

subsequently rubbed on to the gums of another heifer, without any result. It may, therefore, be concluded that stiff sickness is an inoculable blood disease. With regard to its spread, observations to hand shew that almost in every instance no direct communication occurred between sick and healthy animals previous to the infection of the latter, so that pure contagion can be excluded. Our assumption is that the infection must pass through the air, and we can hardly believe that the micro-organism itself can do so, but that it will probably require a carrier, as is the case in other diseases. Taking into consideration the extremely wet season, with the enormous increase of mosquitos and other flying insects, it is quite possible that one of these may be the cause of the propagation.

In the Transvaal fortunately stiff sickness was quite of an ephemeral nature, and did not cause any serious damage.

(L) INTERNAL PARASITES.

In the train of the heavy rainfalls experienced last year an unusual mortality occurred amongst small stock—apart from blue tongue—due to internal parasites. Enquiries reached us from many parts of the Transvaal, pointing out the unusual increase of wire-worms (*strongylus contortus*), and asking for advice, and in several cases specimens and carcasses were forwarded for examination. Besides these worms, *oesophagostoma columbianum* were present to a large extent, and the intestines of some sheep were studded with an abnormal number of parasitic nodules.

Internal parasites undoubtedly play an important rôle as the cause of debility and death amongst small stock, and the moist conditions of the soil during the past year were naturally extremely favourable for their increase.

I am convinced that an increase of small stock will be attended with a corresponding increase of internal parasites, and, in order to ensure the success of this class of stock breeding, it will be necessary to undertake a thorough investigation into the life cycle of each individual class of parasites.

This will only be possible by experimenting on scientific lines, and a man with a zoological training will be required to undertake the study at this Laboratory under my instructions. On the Estimates for 1908–1909, therefore, I shall apply for the appointment of a duly qualified assistant.

MICROSCOPICAL AND PATHOLOGICAL ANATOMICAL EXAMINATIONS.

With regard to the microscopical and pathological examinations performed at the Laboratory during the last year, the total number of examinations amounted to 1,597: an increase of 486 on 1905–1906. The negative results amounted to 983, and as in previous years the bulk of the examinations were in connection with the “Proclaimed Diseases of Animals Act,” East Coast fever in particular. I wish to refer you to my last annual report for the explanations of the various results.

This increase shews the growing confidence of farmers in the work of this Division, and as far as my experience is concerned, I can safely say that no mistake has yet been made in a diagnosis.

It is noteworthy to mention, that amongst the negative results, two are included which were obtained from smears forwarded by natives in the Zoutpansberg district, said to be from cattle, but the examination proved the blood to be that of a bird. An investigation was made by the South African Constabulary, but without being able to prove any wilfulness on the part of the natives, although undoubtedly it was a trick played on us.

The details of the examinations are as follows:—

SUMMARY OF MICROSCOPICAL AND PATHOLOGICAL ANATOMICAL EXAMINATIONS
MADE DURING THE FINANCIAL YEAR 1906-1907.

East Coast fever, piroplasma parvum	Cattle	133
Doubtful East Coast fever .. .. .	.. .. .	3
Piroplasma mutans .. .. .	.. .. .	30
Ordinary redwater, piroplasma bigeminum .. .. .	.. .. .	30
East Coast fever and ordinary redwater, piroplasma parvum and piroplasma bigeminum .. .. .	.. .. .	5
Marginal points, a probable sequel of ordinary redwater .. .. .	.. .. .	7
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater .. .. .	.. .. .	40
Poikilocytosis, a probable sequel of ordinary redwater .. .. .	.. .. .	47
Abscess due to bacterial infection	Calves	6
Abscess due to coccus infection	Equines	1
Acariasis, Sarcptes of Africander goats	Goats	107
Acariasis, Psoroptes of sheep	Sheep	48
Acariasis	Equines	2
Amphistomum conicum	Sheep	1
Anaemia, Basic cells, ? sequel of blue tongue.. .. .	.. .. .	1
Angioma	Cow	1
Anthrax	Cattle	13
Ascaris swillæ	Pigs	1
Black quarter	Cattle	5
Broncho-alveolitis	Mule	1
Broncho-pneumonia	Cattle	3
Broncho-pneumonia	Pigs	1
Coryza	Horse	1
Cysticercus cellulose ? swine plague	Pigs	1
Cysticercus tenuicollis	Sheep	2
Diphtheria	Fowls	1
Enteritis .. .. .	.. .. .	1
Enteritis	Cattle	1
Enteritis and gastritis	Sheep	1
Epizootic lymphangitis, Saccharomyces farciminosus	Equines	33
Glanders .. .. .	.. .. .	16
Leucæmia	Dog	1
Mastitis	Cow	2
Necrosis .. .. .	.. .. .	1
Oesophagostoma columbianum	Sheep	1
Parasitic nodules	Horse	1
Parasitic nodules	Cattle	4
Parasitic pneumonia	Goats	1
Parasitic pneumonia	Cattle	1
Piroplasma canis	Dogs	4
Piroplasma equi	Equines	16
Poikilocytosis, sequel of Piroplasma equi .. .. .	.. .. .	1
Pleuritis	Horse	1
Pleuritis	Cattle	1
Pleuritis necrotica	Sheep	1
Pleuro-pneumonia	Cattle	5
Pneumonia .. .. .	.. .. .	1
Pneumonia	Equines	1
Septic metritis	Cattle	2

