomery had died. In October they had dined with him and his wife in Soho, talking of his forthcoming visit to Onderstepoort on his way to Rhodesia where Foot-and-Mouth still wrought havoc. Now he was gone -



the man who had succeeded Theiler and later taken the job he had once coveted. Dark thoughts went through the old man's mind. A sense of urgency began to possess him and a recurrent restlessness.

190 The key to the completion of his work in all its magnitude was Green, now reaching the end of his year at Wye and denied the promised permanent employment through shortage of funds due to the Depression. He wrote an 18-page letter to Theiler about their mutual interest and his hope of getting an Empire Marketing Board grant to work with Andrews at the Weybridge Bureau of Animal Health. (Several such Fellows – Mason, Rimington and others – as well as 191 Rockefeller Scholars were already working at Onderstepoort.) Green wanted Theiler to come to England which Emma opposed, knowing he would give his library to the Weybridge Bureau. The strong pull of Africa had lost its force. Conditions in the Union were appalling and Theiler reacted bitterly to the racial hatred loosed on a tragic scene. Hertzog and his Afrikaner supremacists, blinded by their ideology, continued to ruin a bankrupt land.

192 As Green's time at Wye ran out, Theiler commissioned him to come for 10 days to Lucerne for consultation before, successful in his application, he began work at Weybridge on the 1st October 1932 for a provisional year. It was a time of travail for Emma. Between proof-reading, she and Arnold had compiled a list of 150 leading scientists and institutions to whom he should send the result of his long labour on Osteodystrophic Diseases. Early in September, the copies arrived, reprinted from the Denkschriften of the Swiss Natural Sciences Society on the best heavy paper and most worthily reproduced, particularly the host of Arnold's own microphotos which illustrated it. Each copy, weighing nearly two lbs, had to be packed and addressed by 193 Emma and Lina and carried to the post office some distance away. The stalwart Lina could not manage more than ten at a time. The process took weeks and it would be long before opinions of the work could be received.

194 Green arrived on the 9th September 1932 and Theiler was again able to sharpen his wits. He had needed the stimulus and understanding. They ranged over the further analysis of bone

195 changes in relation to chemical deficiencies with a view to Green's definitely drafting a support- 196 ing experimental programme. 'Green and Pa', Emma told the girls, 'work the whole day either at the microscope or over the various articles Pa has begun.' He had many commitments including the formidable series of three lectures at London University in March. Green brought all his influence to bear in persuading Theiler to continue his work at Weybridge. It was a haunt

197 of his protégés. Andrews was installed there and recently James Walker of Nairobi on the verge 198 of retirement (he visited Theiler in Lucerne in October) and D. T. Mitchell of Rangoon had called. He would be very welcome and there were all facilities. Emma strongly objected – there

would be all the in-fighting of Onderstepoort and none of the pleasantness, she would never again set up house in the country (for civilised pleasures, London was too distant) and they would 199 have to live in a boarding-house. Arnold wavered. After all the excitement of his work appearing in print and Green's visit, he was not feeling well. If he transferred to England, he would have to pay heavy tax. Perhaps South Africa might be better. Gertrud must find out where the death duties would be most advantageous. On the 21st September, he went to Basle to consult Stähelin.

Theiler was now 65 and outliving his contemporaries but energetic in mind and purpose. Stähelin diagnosed arterio-sclerosis and counselled avoidance of strain. Emma was pleased. 200 Arnold now walked slowly and she could keep up with him without straining her own heart. They had been married for 39 years. The partnership continued as arduous and fruitful as of old. He was now bending his best efforts on 'The Significance of Calcium and Phosphorus in rearing Ruminants' – a paper which he would read with slides in Zurich and Berne and which would be published the following year by the Swiss Natural Sciences Society and the

201 Swiss Veterinary Archives. It was 50 pages long and Emma typed incessantly. She kept his accounts and typed all his letters and manuscripts.

202 By the time Theiler delivered his lecture in November 1932 (with 68 slides, it took two hours),  
203 the first ripples of applause reached him from local scientists who had read his published mono-  
204 graph – ‘Untersuchungen über den Bau normaler und durch calcium- und phospharme Nahrung  
205 veränderter Rinderknochen’ (Enquiry into the structure of normal cattle bones and those  
206 altered by calcium- and phosphorus-deficient feeding). Soon they grew in waves from all over  
the world. ‘Your magnificent report!’ du Toit wrote and from America came approving  
comment from investigators in the same field. Arnold told Emma to ask Gertrud to make a  
précis of the monograph for the South African Press so that ‘scientific scientists who are not  
veterinarians would know that he is still working’. In time, it was considered his magnum opus –  
the scrupulous revelation of a new field promising great increase in knowledge and improvement  
to the livestock industry – but immediately, recognition came to him. The European Press  
(Alfred was the first to see it) published the news that he had been made a Membre Correspondent  
étranger de l’Académie de Médecine de France. ‘The French’, Emma remarked, ‘have  
now given him all the honours that they have.’ The British had hardly begun. A week later  
(28th November 1932), a letter came appointing him a Corresponding Honorary Member of  
the Royal Society of Medicine. ‘Pa’, wrote Emma, diverging into English for the occasion,  
‘is as pleased as Punch! He has recently been quite well despite his pulse being very irregular.’  
What pleased Pa was that ‘although out of any official position, the scientific world has not  
forgotten me.’

207 Only Theiler and to a lesser degree Green could visualise the extent to which the extrapolation  
208 of his work on the causes of defective bone structure in domestic animals would affect the agri-  
cultural economy generally. The vision impelled the old man to further effort. He returned to  
his microscope and the investigation of Osteofibrosis in equines (his bone sections were now  
made for him in Basle) and he wrote to du Toit. He sent him ‘a kind of programme’ which  
Green had finally drafted after the September discussion, saying ‘I have not sent it before  
because I felt for a while that I should not live so long to see its conclusion and do my portion  
of the job . . . Things looked for a while very unpleasantly; they have however improved a little  
and Stähelin now thinks more of a nervous trouble. I begin to feel again I may as yet have a  
prolonged lease of life.’ He asked du Toit to indicate how much of the programme Onderstepoort  
could undertake. ‘I want’, he said, ‘to clear up the question of Osteofibrosis in horses  
and so to satisfy my last ambition. If you can help, do so and we shall once more put our names  
with that of Green under a piece of work that is of fundamental importance.’ He wished ‘all at  
O.P. a Merry Christmas and a happy New Year and d . . . the crisis!’

Two days after Christmas, South Africa abandoned the Gold Standard and hopes of racial  
peace and prosperity were fastened on a Coalition Government.

CHAPTER TWENTY FIVE

LAURELS, LIONS AND LIMBO 1932-1936

1 THEILER DID NOT boggle the question of his return to South Africa. 'As yet', he wrote du Toit, 'I have no intention to come back and some day I will tell you the reason.' Du Toit had no need to be told. While 'Kemp still ruled', he would not return.

2 Theiler was one of the best-informed men in all fields inside and outside the Union. Du Toit's  
3 own staff wrote him constantly. Those implicated in the Theiler/Green programme such as Avril Malan, Gilles de Kock, A. O. D. Thomas, Murray and others, showed their letters to him before despatch. So did Bisschop who, in his clear miniscule hand, wrote a 34-page letter report on his five-year experiments at Armoedsvlakte with their interesting conclusions on the best methods of cattle rearing and his own heretical ideas. Breeding from the best imported stock resulted only in degeneration, he said; it were best to breed up from acclimatised indigenous animals. Theiler also received du Toit's version of his own famous 'Reports'. They now appeared in two massive volumes at a time, despite financial stringency, and described in great detail the work being done. Old hands at O.P. wrote him on their own account and many called at Lucerne to give him their unrecorded impressions, particularly of the fierce domestic politics which, as elsewhere in the world, were endemic in a large institution. Extra-mural friends – his scientific cronies in the Biological Society and free lances, contributed further details. They  
4 spoke well of du Toit – 'You have made a fine choice of that man', one wrote him, 'he commands respect and seems to get things done by Kemp.'

5 Kemp exemplified the aggressive surge towards Afrikaner dominance. Pretoria was reft  
6 by controversy over the proposal to make its University exclusively Afrikaans-speaking. Theiler was glad he had refused the rectorship in 1921 and was no longer in the country. Paradoxically the Imperial connection remained live and generously beneficent. The stately Library contributed by the Empire Marketing Board to Onderstepoort was opened in October 1932 by the Earl of Clarendon in the presence of Cabinet Ministers and dignitaries and remained a striking feature ever after. Du Toit spoke wittily and well at the ceremony, fittingly remembering Theiler. He had much cause to be grateful to the Board. Its Fellows were doing good work at O.P., particularly Claude Rimington, 'a really first-class chemist'. He and his staff were stunned some months later when Britain's new National Government under Ramsay Macdonald showed no  
7 enthusiasm for continuing inspired development and, in Amery's words, after the Ottawa Commonwealth Conference in July/August-1932, 'Neville Chamberlain and J. H. Thomas decided to wind up the Empire Marketing Board'. Its wholesome presence departed from  
8 Onderstepoort and the Union, also deeply afflicted by the Great Depression, could not afford to maintain all its valuable Fellows.

To Theiler, South Africa was uncongenial in every way. While his friends and earliest proponents remained in the political wilderness, watching the promotion of unilateral aims, he had  
9 no urge to return – but the old longing remained. Gertrud, holding his power of attorney and his agent in all things (including the determination of South African death duties) was constantly reminded to ensure that his membership of the Pretoria Club did not lapse. 'We hope  
10 to come back one day', he wrote, 'and it is even my wish to die in the country in which I have worked so long and for which I have given the best of my life!' Conditions were unpropitious but du Toit, mindful of the old man's continuing contribution to veterinary science, went on  
11 with the experiments which he and Green had planned. Green was in direct communication with Malan whom du Toit had appointed in charge and in long letters, du Toit told Theiler

of progress. He told him to how R. A. Alexander had applied Max's discovery to Horse Sickness and had succeeded in transmitting the disease to mice by intro-cerebral injection. As much as Max was working toward refining the process that would produce a vaccine immunising humans against Yellow Fever, Alexander was using mouse-brain tissue in the same manner to produce a vaccine against Horse Sickness. Neither had yet attained their ends; but Theiler, in 12 Paris in February for the ceremonious 25th anniversary of the Societ  de Pathologie Exotique (when he was himself done much honour) was gratified to note how well the French knew and honoured his son.

13 The formation of a Coalition Government in South Africa gave hope that conditions might change and in his manner, Theiler made long-range plans to attend the International Veterinary Conference in New York in 1934 and then visit the Union. They absolved Emma from establishing a permanent home anywhere. She was occupied with typing and re-typing the 75 pages of his three lectures for London University. She would consider London when he gave them in 14 March. They would now get more for their South African money in English pounds than in Swiss francs.

Theiler was never merely a name in the scientific world nor, like some of its luminaries, content to appear on a didactic platform simply to confer the honour of his presence. He (and Emma) agonised over his London lectures on the structure and physiology of the bone and its 15 pathological afflictions through mineral deficiencies. He gave them on the 20th, 21st and 23rd March 1933 and Green, who was in close attendance throughout his visit, 'was very pleased'. They were reported in the scientific journals which also recorded his ad hoc assignments including addressing (with Green) a meeting of the Comparative Pathology Section of the Royal Society of Medicine in the Wigmore Hall and, again with Green, a meeting of the Hunterian Society. They enjoyed great interest and success. It was in fact a tour de force and Theiler's 16 heart was further gladdened to find when visiting his colleagues that Max 'had a very good name among them'. At the Lister Institute, one accosted him with 'So your son has beaten you and has the bigger name!' The lure of New York grew larger.

17 Frederick Hobday who had obtained his doctorate in Veterinary Medicine at Zurich, became the King's Veterinary Surgeon and was now the principal of the Royal Veterinary College at Camden Town, took Theiler under his wing. The old man attended the dinner celebrating his knighthood and in due course, discussed with him the proposal to continue his bone work in London. Hobday, largely occupied with collecting funds to enlarge his College, offered him 18 a room, equipment and assistance. Theiler accepted. All was going remarkably well. He saw much of Green who was happy at the Weybridge Bureau of Animal Health (du Toit was unable 19 to accommodate him at Onderstepoort except as a junior chemist at a low salary) and they would be able to continue their co peration. There was even a calm Channel crossing on their return to Switzerland. They decided to transfer to London.

With the restlessness that increasingly characterised his remaining years, Theiler had booked in London an elaborate four-week Mediterranean tour, somewhat determined by a promise made to Professor S. Adler of Jerusalem University (previously known to Gertrud at the Liverpool School of Tropical Medicine) whom he had met in Paris and London, to lecture on Nutrition. As usual he took advantage of every stop to call on his colleagues and visit their institutions with intermittent sightseeing – Venice, Brindisi, Athens, Rhodes, Cyprus and then Palestine which they extensively toured before Adler took them in charge in Jerusalem where they were propelled into the attention of Chaim Weizmann, himself a famous scientist, at a reception. Similarly involved in social occasions was the well-known South African writer, Sarah Gertrude 20 Millin with whom they hardly had time to exchange a word. They resented 'losing half a day' on such frivolities and after Theiler had given his 'very well attended lecture', went by train to

21 Egypt. In Cairo, he resumed his friendship with Piot Bey of the Veterinary School and Carpano of the Laboratories before doing a Nile trip. On the 3rd May they were back in Lucerne in good order. 'Sunshine and dry air', said Emma significantly, 'seem to be necessary to our health.' Die ewige Päckerei again loomed – on a drastic scale.

22 The upheaval was fundamental. Living in Switzerland did not agree with them ('I always felt a stranger there', Emma confessed to her children) and they would never return except to visit. Of the accumulated treasures of their lives, only a few were still in South Africa. The mass was at Lucerne and its disposal cost them dearly in feeling and finance. Emma collected all Arnold's publications for presentation to the Swiss State Library at Berne which had long requested them. Arnold collected his runs of scientific journals and other veterinary works and presented them

23 to the Weybridge Bureau of Animal Health where 'The Theiler Collection' (very gratefully acknowledged by the parent Imperial Agricultural Bureaux) remains in honour. Other sections of his library went appropriately to the Berne Botanical Institute, his Cantonschul, Alfred (works on Chemistry), Max and the girls (specifically standard works, subsequently valuable Africana such as Cory, Theal, Wilman, etc). Emma made a mock of Pa clinging to his books and papers but in the 11 cases and 2 trunks she sent to South Africa, there figured among his decorations and their family possessions, her own ancient sewing machine.

24 The sorting and packing went on for weeks and tried them severely. Visitors from O.P. came and went. On the 17th May, a General Election was held in South Africa in deep depression and the Coalition Party was returned. The Theilers doubted whether Smuts and Hertzog could work together. (When the Cabinet was announced, the hated Kemp was still Minister of Agriculture under Hertzog as Prime Minister. Smuts was now Deputy Prime Minister and Minister of Justice.) They were disturbed too by events alongside in Germany – the upstart Adolf Hitler had become Chancellor and assumed dictatorial powers. Jews were being persecuted and their businesses boycotted, Trade Unions were suppressed, the 'Storm Troopers' were viciously active. Some of Arnold's closest scientific colleagues must nolens volens be involved. Much

26 though he wanted to consult them before he resumed his bone work, he now refused to go to Germany. In South Africa, scepticism prevailed about 'alleged atrocities'. Almost alone,

27 Sarah Gertrude Millin warned from public platforms what impended. The brunt of the work and worry fell on Emma. While Arnold resumed his old 'hobby' of pursuing ornithology with new friends and preparing a valedictory address to the Swiss Veterinary Society, Emma, assisted by the mournful Lina, ordered the disposal and packing of all their goods and undertook the tedious task of advising the hundreds of Arnold's connections of change of address. While all went well with Margaret (more hockey honours) and Gertrud in South Africa, her poor pechvogel in Boston sank into further trouble. Eleanor was now bed-ridden and could no longer maintain Hans' household. Both his salary and his strength were inadequate to demand and Max, over-worked and distracted by moving into a new house, went to Boston to help him while his parents did what they could. The problem of Hans oscillated from one crisis to another. It was long before Eleanor got better but domestic help was found.

28 Then Hans was carried off to hospital for an operation on a streptococcal abscess in his neck which could have been fatal.

Emma's ordeal ended on the 15th September 1933 when they left the Lucerne flat and a weeping Lina to begin a month of farewell and study visits. Arnold had spoken for two hours at Zurich on 'A Veterinarian travelling round the World' for the benefit of his Swiss confrères and found it too short. Now, based on Berne where he worked from 8 a.m. to 6 p.m. at the University's Pathological Department and travelled constantly to other centres, he 'brought himself up to date' in customary manner. His colleagues in Lausanne, unwarned of his visit, did him honour. At Geneva, Professor Askenazy of the Pathological Institute gave useful in-

29 formation. At Basle, his counterpart Professor G. Senn, an old friend, likewise. In Switzerland itself, his lectures and publications had so far captivated his colleagues that he had no difficulty in persuading Burgi's successor, Burri to collect specimens of supposed cases of Rickets for him to analyse in London.

30 The prospect of having his own place in a properly-equipped laboratory in London stimulated the old man. It was now his life's ambition to complete his part of the grand scheme to identify and classify affections of the bones of domestic animals. His earliest aim to write a textbook on South African Animal Diseases had been realised by his pupil M. W. Henning who had sent a copy to him at Lucerne shortly before he left. Theiler had graciously acknowledged it, offering comment and help for a second edition. Now he was in a highly specialised field whose successful exploration by himself and others would fittingly climax his career and  
31 bring further honour to the Institute he had founded. 'I am so anxious', he wrote du Toit, 'that O.P. should contribute to the solution of Dystrophia in horses and take the lead again. I am therefore glad to hear that the experiments with the horses will soon be undertaken. By the time I shall be back in South Africa, the material should be ready for microscopical examination.' He would himself be working on crippled donkey bones and germane specimens to help complete the survey.

The Channel crossing was good and on the 20th October 1933, the Theilers arrived in London and took temporary quarters in the Ivanhoe Hotel in Bloomsbury. After reunion with the Greens at Weybridge, Emma began her search for a service flat. Within three days, she found one. They took it until early August 1934 when they would be leaving for New York and South Africa.

\* \* \*

Arnold entered into the happiest time of his life. London was the absolute antithesis of Lucerne For six guineas a week, Emma and he occupied a capacious flat with large bedroom and sitting room, bathroom and three excellent meals a day at Harrington Gardens near Cromwell Road in South Kensington and close to the Gloucester Road Underground Station. A clutch of world-famous scientific museums was a few minutes walk away and buses ran in all directions. Arnold immediately developed new 'hobbies' – the Underground which took him to Camden Town in three quarters of an hour with a change at Leicester Square, and later the Bus Service with its infinite possibilities. He mastered both but was deterred from frequent visits to Weybridge by the journey talking over an hour. He needed discussions with Green and went once to unpack the library he had donated; but his main interest was the work he would do at the Royal Veterinary College. (There was some speculation on his choice – after all that he had done on Amery's  
32 committees and otherwise for the Imperial Bureau of Animal Health, it was assumed he would go to Weybridge but Hobday had invited him and Andrews had not.)

33 Pending the arrival of the cases containing his laboratory material, Emma and he (now married for 40 years – 'What a life!' she exclaimed, 'I wouldn't like to go through it again!') succumbed to the distractions of which they had been starved. In order of precedence, Arnold responded to Science, South Africa, the Swiss and the Humanities. Suddenly they were all at hand and clamant. Official occasion immediately took them to South Africa House, the stately building in Trafalgar Square designed by Sir Herbert Baker which, in the abiding Commonwealth climate, the King himself had opened four months before. Arnold always called on the High Commissioner and now met the courtly Cambridge-educated Charles de Water whose wife had been a school friend of Margaret and Gertrud in Pretoria. In his magnificent new premises, entirely decorated by the work of South African artists and sculptors some of whom were present

(including the painter Pierneef and the sculptor Steynberg) he was host at a reception for delegates to a current International Conference for the Preservation of Flora and Fauna. For Arnold, it was enchanting. He met colleagues of the International Agricultural Bureau in Rome and a host of friends. The Chairman of the Conference was the Earl of Onslow, long a protagonist of the preservation of Empire fauna and a Beit Trustee and shortly after, Arnold and Hobday (constantly rushing round London to raise money for his College) were invited to lunch to meet him by Margot Asquith. This was the high life, continued on the scientific plane with attendance at the formal annual banquets and receptions of the Royal Society of Medicine and the Veterinary Medical Society. Consorting with his peers who paid him the deference due to a distinguished veteran, and feeling at last in the stream of affairs, Theiler wished he had come to London a year earlier.

34 The Swiss soon found him, including two he had long known – Dr Pettavel who had practised in Johannesburg and examined the pain-wracked Max, and Theo Schaerer, a successful Transvaal architect who now lived in Thurloe Square close by. Theiler had met Schaerer in London in 1923 and their acquaintance burgeoned, involving many social occasions and expeditions into the country in the Schaerers' motor car. Leavening the new exciting life was Green who would come up from Weybridge and spend the weekend or join Theiler at technical meetings. Emma received and returned calls, typing furiously in between. Comfortably housed, they had temporarily no urge in the general hubbub and a cold winter to pursue their interest in the Humanities.

35 Within a month, Theiler began his work at the Royal Veterinary College whose principal was mostly absent in pursuit of donations. He was allocated a large laboratory under the aegis of Professor F. C. Minett where, deploying his massive collection of bone specimens, he was dismayed to find that the appropriate equipment was not available. Zealously fulfilling their offers, the Rowett Institute sent its bones of sheep, Steck of Berne the crippled donkey bones and du Toit the heterogeneous collection that Theiler had demanded. There was nobody and nothing to section and stain them. He had to buy a costly Microtome for sectioning (which he proposed selling to Onderstepoort which likewise had none), slides, jars, flasks and other laboratory equipment. Despite the tedious time-wasting tube journeys, hard on an old man in winter, he was happy in his cold laboratory. His bones revealed fascinating facts, were they the effects on horses of *Crotalaria* poisoning or the nature of a dystrophic fibrosa. He stayed all day at the College, enjoying discussions with its staff, and returned in sub-zero temperature to the well-heated flat only to leave almost immediately on many nights to attend scientific meetings. On Sunday afternoons, he and Emma took their recreation in the Natural History Museum where Arnold particularly admired the mounting of the birds. The Greens sometimes took them to the theatre. They expected to do more when the summer came but were for the moment content.

36 Theiler's position had become unique. Wherever he had been on his enormous travels, no one ever forgot him and few failed to remain in communication. He had become the oracle of agricultural and veterinary scientists throughout the world. They consulted him in English, French and German in respectful and affectionate terms about their problems or about his 'Aphosphorosis' monograph which had now percolated throughout. 'Mon cher Maître', wrote Balozet of Tunis and, equally amiably, Rivett of the Australian C.S.I.R., and his colleagues (Legg of Queensland posed problems which Theiler referred to Sergent of Algiers and thus the international camaraderie proceeded). His correspondence was large and widespread. He would scribble a reply on the back of an envelope, correct it voluminously in the hand which only Emma could decipher and then she would type it in any of the three languages.

Using Christmas as an excuse, the senior staff at Onderstepoort wrote him at great length

and variety except that all commented on the ruinous drought (even the jacarandas were dying), the immense losses in stock and impoverishment of survivors, and the increase in poor-whiteism.

37 Gilles de Koch, E. M. Robinson, John Quin, J. R. Scheuber, H. O. Mönning, Douw Steyn, even H. W. R. King remote in Cape Town gave him the O.P. gossip and mourned his absence. Tacitly he knew that Onderstepoort went on but there was a lack of leadership, of fire and drive and inspiration which his men had known and now missed. It was a new South Africa which he  
38 would not recognise. 'Everything proceeds in a brotherly way', Scheuber wrote, 'Kemp goes to a South African Party Congress in Cape Town and is greeted with rousing applause. Patrick Duncan speaks mostly in Afrikaans – really too moving to last.' Like the others, Scheuber hoped  
39 that Smuts would be allocated Agriculture. De Kock, aghast at developments in Pretoria's University, begged Theiler to intimate his readiness to become its rector – 'the only person capable of commanding the situation'.

A towering personality was much missed; but Theiler, aging and fanatically addicted to completing his self-appointed task, was sufficiently wanted where he was. The Imperial Government asked him to sit on its Agricultural Research Council and Hailey's agent, E. B. Worthington, began to consult him on the article 'Agriculture and Animal Health' for the 'African Survey'.  
40 Imperial officers whom he had known in Pretoria invited him to Aldershot where he lectured British Army vets on bone diseases and Horse Sickness. Constantly there were scientific meetings and professional dinners, even lunch with F. B. Smith, now over 70 and still promoting Empire  
41 coöperation. His life was full and increasingly content. 'I am trying', he told du Toit in acknowledging the despatch of more bones from O.P., 'to make up for lost time in Lucerne.'

Characteristically he persisted in over-burdening it with more 'playthings' and 'hobbies' to satisfy his eager need to 'equip himself'. A radio and 'Linguaphone' Spanish lessons were the latest with a new plethora of newspapers – Swiss for home news, Italian to keep up his facility, Spanish to acquire another. Later he employed a teacher. Emma, happy to be inside during the winter, was typing all the time – his three London University lectures, now revised and simplified for publication, papers in coöperation with Green, endless letters and drafts for scientific articles.  
42 (She suspected Arnold of plotting to keep her busy lest she become bored.) The Schaerers, Pettavels and Greens constantly entertained them and on the 10th January 1934, they went grandly to the Savoy Hotel where the South African Club of which Arnold was an honorary member gave a dinner in honour of Prince George before his departure for a tour of the Union.  
43 Among the 270 guests they met many friends 'but what pleased Pa most', Emma told the children, 'was that Princess Alice recognised him and introduced him to Prince George'. Known, honoured and persona grata everywhere, 'he meets a mass of people with whom he can talk about everything possible'. The old aggressive swagger had given way to a quiet air of distinction. In the evening of his days but working as the pathologist he had always wanted to be, it was Heaven to be alive.

In the expanded orbit of their lives, there was now room for the Humanities. They frequently dined out with lay and professional friends – Green (now living at Surbiton) and the Swiss South Africans among them – going to plays, films and concerts. The thousand singers of the Royal Choral Society performing at the Albert Hall in Handel's Messiah, The Dream of Gerontius and other monumental works, thrilled them. 'Grossartig!' Emma exclaimed. Museums, arts galleries, Kew Gardens, the Zoo, motor expeditions to Stonehenge and other historic sites increasingly absorbed them while Arnold's bone work slowly came to an end as he approached the point when he needed to consult his O.P. records and specimens. Du Toit had  
44 sent him material that he interveningly needed. 'Horse No. 16024', he would write of a sample he had requested by cable, 'in which you described definitely a swelling of the infra orbital region is a beautiful case of Osteodystrophic Fibrosa' and he would go on to outline the trend



of his investigations and the hypotheses he would pursue when he came to South Africa. He now worked in his lab only in the mornings, sectioning the varied bones submitted which he would take to South Africa, and using the afternoons in the flat to compose a paper with Green's coöperation which the Bureau Internationale des Epizootiques had requested for delivery in Paris in May 1934. It would deal with Osteodystrophic Diseases in Domestic Animals and bring their work into prominence. His three London University lectures, typed countless times  
45 by Emma, had at last been published in the *Veterinary Record* in April/May.

46 Du Toit had arranged to come to England and join the Theilers on the voyage to New York for the 12th International Veterinary Congress in August. Arnold had refused an invitation  
47 from the American Association for the Advancement of Science to lecture in California in June owing to his local assignments. Arduous Päckerei impended for both him and Emma. They longed to see their sons. Hans and Eleanor (still prostrated by asthma) were somehow managing;  
48 but Max was specially favoured. In the Great Depression, the Rockefeller Foundation had cut the budgets of all its departments except Max's and he and his team were quietly working toward a vaccine conferring immunity to Yellow Fever. Alexander at O.P., by similarly passing the virus through countless generations of small animals to attenuate it, had apparently successfully  
49 obtained immunity to Horse Sickness. Du Toit even wrote of introducing the new method of vaccination in 1935 to replace Theiler's imperfect serum procedure. They were exciting developments for the old man.

His life was moving again into the old crescendo of international involvement; but now, having no permanent base, complicated arrangements had to be made. In a week-long frenzied visit  
50 to Switzerland, much was accomplished, Alfred bearing the burden of personal responsibilities and accepting Arnold's power of attorney in case of emergency. The Swiss Government appointed him a delegate (with Dr Fluckiger) at the New York Conference and supplied him with a visum free of charge. His family claimed him everywhere and his colleagues also, including Burri and Steck. On Saturday the 26th May, Arnold and Emma arrived in Paris and on Sunday, promenaded in the Champs Elysées. Monday marked the ritual visits resulting in dinners and theatres with the Mesnils, Leclainches and others, and Tuesday the meetings of the Bureau Internationale des Epizootiques when Arnold gave his and Green's paper in French (duly printed in the official journal). On Thursday they were back in London and joyfully clutched by their Swiss friends.

Both, preoccupied with planning their travels and packing (Arnold his equipment and collection of bone sections, Emma miscellaneous material including winter clothing in numerous cases to be sent to Gertrud in South Africa) now had comparatively more leisure. They saw much of the Greens and Schaerers who were specially congenial. Shortly after their return from Paris, Theo Schaerer 'had a chat' with his young South African friend, the sculptor Coert Steynberg who prototypically had studied and starved since 1928 at the Royal College of Arts under Henry Moore, qualifying as an Associate and then exploring the Continent. Offhandedly he had submitted from across the Channel a number of sketches for the decoration of South Africa House and, greatly to his surprise, Herbert Baker and Charles de Water had awarded him the first prize in 1932. In the end, he was commissioned to sculpt the figure of the Portuguese navigator Bartholomew Dias who first rounded the Cape of Good Hope. Remaining in London at his studio in Chelsea, Steynberg was anxious to extend his hand to contemporary portraiture. He confided to his architect friend that he would like to model a bust of his distinguished compatriot (South Africans always claimed him) Sir Arnold Theiler either to be cast in bronze or worked in marble. Schaerer said he would support him if he made the request. Steynberg, a careful man, gave it thought and study for a few days and then wrote to Theiler, c/o Schaerer in Thurloe Square. Never averse to being photographed or otherwise represented, Theiler agreed.

His time was no longer tightly scheduled and all his life, he had helped and encouraged young men.

51 The sittings began in the middle of June 1934 and the lifesize head-and-shoulders in clay was ready for inspection a month later. Steynberg had studied the career and achievements of his sitter and brought to his work an attitude of admiration and respect. He talked freely to Theiler who, he said, was an extremely congenial sitter, quiet and effortlessly in repose (doubtless glad  
52 of enforced rest). Impressed by his distinction – at that moment, Theiler had been elevated to Honorary Fellowship of the Royal Society of Medicine – Steynberg wrought an excellent likeness which Theiler himself admired – ‘even my dewlap is there!’ he commented, according to the sculptor. Then he was swept away in the final frenzies that always characterised his departures. The clay model was taken to South Africa House for the High Commissioner’s safe-keeping and soon after, Steynberg returned to South Africa to make his way as one of its foremost sculptors.

53 Theiler and Green met the boat-train when P. J. du Toit and his wife arrived from Southampton. Spirited colloquies among all the South Africans in London (including A. J. Orenstein who had been to an international conference in Geneva) took place at the Royal Empire Society where the Imperial Institute gave a reception, the Imperial School of Tropical Medicine and other official venues as well as at private parties. Theiler intended fulfilling a lifelong ambition by visiting South America on his forthcoming tour. He had often been invited. The various  
54 consulates proved uncoöperative. ‘They treat people as if they were undesirables and criminals’, Emma complained in the face of demands for guarantees of return tickets and finger prints. In a rage, Pa stamped out and revised his plans. Prevented previously, he would go to New Zealand – and Australia – instead. Their representatives immediately cabled their headquarters and in a  
55 trice, the Theilers were made welcome and later became the guests of the Governor-General of New Zealand, Lord Bledisloe who well remembered Arnold and intended seeking his advice, privately and officially. There was joy also in Australia.

The prodigies of packing resulted in the unfortunate Gertrud at Wellington, Cape being charged with maintaining in bond 11 cases of Theiler’s pathological material and equipment and 10 of the miscellanea they had accumulated from heavy coats, books and records to Emma’s trusty typewriter and a spare artificial arm for Arnold. They would be visiting South Africa, not en passant as before but for some considerable time. They left Liverpool on *S.S. Scythia* in the company of Dr and Mrs P. J. du Toit, Professor and Mrs F. C. Minett and other delegates to the Veterinary Conference. The English interlude had reinvigorated Theiler and he had happy expectations for his transcontinental journeys. Unbeknown to him, England had conferred upon him one of its newest and rarest honours.

\* \* \*

International conferences had become commonplace but there were certain variations in New York. While Emma drearily saw the sights with other delegates’ wives, twelve lady veterinarians graced the convocation within the Waldorf Astoria. Both Hans and Max were delegates but returned to their homes in the evening, postponing family discussions. Arnold had refused to  
56 speak on Horse Sickness, feeling himself out of date; but, with du Toit, disapproved of the appointed speaker as even less qualified. When the time came, du Toit entered the discussion, paying tribute to Max’s discovery of the mouse-brain culture enabling development of a vaccine and describing its successful application to Horse Sickness in South Africa. Arnold  
57 glowed. Max had already been accorded recognition in die alte Heimat and here he was being publicly lauded internationally. Max had other views. When the highly prestigious New York



*The Granite Boulder* chosen by Coert Steynberg (right) which was blasted, forming a huge rock from which he hewed the statue.



*The site for the statue outside the Main Building entrance at Onderstepoort where a palm had been planted.*

*The model in clay prepared by Steynberg in 1937 for the commemorative statue.*



58 Schweizerverein entertained the Swiss delegates to lunch, its secretary besought Arnold to arrange for Max to address them on his discovery. When Pa conveyed the proposal, Max reacted violently. He wanted 'no cheap popularity' and would in no circumstances speak to a lay audience on the subject. Pa would have liked it but Max remained adamant. He had always  
59 known his own mind and subscribed to no accepted shibboleths. Finding him in his office at the Rockefeller Foundation with his feet on his desk idly blowing smoke rings (he was a chain-smoker), a visitor from Onderstepoort expostulated. 'Mr Rockefeller', Max snapped, 'pays me to think.'

60 During the weeklong Congress, Theiler was again 'in his element' – a patriarchal figure among acolytes. The delegates from the Argentine, Chile, Peru and Brazil bitterly regretted his abandoning his plan to visit South America and promised him a warm welcome if he came later. 'Qui vivra, verra!' he replied as he always did when in good spirits. The Conference had awarded him the Budapest Gold Medal (conferred only once before on Hutyra) for the best scientific work in Veterinary Science during the previous ten years. His opening of the research field of the effects of mineral deficiencies was now saluted worldwide. Du Toit would help him get on with it when he reached South Africa.

61 Much intervened, including distressing family affairs. Already saddened by the strained and aged Hans, Arnold and Emma were unprepared for the shock of meeting Eleanor at their house in Boston – a whitehaired senile woman, constantly weeping and virtually helpless, surviving only on regular adrenalin injection. The anguish of contemplating this human wreck affected them both emotionally and physically and they were glad their visit was short. Hans' situation (despite the kindness of Tyzzer whom Theiler met, and the congeniality of his co-workers) was pitiable and even worse than it appeared. In his artless way, he had failed to legalise his presence in the United States and could at any time be imprisoned or put over the border as an unregistered alien. Arnold counselled him to cut the Gordian knot and seek employment at Onderstepoort. Du Toit was still in the States and Hans duly addressed his plea. Du Toit loyally set wheels in motion and some months later, his deputy Gilles de Kock told Theiler that a vacancy was in contemplation that Hans might fill. His father hoped that South Africa might restore the ruined Eleanor. The problems of his ill-starred first-born continued to cloud their lives.

62 With Max, it was quite other. He had an excellent appointment with a great future and was completely happy. He introduced his parents to his chief, Wilbur A. Sawyer and conducted them on a tour of the Rockefeller Foundation. They spent a weekend in his new house at Hastings-on-Hudson where Lillian contained herself and Noldi stole Emma's heart anew –  
63 'a nice little boy and very intelligent', she told the girls. She regarded the immediate future with foreboding – 'Pa will undoubtedly try to do too much in the short time before we go to Vancouver', she had written even before the Conference had ended. There were other bodeful features. On the day after its conclusion, the German people by plebiscite approved the vesting of sole executive power in Adolf Hitler as 'Führer'. The world at large regarded it with uninterested dispassion. The Theilers moved further into the New World and away from the scene of impending trouble.

It was not Arnold who was uncontrollable (he insisted on paying a courtesy call on the Bureau of Animal Husbandry in Washington and on other institutes and personalities) but the men who had assessed the stature of an eminent figure in veterinary science. Nothing was too much trouble nor any distance too great to show him what he wanted to see. Rushing about the United States on his own and other occasion, he met Cowdry at St Louis, the American family Theiler at Joliet, a real Berne bear at the Swiss Village restaurant at the Chicago World Fair, the veterinarians working on deficiency diseases in Montana and St Paul (whom he asked to send bone specimens to him at Onderstepoort) and at Bozeman, Dr Welchman who offered

to show his visitors Yellowstone Park. In a 400-mile drive in one day, they got out of his car only once for lunch and, Emma ruefully recorded, saw only one bear and one reindeer. Hurling on, Arnold's colleagues contrived to drive the weary couple over dusty roads and frightening passes for 2,000 miles in three days; but they could then claim to have seen numerous notable sites including the Yosemite Valley with its giant sequoias and bone-dry waterfalls under drought. They arrived at Vancouver on the 10th September 1934 totmüde and anxious to sail. A letter from New Zealand House in London awaited them, advising that they would be the Government's guests. Fearing another exhausting and inescapable official tour, Emma exclaimed 'I would rather not!' Her time was spent in writing grateful letters to their numerous U.S.A. hosts and arranging the despatch to them of South African gifts.

The voyage, with professional distractions at Honolulu and tourist pleasures at Fiji's Suva, restored them. Even at sea, laurels continued to decorate Arnold's brow. Gertrud sent a radiogram which, weeks later, unravelled itself into one of Theiler's proudest honours. In 1933, the ancient Royal Agricultural Society of England proposed striking a gold medal for award for distinguished services in Agriculture, either in Practice or Science, at intervals of one year or longer. It would carry Honorary Membership of the Society. In November 1933, the Council awarded it for the first time to Sir Thomas Hudson Middleton for his work in India. On the 1st August 1934, as the Theilers prepared to leave their London flat for Liverpool and the U.S.A., the Council met again and, on the motion of Lord Hastings, chairman of the Botanical and Zoological Committee in a careful and emotive speech (see Appendix C), resolved to make the second award to Sir Arnold Theiler - 'an outstanding figure in veterinary pathology whose research work over a period of more than thirty years has been of tremendous benefit to mankind in the Union of South Africa and the Empire as a whole'. The Society's secretary, T. B. Turner ascertained that Theiler was abroad and wrote his London bank for forwarding. It was hoped he would some time return to London to receive the medal and contribute a portrait photograph for the Society's special album. In due course, Gertrud got the letter, radioed Pa and wrote Turner that he was not expected in South Africa until December. Turner consulted Charles te Water at South Africa House as to a suitable occasion and personage in the Union to make the presentation and, on his advice, consigned the medal to the care of P. J. du Toit returning to the Union in November. While taking delivery of it, du Toit saw Steynberg's bust of the old man in South Africa House.

Bedecked though he were, Theiler took exceptional pleasure in his new honour. Like the Budapesth medal of the International Veterinary Conference a few weeks previously, it was only the second time that the Royal Agricultural Society had made the award. (Later the medal was not awarded annually but at intervals of several years to some of Theiler's friends - Viscount Bledisloe 1947, Sir John Russell 1954 and Sir Ian Clunies Ross of Melbourne 1956). Refreshed and eager to tour New Zealand, Emma and he landed at Auckland on the North Island only to learn that Lord Bledisloe wished immediately to see them owing to having to leave shortly for Centenary Celebrations in Melbourne, and their itinerary had therefore been altered. Their train journey via Hamilton was punctuated by sundry professional visits and on the 3rd October, they arrived in Wellington.

Bledisloe, an extensive farmer in England and recognised agricultural authority soon to be elevated to Viscount, had conceived a high esteem for Theiler's work which now developed into a warm regard. Its debut was unfortunate. With only two days in hand, Bledisloe invited the Theilers to a reception and investiture at Government House where, after initial cordiality, they were excruciatingly bored through knowing no one. Luncheon on the morrow was different and Emma was taken on a tour of Wellington while Arnold remained all afternoon in conclave with the Governor-General. He left the following day for Australia while they made the crossing

73 to the South Island in the care of the Principal Veterinary Officer Barry and two of his staff. Every detail of their 10-day tour had been arranged and paid. They could travel anywhere free by rail but accomplished an exacting survey of everything veterinary, agricultural and scenic by motor car, often driven by District Veterinary Officers and Stock Inspectors over unmetalled country roads and flooded rivers in torrential rain which once marooned them in a mountain hotel. Emma endured one of her most arduous excursions (one of the speeding cars had no brakes and another no speedometer) and Arnold examined and commented on almost as many veterinary institutes, agricultural colleges, sheep stations and sick animals as he had on his famous Australian tour. On the 16th October, they made the night crossing to Wellington for further fêteing, conferences and touring.

74 With the attention devoted to minor royalty, Arnold was taken hither and yon – to a meeting of the Council of Scientific and Industrial Research, to another of Veterinary Officers, to Parliament to hear a veterinary debate, to laboratories, dinners and receptions. While Mrs Barry conducted Emma over the sights, her husband's henchman C. S. M. Hobkirk, also secretary of the New Zealand Veterinary Association, formally advised Theiler of the award of Honorary Membership at the meeting he had attended. Bledisloe, whose knowledge of agriculture Theiler admired, beamed upon the scene he had contrived and bided his time to seek personal advice. Theiler himself, as in America, had begged bone material wherever he went.

75 At last they were free to make their tourist visit to the New Zealand Alps, the geysers and hot springs, the caves and lakes, the Maoris and local sights of which they had read and heard. Then they returned to Auckland for more hectic entertaining. On the 9th November they sailed for 77 Sydney after '40 exciting days'. Bledisloe, believing them still on tour, wrote in his own hand to 78 Theiler for advice on contagious abortion and concurrent mastitis in his herds in England. Theiler remained in communication with him and Bledisloe never forgot his friend.

79 It was a measure of the old man's engaging qualities that during the 18 days it took to move across coastal Australia, his disappointed associates of six years previously emerged in force to fête him, closely rivalled by the local Swiss. At Sydney, Gilruth, Seddon, Stewart and others met the ship with plans for entertainment at the University and Rotary Club. He met again Sir George Julius and dined with the New South Wales Veterinary Association. He resumed acquaintanceships only to say farewell, answering eager questions, recounting the wide work on which he and others were engaged, asking always for specimens of malformed bones and the full circumstances of each case. Taking ship for home, he was similarly saluted at Melbourne and again at Adelaide where A. E. V. Richardson who had known him longest, fetched the travel-worn couple for dinner and the cinema. At Freemantle more veterinary colleagues entertained them ashore. On the 30th November, their ship finally left the coast for the two week voyage across the Indian Ocean to Durban and ultimately Cape Town where Gertrud would meet them. They had travelled incessantly for four months and restlessness was now inalienably in Arnold's blood. He had to see and do everything he possibly could.