Carried forward 588

	<i>Brought forward</i>	..	..	..	588			
Staphylococcus	..	..	..	..	Cattle	1		
Staphylococcus	..	..	..	..	..	Sheep	1	
Stilisia hepatica	..	..	..	..	..	"	1	
Strangles (streptococcus equi)	..	..	..	..	..	Equines	1	
Streptococci infection	..	..	..	..	..	..	Calves	1
Streptococci infection	..	..	..	..	..	..	Equines	5
Streptothrix	..	..	..	..	..	..	Cow	1
Streptothrix	..	..	..	..	..	..	Mule	1
Strongylus contortus	..	..	..	..	..	..	Sheep	1
Subcutaneous emphysema	..	..	..	..	..	..	Chick	1
Swine fever	..	..	..	..	..	..	Pigs	2
Traumatic hæmorrhage	..	..	..	..	..	Kidney of	Chicken	1
Traumatic pericarditis	..	..	..	..	..	..	Cattle	3
Tuberculosis	..	..	..	..	..	..	"	5
Vaginitis	..	..	..	..	..	..	Cow	1
Negative results	..	..	..	..	..	..	—	983
								1,597

Results of Examinations Classified according to Districts.

Barberton.

East Coast fever, piroplasma parvum	..	..	..	..	Cattle	9	
Piroplasma mutans	..	..	..	..	..	"	6
Ordinary redwater, piroplasma bigeminum	..	..	..	..	..	"	7
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	..	..	..	..	..	"	6
Poikilocytosis, a probable sequel of ordinary redwater	..	..	..	..	..	"	6
Abscess due to coccus infection	..	..	..	..	..	Equine	1
Angioma	..	..	..	..	..	Cow	1
Mastitis	..	..	..	..	..	"	1
Negative result	..	..	..	..	..	—	45
							82

Ermelo.

East Coast fever, piroplasma parvum	..	..	..	..	Cattle	2	
Ordinary redwater, piroplasma bigeminum	..	..	..	..	..	"	1
East Coast fever and ordinary redwater, p. parvum and p. bigeminum	..	..	..	..	..	"	1
Marginal points, a probable sequel of ordinary redwater	..	..	..	..	..	"	1
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	..	..	..	..	..	"	4
Poikilocytosis, a probable sequel of ordinary redwater	..	..	..	..	..	"	2
Abscess due to bacterial infection	..	..	..	..	..	Calves	1
Ascaris swillæ	..	..	..	..	..	Pigs	1
Epizootic lymphangitis, Saccharomyces farciminosus	..	..	..	..	..	Equines	4
Piroplasma equi	..	..	..	..	..	"	6
Strangles (Streptococcus infection)	..	..	..	..	..	"	1
Streptococci infection	..	..	..	..	..	"	3
Streptothrix	..	..	..	..	..	Cow	1
Tuberculosis	..	..	..	..	..	Cattle	1
Vaginitis	..	..	..	..	..	Cow	1
Staphylococcus	..	..	..	..	..	Sheep	1
Negative results	..	..	..	..	..	—	68

Heidelberg.

Ordinary redwater, piroplasma bigeminum Cattle	4
Basic, nucleated and polychromatic cells a probable sequel of ordinary redwater "	2
Poikilocytosis, a probable sequel of ordinary redwater "	4
Acariasis, psoroptes of sheep Sheep	1
Broncho-pneumonia Cattle	1
Glanders Equines	2
Parasitic nodules Horse	1
Pleuritis "	1
Coryza "	1
Negative results —	31

—
48*Johannesburg.*

Ordinary redwater, piroplasma bigeminum Cattle	3
Acariasis, sarcoptes of Africander goats Goats	5
Acariasis, psoroptes of sheep Sheep	9
Anthrax Cattle	5
Broncho-pneumonia Pigs	1
Enteritis and gastritis Sheep	1
Epizootic lymphangitis, saccharomyces farciminosus .. Equines	22
Glanders "	8
Swine fever Pigs	2
Traumatic hæmorrhage Kidney of Chicken	1
Streptothrix Mule	1
Negative results —	85

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143*Krugersdorp.*

Acariasis, psoroptes of sheep Sheep	4
Glanders Equines	1
Pleuro-pneumonia Cattle	4
Traumatic pericarditis "	1
Negative results —	21

—
31*Lydenburg.*

East Coast fever, piroplasma parvum Cattle	7
Ordinary redwater "	1
Marginal points, a probable sequel of ordinary redwater .. "	1
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater "	2
Poikilocytosis, a probable sequel of ordinary redwater "	3
Epizootic lymphangitis, saccharomyces farciminosus .. Equines	4
Negative results —	28

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46*Marico.*

Piroplasma mutans Cattle	2
Poikilocytosis, a probable sequel of ordinary redwater "	2
Acariasis, sarcoptes of Africander goats Goats	1
Negative results —	22

—
27

Middelburg.

East Coast fever, piroplasma parvum	Cattle	10
Piroplasma mutans	„	7
Ordinary redwater	„	4
Marginal points, a probable sequel of ordinary redwater	„	1
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	„	5
Poikilocytosis, a probable sequel of ordinary redwater	„	1
Abscess due to bacterial infection	Calves	1
Acariasis, sarcoptes of Africander goats	Goats	2
Acariasis, psoroptes of sheep	Sheep	2
Broncho-pneumonia	Cattle	1
Mastitis	Cow	1
Oesophagostoma columbianum	Sheep	1
Pleuritis	Cattle	1
Negative results	—	69

106

Piet Retief.

East Coast fever, piroplasma parvum	Cattle	7
Doubtful East Coast fever	„	2
Piroplasma equi	Equines	1
Negative results	—	15

25

Potchefstroom.

Ordinary redwater, piroplasma bigeminum	Cattle	1
Acariasis, psoroptes of sheep	Sheep	2
Amphistomum conicum	„	1
Anthrax	Cattle	1
Pleuritis necrotica	Sheep	1
Tuberculosis	Cattle	1
Negative results	—	20

27

Pretoria.

East Coast fever, piroplasma parvum	Cattle	1
Piroplasma mutans	„	1
Ordinary redwater, piroplasma bigeminum	„	7
Marginal points, a probable sequel of ordinary redwater	„	2
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	„	11
Poikilocytosis, a probable sequel of ordinary redwater	„	12
Abscess due to bacterial infection	Calves	3
Acariasis, sarcoptes of Africander goats	Goats	19
Acariasis, psoroptes of sheep	Sheep	17
Anthrax	Cattle	3
Necrosis	Cow	1
Broncho-pneumonia	Cattle	1
Cysticercus tenuicollis	Sheep	1
Diphtheria	Fowls	1
Enteritis	„	1

Carried forward 81

<i>Brought forward</i>							81
Enteritis	..	..	..	..	..	Cattle	1
Epizootic lymphangitis, <i>saccharomyces farciminosus</i>	..	..	..	..	..	Equines	2
Glanders	..	..	..	..	..	"	4
<i>Cysticercus cellulosee</i>	..	..	..	..	..	Pigs	1
Leucaemia	..	..	..	..	..	Dog	1
Parasitic pneumonia	..	..	..	..	..	Goats	1
Parasitic pneumonia	..	..	..	..	..	Cattle	1
<i>Piroplasma canis</i>	..	..	..	..	..	Dogs	3
Pleuro-pneumonia	..	..	..	..	..	Cattle	1
Pneumonia	..	..	..	..	..	"	1
Septic metritis	..	..	..	..	..	"	2
Streptococci infection	..	..	..	..	..	Equines	2
<i>Strongylus contortus</i>	..	..	..	..	..	Sheep	1
Subcutaneous emphysema	..	..	..	..	..	Chick	1
Traumatic pericarditis	..	..	..	..	..	Cattle	2
Tuberculosis	..	..	..	..	..	"	3
<i>Stilisia hepatica</i>	..	..	..	..	..	Sheep	1
Staphylococcus	..	..	..	..	..	Cow	1
Negative results	..	..	..	..	..	—	237
							347

Rustenburg.

East Coast fever, <i>piroplasma parvum</i>	..	..	..	..	..	Cattle	35
Doubtful East Coast fever. ? <i>Piroplasma mutans</i>	..	..	..	..	..	"	1
Ordinary redwater, <i>piroplasma bigeminum</i>	..	..	..	..	..	"	1
East Coast fever and ordinary redwater, <i>piroplasma parvum</i> and <i>piroplasma bigeminum</i>	..	..	..	..	..	"	2
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	..	..	..	..	..	"	4
Poikilocytosis, a probable sequel of ordinary redwater	..	..	..	..	..	"	4
Anthrax	..	..	..	..	..	"	4
Black quarter	..	..	..	..	..	"	3
Streptococci infection	..	..	..	..	..	Calves	1
Negative result	..	..	..	..	..	—	74
							129

Standerton.