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80 Their return to South Africa after seven years was not unknown. Arnold, mindful of the bitter atmosphere of his short visit in 1928, had strictly enjoined Gertrud who had liaison with the Press, to ensure that his arrival in Cape Town should not be publicised nor should King make it known. 'Pa does *not* want it published in the papers and he does not want to see reporters', Emma warned. But there was no suppressing the news among his friends. When *Anchises* came

81 alongside at Durban, Arnold's colleague of nearly 40 years, the veteran S. T. A. Amos came aboard to take the Theilers ashore for tea and tell them all the gossip. Margaret too had produced a surprise by arriving the next day by train from Johannesburg to join the ship on its voyage to Cape Town where Gertrud awaited them on the wharf. Superlatively competent, she whisked them in her car to Wellington and the solid comfort of her College bungalow. The voyage from Durban had been very rough and they were glad to have firm ground underfoot as well as the company of their lively 'girls', now mature women of 38 and 39. Telephone calls to Cape Town abounded. Three days later, they were in the Mother City for Arnold 'to bring himself up to date'.

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83 His informants were the garrulous King, always with his ear to the ground in the Civil Service, and Pole Evans, now Director of the Division of Plant Industry and still walking with the great, notably Smuts whose farm Doornkloof was near Pole Evans' house at Irene (they continued a close relationship in personal and botanical matters). A subject of congenial interest had been debated in the House of Assembly and Pole Evans was in Cape Town to develop his programme for the conservation of natural vegetation which he had been asked to submit. Over lunch, he conveyed to Theiler a direct message from the Deputy Prime Minister. Smuts bade Theiler welcome on his return and wanted to know whether his services would be available, particularly in reorganising the Department of Agriculture. Behind this totally unexpected démarche lay a long story with which Theiler was familiar.

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85 During the dreadful days of the Boer War, his last civil connection had been with F. W. Reitz, previously president of the Orange Free State and then State Secretary of the South African Republic. Reitz had five sons and the third and most dashing, Denys, had with Kruger's personal consent, joined the burghers at the age of 17. 'The Boer boy' as Smuts called him in his introduction to Reitz' famous book 'Commando' published in 1929 (followed by 'Trekking On' in 1933) endured exceptional hardships and deep disillusion which drove him to set his face against the new South Africa under British control. He skulked as a farmer in Madagascar until Mrs Smuts in a sympathetic and persuasive letter induced him to come home. He was always Smuts' man and fought with him in the Rebellion, the German West and East African campaigns and as commander of the 1st Royal Scots Fusiliers in France where he was badly wounded. In 1921 he was elected to Parliament and Smuts saw to it that he was made Minister of Lands and later a leading speaker in opposition when Hertzog came to power. Now, in the Coalition Government, he was again Minister of Lands and renowned throughout the world as a best-selling author. His third book 'No Outspan' had just been published.

Pole Evans told Theiler that Smuts had arranged for Denys Reitz to exchange portfolios with Kemp. In a stroke, Theiler's animus and difficulties disappeared. The new Minister was a man of action, not a bureaucrat, more at home in the field than sitting in his office. By securing the appointment of his protégé, Smuts had virtually himself assumed responsibility for the Department of Agriculture. Not only was Kemp removed but Theiler would deal directly with Smuts in all matters, including the reorganisation of the Veterinary Division. The way to Onderstepoort was now open. Theiler was elated. It behoved him however to move circumspectly. He would stick to his plan to begin in Johannesburg where Margaret had rented two rooms near to her school as lodgings.

86 Two days later, Pole Evans returned the visit and came to Wellington with his wife and King. Their 'briefing' continued and, together with the girls' constant conversation, Theiler began to accommodate himself to a very changed political and economic scene. 'Coalition' had brought an ostensible but fragile bonhomie and departure from the Gold Standard had instigated spectacular economic revival, particularly in the north where the booming mines at last released capital for exploitation. Much occupied the old man's mind, including a mass of corres-



87 ponde forwarded to Gertrud's care. Pole Evans' message from Smuts had deeply stirred him. The day after his visit (Christmas Eve), Theiler wrote to the Royal Agricultural Society to thank for the award of 'the Gold Medal for distinguished service to Agriculture and Allied Sciences' in its new connection of benefit to the Empire. Te Water had made no proposal for its presentation and Theiler continued: 'Permit me to suggest that the Medal be handed on by my friend General Smuts who has, since the early days of my career in South Africa, taken a great interest in my researches and whose friendship has always been a great encouragement 88 for my work.' Turner duly replied approvingly, stating that P. J. du Toit must by now have delivered the medal to the 'authorities' in South Africa.

Gertrud, emphatically her father's daughter, had planned to drive him most deviously to the Transvaal so as to cover the maximum places he had known. It was her own manner. On every vacation, she would undertake a new expedition, camping in the veld, 'botanising', 'zoologising' and generally casting a scientist's eye on unwonted surroundings – Namaqualand for the flowers, the Kruger Park for wild animals, Basutoland for the mountains and so on. There was little of Southern Africa that she did not know. Always a naturmensch and disdainful of convention, she withstood family teasing about her Eton crop, her notion of sartorial sufficiency as a cotton dress, brogues and a Panama hat, and her absorption in her work. Competent in all she undertook, Gertrud had already driven the family everywhere of note in the neighbourhood of Wellington and now conducted them in her trusty old car on a safari which came near to levelling her parents and Margaret.

Roads were not yet tarred (many still had innumerable cattle gates) nor many rivers bridged but Gertrud boldly set out in mid-summer heat over the baking Bain's Kloof for Hermanus, Caledon, Swellendam, Heidelberg, Riversdale – Mossel Bay, the Wilderness, George – Knysna (where a plant long previously discovered by Theiler had been given his name and where the family called on E. M. Robinson and his wife on holiday and met one of Pa's students, René 89 du Toit, later to impersonate Theiler in a film for schools describing the great man's life) – Avontuur, Uniondale, Willowmore and into the sweltering Karroo at Aberdeen – Graaff Reinet, Middelburg, Colesberg – Phillipolis and (the Gods be praised, the Theilers thought) the Fauresmith Veld Reserve in the Free State where Dr Marguerite Henrici was based. There 90 they stayed in Swiss comfort for four days and recovered a little from the heat and the dust which Arnold had found hard to bear. His protégé who had accomplished useful investigation of the phosphorus content of pasture grasses under his aegis, was now the queen of her own 91 domain. Transferred to the Division of Plant Industry in 1929, she ruled an estate of nearly 100 morgen from her own house with a technical staff, laboratory, library and other adjuncts of pasture research, doing valuable work and engaging the respect and esteem of previously incredulous farmers. Arnold could well be proud.

92 Rested, they drove on to Jagersfontein, Bloemfontein (where Theiler met Williams and Strydom, two of his past students), Thaba Nchu and Ladybrand, entering Basutoland the next day and passing through Maseru (with memories of the 1903 Rinderpest) to a Swiss trader beyond, known to the girls. Heavily eroded roads in the undeveloped Protectorate jolted and jarred the aging parents who were glad to arrive at Harrismith after bumping through Ficksburg, Butha Buthe, Clarens and Kestell. Gertrud was not yet done. Turning north east, she drove through Standerton to Ermelo where Theiler had done much of his work on sheep. In less than three weeks, she had taken him through a vast section of his previous terrain. Now they turned for Johannesburg and the blissful repose of the two rooms in Kensington which Margaret had rented.

Theiler intended moving warily and keeping his distance. Johannesburg with its new population of skyscrapers and frenetic activity ('tickey-snatching' on the Stock Exchange and million-

aires in Cadillacs and Rolls Royces) was fascinating enough. He had friends aplenty including Theo Schaerer who had returned from London to resume practice as an architect in the booming Golden City. But within two days, he was in Pretoria, ostensibly to see the Commissioner of Pensions but lunching with P. J. du Toit, Dr A. Pijper, E. M. Robinson and others, and of course going on the newly-tarred road to Onderstepoort. He found it much the same except for the new buildings, especially the Library which now graced it.

It was moving to greet his old friends. 'The old man is back!' – 'Die Oubaas is terug!' coursed through the property and affected even the newcomers. Gone were the old acrimonies of his having put his name to the work other men did, of his being brutally domineering and regardless of the comfort and convenience of his staff, of his being intransigent and undisciplined vis-à-vis Civil Service procedure and intolerant of Treasury. The living figure of Onderstepoort's glory was back in its context and men who had gossiped and intrigued and reviled him behind his back were happy to see it. Before long Theiler became the pet of the place. Du Toit offered him all facilities for his work – even his old office and laboratory, an assistant A. O. D. Thomas, and technical help. He also promised to do what he could for Hans. All signs were propitious. Arnold and Emma forthwith went to the Union Hotel in Pretoria where many O.P. staff members lived and booked a suite with a spare bedroom. When Gertrud and her car went back to the Cape, they would move to Pretoria.

In the meantime, there was much distraction in Johannesburg. The Schweizerverein Helvetia which Arnold had revitalised in 1895, fêted him expansively. Their friends entertained them constantly and their daughters drove them about. Gertrud, freer than the heavily-committed Margaret, took them often to Pretoria, sometimes for days at a time while Arnold unpacked his material and set his work in motion 'as of old'. He felt, he said, as if he had merely been away on a long holiday and was resuming his usual activity. Much that he had instigated had been accomplished. During the years of his absence, he had read du Toit's Reports but it was different now with Robinson telling him how, after years of tedious technical processes, he had finally isolated the various forms of Botulinus causing Lamziekte and its variants. Du Toit's experimental workers had long been conducting the lengthy tests on cattle fed with various diets to determine the effect of mineral deficiencies. Theiler considered that his actual presence would soon be necessary.

Other wheels had also been turning. Through South Africa House, Turner had told Smuts of Theiler's wish. Felicitous opportunity offered on the 17th April 1935 when Smuts would open the Witwatersrand Agricultural Show in Johannesburg. He agreed at Theiler's request to present the Royal Agricultural Society medal then in the presence of Colonel Denys Reitz. Theiler wrote joyously to Turner – it meant much to him. Almost his whole life in South Africa had been intertwined with the Oubaas. Honours kept coming – 'a sure sign of advancing senility', he told Alfred. The American Society of Tropical Medicine made him an Honorary Member and the University of the Witwatersrand suddenly remembered the honorary D.Sc. of 1927 which he had had to refuse owing to departure. It would now be conferred in March.

With Gertrud gone, Emma would have preferred to remain in Johannesburg to be near her other daughter but Margaret, busily occupied with teaching physical culture, playing hockey and coaching, was seldom to be seen. She would come to Pretoria for weekends in a large car which Pa had helped her buy (hoping for more tours after which his restless nature hankered). On the day before their departure from the Golden City, they attended a University garden party for the Empire Press Association led by Lord Astor, then touring the Union. Arnold was delighted to meet dozens of his overseas friends who proceeded to Pretoria and, on the 1st March when he formally began work at Onderstepoort, visited the famous Institute. It was a unique opportunity for them to be conducted over it by its founder. Theiler grandly signed the

Visitors Book in line with Lord Astor and notable newspapermen from Canada, Australia, New Zealand, India and other parts of the Empire of which he could now consider himself a pillar. (A huge Empire Exhibition was planned for Johannesburg in 1936 – 50th anniversary of the City – and its emissaries came to Onderstepoort to arrange its representation.)

103 The experience dissolved his antipathy to Press publicity. He had already given an interview to the *Rand Daily Mail* about his forthcoming work to which P. J. du Toit added a corollary about his being warmly welcomed; but now, in response to a visiting Empire journalist met at Onderstepoort, he himself wrote an admirable resumé of it for publication. The rehabilitation of Sir Arnold's image continued apace with du Toit describing 'the beautiful medal' that he would receive and the Press saluting his honoris causa. In the evening of his days, the old man could enjoy a glow of glory.

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107 Life had become almost idyllic. At 7.50 every morning, Gilles de Kock drove him to Onderstepoort and in the evening, another hotel resident, usually R. A. Alexander, drove him back. The hotel was comfortable (Emma found it disturbing and joined the Pretoria Women's Club as a quiet rendezvous) and became even more so when they exchanged their suite for a bigger one. The greatly-enlarged O.P. staff entertained them continuously and they never lacked for distraction even if they missed the cultural advantages of London and Europe. Theiler with his wide knowledge and immense travelling was very good company and remembered by all his friends, particularly Pole Evans. They went frequently on a Sunday to his house at Irene and on the 17th March, were taken by him to visit Smuts. Arnold used the opportunity to discuss the future of Hans – 'the stone on the hearts' of his parents. Du Toit was doing his best but Arnold hoped for Smuts' intervention if the only possible post available were of inadequate salary. Smuts, distant and careless of people qua people, nonetheless liked talking to him and hoped for a future, less hurried occasion. Officially, he had committed Theiler to confidential talks with the chairman of the Public Service Commission with a view to reorganising the Veterinary Division. The chances of his intervening on Hans' behalf in raising the possible salary of £400 per annum were therefore good.

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110 With the award of his fifth honoris causa degree on the 23rd March, Theiler's aura of glory expanded. The Press, particularly the Agricultural Journals, took him up and published his photograph and accounts of his career. It was a happy occasion for him. Co-graduands were Dr Bernard Price whom he had known on the Research Grants Board and Colonel J. Stevenson Hamilton who pressed him to visit the Kruger National Park in September. The distinguished convocation included P. J. du Toit and Gilles de Kock from Onderstepoort and a contingent led by Pole Evans from the Plant Division. The Witwatersrand University conducted the affair very amiably and gave great pleasure to the old man – 'it had been a nice day', Emma observed.

111 It unleashed a spate of celebration in dinners and receptions given by the Schweizerverein Alpina in Pretoria (which Arnold had founded in 1898) and its colleague Helvetia in Johannesburg, the staff of Onderstepoort at the Pretoria Club, the Witwatersrand Agricultural Society, and others. In all the glory, the actual presentation of the Royal Agricultural Society's Gold Medal by Smuts on the 17th April went comparatively unremarked.

Theiler's gratification at his widespread recognition and the erasure of the unfortunate impression created under the Kemp regime had been increased by an episode in Parliament in Cape Town. Senator G. G. Munnik moved a resolution in the Senate on the 25th March expressing appreciation of Onderstepoort's discovery of a cure for Horse Sickness. The new Minister of Agriculture, Colonel Denys Reitz spoke enthusiastically to the resolution, applauding Sir Arnold, P. J. du Toit and 'a young South African scientist, Dr R. A. Alexander'. The resolution was passed unanimously – very different from the early days when Theiler's name was bandied about both Houses in ignorance and contumely. In June, Reitz visited Onderste-

poort shortly after Theiler, in common with many eminent South Africans, had received the King's Silver Jubilee Medal.

114 It was all very exciting and pleasing but the sense of fulfilment that the old man could have enjoyed would continue to elude him until he finished his bone work, interrupted now by an  
115 ominous sign. He had begun to suffer severe headaches, particularly when he got up in the morning. They dwindled, only to return – too often, he thought. Inevitably he remembered his father who had shown the same symptom before dying at the age of 68. He had himself just turned 68. The headaches continued for many weeks but became less frequent. He tried to dismiss them as signs of senescence while conscious that his powers were diminishing. He had often discussed his condition with Emma and made appropriate arrangements. Alfred now had  
116 his will. When the time came, he wished to be cremated.

The work went on in his laboratory under the constant strain of microscopic examination. Occasionally he would plod across the complex to one of the camps where a sweating experimental assistant labouring in a byre, weighing buckets of urine, measuring the rations of mineralised fodder, noting every aspect of a group of heifers, would regard him tremulously. Theiler, quite kindly, would ask him searching questions sometimes in terms he could not understand.  
117 (One young Afrikaner, J. S. Otto with two degrees in Science, was confounded by Theiler's enquiry about the 'metatarsal effect' and, appalled by his obvious ignorance of Anatomy, decided he must study Medicine. Leaving Onderstepoort, he became a physician and in 1978, the first Nationalist Mayor of Johannesburg. Theiler, he told the Press, had always been his hero.) Du Toit had kept his promise and the ancillary work on the Theiler/Green programme was proceeding. Immaculate in white laboratory coat emphasising his black-gloved artificial hand, the old man would discuss developments with his friend or chat with old and new colleagues or consult the latest literature in the splendid new library. Idleness was irksome to his nature and when banished from Onderstepoort by public holiday, restlessness supervened.  
118 Over Easter, Margaret indulged her father's sudden wish to inspect the environs of Pretoria and drove him and the uncomplaining Emma to Hammanskraal, Bavianspoort, the Premier Mine, Warmbaths, Roberts Heights, Hennops River and Quagga-poort, visiting friends en route. As he aged, Arnold could less and less suffer vacant time and travel became obsessional.

119 His personal troubles were diminishing. He had written Hans in March of the Onderstepoort offer and his elder son, in customary manner, had failed to reply. Now in May, he cabled an offer, substantially improved by the efforts of du Toit and de Kock, and including a house. Hans cabled acceptance, proposing to arrive in September. The heavy stone had fallen from their hearts. Arnold wrote him by the new miraculous airmail of the details and how he would be helped on all sides at O.P., There was no need to worry about Margaret or Max. Gertrud  
120 was about to bring great honour on the family. She had been appointed president of the Zoological Section of the forthcoming meeting of the South African Association for the Advancement of Science at Paarl in the Cape. Her father was determined to hear her deliver her presidential address as well as resume acquaintance with his scientific confrères and, with his habitual long-range planning, to hear Max present a paper to the Second International Microbiological Conference in London in July 1936.

His plans were fixed, his headaches were diminishing, his work was interesting and he and Emma were constantly entertained by friends, scientists, the Swiss and consistently, the Pole Evans. His situation at O.P. was in no way strained and the veneration of the staff, old and new,  
121 was gratifying. Similarly satisfying was the fruition of many of his works. In May, he made a two-day visit to Armoedsvlakte and was astonished to see how his trees had grown and his investigations proliferated with important results. There were things that Smuts should know  
122 about the Veterinary Division and its organisation. One Sunday in June (16th), Emma and he,

P. J. du Toit and his wife spent the day at Irene with the Pole Evans and were taken to see Smuts at Doornkloof. In the coterie of trusted friends, they could talk freely of the future of the Division.

123 Even in his incidental works, Theiler found pleasure. The Biological Society, sometimes tottering uncertainly during his absence, still maintained and Emma and he loyally attended its meetings. Before they left for the Cape, they heard Douw Steyn exploring further the field of Poisonous Plants which Theiler had pioneered. Other enterprises that he had tended before Union and later – the Transvaal Museum, Zoological Gardens, University College, the Association for the Advancement of Science, the conservation of wild life and the National Parks, the exploration of local plant life and the National Botanical Survey, and a dozen others – had grown and developed.

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Theiler was his own master and could come and go as he pleased at Onderstepoort. Much as he relished his investigation, it was exacting work and he welcomed the interruption of Gertrud's public debut and joining her on expeditions during the College leave that followed. His aim of clarifying the nature of bone afflictions was within sight of completion. It would not be long before he could start colligating his results into a 'Dissertation'. A break would refresh him for the final stages.

124 Henrici came from Fauresmith to join their train at Springfontein and they all put up in the hotel at Paarl a few miles from Wellington. The meeting followed the usual Association formula and Arnold enjoyed seeing old associates and newcomers, many contributed by the nearby University of Stellenbosch. His friend on Pole Evans' staff, E. P. Phillips (then awarded the South Africa Medal of which Theiler had been the first recipient in 1908) presided over the Botany Section. In the Chemistry Section was a tall smiling newcomer, Hendrik Frensch Verwoerd from Stellenbosch.

125 On the 5th July 1935, Gertrud gave her presidential address to the Zoology Section on 'Some Recent Developments in the Study of Parasitic Worms' in the presence of her parents. In construction and explication, it had the classic historico-logical form of Theiler himself and all his lucidity except that Gertrud allowed herself literary flourishes and historic allusions that he might have eschewed. It was a tour de force on a subject in which she could be considered expert and a clear augury of the high scientific distinction which she would later achieve. 'Gertie very good', Emma noted; but Arnold, coldly connoisseur with difficulty, could not  
126 forbear from writing Alfred that 'it was a firstclass address that was generally applauded. Some friends assured me that it was the best address.' He could have died happy that day – but there was still Max. For the International Microbiological Conference in London at which Max  
127 would present his latest results, Professor Minett of the Royal Veterinary College, Camden Town had proposed Theiler as a Vice-President. Already they were making plans to travel by one of the new Italian liners, *Guilio Cesare* or *Duilio*, to Europe early in 1936.

In the week succeeding the S.A.A.A.S. meeting, they engaged in the frenetic activity which had come to characterise Theiler's absence from work and to throw the lie at those who suspected his physical powers were waning. Gertrud's new Chevrolet took them along the rutted dusty, often precipitous roads that led through Malmesbury, Piquetberg, Citrusdal and Clanwilliam to Lamberts Bay with its guano island populated by myriads of sea birds and penguins. Arnold  
128 was entranced and wrote ecstatically to Alfred about the experience. Then a three-day interlude in Cape Town with the Swiss consul Bothner, much motoring around the Peninsula in heavy rain and lunch with the faithful King. Gertrud arranged lastly a visit to the protégé of Cecil

129 Rhodes, H. E. V. Pickstone at Groot Drakenstein who had revolutionised the fruit-growing industry and was of particular interest to Arnold, before putting her exhausted parents on the train to Pretoria.