Poikilocytosis, a probable sequel of ordinary redwater	..	..	..	..	..	Cattle	1
Abscess due to bacterial infection	..	..	..	..	..	Calves	1
Acariasis, psoroptes of sheep	..	..	..	..	..	Sheep	3
Epizootic lymphangitis, <i>saccharomyces farciminosus</i>	..	..	..	..	..	Equines	1
Glanders	..	..	..	..	..	"	1
Negative results	..	..	..	..	..	—	19
							26

Volkstrust.

Poikilocytosis, a probable sequel of ordinary redwater	..	..	..	..	..	Cattle	1
Acariasis	..	..	..	..	..	Equines	2
Negative results	..	..	..	..	..	—	9
							12

Waterberg.

East Coast fever, piroplasma parvum	Cattle	5
Marginal points, a probable sequel of ordinary redwater	.. .. .	1
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	.. .. .	2
Poikilocytosis, a probable sequel of ordinary redwater	.. .. .	2
Piroplasma canis	Dogs	1
Negative results	—	42
		—
		53

Zoutpansberg.

East Coast fever, piroplasma parvum	Cattle	47
Ordinary redwater, piroplasma bigeminum .. .. .	.. .. .	1
East Coast fever and ordinary redwater, piroplasma parvum and p. bigeminum .. .. .	.. .. .	2
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	.. .. .	1
Poikilocytosis, a probable sequel of ordinary redwater	.. .. .	8
Acariasis, sarcoptes of Africander goats	Goats	80
Acariasis, psoroptes of sheep	Sheep	10
Anæmia, basic cells,? sequel blue tongue	.. .. .	1
Black quarter	Cattle	2
Broncho-alveolitis	Mule	1
Cysticercus tenuicollis	Sheep	1
Piroplasma equi	Equines	9
Pneumonia .. .. .	.. .. .	1
Negative result	—	158
		—
		322

Swaziland.

East Coast fever, piroplasma parvum	Cattle	10
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	.. .. .	1
Poikilocytosis, a probable sequel of ordinary redwater	.. .. .	1
Poikilocytosis, a sequel of piroplasma equi	.. .. .	1
Negative results	—	17
		—
		30

Orange River Colony.

Piroplasma mutans	Cattle	14
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	.. .. .	2
Negative results	—	11
		—
		27

Rhodesia.

Marginal points, a probable sequel of ordinary redwater	Cattle	1
Negative results	—	11
		—
		12

Portuguese East Africa.

Parasitic nodules	Oxen	4
Negative results	—	1
		—
		5

MONTHLY SUMMARY.

July, 1906.

East Coast fever, <i>piroplasma parvum</i>	Cattle	8
Marginal points, a probable sequel of ordinary redwater	"	1
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	"	3
Poikilocytosis, a probable sequel of ordinary redwater	"	1
Acariasis, sarcoptes of Africander goats	Goats	5
Acariasis, psoroptes of sheep	Sheep	3
Anthrax	Cattle	2
Diphtheria	Fowls	1
Epizootic lymphangitis, <i>saccharomyces farciminosus</i>	Equines	5
Glanders	"	3
Poikilocytosis, a probable sequel of <i>piroplasma equi</i>	"	1
Streptococci infection	"	1
Streptothrix	Cow	1
Swine fever	Pigs	1
Traumatic pericarditis	Cattle	1
Negative result	—	65

102

August, 1906.

East Coast fever, <i>piroplasma parvum</i>	Cattle	15
Acariasis, sarcoptes of Africander goats	Goats	9
Acariasis, psoroptes of sheep	Sheep	1
Abscess due to coccus infection	Equines	1
Anæmia, basic cells,? sequel of blue fungus	Sheep	1
Anthrax	Cattle	1
Ascaris swillæ	Pigs	1
Necrosis of liver	Cow	1
Black quarter	Cattle	1
Broncho-pneumonia	"	2
<i>Cysticercus tenuicollis</i>	Sheep	1
Epizootic lymphangitis, <i>saccharomyces farciminosus</i>	Equines	8
Glanders	"	6
<i>Piroplasma equi</i>	"	7
Streptococci infection	"	2
Traumatic pericarditis	Cattle	1
Tuberculosis	"	1
Vaginitis	Cow	1
Negative results	—	51

111

September, 1906.

East Coast fever, <i>piroplasma parvum</i>	Cattle	8
Poikilocytosis, a probable sequel of ordinary redwater	"	1
Acariasis, sarcoptes of Africander goats	Goats	7
Acariasis, psoroptes of sheep	Sheep	9
Anthrax	Cattle	3
Black quarter	"	2
Broncho-pneumonia	Pigs	1
Enteritis	Fowls	1

Carried forward 32

	<i>Brought forward</i>	.. ..	32
Epizootic lymphangitis, saccharomyces farciminosus	..	Equines	2
Parasitic pneumonia	.. ..	Goats	1
Parasitic pneumonia	.. ..	Cattle	1
Septic metritis	.. ..	"	1
Swine fever	.. ..	Pigs	1
Tuberculosis	.. ..	Cattle	2
Streptothrix	.. ..	Mule	1
Negative results	.. ..	—	78
			<hr/> 119

October, 1906.

East Coast fever, piroplasma parvum	.. ..	Cattle	16
Piroplasma mutans	.. ..	"	4
Ordinary redwater, piroplasma bigeminum	.. ..	"	1
East Coast fever and ordinary redwater, piroplasma parvum and p. bigeminum	.. ..	"	1
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	.. ..	"	1
Acariasis sarcoptes of Africander goats	.. ..	Goats	17
Acariasis, psoroptes of sheep	.. ..	Sheep	3
Angioma	.. ..	Cow	1
Cysticercus tenuicollis	.. ..	Sheep	1
Epizootic lymphangitis, saccharomyces farciminosus	.. ..	Equines	2
Piroplasma canis	.. ..	Dogs	1
Pneumonia	.. ..	Cattle	1
Streptococci infection	.. ..	Calves	1
Negative results	.. ..	—	66
			<hr/> 116

November, 1906.

East Coast fever, piroplasma parvum	.. ..	Cattle	7
Piroplasma mutans	.. ..	"	17
Ordinary redwater, piroplasma bigeminum	.. ..	"	2
Acariasis, sarcoptes of Africander goats	.. ..	Goats	3
Anthrax	.. ..	Cattle	1
Epizootic lymphangitis, saccharomyces farciminosus	.. ..	Equines	5
Mastitis	.. ..	Cow	1
Parasitic nodules	.. ..	Oxen	4
Piroplasma canis	.. ..	Dogs	1
Piroplasma equi	.. ..	Equines	2
Septic metritis	.. ..	Cattle	1
Subcutaneous emphysema	.. ..	Chicken	1
Tuberculosis	.. ..	Cattle	1
Stilisia hepatica	.. ..	Sheep	1
Staphylococcus	.. ..	Cow	1
Negative results	.. ..	—	81
			<hr/> 129

December, 1906.

East Coast fever, <i>piroplasma parvum</i>	Cattle	4
<i>Piroplasma mutans</i>	"	2
Ordinary redwater, <i>piroplasma bigeminum</i>	"	1
Marginal points, a probable sequel of ordinary redwater	"	2
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	"	6
Poikilocytosis, a probable sequel of ordinary redwater	"	1
Abscess due to bacterial infection	Calves	1
Acariasis, sarcoptes of Africander goats	Goats	2
Acariasis, psoroptes of sheep	Sheep	2
Epizootic lymphangitis, <i>saccharomyces farciminosus</i>	Equines	2
Leucæmia	Dog	1
<i>Piroplasma canis</i>	Dogs	1
<i>Piroplasma equi</i>	Equines	2
Coryza	Horse	1
Staphylococcus	Sheep	1
Negative results	—	86

 115
January, 1907.

East Coast fever, <i>piroplasma parvum</i>	Cattle	6
Doubtful East Coast fever	"	2
<i>Piroplasma mutans</i>	"	1
Ordinary redwater, <i>piroplasma bigeminum</i>	"	3
East Coast fever and ordinary redwater, <i>piroplasma parvum</i> and <i>p. bigeminum</i>	"	1
Marginal points, a probable sequel of ordinary redwater	"	1
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	"	4
Poikilocytosis, a probable sequel of ordinary redwater	"	5
Abscess due to bacterial infection	Calves	1
Acariasis, sarcoptes of Africander goats	Goats	7
<i>Amphistomum conicum</i>	Sheep	1
Anthrax	Cattle	2
Glanders	Equines	2
<i>Strongylus contortus</i>	Sheep	1
Mastitis	Cow	1
Negative results	—	106

 144
February, 1907.

East Coast fever, <i>piroplasma parvum</i>	Cattle	12
Ordinary redwater, <i>piroplasma bigeminum</i>	"	6
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	"	8
Poikilocytosis, a probable sequel of ordinary redwater	"	6
Acariasis, sarcoptes of Africander goats	Goats	6
Anthrax	Cattle	2
Enteritis	"	1
Epizootic lymphangitis, <i>saccharomyces farciminosus</i>	Equines	2
Glanders	"	4