130 Paradoxically their two-week frenzy had much benefitted both of them. Arnold's headaches had disappeared and he returned reinvigorated to his work. Constantly now he was writing Alfred – 'I go every day to Onderstepoort except Sundays and am now again really in my element and feel happier than I have for ages' – 'I have much work. It is interesting and gives me much joy' – 'I love my work and when public holidays intervene, am glad when they are over.' Despite the international crisis precipitated by Italy's bellicose intentions toward Abyssinia which could complicate his future plans, Theiler enjoyed a real exhilaration. He met all the distinguished figures who visited O.P. and himself moved in high circles. Emma and he lunched at Government House with the Earl and Countess of Clarendon (whom they found 'very nice people and exceptionally obliging') and enjoyed a rare local esteem, frequently recorded in the Press. The Pole Evans had left for Italy to attend a Botanical Conference in Rome, visiting 131 Alfred on the way. Arnold feared that they would never reach their objective. On the 2nd 132 October, Mussolini's forces invaded Abyssinia and Hans, landing in Cape Town where Gertrud had solved all his difficulties, set out for Pretoria in the car which he had brought from Boston. During the dusty 1,000-mile journey, he telegraphed his parents that he would arrive on the afternoon of the 3rd October.

133 Theiler was at Armoedsvlakte, watching related experiments, when the war news was announced. He missed the visit to Onderstepoort on the 3rd October of Sir Malcolm Hailey (later Lord) who had come to see the world-famous Institute for himself and to make final arrangements for the publication of his 'African Survey', the relevant material having been contributed by Theiler and incorporated by E. B. Worthington. The Scientific Sub-Committee chaired by the Marquis of Lothian (known to Theiler as Phillip Kerr of Milner's Kindergarten) and consisting of Sir John Boyd Orr, W. Ormsby-Gore, Julian Huxley and Sir Richard Gregory, then asked for final comments and correction of submitted material. Theiler and du Toit duly laboured over the chapter 'Agriculture and Animal Health' and reaped a whirlwind. Thanking them most appreciatively for their comments 'coming as they do from the originators of so much research 134 in Africa', Worthington asked for more information on animal diseases and on the original breeds of domestic animals of the Natives. Theiler left it to du Toit. By then, his days at Onderstepoort were numbered against his departure for Europe. He had similarly had to reject a 135 persistent invitation from the National Veterinary Medical Association of Great Britain and Ireland to lead discussion on 'Diseases of the Horse' at their annual Congress at Scarborough in September 1936. He planned either to be back in South Africa or still visiting in Europe by then.

Hans' return was typical of the contrariness that characterised his entire life. Having specified the afternoon, he arrived in the morning at the Union Hotel which Emma had left to make last purchases in town for his house. He then drove to Onderstepoort to find Arnold absent on his way back from Armoedsvlakte. Finally they were reunited, surprised to find that the asthmatic Eleanor had well withstood the journey and needed adrenalin only twice a day. Hans began work at Onderstepoort among many old friends and Eleanor, assisted by an African maid, took up house-keeping with manifold advisory and material aid from Emma. The stone seemed finally to have been lifted from the Theilers' hearts. Fired by Henrici's lyrical description of the Kruger National Park, now South Africa's greatest tourist attraction ('she saw nine lions in one group!' 136 Arnold exclaimed), they impatiently awaited Margaret's arrival on the 8th October to take them there. It was the hottest season of the year but as they might still be in Europe in September 1936, it were better to accept Stevenson Hamilton's invitation while they could.

137 They entered the Park from the north and saw every conceivable animal including lions three  
138 times. Emma wrote the family as enthusiastically as Arnold. By the time they reached Skukuza  
to spend a day with Stevenson Hamilton, it was 105° in the shade but neither minded. Pa asked  
their host for a crocodile skeleton for Gertrud but none was available. 'Skukuza' as he was  
known, showed them his wonderful films of animals beyond the scope of tourists and Africa  
re-asserted its hold upon them. They began to consider renting a house in Johannesburg and  
sharing it with Margaret when they returned. In their advancing age, they would be happier  
with one of their daughters. Hans was no longer a problem and Eleanor so far recovered as to  
maintain their home and even cook the German dishes which Arnold loved. He lunched with  
them once a week and Emma watched helpfully over the household. In such free time as she  
139 had, she mounted Arnold's holiday photographs in an album and compiled a massive list of  
his scientific publications from 1893 onward. Mindful of heavy overseas travel during the  
European summer, she had already booked their passage for April 1936. They had intended  
voyaging to Italy and visiting Veglia in Turin but converted now to the Deutsch Ost-Afrika  
Linie as far as Hamburg. Before undertaking their long-postponed Scandinavian tour, Arnold  
could visit his scientific friends.

140 The laurels kept coming. The University of Cape Town advised the conferment of an honorary  
D.Sc. on the 12th December 1935 and Theiler, possessed by the mania for travelling, imme-  
diately booked train tickets with the intention of Gertrud's undertaking another motor tour  
during her College vacation. He loved his work but clutched at any opportunity to leave 'the  
monotony of the sitzleben' and move about the country. He confessed now to feeling his age  
and revolting against the regular daily routine. He felt well and enjoyed his investigations but  
no longer went to Onderstepoort on Saturdays. The relaxation of a full weekend restored him.  
A daily dosage of glucose also helped.

141 More disconcerting was a letter from King of Arms of the Chancery of the Order of St  
142 Michael and St George advising him that a seat had become available in the Chapel of the  
Order in St Paul's Cathedral to which, by virtue of his seniority, he was entitled as K.C.M.G..  
King of Arms wanted to know whether he wished a plate affixed to his seat with his armorial  
bearings, or an enamelled representation of his crest, or a gilt plate on copper recording his  
name and date of birth. The choice was not difficult and Theiler sent his cheque for £14.14s.6d.  
covering the cost of the latter.

143 Alfred in due course received a copy of the *Cape Times* with a picture of the five honorary  
graduands upon whom the University of Cape Town had conferred doctorates (following in  
Theiler's case of 1911, the precedent of the University of the Cape of Good Hope, then in-  
corporating Stellenbosch and Cape Town). Arnold, beaming urbanely, was the most portly  
(Emma had had to let out the necks of his shirts). Always stocky, he had thickened and become  
slightly bowed but, clean-shaven except for a neat moustache, his animated expression belied  
his greying hair. He was in fact 'resting' in Cape Town until Margaret and Gertrud were re-  
leased on their respective school and college vacations and could join in a family safari. The  
Theiler concept of repose involved staying at an hotel, being extensively entertained by the  
Swiss, their friends and colleagues, going for drives and, in one awesome excursion which Emma  
144 wisely refused, visiting Dassen Island by tug from the Cape Town Docks to see penguins, Pa,  
Margaret, Gertrud, King and his son were horribly seasick and, stoutly professing pleasure at  
the experience, confessed they would not like to repeat it.

The motor tour which started on Boxing Day included every mountain pass and scenic  
drive on corrugated dusty roads in blazing summer heat from Wellington in the Cape to East  
Griqualand and back by a different route. It lasted nearly three weeks and Theiler sought out  
many of his old associates - Verney at Kokstad who had come to help him and Watkins-

145 Pitchford in the Rinderpest experiments in 1897, Professor Selmar Schonland and his son Basil (later knighted) at Graham's Town, Professor Dyer of the Plant Division and E. M. Robinson holidaying at Knysna, and others along the way. Parents and daughters took to the car every day with Arnold persisting that change did them good. Emma had feelings about the abominable roads and frequent burst tyres. Finally they left Wellington by train for further travellings in the Free State at Henrici's hands.

Theiler had less than three months in which to finish his work and they were bound to be disrupted by packing and farewells. There were also many disturbing features in the international and local scenes. H.M. King George V died, the radio being used for the first time to broadcast his funeral. The Italo-Abyssinian situation confused the whole world and in a brave display of moral rectitude, the League of Nations imposed sanctions against Italy. Hitler had made his animus more overt and legally outlawed the Jews. The Swastika was now the official flag of Germany whose Nazi regime was endorsed by 99% of the electorate after reoccupation of the Rhineland in violation of the Treaty of Versailles. From a position of power, Hitler meddled purposefully in the affairs of neighbouring peoples while extending an iron grip on every facet of the lives of his own. Many of Theiler's friends and colleagues were involved. He discussed with Emma the desirability of their European tour which would begin with passage on a Nazi ship. The general attitude in South Africa continued incredulous. The European scene, England included with its infamous Hoare-Laval agreement, wore an air of unreality – such a situation had never before been confronted and the ordinary citizen was at a loss to know how to approach it. No leadership came from local politicians and with customary 'alles sal regkom', the general public took refuge in indifference.

146 A deep compulsion lay upon Theiler to return to his spiritual home after nearly two years' absence. He struggled to complete his work but distractions, a touch of lumbago, concern over Eleanor whose condition deteriorated in the summer rains, and new obligations impeded him. The University of Pretoria made him an 'honorary professor' and during his last days at Onderstepoort, he pursued his dearest love and gave a few lectures to final-year students in the Veterinary Faculty which they deeply valued. One, M. de Lange who in his time became Deputy-Director of Veterinary Research, kept his verbatim notes of one of Theiler's last lectures – 'Rickets and Other Deficiency Diseases of the Osseous System'. The old man had lost none of his command of the particular principles of pathology which he had investigated nor of his phenomenal clarity in expounding them.

147 He had been remembered in Europe (the Societé de Biologie in Paris elevated him from Corresponding Member to Associate) and Onderstepoort, now sadly taking its leave, would never forget him. He celebrated his 69th birthday among its staff, rejoicing in the news that Gertrud had been promoted to full Professor of Zoology at the Huguenot University College (though she had long fulfilled the function and been heavily over-worked, even representing the recently-deceased principal Miss Stafford on the Senate of the University of South Africa). Emma and he continued to worry about conditions in Germany but in the current mood, decided to leave their plans unaltered. They had spent their last weeks discharging their obligations to all who had entertained them and on Arnold's birthday gave a memorable dinner at the Pretoria Country Club to the senior staff and wives including P. J. du Toit, Gilles de Kock, P. J. J. Fourie, E. M. Robinson, Avril Malan, R. A. Alexander (later to become Director at O.P.) and, recently the recipient of the Scott Medal to Arnold's great gratification, Marguerite Henrici who was temporarily working in Pretoria. (Theiler was very proud of 'the best known Swiss woman in South Africa' and wrote an article about her for the home Press.) On the 14th April, P. J. du Toit gave a farewell dinner and on the 20th, the day of departure, Arnold received a letter from the University of Utrecht awarding him an honorary doctorate in Veterinary Medicine as part of the



celebration of its 300th anniversary on the 21st June. Similar awards had been made to the Prime Minister General Hertzog and his deputy General Smuts. Arnold would be in Europe at the time and wished personally to receive the honour.

151 On that day of tension and emotion, almost the whole of Onderstepoort's staff and wives and its students came to the station in an extraordinary demonstration of affection and regret. 'The students', Arnold wrote, 'pushed everyone aside'. An hour later, the faces of the Schaerers and other friends appeared at their carriage window as the train stopped at Johannesburg. At Wellington, there was Gertrud to take delivery of Emma's cherished sewing machine, bought in difficult days on the Rand in 1894, and then at last, Cape Town and a few days rest at an hotel – as far as their friends allowed.

152 With the Utrecht invitation still warm in his pocket and Parliament in session, Theiler called on Smuts with the assurance that he had altered his itinerary to represent South Africa at the ceremonies on the 21st June. Smuts himself had heard only a day or two before and nothing was yet officially arranged though it was certain that in the current state of international tension, neither he nor Hertzog would be able to accept. They talked of other things and Theiler unburdened himself on Hans and the lowly position he occupied at Onderstepoort. The clear blue eyes were fixed on the old man pleading for his son and striking an unusual chord in a potentate impatient of human frailties. Smuts wrote to du Toit asking for full information on Hans and within a few weeks, the Public Service Commission 'improved his position' by a higher notch in salary – 'more than he got at Boston', his mother observed.

153 The Schweizerverein staged a farewell dinner in the Cape Town Opera House and made Theiler its Honorary President. Consul Bothner and a host of friends added their farewells and flowers while *Ubena* prepared to leave. As Emma watched Gertrud's figure grow smaller on the wharf, emotion smote her and she wished she had stayed in South Africa. Always the sight of Table Mountain disappearing under the horizon proved irresistibly moving. The voyage would take 20 days and they soon made a regimen. Arnold spent every morning in the cabin working on an outline of the protocols of his experiments which he posted to Avril Malan at Southampton as part of the great coördinated work on which they had been engaged. Du Toit read it appreciatively and wrote him in Lucerne, detailing further developments and adding – 'I need hardly assure you that the sooner you come back, the more pleased we all shall be.'

\* \* \*

154 Though the ship was packed, passengers even occupying the officers' quarters, the voyage was not unpleasant. Emma sat all day on deck, knitting industriously and methodically foreseeing the future. In the saloon, she listened attentively to their table companions – millionaire German industrialists and bankers who despised Hitler and were confident of their personal safety as heavy tax-payers. They had nothing against the French but everything against England to which they ascribed the ills of the world. Pa prospered by the good food and enjoyed the opportunity of visiting the Veterinary Department and Institut Pasteur at Dakar where *Ubena* unexpectedly took oil owing to a strike at Las Palmas.

After sundry excursions ashore at Southampton and Rotterdam, they finally disembarked at Hamburg and began a rushed three-week tour of Germany for Arnold 'to bring himself up to date' and renew his acquaintance with life-time associates. It was as if he were reliving his past in the horrifying context of the future. Dr Berg of Bayers who had spent two years testing 205 on Nagana in Zululand, met them in Berlin and took Arnold to his factories while Emma saw the sights of Leverkusen on Elberfeld. Professor Rössle and his staff entertained them. They saw the Olympic Village where later the arrival of Hitler at the Stadium would inspire Nazi athletes

to unpredictable feats. Friends met them again in Köln and Koblenz before they took Rhine ship to Wiesbaden. By then Alfred had forwarded to Theiler a resolution of the Senate of the Pretoria University that he should represent it at Utrecht and deliver a message.

155 At Wiesbaden, Dr Lichtenheld of German East Africa days took them in hand and Emma first began noting the slogans displayed widespread – ‘Wir können bauen durch dem Führer’ – ‘Die Juden sind unser Unglück’ – ‘Die Juden sind hier nicht geduldet’. They drove to Nuremberg, Dinkelsbühl and Rothenburg and on the 1st June, arrived in München where Arnold visited the Veterinary College and its previously coöperative professors who continued to do him honour. Then Kollmann of Boer War days fetched them by car for three days at Weitnau and, himself a member of the Nazi Party, told them of Hitler’s devices to combat the prevailing depression – the Youth Labour Camps, the building of autobahns, the abolition of class spirit and personal freedom, the strict control of production and retailing. Emma, meeting pro- and anti-Hitlerites, was impressed by what had been achieved, noting on a factory under construction a huge placard – ‘Dass wir hier bauen, verdanken wir dem Führer’. ‘In Germany’, she wrote, ‘we had very interesting days’; but when Kollmann drove them to Lindau, it was good to cross the lake by ship and set foot again in Switzerland. Alfred awaited them at Lucerne, accompanied by his son, Alfred 2 and Elsie Zurcher, his intended but not yet affianced bride. He was still making his way as an engineer.

157 In their headlong course through Europe, family affairs were quickly discussed and the Scandinavian tour arranged. Arnold was bent on seeing his scientific friends and in ten rain-sodden days, dragged a coughing Emma between Zurich, Berne and Basle to meet Kupfer and Welti, Walter Zschokke, the venerable botanist Carl Schröter now 81 who outlived him, Professor Burri and others who had been associated with his lifelong work. At Berne, the new 158 Museum of Natural History was specially unlocked and lit so that they might see the Hall of African Animals contributed by the Swiss naturalist Bernard de Watville who had been killed by a lion in Uganda, and by Arnold himself from his earliest bushveld days. The groups of lions, antelopes and other animals were mounted naturally and earned their commendation. To add to countless rendezvous, Henrici arrived in Basle after a trying voyage from the Cape.

159 Emma recovered in time to reach Utrecht by train on the 21st June and immediate immersion in crowds and festivities. Holland, as elsewhere in Europe, was still sunk in depression and the University’s august occasion, dignified by the presence of Queen Wilhemina and Princess Juliana, was conducted on economical lines. Arnold fretted at having to deliver Pretoria’s message in Afrikaans, now unfamiliar to him (the Dutch would have resented English), among a plethora of similar messages from other Universities. He was inconspicuous among the general throng. Of the thirty honorary degrees conferred, three were for Veterinary Science, Theiler of South Africa being joined by recipients from Sweden and Holland. There were various entertainments and some sight-seeing in hot summer weather; but he managed to spend one day at the Utrecht Veterinary School and made the acquaintance of Dutch colleagues. Then, taking the train to Hamburg, they continued their hectic travels in ever-increasing heat.

160 In his 70th year and apparently maniacally possessed with the desire to close the gaps in his knowledge of Europe because he was incapable of relaxation or repose, Theiler wittingly stretched his endurance to the limit. By train and ferry, Emma and he reached Copenhagen in withering heat which sapped their energy. The routine tour of the town and of the harbour by boat was all that they could manage and both confessed to being too tired to do anything but go to bed. Denmark, deeply depressed, was discouraging but they did the usual tours to Elsinore and the museums and Arnold visited the Veterinary College. Neither summer storms nor moving to Stockholm and Oslo improved conditions. In Oslo, it was so hot and humid even at night that neither slept. When Arnold went to the Veterinary Schools at both capitals, the damp heat was

almost insupportable. Surcease appeared in the persons of Claude Rimington and his wife (a Norwegian) who came in a small boat to take the weary Theilers to their island home at Askerøy. Then it rained and, having exhausted discussion of Rimington's work at Onderstepoort and forthcoming attendance at the Microbiological Conference, there was nothing to do except wait to be taken back to the mainland – with further train journeys to Oslo and Bergen and Voss and Stahlheim and back to Bergen. They were very tired.

161  
162 When he failed to see his future clearly, restlessness always afflicted Theiler and taxed his tough constitution. Without committing himself, he had planned to return to South Africa. Now he wavered. The 13th International Veterinary Conference would take place in Zurich in 1938. He wanted to attend and the girls could arrange their leave to join them in Europe then. For the moment, he saw no further than the London Conference opening in a few days time. Neither he nor Emma had any idea what they would do when it ended. Max was already on the water, officially the delegate of the Rockefeller Foundation with all expenses paid and thereby obliged to use his time by visiting laboratories in London. He was jubilant about his progress in devising a vaccine against Yellow Fever and hoped soon to achieve it.

163  
164 His parents crossed from Oslo to Newcastle on the 16th July and took train to London, putting up again at the Ivanhoe Hotel in Bloomsbury. Arnold went immediately to call on the High Commissioner at South Africa House and chatted expansively to te Water about his work and his then-current plans for the future. The following day (Sunday), Emma and he went to Waterloo Station to meet Max, Lillian and Noldi, now a lively 7-year old, after the transatlantic voyage and installed them in the Ivanhoe where Harry and Mrs Green joined them in the evening. They arranged to spend the next Sunday with the Greens at Surbiton. Arnold could hardly wait to tell Harry about his work at Onderstepoort and the direction it was now taking in his and du Toit's hands.

165 Being 'on duty', Max set out the next day on his visits to various scientific institutions while Lillian tactfully withdrew to show Noldi the sights of London. Emma and Arnold called at South Africa House and Arnold went on to have lunch with a friend Hans Visscher. Emma was always grateful when he was 'beschäftigt' and occupied. Otherwise, she said, he got bored and ran around too much. He came back to the hotel in deep distress, suffering frightfully from pains around his heart. Emma sent at once for Dr Pettavel. He diagnosed pressure from an inflated stomach, the heart being sound, and advised a Kur at some Bad. By evening, the pains had indeed gone and Arnold was up and about the following morning.

166  
167 The experience had shaken him and he felt insecure. The Microbiological Conference would open a week hence and as a vice-president, he would attend the morning sessions and hear Max deliver his paper to which he greatly looked forward; but he would omit the afternoon excursions and evening entertainments. He remained in the hotel and Pettavel came daily, pronouncing him better and confiding to Emma that 'the attack had done him good in that it has at last convinced him that a man of his age should no longer undertake so much'. Local Swiss and other visitors came to see him which he enjoyed though feeling weak. He contemplated occupying himself with the 'Dissertation' on his work which pleased Emma lest he otherwise try to be too active.

168 Emma watched him carefully and with diminishing concern. His attack had occurred on Monday but by Wednesday, he was much better and even more improved on Thursday when he came down to lunch. After Stähelin's examination in 1932, they had discussed his condition and all that it implied. No one was less likely to have illusions than Arnold himself, whatever Pettavel said.

169 On Friday the 24th July, he came down to breakfast but found it tiring and after reading a letter from Gertrud, went to sleep in an armchair. No one disturbed them. Max was somewhere in London on his tour of visits and Lillian had taken Noldi to Surbiton to spend the day with

the Greens. Later a friend Widmer came to see him and when he had gone, they went in to lunch. As they waited for the second course, Arnold suddenly clutched the room-key and stood up. 'I am again getting an attack', he said and walked uncertainly toward the door. Before Emma could move, he grasped the back of a chair, turned toward her with a helpless look and collapsed. The waiters surged forward and Emma ran to the telephone to summon Pettavel. When she returned, they had put a cushion under his head, loosened his collar and placed ice over his heart. She took his hand, still warm. There was no pulse. Sir Arnold Theiler K.C.M.G. was dead.



*The Unweiling by General Smuts (left) in teeming rain on the 15th November 1939 in the presence of some of Theiler's longstanding African staff (right).*



*Steynberg with his work on a fine day.*



*Viscount Bledisloe lays a wreath in January 1948.*

## POSTSCRIPT

1 CHARLES TE WATER, High Commissioner for the Union of South Africa in London, immediately took charge upon Theiler's death and cabled his Government. When Max had been found and the relative papers signed, te Water organised a Memorial Service at Golders Green  
2 prior to the cremation. The London *Times* published a two-column excellently-informed obituary notice on the following day and the world Press carried the news. When the service was held on the 27th July 1936, Lady Theiler was supported by her son Max, her brother-in-law Alfred and his wife who had come from Switzerland, Mr and Mrs te Water and many of Sir Arnold's associates – his historic ally F. B. Smith, Sir Frederick Hobday of the Royal Veterinary College, W. H. Andrews of the Bureau of Animal Health, Harry and Kate Green, Alexander Holm of East Africa, Mary Gunn of Pole Evans' staff, Dr B. D. Pullinger previously pathologist in Pretoria, many London Swiss, Union Government officials and personal friends. On the  
3 coffin lay a wreath inscribed (by P. J. du Toit in a cable) 'In reverent memory of a life of devoted service to the people of South Africa from the Government and people of the Union of South Africa'.