Carried forward 47

	<i>Brought forward</i>	.. ..	47
Piroplasma canis .. .. .		.. Dogs	1
Piroplasma equi .. .. .		.. Equines	3
Pleuro-pneumonia .. .. .		.. Cattle	2
Tuberculosis .. .. .		.. "	1
Negative results .. .. .		.. —	115
			169
<i>March, 1907.</i>			
East Coast fever, piroplasma parvum .. .. .		.. Cattle	5
Ordinary redwater, piroplasma bigeminum .. .. .		.. "	3
Marginal points, a probable sequel of ordinary redwater		.. "	1
Basic, nucleated and polychromatic cells, a probable			
sequel of ordinary redwater .. .. .		.. "	9
Poikilocytosis, a probable sequel of ordinary redwater .. .. .		.. "	15
Abscess due to bacterial infection .. .. .		.. Calves	1
Acariasis, sarcoptes of Africander goats .. .. .		.. Goats	1
Acariasis, psoroptes of sheep .. .. .		.. Sheep	3
Anthrax .. .. .		.. Cattle	1
Black quarter .. .. .		.. "	2
Broncho-pneumonia .. .. .		.. "	1
Epizootic lymphangitis, saccharomyces farciminosus .. .. .		.. Equines	3
Glanders .. .. .		.. "	1
Parasitic nodules .. .. .		.. Horse	1
Piroplasma equi .. .. .		.. Equines	2
Pleuritis .. .. .		.. Horse	1
Pneumonia .. .. .		.. Equines	1
Negative results .. .. .		.. —	144
			195
<i>April, 1907.</i>			
East Coast fever, piroplasma parvum .. .. .		.. Cattle	9
Piroplasma mutans .. .. .		.. "	3
Ordinary redwater .. .. .		.. "	4
East Coast fever and ordinary redwater, piroplasma			
parvum and p. bigeminum .. .. .		.. "	3
Basic, nucleated and polychromatic cells, a probable			
sequel of ordinary redwater .. .. .		.. "	2
Poikilocytosis, a probable sequel of ordinary redwater .. .. .		.. "	4
Abscess due to bacterial infection .. .. .		.. Calves	3
Acariasis, sarcoptes of Africander goats .. .. .		.. Goats	6
Acariasis, psoroptes of sheep .. .. .		.. Sheep	6
Epizootic lymphangitis, saccharomyces farciminosus .. .. .		.. Equines	1
Cysticercus celluloseo .. .. .		.. Pigs	1
Oesophagostoma columbianum .. .. .		.. Sheep	1
Pleuritis necrotica .. .. .		.. Sheep	1
Pleuro-pneumonia .. .. .		.. Cattle	2
Strangles (streptococci equi) .. .. .		.. Equines	1
Streptococci infection .. .. .		.. "	1
Traumatic pericarditis .. .. .		.. Cattle	1
Pleuritis .. .. .		.. "	1
Negative results .. .. .		.. —	82
			132

May, 1907.

East Coast fever, <i>piroplasma parvum</i>	Cattle	12
Ordinary redwater, <i>piroplasma bigeminum</i>	"	5
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	"	4
Poikilocytosis, a probable sequel of ordinary redwater	"	3
Acariasis, sarcoptes of Africander goats	Goats	8
Acariasis, psoroptes of sheep	Sheep	14
Anthrax	Cattle	1
Enteritis and gastritis	Sheep	1
Epizootic lymphangitis, <i>saccharomyces farciminosus</i>	Equines	3
Pleuro-pneumonia	Cattle	1
Streptococci infection	Equines	1
Negative results	—	67
		<hr/>
		120

June, 1907.

East Coast fever, <i>piroplasma parvum</i>	Cattle	31
Doubtful East Coast fever	"	1
<i>Piroplasma mutans</i>	"	3
Ordinary redwater, <i>piroplasma bigeminum</i>	"	5
Marginal points, a probable sequel of ordinary redwater	"	2
Basic, nucleated and polychromatic cells, a probable sequel of ordinary redwater	"	3
Poikilocytosis, a probable sequel of ordinary redwater	"	11
Acariasis, sarcoptes of Africander goats	Goats	36
Acariasis, psoroptes of sheep	Sheep	7
Acariasis	Equines	2
Broncho-alveolitis	Mule	1
Traumatic hæmorrhage	Kidney of Chicken	1
Negative results	—	42
		<hr/>
		145

CALF VACCINE LYMPH.

During the year 494,928 tubes of calf vaccine lymph were issued—the details of which appear in the following statement—representing a revenue of £4,125 4s. 8d.

1906-1907.	Transvaal.	Cape Colony.	Natal.	Orange River Colony.	Portuguese Territory.	Rhodesia.	TOTAL.
	Tubes.	Tubes.	Tubes.	Tubes.	Tubes.	Tubes.	Tubes.
July ..	15,115	24,000	200	1,000	6,000	60	46,315
August ..	16,047	18,000	800	1,000	6,000	30	41,907
September ..	17,534	30,000	2,000	3,000	6,000	..	58,564
October ..	10,936	6,000	2,000	6,000	6,000	..	30,936
November ..	11,871	12,000	2,500	2,500	6,032	..	34,903
December ..	12,558	18,000	2,000	1,000	6,100	10	39,668
January ..	11,496	12,000	500	1,000	6,500	..	31,496
February ..	13,831	12,000	..	1,000	6,200	..	33,031
March ..	13,674	12,000	20,000	1,500	6,400	25	53,599
April ..	12,367	6,000	20,500	1,000	6,600	10	46,477
May ..	13,115	6,000	20,600	1,000	6,500	..	47,221
June ..	13,061	9,250	1,500	1,000	6,000	6	30,811
TOTAL	161,605	165,250	72,600	21,000	74,332	141	494,928

I also append a statement shewing the results obtained from our calf vaccine lymph, and as will be seen the successful vaccinations amount to 94 per cent.

It is a matter for regret that of the 161,605 tubes issued in the Transvaal during the year, the returns only account for 3,590 vaccinations; in other words, it is impossible to control the efficacy of 98 per cent. of the vaccine lymph issued.

Analysis from reports received on results of vaccinations with lymph issued during the financial year ending 30th June, 1907 :—

Number of Calf.	PRIMARY VACCINATIONS.				SECONDARY VACCINATIONS.			
	Number performed.	Number subsequently inspected.	Number found to be successful.	Percentage of successful vaccinations to number inspected.	Number performed.	Number subsequently inspected.	Number found to be successful.	Percentage of successful vaccinations to number inspected.
159	159	53	43	81	33	10	5	50
160	60	14	13	91	1	1	1	100
166	119	35	35	100	163	60	60	100
168	3	3	3	100	..	..	..	..
169	28	14	14	100	..	..	..	..
172	80	37	37	100	121	74	72	97
174	64	24	22	97	415	106	54	51
175	72	32	30	91	330	100	55	55
176	13	3	3	100	29	11	11	100
179	3	3	3	100	3	3	1	33
182	94	50	48	96	452	250	135	51
189	65	50	48	96	260	130	67	55
190	54	26	26	100	159	64	26	40
192	94	52	47	90	121	17	17	100
194	30	5	5	100	38	3	3	100
197	89	13	11	77	127	16	16	100
201	8	8	8	100	..	..	..	..
204	53	7	7	100	78	12	12	100
205	55	7	7	100	117	11	11	100
TOTAL	1,143	436	410	94	2,447	868	546	62

HORSE-SICKNESS SERUM.

The total issue of horse-sickness serum for the year, in the Transvaal, Natal, Rhodesia, Cape Colony, Orange River Colony, and Portuguese Territory amounted to 2,937 litres.

QUARTER EVIL VACCINE.

1,250 Double doses of quarter evil vaccine (sponsziekte) were issued from July, 1906, to June, 1907, representing a revenue of £15 12s. 6d.

BLUE TONGUE VACCINE AND SERUM.

38,937 Doses of blue tongue vaccine, of which 6,850 were sent to Natal and 1,000 to the Orange River Colony, were issued during the year; and 1,437 doses of blue tongue serum were despatched for use in the Transvaal.

PUBLICATIONS AND LECTURES.

In collaboration with Mr. Gray, the Principal Veterinary Surgeon, a series of articles were published in the *Transvaal Agricultural Journal*, under the title "Veterinary Hygienic Principles applicable to Stock in South Africa," and dealing with practically all the diseases encountered by the Transvaal farmer.

At intervals during the year I forwarded articles to various English and Continental journals, detailing experiments carried out at the Laboratory.

On the 13th July, 1906, I read a paper before the Transvaal Agricultural Union, on the subjects of horse-sickness and biliary fever which was published in the minutes of the meeting.

VISITS.

On the 4th of September, 1906, I proceeded to Pietersburg in connection with horse-sickness investigations, which resulted in the introduction of the virus known as "Tzaneen." I may also mention that it was on this occasion that for the first time I had convincing proof of the fact that a mule "salted" against horse-sickness might subsequently break down in immunity and die of this disease.

An Inter-Colonial Bacteriological Research Conference was held at Capetown in November, 1906, at which I was present as a representative of the Transvaal.