4 Charles te Water took possession of the ashes to save Lady Theiler the trouble of transportation to South Africa as she wished, undertaking to deliver them officially when their destination had been determined. He had conveyed to her a message from the Prime Minister General  
5 Hertzog offering the sympathy of himself, the Government and the people of South Africa, and a similar message from the Minister of Agriculture, Colonel Denys Reitz – 'all the members of his Department ask to be associated with the Minister's tribute to a great public servant' –  
6 and many others. Te Water, a man of lively aesthetic appreciation, then conceived the idea of using Steynberg's bust, still in clay and locked in a store-room in South Africa House, as a memorial to Sir Arnold.

7 The lamentations of the world at large reached Lady Theiler immediately in cables and telegrams and for many months thereafter in private letters and official publications. Distinguished scientists in Europe and America wrote personally, mostly in their own hands in English, French and German, testifying to Sir Arnold's great qualities. Few of these expressions were perfunctory. The learned societies likewise all took formal resolutions, noting Theiler's particular association with them, were if Fellow or Life President or Honorary Life Member, and communicated them to her. A. E. D. Rivett (later Sir David) of the Australian Council for Scientific and Industrial Research was in England at the time and wrote her with particular appreciation. He included a message received by cable from Sir George Julius and the official condolence of the Australian Government. Rivett referred to Theiler's inspiring example and the loss of 'a leader and friend'. F. B. Smith wrote of him as 'one of the best and most considerate of colleagues'. In common with Dr Henrici, Pole Evans and Theiler's erstwhile secretary, H. W. R. King referred to him as 'the best friend I ever had'. The final-year students at Onderstepoort whom Sir Arnold had lectured only three months before, composed a suitable message to Lady Theiler which they clumsily typed and all signed.

8+9 A vast number of tributes were published world-wide in many languages – by Max Kupfer in the *Journal of the Zurich Naturforschende Gesellschaft*, by Werner Steck in the *Schweizer Archiv für Tierheilkunde*, by Gustav Senn in the *Journal of the Basle Naturforschende Gesellschaft*, by Alfred Theiler in *Lebenbilder aus dem Argau* and by others in many Swiss journals  
10  
11  
12 (not always accurate). Dr Rössle of Berlin published his tribute in the records of the *Deutsche*

13 Pathologische Gesellschaft. Similar memorial accounts appeared in English, Spanish, Dutch,  
14 French, American and other scientific journals including *Nature* (contributed by Sir Frederick  
15 Hobday) and the *Veterinary Record* (of which Harry Green was probably the author). Nor was  
16 Theiler forgotten in Australia and other parts of the Empire. In 1948, British Commonwealth  
Leaflets issued an outrageously inaccurate 'Theiler of Onderstepoort 1867-1936' in tribute to  
'one of the greatest of all veterinary scientists'.

17 P. J. du Toit was immediately approached by the South African Press to contribute an ap-  
preciation which he wrote in understandably emotional terms, commenting as so many did,  
on the shock of Sir Arnold's death when he had seemed so robust and still full of joie de vivre.  
18 Du Toit's affection and sense of loss also emerged in 'The Life and Work of Sir Arnold Theiler'  
which he wrote in association with Cecil Jackson, editor of the *Journal of the South African  
Veterinary Medical Association* for a special Memorial Number. Similar tributes were paid in the  
19 *South African Medical Journal* by Adrianus Pijper and in the Proceedings of the 30th Annual  
20 Meeting of the South African Association for the Advancement of Science which took place in  
Johannesburg in October 1936 with Gertrud attending. Many inaccuracies were perpetrated  
in lay journals, the popular Press and later in memoirs and autobiographies, but the sense of  
loss was common.

Du Toit's veneration and affection for 'the old man' had deepened during Theiler's 15-month  
stint at Onderstepoort and he was determined that he should be permanently commemorated.  
When his deputy Gilles de Kock went abroad, he instructed him to consult the High Com-  
21 missioner in London about Steynberg's bust. Te Water was at the League of Nations in Geneva  
when de Kock called but later confirmed his support of du Toit's proposal to purchase the  
22 bust by public subscription and to endow scholarships in veterinary and other research. Du Toit  
mooted his scheme with the Prime Minister General Hertzog who was 'most interested' and  
with Cabinet Ministers but nothing developed until Smuts took a hand. Reading Pijper's tribute  
23 in the *Medical Journal*, Steynberg wrote to du Toit in January 1937 offering his services if a  
monument were needed.

Du Toit energetically continued his lobbying under the cold eye of the Secretary for Agricul-  
24 ture, P. R. Viljoen, who continued to harbour a grudge against Theiler for alleged insufficient  
credit for his Lamziekte work - but du Toit had the ear of Smuts. In March 1937, the Union  
Cabinet in an unprecedented move (encouraged by buoyant revenue) decided to allocate £2,000  
from Additional Estimates to erect a statue commemorating Sir Arnold Theiler of which £500  
25 was to be made available for immediate expenditure. Du Toit at once asked Viljoen who was  
going to London, to raise the matter of Steynberg's bust with Charles te Water. The idea was  
crystallising that Steynberg, the only sculptor to model Sir Arnold, would need the bust to help  
him with a statue.

26 When called to Cape Town during the session, du Toit on the 21st April interviewed J. S.  
Cleland, now Secretary for Public Works, who had long known Theiler during extensions to  
Onderstepoort, and discussed the project with him. Cleland thought the memorial should be in  
front of the main building. Du Toit then called on General Smuts who felt that he, Denys  
Reitz, Cleland and du Toit should constitute a committee in Pretoria to discuss details. He  
agreed that Steynberg should be the sculptor. Du Toit went on to Reitz who, typically, wanted  
nothing to do with it and was 'quite prepared to leave it to General Smuts and myself'. The  
27 matter then hung fire but du Toit warned London that he was trying to have the bust bought  
to aid Steynberg with the statue.

28 Public Works then became restive at the delay and sent its emissaries in the persons of C. A.  
Cilliers (Acting Secretary in Cleland's absence) and H. M. Mollison, Chief Architect, to On-  
derstepoort on the 21st June to discuss the proposal with du Toit. London, similarly restive,



29 had summarily shipped the bust to du Toit and it arrived at the point when, after discussions with Steynberg, Public Works had clarified a project which now only needed Smuts' approval. 30 P.W.D. had bought the bust modelled in clay from Steynberg for £105 and it was subsequently on view in the Department. All were agreed on the site of the statue. It was felt that marble would turn yellow and bronze, which would have to be cast at high cost overseas, would turn black. Steynberg pressed for granite and after long consideration, advised that his fee would be £2,000 for granite and £1,700 for bronze. The plinth would cost £700 and Treasury would have to add £805 to the £2,000 already voted if granite, which Cilliers approved, were used. There was no dispute over Sir Arnold's ashes being placed in the base of the plinth nor disagreement over the inscription of his name only.

31 Du Toit immediately sought an appointment with General Smuts for Viljoen, Cilliers and himself and on the 26th August 1937 he received them in his office at the Palace of Justice, excusing Viljoen who was unable to be present. Smuts approved the proposal in toto, asking 32 only that it be undertaken forthwith and that a decision on the addition of 1867-1936 to Theiler's name be considered.

For Steynberg, the commission was gratifying in many ways. With the help of the bust and numerous photographs, he set to work on a clay model and on finding locally a block of granite adequate to hew into a figure one-and-a-third lifesize. By November, he had completed the model. Lady Theiler was then staying with Margaret in Johannesburg (after two months with Hans and Eleanor at Onderstepoort which she hated) and was invited by du Toit to accompany him and Cleland to Steynberg's studio to inspect it. To Gertrud, travelling overseas, she wrote – 33 'Steynberg has completed the model (one third actual size) for the statue of Pa. He is sitting in his office in Lab. coat and holds a microscope against his body with his right hand. The face and the position are good but the microscope must go. It looks absolutely ridiculous.' Steynberg 34 took it away and substituted a pleximeter. His search for granite had ended at a small kopje 35 not far from Halfway between Pretoria and Johannesburg. Blasted out of a huge boulder, the great block was brought to his studio and he worked on it for more than a year.

Early in 1939, the Public Works Department began building the tall plinth on the circular lawn outside the entrance to the main building, distinguished in Theiler's day by a lofty palm. 36 Te Water had sent the funerary casket and du Toit asked Lady Theiler by telegram to Wellington where she was staying with Gertrud whether she wished to be present when it was sealed into the base though no ceremony was contemplated. She deputed Hans to represent her. The statue was also ready but it was not until November 1939 that it could be unveiled.

In the time intervening, South Africa had traversed an unparalleled period of crisis resulting in Smuts and his supporters in Parliament defeating Hertzog's motion of neutrality in Hitler's war. Hertzog called for the dissolution of Parliament but the Governor-General Sir Patrick Duncan refused and on the 6th September, summoned Smuts to form a Government. The Union was totally unprepared for war. In his 70th year, there fell on Smuts the herculean task of marshalling and reorganising his country's every resource and initiating services previously considered beyond its need or competence. No greater tribute could have been paid Theiler than that, nine weeks later when in the throes of superhuman labour, Smuts found time to compose a personal and thoughtful salute to his friend and to come to Onderstepoort to unveil his statue.

37 On the afternoon of the 15th November 1939, rain teemed in unceasing torrents and the unfortunate du Toit was compelled to accommodate the large convocation (including Lady Theiler, Hans and Eleanor, Margaret and Gertrud) in the Faculty Lecture Theatre to hear the speeches. Smuts spoke with deep sincerity (see Appendix D), mentioning Theiler's 'artistic temperament' when frustrated and his collisions with various Ministers but computing his

stature in certain terms. 'I have sometimes felt', he said, 'that in the years past, I did not do my duty and give his name to this place. It is now too late for that. This could have been "The Arnold Theiler Institute". However, the opportunity was missed and in the meantime, Theiler himself made Onderstepoort's name so world-renowned that it cannot be changed . . . He was also a great personality – sincere, straight as a die, powerful, enthusiastic and utterly devoted to his work. The upshot of it all is that he has left his soul behind him here. For Theiler is not dead. His spirit animates his place. Let us hope for the good of the country and of the world that the Theiler spirit will continue to live and flourish for generations to come.' Then Smuts put on his raincoat and went out with a few guests into the downpour and, in the presence of a few Africans who had worked for Theiler for many years, pulled the sodden cover off Steynberg's work. He walked across to speak to the Africans for a few moments and was taken away in his official car to the Union Building to continue preparing for war.

38 He had stated that it was the first and only occasion on which a monument had been erected to a great man by the Union Government. Subsequently the claim was made that no other State in the world had erected a memorial to its own paid servant. In 1948, when on a goodwill mission to South Africa, Viscount Bledisloe bought a wreath in Pretoria and drove to Onderstepoort to lay it at the feet of his old friend. In March 1967, on the centenary of Theiler's birth, his niece Klara, deputising for her father Alfred who was too ill to come, journeyed from Switzerland to join Margaret and Gertrud in a similar salute.

39 Other memorials were instituted. In 1938, the South African Biological Society struck the 'Theiler Memorial Medal' for award to students on the Veterinary Faculty of the University  
40 of Pretoria. In subsequent years, 'Theiler Memorial Lectures' given at intervals by distinguished scientists were instituted by the University. In the Public Library at Berne in Switzerland, Theiler's portrait figures among a gallery of Swiss notabilities and his work is recorded in a number of similar commemorative books.

41 Steynberg who was always proud of his first portrait bust, had made a copy of it for his own collection but was persuaded to give it to Onderstepoort where it stood in the vestibule firstly of the original main building and later in the entrance of the modern complex. In 1973, largely at the instigation of J. C. D. Osler, editor of *The Stellalander* (successor to *The Northern News*), the Municipal Council of Vryburg agreed in principle to commemorate Theiler's work in converting the district into 'the Texas of South Africa' and providing the source of current  
42 prosperity. Steynberg, then the country's foremost living sculptor, generously offered to cast the Onderstepoort bust in bronze at a nominal fee. Public subscriptions were invited and the  
43 Municipal Council contributed R500, eventually being in a position to commission Steynberg (then preoccupied with his massive head of Paul Kruger for erection in the Kruger National  
44 Park). The bust reached Vryburg at the end of 1975 but its mounting was delayed until the completion of a new Civic Centre. It was unveiled in the grounds on the 15th April 1977 by the  
45 Mayor, Councillor Mrs E. H. Saaiman in the presence of Dr Gertrud Theiler during the course of the Vryburg Agricultural Show.

46 The stone platform erected at Armoedsvlakte at Sir Arnold's instigation to commemorate the contribution of the Vryburg farmers to his work on Lamziekte was at one time threatened with demolition; but steps privately taken elicited an assurance from the Department of Agriculture that it would be preserved. The anemometer and commemorative plaque had long since disappeared.

Largely through the efforts of Dr Gertrud Theiler and later of Mr H. M. de Bruyn, official photographer at Onderstepoort, 'The Theiler Memorial Room' was instituted in the Library built by the Empire Marketing Board with which he had been closely associated. It contained various reliquae including his original veterinary diplomas, text books, early instruments,

apparatus, desk, telephone, etc. together with the insignia of his awards, medals and various presentations. Veterinary equipment and numerous photographs of early periods of his career were also collected and displayed.

\* \* \*

47 Upon the death of Sir Arnold, the composure and dignity of Lady Theiler were very notable. 'It was the peaceful painless death which he had always wished for himself', she wrote, 'The blow was for me not unexpected – we were both prepared for it.' She endured the obsequies with calmness and addressed herself to producing some order into the disruption of family plans which resulted. Although Sir Arnold's pension ceased at his death, he had adequately provided for her from investments as sole beneficiary of his will. She had no other intention but to return to South Africa to be with her daughters and, at the height of the summer season, tried to book passage but all ships were packed. After the Microbiological Conference, she joined Max and his family on a 10-day tour of Scotland and upon their return to the U.S.A., spent a month in Switzerland arranging Sir Arnold's and her affairs whilst awaiting passage from Italy.

49 She left Genoa on *Guilio Cesare* on the 17th September 1936, passing Margaret en route for England and the U.S.A. in the *Stirling Castle* and exchanging radio messages. Gertrud met her on the 3rd October and took her to Wellington for a day or two before leaving for Onderstepoort where Lady Theiler remained while Gertrud went each day with P. J. du Toit to the S.A.A.A.S. meeting in Johannesburg. Thereafter she stayed with Gertrud at Wellington, always beschäftigt with the myriad aspects of Sir Arnold's affairs – his records, his books, photographs and friends who wrote continuously. She constantly received reports from the Academie des Sciences Coloniales, the Royal Society of Medicine and many others of resolutions of condolence to her passed with all members standing.

50 Lady Theiler never lost her interest in the scientific fields in which she had been so closely implicated but, living with one or other of her daughters, tended to find increasing pleasure in domesticity both culinary and involving her redoubtable sewing machine. In time the progress of their careers brought both her daughters to Pretoria. She bought a large Victorian house with extensive grounds in the suburb of Riviera where they lived together while she undertook the housekeeping as well as plying her domestic and seamstress skills. Upon their offering to provide help in the light of her advancing age, she indignantly replied – 'Don't you like my cooking?' She was also interested in gardening.

51 On the 21st November 1948, a formal cocktail party was held at Onderstepoort to celebrate the 40th anniversary of its opening and Lady Theiler's 80th birthday. She appeared in a modish black dress and spectacular black hat with her daughters, less glamorously garbed. Gilles de Kock, then Director of Veterinary Research, and Dr A. J. Orenstein suitably saluted both occasions and for long afterwards, Lady Theiler received congratulations from far and wide.

52 She died three years later on the 15th April 1951, having survived numerous family tragedies with calm and gallantry. Her ashes were interred with those of Sir Arnold at the base of his statue at Onderstepoort.

\* \* \*

53 The unhappy Hans led a disturbed and undistinguished life at Onderstepoort. Contrary to his parents' hopes, the health of his wife did not improve under South African conditions and when adrenalin ceased to have effect, she was frequently taken to hospital. She died on the 1st June 1946 and Hans on the 5th August 1947.

\* \* \*

Margaret Theiler retired from her extremely active occupation at the Jeppe High School for Girls in Johannesburg in 1952 but remained a coach, selector, umpire and functionary in the

54 hockey world. She came to Pretoria to live with Gertrud in the family home and occupied herself with coaching games at the Pretoria High School for Girls. The School fêted her on her 50th anniversary as a games mistress in August 1972 when she was 75 but she was still actively at it in shirt and shorts when she turned 80 and thereafter. In 1977, the Johannesburg College of Education awarded her a gold medal for her services to physical education. On the 3rd February 1978, at the age of 82, she was formally inducted at the inaugural ceremony held at the South African Sports Hall of Fame in Pretoria, receiving a medal and commemorative plaque. She was then coaching three times a week.

\* \* \*

Gertrud Theiler pursued her father's infatuation with Science with distinguished dedication and devotion. Short, tough and otherwise 'unorthodox', she exuded a charisma of alertness and vitality. Of the many interests that Sir Arnold cultivated in his children, Gertrud pursued all and in one, attained a level almost equal to his own.

56 When conditions impelled the Huguenot University College to transfer emphasis from Science to other departments, Gertrud left Wellington and in 1939 was occupied at Rhodes University, Graham's Town for a year as Lecturer in Zoology. She then joined the staff at Onderstepoort as a research worker in Entomology, her assignment being ticks, their classification, biology and ecology. For 30 years and more, she contributed a massive series of papers on every aspect of ticks and their parasitological effect on animal life, becoming a recognised world authority and a lauded benefactor of local farmers. Upon reaching retirement age in 1952, she was retained on the 'temporary staff' to continue her work. In 1967, the centenary of her father's birth, she was made an 'honorary guest worker' with her own office and access to laboratories. In 1976, when a senior septuagenarian, she became what she called a 'Morning Glory' – a technical assistant at the chronically short-staffed Onderstepoort, working without pay in the mornings only and contributing the benefits of a phenomenal memory. She celebrated her 80th birthday in 1977, still in close association with her father's Institute.

Dr Gertrud found time to contribute distinguished services to the South African Wild Life Protection and Conservation Association which made her an Honorary Life Member in 1973, and supported germane bodies such as the Austin Roberts Bird Sanctuary. She had of course been early enrolled in the South African Biological Society and became its president in 1947. From the days that Pa taught her as a child to skin and mount birds for museum display, she was committed to joining the South African Ornithological Society. Her catholic interests were expressed in membership of many other learned bodies such as the Africana Society, Archaeological Society, Simon van der Stel Foundation (for the preservation of historic buildings), Museum of Man and Science, Friends of the South African Library and so on.

57 She served on several international commissions in various parts of Africa and on consultative committees locally. After being a Councillor for 16 years, she was elevated to Life Membership of the South African Association for the Advancement of Science in 1945 and also of the National Veld Trust. She was a Corresponding Member of the Société Belge de Médecine Tropicale de Parasitologie et de Mycologie. In 1951, the South African Veterinary Medical Association made her an Honorary Associate. In 1960, she was awarded the senior Scott Medal in the steps of her father and in 1975, in the shadow of his bust in the hall at Onderstepoort, the Elsdon Dew Medal for services to Parasitology was presented to her.

\* \* \*

58 The shock of his father's death profoundly affected Max. Theoretically he was fully prepared he said; but in fact the event stunned him and for some time his mind was dazed. While Lady Theiler 'kept calm and collected and clear-headed', Max became an automaton, remembering

how his father had been 'looking forward to seeing his youngest perform'. On the 29th June 1936, two days after the funeral service, he courageously gave his paper to the grieving Microbiological Conference - 'I am sure my performance was pretty rotten', he wrote his sisters, 59 'as my mind was not in the business at all'. Then he took Lady Theiler to call on Charles te Water who was to receive Pa's Dissertation on his bone work from Alfred and arrange its despatch to its final destination. Lady Theiler was grateful that Max, Lillian and Arnold (as 60 she now called their little boy) 'were all very good to me so that I did not feel lonely'. After a 61 week in London subsequent to the short tour of Scotland the family returned to New York.

The extremely complicated experiments involving mouse-, embryo- and chicken-embryo-brain-spinal cord-tissue were producing a culture showing possibility of immunising against Yellow Fever. Using monkeys, Max, then Director of the Rockefeller Foundation Virus Laboratories and working with an expert team, could show promising results. He could tell the Microbiological Conference that one result of these various cultures called 17D had not killed three experimental monkeys. They survived and subsequently resisted infection from a virulent strain of Yellow Fever. Max was engaged in refining the process early in 1937 when Lady Theiler had taken up residence with Gertrud at Wellington. By March, he proposed extensive trials of its capacity to immunise humans. On the 6th March, Lady Theiler received from him a brutal cable - 'Arnold died hit by auto'. The boy had stepped off the pavement on his way from school and an oncoming car had killed him. Thus ended what his grandfather had proudly called 'the South African branch of the Theiler family'. A daughter Elizabeth was born in 1939 but there were no further additions to Max's family.

62 The process of evolving an attenuated form of the Yellow Fever virus which could safely immunise humans continued. In 1938, Max spent several months in Colombia in South America investigating the effects of the serum which the Rockefeller Foundation was already producing in large quantities and which was progressively refined until it reached maximum efficiency. With Sawyer's support, Max was making habitable and viable large areas of the world previously closed to development. The eyes of the world were on him and the name of Theiler continued to resound.

63 In 1944, Wilbur A. Sawyer retired as Director of the Rockefeller Foundation's International Health Division and in due course, Max was promoted from its Virus Laboratories to his place. The greater responsibilities and wider vision which it entailed were complicated by the growing activities of the new World Health Organisation of the United Nations which rendered redundant much of the Foundation's field. The closure of the Division was therefore planned while Max made a survey in 1950 of South and East Africa with a view to determining a continuing activity for the Foundation. He visited his family and friends in Pretoria and once again enquired whether an appointment in Tropical Medicine might be found for him in the Medical Schools of the University of the Witwatersrand or Pretoria but none offered. His career was evidently cast, not in the land of his birth but the United States. He returned to New York with the proposal that the Foundation concentrate on 'a world-wide study of arthropod-borne diseases in man and domestic animals' and, with the approval of the Trustees, immediately applied its resources to the investigation of this field.

On the 13th November 1951, Max received a cable from Stockholm advising the award on the 18th October of the Nobel Prize in Physiology and Medicine for his discoveries in Yellow Fever and how to combat it. He accepted it in person in Stockholm on the 10th December 1951, hearing in a lengthy citation giving credit to the Rockefeller Foundation and other scientists, that the Nobel Prize Committee had based the award not on originality but service to mankind. He was the first South African to receive a Nobel award and until and after his death, the only local scientist to be thus honoured. His ancestral home in Switzerland duly fêted him in 1955

but when he visited the land of his birth in the same year, there was little manifestation of local pride. Strongly resembling his mother in looks and disposition, Max was reserved and withdrawn. Public plaudits were repugnant to him.

His chosen field converted him into a world traveller of international stature and welcome everywhere. Its immensity and the need to control and keep under surveillance all the work being done in virus diseases conveyed by Arthropods (creatures of jointed legs such as arachnids, crustaceans and myriapods) turned him into a bureaucrat with increasing time at his administrative desk and less in his laboratory and lecture hall. In its time, the Rockefeller Foundation had worthily served its purposes and now bowed out. Yale University offered to continue its work and Max, after 34 years' service, gladly agreed to transfer his entire unit to its Department of Epidemiology and Public Health. He became Professor of Epidemiology under Dr W. G. Downs in July 1964 and upon retirement in 1967, Professor Emeritus, finally supervising his laboratory for two hours a day and, like his father, commencing work on a 'Dissertation' compounding his investigations of 'Arthropod-borne Viruses of Vertebrates'. By 1970, his resources began to fail under the affliction of cancer of the lungs and at the end of 1971, he had a heart attack which considerably weakened him. Another followed in July 1972 and on the 11th August a third proved fatal as he sat comfortably in his armchair watching television. He was 73.

Little cognisance was taken in South Africa of the honour brought by the famous locally-born and educated son of a famous father, both of whom had wrought immeasurable benefices for the world at large. Two years after his death, his widow Lillian and daughter Elizabeth caused a colour Facsimile of his Nobel Award citation to be made. It was presented by his sisters Margaret and Gertrud on their behalf to the Pretoria Boys High School on the 9th August 1974 at a moving ceremony attended by the whole school and distinguished guests. There was no other commemoration of South Africa's first Nobel Prize winner. His widow, Lillian died on the 29th August 1977.

\* \* \*

Alfred Theiler of Lucerne, a Professor of Zoology and Arnold's only brother and virtual agent in Switzerland for almost the whole course of his professional life, concerned himself with the history of the family and wrote an account of their father for a family festival in 1963. He also carefully preserved Arnold's barely-decipherable letters as well as Emma's to his parents and to himself, causing them to be legibly copied and then typed with a view to possible publication. He died on the 15th April 1967, leaving a daughter Klara who never married and a son Alfred 2.

Alfred 2 became a constructional engineer and duly married his first love Elsie Zurcher. They also lived in Lucerne and Alfred continued his father's work in trying to trace all records of his famous uncle. He died on the 28th January 1976, his widow being joined in their home by Klärli, daughter of Arnold's sister, Marie.

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In the northward expansion of Pretoria, the original Daspoort Laboratory, outbuildings and the distant Theiler home were bulldozed, no vestige remaining.

Armoedsvlakte, however, remained very much as it had been in Sir Arnold's time but in due course ceased to be a bacteriological research sub-station and was converted to a Bull Testing Station. His house, laboratory, many buildings and structures, and the towering trees he planted survived.

The Veterinary Research Institute at Onderstepoort never ceased expanding and during the Second World War particularly, became a veritable vaccine factory of the highest importance to the world at large. It was considerably extended with a new administrative block, serum production unit, laboratories and other facilities while the Veterinary Faculty complex across

the road also grew. Its spectacular features such as the great Water Tower and other amenities for whose erection Sir Arnold battled with Treasury, the stables, interior quadrangle, storage lofts, kennels, crematorium and a dozen different structures designed by him, continued unaltered – also the ancient traditions of painting blue the places where animals were stalled and of hanging bunches of eucalyptus leaves to keep off the flies.

64 His successor, P. J. du Toit, trod in all his formal footsteps – Director of Veterinary Research and Services, Dean and Professor of the Veterinary Faculty, president of the S.A.A.A.S., delegate to international conferences, recipient of the Scott and South Africa medals and several honoris causa degrees, mostly local. He was also honoured by several learned bodies including the Royal Society which elected him a Fellow in 1951. He received the Bernard Nocht Medal for Tropical Medicine in 1938 and the Havenga Prize for Science and Art from the Suid-Afrikaanse Akademie vir Wetenskap en Kuns in 1947.

He was an able administrator, tending to allocate tasks to his research staff rather than participating in them as Theiler had done but putting his name to their published works. He thereby acquired more opportunity for diversified interests whereas Theiler's dedication to his avocation was almost total. If du Toit lacked the charisma, drive and inspirational force of his predecessor, he spread his undoubtedly brilliant perception and energies over a far wider field. He served on the Historical Monuments Commission, Public Health Council, Wool Council, Public Service Commission and other disparate bodies (his personal hobby was the collection of South African coins), including the Council for Scientific and Industrial Research. When he retired from Onderstepoort in 1948, he became Deputy-President of the C.S.I.R. and in 1951, President for a year. The range of his interests and mental activities proved too great a strain and he became deranged, dying in Pretoria in 1967.

Du Toit, serving as Director of Veterinary Research and Dean of the Faculty of Veterinary Education 1927–1948, was followed by Gilles de Kock 1948–1949, John Quin 1949–1950 and R. A. Alexander 1950 et seq.

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65 P. R. Viljoen continued as Secretary for Agriculture and Forestry until he reached pensionable age in 1945 when he was appointed Union High Commissioner for Canada at Ottawa. Attaining the age of 60, he retired from the Service in 1949 but was appointed High Commissioner at Canberra in Australia. Indifferent health curtailed his term at the end of 1951 when he finally retired. He died in Pretoria on the 3rd June 1964.

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Joseph Burtt-Davy, the English botanist and agrostologist who first taught Theiler about local grasses, pasturage and toxic plants, remained only shortly on his farm at Vereeniging after his resignation in 1913 from the Union Government Service. After actively continuing his scientific interests, he left for England in 1920 and pursued an academic career at Cambridge University where he did valuable work, particularly in tropical forestry. He died in Birmingham at the age of 70 on the 20th August 1940.

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66 Iltyd Buller Pole Evans C.M.G., M.A., D.Sc., LL.D. (hons), F.L.S. continued his distinguished services to South Africa in an ever-expanding rôle. In 1929 he became Director of the new Division of Plant Industry including Entomology, Horticulture and Field Industry which he served until his retirement in 1939. He had been president of the S.A.A.A.S. in 1920 and received its South Africa Medal in 1922. He was a Fellow of the Royal Society of South Africa. The University of the Witwatersrand conferred an honorary LL.D on him in 1933. His drive and energy in initiating investigations, surveys and botanical publications proved of lasting benefit and a

constant inspiration. Leaving his Irene home with its garden of indigenous plants soon after the death of General Smuts in 1950, he settled at Umtali in Southern Rhodesia where he continued his interests in indigenous vegetation though declining in health and finally unable to walk. He died in his 90th year on the 16th October 1968 and his widow, Mary Thompson, his first mycologist, on the 30th May 1975.

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67 Henry H. Green never returned to South Africa where he had established a brilliant record as a bio-chemist and attained many honours – Scott and South Africa medals, Fellow of the Royal Society of South Africa, etc. Theiler had been his catalyst and continued to inspire him when first appointed to the Bureau of Animal Health at Weybridge where he continued his career after Theiler's death. Lacking inspirational force, he pursued routine activities, distracted by the tragic death of his wife who, slipping on the edge of a pavement, was killed by a passing bus. He died in 1961 at the age of 76.

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68 Green's firebrand friend, John Boyd Orr progressed to great heights in his own field of nutrition and elsewhere. He entered the House of Commons as Member for the Scottish Universities in 1942 and was created Baron Boyd Orr of Brechin in 1949 when he received the Nobel Peace Prize after a distinguished if stormy period as Director-General of the United Nations Food and Agricultural Organisation. He finally retired, bedecked with every kind of honour and in 1966 published an entertaining account of his life 'As I Recall' in which he touched lightly on his association with Theiler whose memory he cherished. In 1970 at the age of 90, he wrote to an enquiring Dr Gertrud – 'He was a man for whom I had a very great respect and for whose friendship I was indebted.' He died the following year.

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69 Dr M. G. A. Henrici, beloved by Theiler for her scientific achievements and her upholding of the Swiss reputation, continued her plant physiological work at Fauresmith in the Orange Free State. Her services statutorily ended in 1948 but were extended on a temporary basis until 1957 when she finally retired. A vital active woman, she then undertook a work (unpublished) on Karroo plants and otherwise occupied herself scientifically. Honoured and appreciated by her own kind, her greatest pride was an illuminated address presented to her in 1968 when she was 76 by the farmers of the Fauresmith district. The University of Basle, her alma mater, conferred an honorary D.Sc. on her in 1969 and in 1971, the South African Association of Botanists made her an Honorary Life Member in tribute. By then she had retired to a home for the aged at Bloemfontein where she died at the age of 79 on the 28th July 1971.

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70 Alexander Edington, the first qualified and officially-appointed bacteriologist in South Africa whose researches into animal diseases were overshadowed by Theiler's later prominence, emerged from distinguished service in East Africa during the First World War with the rank of Lieutenant-Colonel in charge of Grey's Hospital in Pietermaritzburg in Natal. He continued there for four years as Civil Medical Superintendent working energetically for Smuts' South African Party in his free time. Retiring at 60, he suffered a long and serious illness from which he recuperated on a voyage to India as surgeon on a ship transporting Indian labour. He then commenced private practice in Greytown, Natal where he died on the 16th July 1928 at the age of 68. Much mourned by the local populace (Smuts sent a wreath to his funeral), his work as a pioneering bacteriologist has been almost completely forgotten.

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71 Herbert Watkins-Pitchford, Theiler's first veterinary collaborator in South Africa, withdrew to England after his resignation from South African Government service in 1912 and rejoined the British Army. He received the C.M.G. after war services as a Lieutenant-Colonel at the Swathling Remount Depot and Veterinary Hospital and later as Commander of the Army Veterinary School at Aldershot. His unusually versatile talents were devoted upon retirement from the Army to devising and marketing nutritional aids to the cattle industry which he attempted to exploit in South Africa. The venture was unsuccessful but Africa exerted its hold and he decided to settle in Natal where he was well remembered for his veterinary and military services. (His decorations are in the Africana Museum, Johannesburg.)

Fundamentally an unrancorous man, Pitchford had hoped to become Director of Veterinary Research after Union and had bitterly resented the appointment of the 'foreigner' who, he alleged, upon receipt of the records of the four Colonies after unification, had systematically destroyed all his unpublished work. 'My manuscripts, reports, minutes etc. have long ago passed through the destructor. So effectively has my own work been suppressed by Theiler that questions were asked in the House', he wrote in 1928 to Sir Frederick Smith, the veterinary historian. Pitchford's professional ambitions had in fact been thwarted since 1901 when he had applied for appointment as 'Director of the Transvaal Veterinary Department' and the actual post of 'Transvaal Bacteriologist' had gone to Theiler; but his animus had become ethnic. After the First World War, a beautifully-produced little book entitled 'The Past Work of Lieut.-Colonel H. Watkins-Pitchford C.M.G., F.R.V.C.S., F.R.S.E. - being extracts from various Official and Press Sources' was privately printed. It contained among many tributes including General Botha's *douceur* of 1912, Pitchford's claim to the discovery of the serum method of combatting Rinderpest 'and placing it on a working basis'.

Despite its periodic bitterness, he did not allow his animus to fester but addressed himself to the Arts in his old age. Always a facile and somewhat florid writer, he was denied the opportunity of recording his own eventful life by the disappearance from the basement of his house in England of the carefully-padded diaries which he had kept for its whole course. However, he wrote a lengthy novel around his experiences from 1896 to 1900 which was unpublished during his lifetime though another novel 'In God's Good Time' indicating considerable study of early South African history, was published in Pietermaritzburg in 1948. His attention had become largely focussed on history, particularly military, and a previous work 'Lealtad - Loyalty Tales from Spain' dealing with the Peninsular War, had been completed and shelved without thought of publication. His preoccupation with historical study and writing was varied by painting (self-taught) in water-colours the illustrations for his works whose details and authenticity he meticulously checked. The pictures showed considerable competence with an air of 'primitivism'. Thus busily occupied, Pitchford spent his last years on the Natal coast with his family until the 25th June 1951 when he died at the age of 86.

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72 A. J. Orenstein, perhaps closest in knowledge and stature to Theiler and his friend, stated that 'he first entered my orbit in 1910 when I attended an International Demographic Congress in New York composed entirely of scientists. There was universal curiosity (against a background of Tropical Medicine - then Orenstein's forte) as to "what Theiler had been doing". It was at that time novel that he should be investigating the transmission of disease through an intermediary host and not directly.' 'My second exposure to Theiler's exceptional repute', Orenstein continued, 'was in 1913 when I visited the Institute of Tropical Medicine in Hamburg under da Rocher-Lima on whose staff was Gustav Giemsa, famous for his stain. These and others were all talking of Theiler's pioneering work.' When he came to the Transvaal in 1914 to discuss

appointment to a mining group, the image of South Africa in Orenstein's mind was of 'many gold and diamond mines and Arnold Theiler at a Veterinary Institute. The latter, I must say, intrigued me much more than the gold and diamonds.' He went almost immediately to Onderstepoort and the rapport at once established with its Director lasted until Theiler's death.

By the time Orenstein resumed his military career at the outbreak of the Second World War, he had become an international authority on maintaining the health of miners and in combatting the diseases resulting from tissue-destroying dust. His contribution to industrial health was extensive and honoured worldwide. He was still employed by Rand Mines Ltd. in 1954 when he turned 75, long past retiring age; but, finding intolerable a complete withdrawal from his active interests and connections, continued in office until his death. A slight deafness deterred him from the social diversions which he previously pursued; but he remained an exceptionally alert conversationalist with a phenomenal memory and master of his field in which, like Theiler, he constantly 'kept up to date' by study of contemporary scientific journals and discussion.

Major-General A. J. Orenstein C.B., C.B.E., Lt.D.(hon), D.Sc., M.D., M.R.C.S., F.R.C.P., F.R.S.H., etc. died in his sleep in Johannesburg on the 7th July 1972 at the age of 93 when actively engaged in contributing to a biography of his friend. With an address 'Mine Eyes have Seen', he had inaugurated in April 1962 in Johannesburg the Adler Museum of Medical History which in 1969 instituted annual lectures in his honour. In 1972, they became 'The A. J. Orenstein Memorial Lectures' given by distinguished local and overseas scientists.

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73 F. B. Smith C.M.G., architect and builder of the South African Agricultural economy (but unpopular with the farmers because he could seldom leave his office desk to be among them) was recognised at Cambridge and by the Imperial authorities who appointed him to a delegation sent to Australia and New Zealand in 1923 to investigate prospects of land settlement. He became a Fellow of Downing College, Cambridge where, despite advancing age, he promoted Imperial coöperation in agriculture, never losing touch with Sir Arnold Theiler. After Theiler's death, he maintained courteous communication with the family who reciprocated by sending him food parcels in his old age during the Second World War. A bachelor all his life, he had finally retired to Folkstone where he died in 1950 at the age of 86, unremembered and unsung by the country whose land and agricultural industry he had reconstructed and developed.

## APPENDICES

### A

(from *The Natal Agricultural Journal* – 25th October 1901)

#### SERUM TREATMENT OF RINDERPEST

##### Government Enquiry and Result

The committee appointed on the 24th June 1901 to consider and report on the claim of Mr H. Watkins-Pitchford F.R.C.V.S., Principal Veterinary Surgeon, to have been the discoverer – either individually or in conjunction with Mr Theiler – of the serum treatment of rinderpest, has made an interesting report to the Government. The committee consisted of Mr J. Hyslop D.S.O., C.M.G., M.B., Mr A. W. Cooper J. P., F.R.M.S., and Mr G. Leuchars M.L.A.

The report stated that Mr Watkins-Pitchford arrived in Natal at the end of May 1896 and that in September of the same year, he left for the Transvaal for the purpose of investigating rinderpest in conjunction with Mr Theiler, the Transvaal Veterinary Surgeon. Before leaving, he indicated to Mr G. M. Sutton, the Ministerial head of his department, that he intended to follow the serum method of treatment in his investigations with a view to its application to rinderpest. On the 12th December 1896 writing to his wife, Mr Pitchford said: 'I am reporting by this post to the Government that our investigations are very promising and that we have produced a curative serum which will confer immunity.' He also reported to the Commissioner of Agriculture on the 19th December, seven days later, that they (Messrs Pitchford and Theiler) 'had been able to discover a process by which undoubted immunity could be conferred'. This report, with other documents relating to Messrs Pitchford and Theiler's researches on rinderpest, were destroyed in the Maritzburg Town Hall. The first public official announcement in Natal of the results of these investigations appeared in the *Gazette* on the 6th April 1897, being dated 15th February of the same year.

The committee then point out that Professor Koch reached Kimberley on the 5th December 1896 and that the first report in which he referred to serum in connection with his investigations into rinderpest was dated the 31st January 1897. On the 10th February, he stated that 'by means of a mixture of serum and virulent blood' he was able to produce 'an active immunity equal to that of a beast which had contracted rinderpest and recovered'.

The committee, after hearing the evidence of the Hon. G. M. Sutton and Mr C. B. Lloyd, late Commissioner of Agriculture, and considering various reports, found as follows:

That Messrs Watkins-Pitchford and Theiler are justified in claiming priority in the successful application of the serum method of treatment of rinderpest.

That at the same time there is no evidence before the committee nor does the committee know of any evidence to show that Mr Watkins-Pitchford published the result of his researches prior to Professor Koch.

The committee further find that Mr Pitchford's claim to have been – in conjunction with Mr Theiler – the originator of the application to rinderpest of the serum method of treatment is a just and reasonable one and that it is, in the opinion of the committee, of such an important nature as to merit recognition.

The committee recommend that this report be laid before Parliament and that copies be forwarded to the Royal College of Veterinary Surgeons, London.

The committee desires to record that in their opinion, the greatest credit is due to Mr H. Watkins-Pitchford for his careful and assiduous research, ably conducted, often under adverse circumstances, into the question of rinderpest.

## B

(Kruger's Reply to Botha's birthday cable from the 1904 Congress of Het Volk – taken from Ps 323/5 of *The Pace of the Ox* by Marjorie Juta published by Constable & Co., London in 1937)

CLARENS

June 29th 1904

Dear General,

It is a great privilege to me to acknowledge receipt of your cablegram of the 25th May and your letter of the 29th of the same month by means of which the greetings of the congress held at Pretoria from the 23–25th May were sent to me. With all the sorrow and sadness which are my lot, these greetings brought thankfulness to me. And with all my heart, I thank you all who, having come together to deliberate about the present and the future, thought of your old State President and by that have proved that you have not forgotten the past. For those who wish to create a future may not lose sight of the past.

Therefore look into the past for all that is to be discovered there which is good and beautiful. Form your ideals accordingly and try to realise those ideals in the future.

It is true that much that has been built up is now destroyed and annihilated, yet with unity of purpose and active coöperation, that which now lies in ashes can be re-established. I am also thankful to see that unity of purpose which governs you. Never forget the serious warning which lies in the saying – 'Divide and rule', and may these words never be applied to the Afrikander people. Then our nationality and our language will live and flourish.

What I myself may be allowed to see of that future lies in God's hands.

Born under the British flag, I shall not die thereunder.

I have learned to accept the inevitable – the thought that I shall close my eyes in foreign lands, an exile, almost alone, far away from relatives and friends whom I will never see again, far from the African soil which I shall never tread again, far from the land to which I dedicated my life in opening it up for civilisation and where I saw my own nation developing. But the bitterness thereof will be softened as long as I may cherish the conviction that the work once begun will be continued, for that hope and expectation will sustain me in the knowledge that the end of that work will be good.

So be it.

Out of the depth of my heart, I greet you and the whole nation.

S. J. P. KRUGER

## C

Lord Hastings' speech proposing Sir Arnold Theiler for the second award of the Royal Agricultural Society's Gold Medal – taken from the Minutes of the Council Meeting of the Royal British Agricultural Society held on the 1st August 1934.

The name selected by the Gold Medal Scheme Sub-Committee was Sir Arnold Theiler who was perhaps the first veterinary pathologist in the Empire. Sir Arnold had made the Dominion of South Africa habitable by domestic animals and his action in so doing, spread over a very long term of years, had opened up South Africa to the importation of stock from Great Britain to the immense advantage of breeders of all classes of stock in this country. The fact that it was possible to select for this award a veterinary pathologist of imperial renown occurred to the Selection Committee as being a very fortunate thing. He felt sure the Council would agree that to widen the scope and imperialise the importance of the Gold Medal would redound to the prestige and advantage of the Royal Agricultural Society as well as make the medal itself even more sought after. It must be remembered that they represented not merely a country but a very great Empire and it would be advantageous to imperialise the award in the fashion proposed and approved by the Selection Committee.

Ever since 1896 until his retirement in 1927, Sir Arnold Theiler had been concerned with work which had had immense and astonishing results. He had discovered a method of inoculation and immunisation from horse sickness which was a disease which anybody familiar with life in South Africa was aware had made life for horses and mules almost impossible and had caused immensely serious losses. He had also discovered a successful method of vaccination for catarrhal fever in sheep, ephemeral fever and pernicious anaemia. He had moreover done great work in protozoology and his name had been given to a number of protozoan parasites that he had isolated. The transmission of East Coast Fever in ticks had been a subject of much investigation on his part. Anaplasmas had also been dealt with by Sir Arnold Theiler and he had shown the anaplasma centrale could be used to vaccinate cattle against the serious disease due to 'marginale'. He had also worked out a method of protecting cattle against the organism of Redwater which was one of the main diseases disabling cattle from living in South Africa.

Sir Arnold had not neglected bacteriology and he had done a great deal of work in connexion with toxicology and had been able to isolate and identify many dangerous plants responsible for a number of diseases in animals. Perhaps his chief work however, was in connection with deficiency diseases. He had shown that two diseases of cattle, rickets and osteomalachia, were really caused by deficiency of phosphorus. He had also given his attention to parasitology. In brief, he was the outstanding figure in the world of veterinary pathology and his research work had had immense effects and had been of tremendous benefit to mankind in the Union of South Africa and to the Empire as a whole. The Sub-Committee felt, in recommending his name for the second year's award of the Gold Medal, they were doing the Society an honour as well as Sir Arnold Theiler.

## D

General Smuts' address prior to unveiling the statue of Theiler at Onderstepoort was delivered extempore. No official record has been traced. Taking place in the afternoon, it received scant notice in the evening *Pretoria News* the following day but was very fully covered by the *Johannesburg Rand Daily Mail* of the 16th November 1939 from which this transcript has been taken.

'We who are South African born and bred seldom think of those men not born here who have done so much for South Africa. We are not grateful enough for their contribution to our national welfare. Among such men, Theiler stood very high . . .

'We have come here to do honour to one of the most shining memories in the history of

South Africa. I do not intend to deliver a funeral oration today for this is a day of rejoicing. We are thinking now of the man who left behind him one of the greatest records in our history. We are standing in a place he made famous throughout the world.'

General Smuts drew attention to the fact that this was the first and only occasion on which a monument had been erected to a great man by the Union Government. In the past it had always been left to friends and admirers to erect statues or memorials to the men they admired. But Sir Arnold Theiler had seemed to the Union Government to be an exception. He was a man who had rendered such remarkable service to the country that the Government felt justified in erecting a statue on behalf of the whole nation.

'But there is another consideration which also makes this a special occasion. So far we have been prone in South Africa to honour men who occupied high position in the public eye – warriors, generals, statesmen and the like. Theiler's case is not one of these. He was a man not in the public eye who accepted no high position. He was a scientist pure and simple and as a scientist, he belonged to that group which had no special honours placed upon it.

'He was a veterinarian but he made South Africa world famous. Theiler, more than any other man, has put South Africa on the scientific map of the world. Although confined to scientific research, his own fame and that of this institution have gone to the ends of the earth.

'The Government erected this monument to express its gratitude and that of the nation. But the statue is not the real memorial to Theiler. The real memorial is this institution. Onderstepoort is among the famous names in Science.

'I have sometimes felt that in the years past, I did not do my duty and give his name to this place. It is now too late for that. This could have been the Arnold Theiler Institute. However the opportunity was missed and in the meantime, Theiler himself made Onderstepoort's fame so world renowned that it cannot be changed.'

General Smuts recounted how in 1908, General Botha, a farseeing statesman who had a great feeling for the scientific view of life authorised the building of the institute at a cost which in those days appeared outrageous. Theiler had started his work and had continued for ten years making discoveries in veterinary science which had brought renown to his own name, the name of the institute and the name of South Africa.

'When I came back to South Africa from the Great War in 1919', continued the Prime Minister, 'I found that Theiler had left the service and was conducting research somewhere in the wilds in the Vryburg district. He had had differences with my colleagues in the Government. Theiler was sometimes a difficult man to work with. He had what you might call the artistic temperament and it was sometimes difficult for Ministers to work with him.

'A strain developed and Theiler left the service. On my return, I had a talk with him and asked him to come back and establish closer relations with the Government of the country. I also asked him to set up a school where he could train a body of men to carry on his institute and his ideals. He came back and here we have the school. This veterinary research institute is recognised as the leading institution of its kind throughout the whole British Commonwealth. Students from the whole African Continent and from other parts of the Commonwealth come here to get a first-rate training as veterinarians. All that is the result of Theiler's work as a teacher.

'He was also a great personality – sincere, straight as a die, powerful, enthusiastic and utterly devoted to his work. The upshot of it all is that he has left his soul behind him here. For Theiler is not dead. His spirit animates this place. Let us hope for the good of the country and of the world that the Theiler spirit will continue to live and flourish for generations to come.'

This country where animal diseases are rife has been kept back probably for centuries because of the plethora of animal diseases. You can imagine therefore what a benefactor Sir Arnold Theiler has been. No wonder his name is known wherever veterinary science is studied.



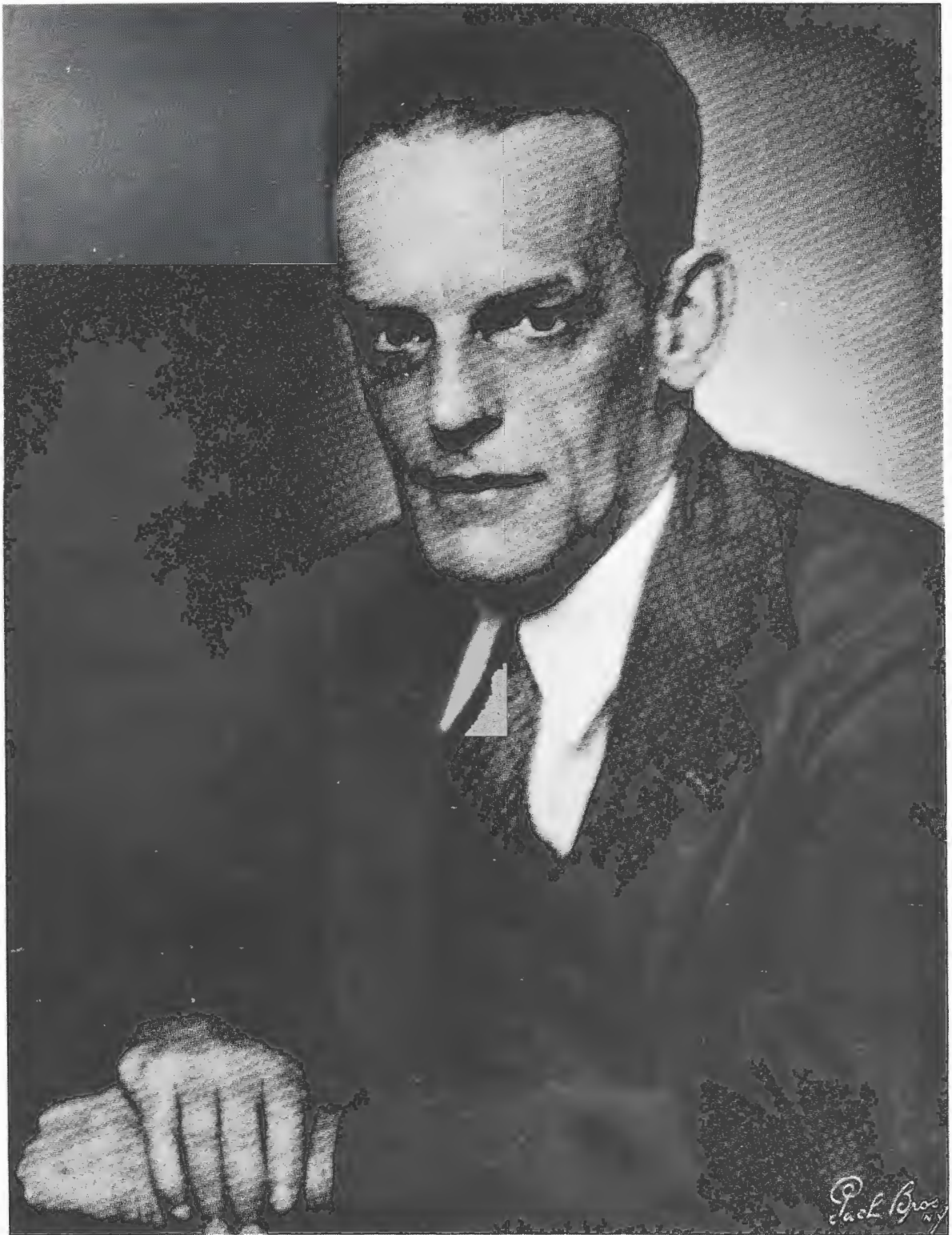
*Hans*, elder son of Sir Arnold and Lady Theiler, when serving as a veterinary dresser in the German East African Campaign during the First World War.



*Margaret*, elder daughter, photographed in 1939 when continuing her career as physical culturist and sportswoman.



*Gertrud*, younger daughter, taken in 1971 when continuously active at Onderstepoort as zoologist, biologist and parasitologist.



*Max, younger son, and South Africa's first Nobel laureate.*



'Clues he discovered here have been followed up in other parts of the world and have been found to contribute to the solution of local troubles there. His is truly an astonishing record.

'Theiler had had a great capacity for application but in addition he had that insight into the nature of things which was given to very few people. Rutherford, Einstein and others like them had had that insight into the significance of the situation before them. It is the grace of God, genius – something you get in some unaccountable way. Theiler had this vision. We have had great veterinarians here but we must single him out as a man who above all of them was endowed with this second sight into the heart of the problem.

'With all this, he was one of the most simple and lovable men I ever came across. He was never worried about wealth or the ordinary attractions of life. He simply loved his work. Now that he has gone, his spirit remains with us', declared General Smuts, 'I hope that it will continue to animate this institution and I hope the traditions he has established will be maintained here for generations to come.'

## E

### SEQUENCE OF THEILER'S PRINCIPAL AWARDS

- 1889 – Federal Swiss Diploma of Veterinary Surgeon (Zurich)
- 1890 – Federal Swiss Gazetting as Lieutenant (Veterinary Surgeon) in the Army Medical Service
- 1897 – Government Veterinary Surgeon in the Zuid-Afrikaansche Republiek, Transvaal
- 1898 – Veterinary Surgeon to the Staatsartillerie of the Z.A.R., Transvaal
- 1901 – Doctor of Veterinary Medicine (University of Berne)
- 1906 – Foreign Corresponding Member of the Central Society of Veterinary Medicine, Paris
- 1907 – Companion of the Order of St Michael and St George (King Edward VIIth Birthday Honours)
- 1908 – South Africa Medal (South African Association for the Advancement of Science)  
Fellow of the Royal Society of South Africa  
Honorary Associate of the Royal College of Veterinary Surgeons of Great Britain and Ireland  
Associate Member of the Society of Exotic Pathology, Paris
- 1909 – Honorary Member of the Swiss Veterinarians Association  
Foreign Corresponding Member of the Royal Academy of Agriculture, Turin, Italy
- 1910 – Honorary Associate Member of the Spanish Veterinarians Association  
Honorary Member of the Veterinary Association of Ireland
- 1911 – Doctor of Science – honoris causa (University of the Cape of Good Hope)
- 1912 – President of the South African Association for the Advancement of Science  
Chevalier de l'Ordre de la Couronne Belgique  
Honorary Member of the Veterinary Association of Brabant, Belgium
- 1913 – Nominal Member of the Veterinary Sciences Society, Lyon, France
- 1914 – Knight Commander of the Order of St Michael and St George (King George Vth New Year Honours)
- 1917 – Corresponding Member of the Basle Natural Sciences Society, Switzerland
- 1918 – Scott Memorial Medal (South African Biological Society)
- 1920 – Honorary President of the South African Biological Society  
Honorary Member of the Central Society of Veterinary Medicine, Paris

- 1921 – Honorary Member of the Berne Veterinary Association  
 Honorary Member of the Berne Natural Sciences Society  
 Honorary Member of the Swiss Natural Sciences Society
- 1923 – Honorary Member of the Canadian Veterinary Association  
 Honorary Member of the American Veterinary Medical Association  
 Corresponding Member of the Helminthological Society, Washington  
 Doctor of Science – honoris causa (University of Syracuse)  
 Doctor of Science – honoris causa (University of Berne)
- 1924 – Honorary Member of the Society of Exotic Pathology, Paris
- 1925 – Doctor of Veterinary Medical Science – honoris causa (University of South Africa)
- 1926 – Honorary Fellow of the Royal Society of Tropical Medicine and Hygiene, London
- 1927 – Gold Medal (Laveran image) of the Society of Exotic Pathology, Paris  
 Coöpted to the International Agricultural Institute, Rome  
 Corresponding Member of the Society of American Bacteriologists  
 Honorary Member of the Microbiological Society, Vienna  
 Honorary President of the South African Biological Society  
 Honorary Life Vice-President of the South African Association for the Advancement of Science  
 Honorary Life Vice-President of the South African Veterinary Medical Association
- 1928 – Corresponding Member of the Biological Society, Paris  
 Honorary Member of the Australian Veterinary Association
- 1929 – Honorary Foreign Member of the American Academy of Arts and Sciences, Boston
- 1930 – Corresponding Member of the Academy of Sciences: Section on Rural Economy of the Institute of France, Paris  
 Honorary Foreign Member of the American Society of Parasitologists, Princeton, U.S.A.  
 Associate Member of the Royal Colonial Institute: Natural Sciences and Medical Section, Brussels
- 1931 – Honorary Member of the Lucerne Natural Sciences Society  
 Associate Member of the Academy of Colonial Sciences, Paris
- 1932 – Foreign Correspondent in the 5th Division: Veterinary Medicine of the Academy of Medicine, Paris  
 Honorary Corresponding Member: Section of Comparative Medicine of the Royal Society of Medicine, London
- 1934 – Honorary Fellow of the Royal Society of Medicine, London  
 Gold Medal (Budapesth) of the 12th International Veterinary Conference  
 Gold Medal and Honorary Membership of the Royal Agricultural Society of England  
 Honorary Life Member of the New Zealand Veterinary Association  
 Honorary Member of the Society of Exotic Pathology, Paris  
 Associate Foreign Member of the Veterinary Academy of France  
 Honorary Fellow of the American Society of Tropical Medicine
- 1935 – Doctor of Science – honoris causa – University of the Witwatersrand  
 Silver Jubilee Medal – King George Vth  
 Doctor of Science – honoris causa – University of Cape Town
- 1936 – Associate Member of the Biological Society, Paris  
 Honorary Professor in Tropical Medicine, University of Pretoria  
 Doctor of Science – honoris causa (University of Utrecht, Holland)

## F

### GLOSSARIES

#### I. *Place Names – Changes in Time*

'Africa South' betokens the area south of the Equator

Basutoland Protectorate – Lesotho

Bechuanaland Protectorate – Bechuanaland – Botswana

Swaziland Protectorate – Swaziland

Bechuanaland (incorporated in Cape Colony and later South Africa)

Portuguese East Africa – Mocambique – Maputo

Portuguese West Africa – Angola

German East Africa – Tanganyika – Tanzania

German West Africa – South West Africa – Namibia

Matabeleland, Mashonaland, Manicaland, etc – Chartered Territory – Rhodesia – Southern Rhodesia – British South Africa – Rhodesia

Northern Rhodesia – Zambia

Nyassaland – Malawi

Congo – Belgian Congo – Zaire

#### 2. *Vernacular Terms*

##### (i) Dutch/Afrikaans

Africander – Anglicised version of Afrikander-Afrikaner denoting a white person born in South Africa

Africander – a hump-backed breed of South African cattle, large-horned

Afrikaner – an Afrikaans-speaking white born in South Africa

Baas – boss, master, manager, head, chief

Biltong – sun-dried meat (used on commando)

Blaauwtong, Bloutong, Blue Tongue – catarrhal fever in sheep

Boer – farmer (stock or otherwise)

Boererate – home (farm) remedies

Commando, Kommando – mounted party of armed burghers

Dominee (abbreviated Ds. deriving from Dominus) – minister, clergyman

Donga – gully or deep cleft usually eroded by water

Dorp – village or small town

'dorpsboer' – a farmer living in town

Drift – passage across a river bed

Kampvegter – fighter, champion

Kop – mountain, peak (viz Spionkop)

Kopje – hill or small mountain

Kroeshaar – crinkled hair

Laager – circular fortified encampment surrounded by wagons

Lamziekte, Gal-Lamziekte – lame sickness

Landdrost – magistrate

Meerkat – mongoose

Nachtmaal – communion service (periodically held in country churches)

Oom – uncle (deferential term addressed by younger persons to older, hence Oom-neef, uncle-nephew, relationship)

Platteland – hinterland, country districts  
 Poort – a washed-out gully between hills  
 Raadzaal – Council Chamber, Volksraad Chamber, Parliament House  
 Roer – gun, rifle  
 Rondavel – round native-style hut or cottage  
 Sjambok – short hide whip  
 Smous – pedlar, hawker, itinerant trader  
 Sponsziekte – Black Quarter Evil  
 Taal – language (Afrikaans)  
 Takhaar – backveld Boer or hick  
 Trekboere – stockmen who trek or drive their flocks and herds to better grazing  
 Uitlanders – foreigners, aliens  
 Uitvoerende Raad – Executive Council  
 Velschoen, Velskoen – shoes made of untanned skin  
 Volksheld – national hero  
 Volksraad – National Council or Parliament

(ii) African

Indaba – meeting, conference  
 Induna – head man, executive official

(iii) German

Alte Heimat, die – the old homeland  
 Ausland – overseas, abroad  
 Beschäftigt – occupied, busy  
 ‘Dikke Luft’ – lit. thick air, a tense atmosphere  
 Einig, Einigkeit – being at one with, unity  
 Grossartig – grand, sublime  
 Landleute – countryfolk, peasants  
 Neugierig – curious, inquisitive  
 Pechvogel – unlucky fellow  
 Zusammengehangkeit – lit. hanging-togetherness, closing the ranks

G

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## AUTHOR'S NOTE

TRACING the life of Sir Arnold Theiler K.C.M.G. presented a curious paradox. On the one hand, his family with Swiss diligence and dedication went to extravagant lengths to recover and preserve everything written and published by and about him as well as his personal records. On the other, his lifetime employer the South African Government took no care whatever and nothing survives of his immense correspondence particularly with eminent men of his time, his administrative papers nor any record of his professional career beyond his published Reports. There survives in the State Archives Theiler's 'Personal File' which, for reasons apparent in this narrative, has not been made available to previous aspirant biographers nor the present writer.

The obligation to collect and preserve archival material has been recognised only comparatively recently in South Africa and strenuous and costly efforts have been made to establish adequate services. There is no evidence, as H. Watkins Pitchford insinuated, that Onderstepoort destroyed early records; but it is clear that during the Second World War, they were misguidedly removed and stored in a basement which, periodically flooded and inhabited by hoboos, earthworms, rodents and other vermin, virtually destroyed them. There remained available in the Director's office only the invaluable Visitors Book from Daspoort 1906-1908 to Onderstepoort October 1908-December 1936 and in a Strong Room, a few files recording early experiments. Furthermore, despite its worldwide fame, there is no published history of the Onderstepoort Veterinary Research Institute (as in the case of the Rockefeller Institute and others) nor of the South African veterinary profession.

When Dr Gertrud Theiler agreed to make family and other records available to me, I knew none of this and would certainly have withdrawn my request for facilities to record her father's life had I been aware. Compensations were however later found in an intensive study of his background. Other attempts to record his biography had failed for various reasons but Dr Gertrud herself had composed under duress 'Arnold Theiler 1867-1936', a short monograph published in 1971 by the University of Pretoria. She had been denied the time to consult the wealth of material contributed by the family in Switzerland, carefully preserved by Lady Theiler and collected by herself subsequently.

'The Theiler Papers' in family possession consist of:

Arnold's letters to his parents, his brother Alfred and friends from 1892 onward;

Emma's letters to his parents and to Alfred until 1936;

Arnold's letters to P. J. du Toit and vice versa;

Emma's letters to her daughters over a latter period which they dutifully preserved though she destroyed their letters to her when she left Lucerne in 1933;

Miscellaneous official and private letters;

A collection of files dealing with matters in which Theiler was implicated;

Theiler's Account Book kept by Emma in Johannesburg from 1894 onward;

Emma's engagement books for a number of years;

The certificates of all his awards, naturalisation papers, etc;

A list of his Scientific Papers from 1893 until 1934 compiled by Lady Theiler;

A large number of these publications;

A series of photograph albums and a large number of photographs, programmes, invitations, tickets, passes, Press cuttings, etc:

In addition, there were many evocative personal possessions, including his decorations, apparel, travelling trunks, etc, some donated to Museums.

With the thought of their publication in 1967 on the centenary of his father's birth, Max translated an edited version of his early letters into Americanese English which varied from the original German. The family had punctiliously extracted 'unpublishable' details in their typed transcripts of the originals and I am deeply grateful that both the expurgated and unexpurgated versions were made available to me in the original German which I then had to learn. Fortunately there was no Schwitzerdeutsch. During a visit to Switzerland in 1971, I had the pleasure and benefit of being driven over a large part of the country by Alfred 2 (who sadly died before the completion of this work), his wife Elsie Zurcher and Arnold's niece Klärli Mettauert, accompanied by an English-speaking relative Marianne Eichenberger. They took me to his birthplace at Frick, his High School at Aarau, his universities at Berne and Zurich with their Veterinary Schools, the village of Beromunster when he first practised, and many other significant locales. I later met Klara Theiler, daughter of Alfred 1. All helped to collect, preserve and transcribe Arnold's letters for which no thanks could be adequate. They also assisted me in the course of my work, Alfred 2 obtaining the rare photograph of Arnold as a student and Klara and Klärli answering numerous questions when they subsequently visited South Africa.

To Dr Gertrud Theiler, I owe unbounded gratitude for the kind, patient and unreserved assistance rendered me over seven years and more. Neither she nor her sister Margaret nor other members of the family are in any way responsible for the manner in which I have interpreted the material kindly placed at my disposal and assembled by myself. I have recorded the life of Sir Arnold as the evidence indicated.

Warm and affectionate appreciation is offered to H.R.H. Princess Alice, Countess of Athlone whose phenomenal memory, alert interest and gracious patronage of this and other of my works, have continuously provided inspiration and encouragement as they did Theiler. It was possible to inform her on her 95th birthday that his biography was completed.

Of the legion of individuals who actively and continuously assisted me, I am particularly indebted to those who knew Theiler at his zenith and after retirement, notably Miss Mary Gunn, historian of the National Institute of Botanical Research, Pretoria whose keen interest, astounding memory, recollection of Arnold Theiler and his colleagues, and loan of relevant literature were indispensable; Dr B. D. Pullinger, pathologist, adviser and friend who scrutinised this work in manuscript; Dr J. H. R. Bisschop, one of Theiler's first students and ultimate expert on bionomics who kindly conducted me over Onderstepoort recapturing 'the old man's days', and lent pictorial and literary material; Dr W. O. Neitz, protozoologist and collector of veterinary history who made much material available before Brazil coöpted him for research work there; and Dr E. M. Robinson of Knysna who was closely associated with Sir Arnold for many years.

The Honourable the Minister of Agriculture, Mr Hendrik Schoeman, the Departmental Secretary Dr W. Verbeek and the Under-Secretary Mr B. W. Viljoen kindly did what they could to repair the lack of record. Exceptional efforts were made at the Veterinary Research Institute at Onderstepoort where the then Deputy-Director Dr M. de Lange kindly permitted loan of Journals and Reports. I am indebted also to Dr K. E. Weiss and particularly to the head of the Photographic Department, Mr H. M. de Bruyn who, in addition to supplying many illustrations, maintained a lively and encouraging interest. The stately Library also contributed helpful information and reference works.

The State (incorporating the Transvaal) Archives in the Union Building accorded me exceptional facilities among much unclassified material and I am most grateful to the Chief Archivist and his staff, particularly Dr M. H. Buys who directed me to useful sources. At the Cape Archives Depôt, the then Chief, Miss Joan Davies rendered customary valuable assistance.

Much of my investigation was made in that extraordinary institution, the Johannesburg Public Library and Africana Museum where the then City Librarian and Director of the

Museum, Miss A. H. Smith provided unbounded facilities. For her interest and encouragement, I am deeply grateful and for that of members of her staff, notably Miss Jill Ogilvie, Mrs Louise de Wet and Mr James Winter. Rich in resource and efficiency, J. P. L. and its Strange Collection of Africana supply the most exigent researcher's demands with grace and enthusiasm. Valuable assistance was also rendered me by the Librarian John W. Perry and his deputy the late I. Isaacson of the University of the Witwatersrand whose Gubbins Collection through the kindness of its librarian Miss M. Farmer kindly permitted long loan of Petrus Naudé's highly relevant thesis. I am indebted also to Miss M. Lucas, then librarian of the University's Medical School. Similar assistance was also kindly extended by the Library of Rhodes University, the Library of Parliament, the Kimberley Public Library and the Adler Museum of Medical History in Johannesburg.

From private sources I derived particular benefit. *The Star* in Johannesburg accorded me exceptional privileges in consulting for months on end under the aegis of its then librarian Mrs M. Bondesio to whom I am deeply indebted, its earliest issues (not microfilm) and having them photocopied in which Mrs M. van Rooyen was notably helpful. These issues enshrine the only available records and minutes of many historic institutions and without them, much of my work would have been impossible. I am most grateful to the Argus Group, proprietors of *The Star*, for their kind coöperation and for their permission to reproduce their historic photograph of General Smuts presenting the British Agricultural Gold Medal to Theiler.

Similar service was openhandedly rendered me by Mr J. C. D. Osler of *The Stellalander*, successor to the *Northern News*, of Vryburg where, over many weeks, I was able to trace the smallest details of the Lamziekte epic and its sequelae. In a crowded country newspaper office, I was an embarrassment but the Vryburg Public Library kindly accommodated me when Mr Osler permitted the daily transport thither of his archival files dating from the early *Bechuanaland News*. It was much appreciated help.

The Schweizerverein Helvetia in Johannesburg had preserved its original Minute Book for whose availability I was most grateful. For similar willingness in assisting me, I thank the archival departments of the Chamber of Mines of South Africa, the South African Institute of Mining and Metallurgy and Messrs Barlow-Rand Ltd whose archivist, Miss M. Fraser was most helpful.

Of the host of private individuals to whom I am indebted, I acknowledge first and foremost the unstinted assistance of the late Dr Petrus Naudé who from his sickbed sent me his research references and notes (kindly donated to me by his widow) for his indispensable doctorate thesis 'Boerdery in die Suid-Afrikaanse Republiek 1857-1899'. Mr P. Ulrich Rissik, son of Johann, kindly transported me to the Irene Estate created by Alois Nellmapius (whose daughter-in-law Mrs Frieda Nellmapius provided valuable biographical details) owned by his son-in-law David van der Byl who accorded me every possible facility including historic photographs of the farmstead where Theiler first worked. I am grateful to the librarians of the Royal Veterinary College and the Royal College of Veterinary Surgeons' Wellcome Library, London for generous assistance in identifying early veterinary surgeons in South Africa, and to the Royal Society of South Africa whose centenary publication 'A History of Scientific Endeavour' makes much mention of Theiler; to Miss Kathleen Murray of Elgin, Cape for information on her grandfather Sir John Molteno; to Sir Drummond Dunbar, 9th baronet, of Jersey for the photograph of his grandfather; to Mrs M. L. Hahn of Durban for biographical details of her uncle Dr Cecil Schulz; to the nonagenarian Hans K. Ritter for personal experience of the Smallpox at Theiler's hands; to the centenarian Mrs Emily Greathead for details of early Johannesburg; to the then Prime Minister Mr B. J. Vorster for clarifying the relationship of the man of his name who offered to supply donkeys to the Z.A.R. during the Rinderpest and for referring me to sources

through whom I received an original Proclamatie drafted by Theiler at the time, kindly donated by Mr B. J. Hofmeyr of Deloskop; to Miss Lenore Phillips of Salisbury for descriptions of Rinderpest in Rhodesia; to Dr Roy Mack of the Commonwealth Bureau of Animal Health at Weybridge for his study of Rinderpest and access to two of Watkins-Pitchford's letters; to Mrs G. E. Lugg of Natal for biographical material on her father, Herbert Watkins-Pitchford; to the Honourable the Minister for Agriculture for information on his grandfather General Hendrik Schoeman; to Mr F. E. Leese of the Rhodes House Library, Oxford for information, particularly on F. B. Smith; to Miss M. Laver for making available her father's historic photographs of Middelburg with Milner, Selborne and others; to Mr B. Birman for generously copying relevant portions of the *Middelburg Observer*; to the Earl of Selborne for biographical details of his great-grandfather Lord Selborne; to the late Dr Petronella van Heerden for reminiscences of her kinsman H. C. van Heerden, Minister of Agriculture; to the Royal Agricultural Society of England for access to its records in London; to the Dictionary of South African Biography for privileged facilities; to Mr André Bothner for recollections of Sir Arnold; to Mr Gerrit Bakker who kindly translated from the original Dutch/Nederlands and otherwise assisted; to Mrs Gladys (P. R.) Viljoen for reminiscences; Dr P. J. J. Fourie; Major Cecil Cowley; Mrs Louise Behrens; Mr Arnold Katz; Dr Jean van der Poel; the late Dr John H. Gear and many others to whom tribute is owing.

Acknowledgement is gratefully made to the London Electrotype Agency for permission to reproduce Melton Prior's drawings from the *Illustrated London News*; to the Hutchinson Group (S.A.) Pty Ltd for permission to quote from Henry John May's 'The Music of the Guns'; to Miss Marjorie Juta for reproducing the English text of Paul Kruger's letter to Louis Botha from her 'The Pace of the Ox'; to Professor A. C. Cilliers and his publisher Tafelberg Ltd for recounting his father's sally in conversation with Sir Walter Hely-Hutchinson; to the *Rand Daily Mail* for reproducing Smuts' address prior to unveiling the statue of Theiler; and to the Africana Museum and Onderstepoort Photographic Section for many illustrations, duly indicated.

I am particularly indebted to Mr Stanley Evans who generously contributed his skill and wide historical knowledge to designing the maps in a spirit of the happiest coöperation.

At the outset of my work, the Human Sciences Research Council of South Africa awarded a Senior Bursary (Research and Travel) ultimately approaching R2,000. I wish to record my deepest appreciation of the Council's kind consideration and patience during the unexpectedly lengthy period that the investigation entailed, and of the particular assistance of Miss K. Henshall. At no time was pressure brought to bear on me nor doubt cast on the validity of my labours. The absence of harassment and the implied sense of confidence were of the highest value and encouragement. In the Council's custody for reference by students and scholars is a fully-documented copy of this work which may be consulted on application to The President, Human Sciences Research Council, Private Bag X41, Pretoria 0001, South Africa. In its text, the spelling of all names and terms including scientific follows the usage of the times and changes accordingly.

To my publisher and longstanding friend, Mr Howard B. Timmins, I am indebted for exceptional care and coöperation in the production of this book to which he devoted enheartening energy and enthusiasm.

With particular warmth, I extend my gratitude to my kinsman Mr Philipp Rowland Gutsche through whose public-spirited generosity, the printing of the work was made possible and the cost of copies reduced to the minimum for the benefit of those who might take advantage of it.

Johannesburg  
1978

THELMA GUTSCHE

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 Theiler, Arnold (Sir) – 29; birth, schooling, predilections – 30; Aarau Canton School, Berne University Veterinary College – 31; Zurich University Veterinary College awards Veterinary Diploma 1889 – 32; Thun Military Academy – 32; practises at Beromunster 1890 – 32; emigrates to Transvaal, landing at Cape Town 6.3.1891, proceeding to Johannesburg and Pretoria – 33/36; engaged by Nellmapius for Irene Estate and first confronts Horse Sickness etc – 37/38 et seq; loses left hand – 41; hospitalisation – 43; puts up plate in Pretoria, advertises, issues pamphlet, applies for grant – 46/8; bitter struggle, advertises fraudulent cure for Horse Sickness and approaches Staatsartillerie – 49/51; acquires artificial hand, re-applies to Staatsartillerie and offers to make smallpox lymph June 1892 – 51/2; inoculates D. J. E. Erasmus’ cattle – 53; no response to applications and struggles on – 55; advises parents of impending marriage to Emma Jegge – 56; summoned to Johannesburg to make smallpox vaccine in a stable for three months – 57/63; transfers to specially-built premises – 65/66; Emma Jegge arrives in Johannesburg, marriage and domesticity in a hired house with private laboratory installed – 66/7; Lymph contract terminated and commences private practice and laboratory work, hoping for appointment as State Veterinarian 1894 – 67/70; makes lymph at home, consulted on Glanders Act and attacked in Volksraad – 71; naturalised Z.A.R. burgher – 71/2; laboratory work and investigation of Water Supply – 72/4; joins Schweizerverein as secretary, later president – 73/4; Smallpox vaccine contract renewed – 73; appointed Veterinary Surgeon to Johannesburg and to Z.A.R. Mines Health Department – 76; practice improving but announces departure for Les Marais, Pretoria to farm – 78/9; raises pigs and poultry while pursuing research – 82/3; employed by Z.A.R. to investigate Rinderpest in Matabeleland – 85/9; returns to Pretoria 7.4.1896 – 89; Rinderpest Conference at Mafeking – 89/90; appointed Government Veterinary Surgeon – 91; writes brochure on R. and innumerable Proclamations while continuing Horse Sickness

experiments – 91/2; sent to Waterberg and Seco-coeniland to test ‘cures’ for R. and instructs Watkins-Pitchford – 93; delegate to Vryburg Rinderpest Conference 31.8.’96 and authorised by Z.A.R. bacteriologically to investigate it – 94/6; prepares Disinfection Station at Daspoort and leaves with Watkins-Pitchford for Marico 1.10.’96 – 97; notes Cape’s importation of Koch and reports interim findings to Kruger – 100; devises serum for final testing but ordered back to Pretoria to help French scientists Danysz and Bordet, arriving 21.1.’97 – 102/3; transfers oxen from Marico to Waterval and writes Rinderpest in Sud-Afrika – 106; realises Koch’s bile discovery similar to his own and attends Koch’s Kimberley demonstration – 107/8; renewed vision of a Transvaal Bacteriological Institute – 108; instructed to help French scientists with Horse Sickness and improves Rinderpest serum method – 109/10; Z.A.R. appoints Investigative Committee which approves – 110/11; Z.A.R. calls International Rinderpest Conference where Theiler/Pitchford claim is vindicated – 111/115; resents lack of bonus – 116; proposes conversion of Daspoort Disinfection Station into Vaccine Institute and defines function of Government Veterinary Surgeon for Z.A.R. consideration – 118/21; offered appointment as Paardenarts to Staatsartillerie and accepts while working at Belfast with French scientists – 121/22; Z.A.R. accepts proposals and T. becomes Gouvernements Veearts in control of the ‘Bacteriological Institute of the South African Republic’ at Daspoort – 123/6; awarded full voting rights and founds Schweizerverein Alpina – 124/5; issues massive amounts of Smallpox vaccine etc and builds house at Daspoort – 129; receives Bruce and Pitchford on 17.1.’99 for Horse Sickness enquiry – 132; visits Middelburg for suspected Plague – 133; delegated Z.A.R. representative to International Veterinary Conference at Baden-Baden and leaves 13.5.’99 on 4 months furlough – 137/9; visits family, travels in Europe and attends Conference – 141; returns to Pretoria minus luggage – 143/4; ordered to Natal front with veterinary unit – 146; Bulwana Hill – 147/51; returns to Pretoria and writes ‘Boer Camp near Ladysmith’ and ‘The Battle of the Tugela’ published in Europe – 151/2; posted to front near Colenso and returns to Pretoria in general rout – 153; re-activates laboratory, helps Swiss Red Cross doctors, writes ‘The Horse in War’ and awaits instruction – 154/7; re-posted to southern front and returns to Daspoort after disastrous defeat – 157/60; ordered to stand by for further commando duty but abandoned and unemployed after British occupation of Pretoria – 160/7; accepts appointment as Bacteriologist to Transvaal Constabulary and works at Daspoort – 167;

writes papers for overseas publication on Horse Sickness, Nagana, Equine Malaria and ‘The Horse in War’ – 171; restrained by military authorities from accepting appointment to the S.A. Constabulary and continues at Daspoort – 175; posted to Basutoland with Dr G. Turner to combat Rinderpest – 178/80; Berne University awards D.Vet.Med. for paper on Equine Malaria – 178; heavy work and increased staff at Daspoort – 180; death of father – 184; continuing research and overseas recognition – 186/7; end of Boer War – 187; meets F. B. Smith – 188; visits Rhodesia for ‘Redwater’, writes First Annual Report and ‘Veterinary Notes’ for Settlers – 190/1; confronts local epidemic of tick-borne Rh. Redwater – 191/200; continues under Turner while Smith founding Agricultural Dept. and seeking site for Veterinary Research Institute & College – 194/5; writes voluminously for new Dept. and coöperates with Koch in Rhodesia over Rh. Redwater – 196/8; joined by Stewart Stockman as P.V.O. 1903 – 202; participates in Inter-State Conference on Animal Diseases – 206; writing many papers, publishing Horse Sickness findings and others – 210/12; attends 2nd I-S Conference and with Stockman imposes draconian measures to combat East Coast fever – 212/13; Legco proposes raising salary – 215; writes 1st Report as Transvaal Colonial Veterinary Biologist 1903/4 – 216; Stockman goes – 218; active in wide research on insanitary site – 219/200; leaves with family for Europe July 1905 to attend Buda-Pesth Veterinary Conference, recruit staff and purchase apparatus – 222/7; reiterates need for new premises – 227/8; converts Daspoort into a teaching centre for tropical animal diseases – 229; selects Onderstepoort Farm for Lab. and gains approval and purchase in 1906 – 229/31; ideal of International Veterinary College developing – 232; further Daspoort deaths demand immediate evacuation – 233; Botha and Smuts visit Lab. – 234; construction of new Lab. proceeding – 237/8; punctiliousness in dress and publicly recording experimentation – 238/9; awarded C.M.G. November 1907 – 241/2; launches Transvaal Biological Society December 1907 – 243; awarded South Africa Medal – 245/6; transference from Daspoort to Onderstepoort September 1908 – 247; First Pan-African Vet. Conference duly held despite floods – 250/2; wide extension of work – 253; departs June 1909 for Bruce in Uganda and Europe – 255; president of Tropical Diseases Section at Hague Vet. Conference and makes forceful impression; buys equipment and appoints new staff – 260/1; authorised to plan as Chief Veterinary Research Officer for impending Union of S.A. – 262; problems imposed by Union – 263 et seq.; Lamziekte – 267 et seq.;

historic visit to Vryburg 1911 – 273 et seq.; evolves Horse Sickness serum – 277; confirmed as Director of Veterinary Research for Union – 280; travels and studies in Europe, recruiting staff, purchasing equipment, etc – 286 et seq.; returns in 1913 to disorganisation and Lamziekte – 290 et seq.; Knighted 1914 – 292; unavoidable responsibilities of 1914–18 War – 298; meeting with Botha and new basis of employment – 304/5; notifies retirement after appointment of R. E. Montgomery (Sept. 1917) – 314; Botha extends employment on new basis – 317/8; retires to Cape Town on special service in April 1918 – 324; agrees to solve Lamziekte problem (Sept. 1918) – 324; appointed in December to ‘Influenza Commission’ – 325; assumes Lamziekte duty in Feb. 1919 at Armoedsvlakte and immediately divines cause and treatment of Lamziekte – 328/9; serves on Departmental Committee for Veterinary College – 332; offered by Smuts and accepts joint appointment in Veterinary Research & Education – 336 et seq.; appointment in Dec. 1919 of P. J. du Toit – 338 et seq.; assumes on 1.5. ’20 dual office and transfers from Armoedsvlakte to O.P. – 339/41; leaves in Sept. 1920 for one year’s study at Berne University – 344; offered and refused rectorship of T.U.C. – 347; severe illness and returns in Sept. 1921 to O.P.; T.U.C. Vet. College opens in Nov. 1921 – 352; recurrence of illness, 4 months sick leave and returns to O.P. in June 1922 with proliferating work – 353/4; leaves for England and America for Vet. Conferences in 1923 – 358/85; Far East tour and Kenya – 365/7; final years at O.P. – 368/85; graduation in 1924 of first veterinarians – 369; resigns and agrees to continue until 1926 – 373/4; agrees to extension to 1927 and pursues inter-Dominion policy before formal termination of service – 377/85; leaves for Europe and after discussion with Dominion Office, begins osteodystrophic work – 385/91; commissioned by Australian C.S.I.R. and leaves for Ceylon and Melbourne in March 1928 – 391; offered appointment in Australia, writes report and returns in November 1928 to South Africa – 396; returns to Europe – 397; finally declines Australian offer and in 1929 returns to bone work – 399; invitations to lecture abroad – 405 and 407; tour of North Africa etc. – 407/8; completes ‘Aphosphorosis in Ruminants’ – 412/4; Mediterranean tour – 416/7; transfers from Lucerne to London – 418; works at R.C.V.S. on osteodystrophic diseases – 419/20; Leaves for U.S.A. (Vet. Conference) and Antipodes – 422/25; returns to South Africa and O.P. for further bone work – 425/35; leaves for Europe and London – 435/7; Death – 438; 440/2, 445, 447/53

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Theiler, Emma Sophie (Lady) (see Jegge, Emma Sophie) buys sewing machine, marriage, house-keeping – 66/7; commences lab. work – 67; 69; keeps Arnold’s accounts – 70; makes smallpox vaccine – 71/2; gives birth to Hans – 73; continues laboratory work – 73; 75; 77; transfers to Les Marais, Pretoria for livestock farming and lab. work – 82; 85; 87; 89; singlehandedly runs farm – 91; assists in Horse Sickness experiments – 92/4; gives birth to Margaret – 94; left alone to run family and farm while Arnold in Marico – 98; tells parents-in-law about Koch’s coming – 100; 101; 106; 114; 116; gives birth to Gertrud – 117; copies Arnold’s articles and orders his papers – 122; 123/5; resumes making Smallpox lymph – 125/6; 126; 129; gives birth to Max – 129; 130; 132; 137/8; writes to Franz about Arnold’s left hand – 139; 141/42; prepares for War – 143; 144; 146; cultivation and maintenance of cultures – 146/47; 148; 151; develops newly-arrived cultures and copies Arnold’s accounts of the War – 152; 153; 157; 160; 164; 170/3; 177/80; 182/3; 185; 190; 200; 205; entertains Koch – 207; 209; 220/2; 226; 238; 244; 249; 253; 255/7; 259; 261; 263; 279; 285; again technical assistant – 286; 288; 290; 293; 296; 304; 306; 314/9; 321/2; 324/6; 328/9; 333/4; 337; 340/1; 344/5; 348/50; 352; 354/5; 358/9; 361; 363/8; 375; 381; 383/5; 387/408; hospitalised for heart – 409; 411/4; 416/25; 428/39; 441; 443 (death); 444/6

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