In December, in company with Dr. Knuth, of Berlin, I visited Natal for the purpose of collecting ticks infected with East Coast fever, and I would like to express my best thanks to Mr. Woollatt, the Principal Veterinary Surgeon of Natal, and to Mr. Amos, District Veterinary Surgeon at Durban, for kindly forwarding me further supplies.

In connection with the proposed Gouw-ziekte experiment I visited Ermelo and district, together with Mr. Walker, the Government Veterinary Surgeon at Ermelo, for the purpose of selecting farms suitable for the required purpose.

VISITS PAID TO THE LABORATORY BY OFFICIALS OF OTHER STATES
AND COLONIES.

Mr. H. G. Simpson, F.R.C.V.S., stayed at the Laboratory from September to December, 1906, previous to taking up the appointment of Government Veterinary Bacteriologist to British East Africa, in order to make himself acquainted with the technique of our methods of investigation. This was the outcome of an arrangement made between Mr. Stewart Stockman, Principal Veterinary Surgeon, London, and the Colonial Office, and I hope this will lead to our establishment becoming the training school for veterinary surgeons who wish to enter the Colonial Service.

In December, 1906, Dr. Knuth, of Berlin, visited the Laboratory and passed some time here. Dr. Knuth was sent by the German Government on a journey through the various African colonies, in order to become acquainted with the conditions of these colonies from a hygienic point of view, and to investigate into the prevalence of the various established diseases; he will probably occupy the chair for Tropical Veterinary Medicine and Hygiene, which will be established in Berlin, for the purpose of affording the necessary training to such veterinary surgeons as wish to enter into their Colonial Service. I was able to afford Dr. Knuth every facility regarding our work, of which he took full advantage.

Mr. Chase, M.R.C.V.S., of Bechuanaland Protectorate, Mr. Power, M.R.C.V.S., of Natal, Mr. Pereira, Veterinary Surgeon of Portuguese East Africa, and Dr. Amaral Leal, of Lourenco Marques, all visited the Laboratory at various dates, for the purpose of being instructed in our method of inoculating mules against horse-sickness.

INCREASES AND ALTERATIONS IN STAFF.

During the past fiscal year, the services of three lay officials were dispensed with, one being transferred to another Division. In addition, Mr. Cameron resigned on the 1st July, 1906.

The institution of a branch to deal with the vaccination against rabies, necessitated the appointment of a new official, and Dr. Walter Frei was engaged on the 21st November, 1906, as Assistant Government Veterinary Bacteriologist. Dr. Frei is a graduate of the Veterinary Faculty of the University of Zurich, where he was assistant to Professor Zangger, and acted, *ad interim*, as Lecturer of Anatomy. Later he was Assistant at the Physiological Laboratory at the Poppelsdorf Agricultural Academy, near Bonn, Germany. Dr. Frei commenced his duties at the beginning of January at the Pasteur Institute of the Province de Brabant in Brussels, under the tuition of Professor Bordet, where he passed three months in acquiring the necessary knowledge and technique required for the preparation of rabies vaccine, and treatment. Dr. Bordet, whose name is well known in connection with the preventive inoculation against rinderpest, was good enough to render Dr. Frei every assistance, and accordingly our best thanks are due to Dr. Bordet. Dr. Frei is also acquainted with the modern chemico-physical methods of investigation, and with serology, his thesis on Hæmolysis affording the best proof of this fact.

The increase in connection with the administrative and technical work necessitated the appointment of a technical clerk, and Mr. H. W. R. King was transferred from another department, and commenced his duties on the 15th August, 1906. The work connected with this post chiefly consists in attending to all correspondence of a technical nature, and in assisting me in compiling reports, etc.

Mr. J. H. F. Cox was appointed as clerk in the Administrative Branch, in July, 1906.

Mr. T. Meyer commenced duty on the 1st July, 1906, as Laboratory Assistant.

Mr. F. T. Mauchle filled the remaining vacancy, and was appointed on the 15th June, 1907.

LEAVE OF ABSENCE.

In February, 1907, Mr. Dodd contracted enteric, but recovered, and was still on sick leave at the end of the fiscal year.

Mr. E. Heron was granted six months vacation leave, from the 6th June to the 6th December, 1906.

ADMINISTRATION.

I append herewith report furnished by Mr. E. B. H. Parkes, Superintendent, relative to the work under his direct control:—

TO THE GOVERNMENT VETERINARY BACTERIOLOGIST.

I have the honour to present for your information and reference, and for the information of the Director of Agriculture, a review of the general work of the administration of this Division during the past year.

The sum of money voted by the Legislative Assembly for the current expenditure of the year was £30,759 and the total expenditure amounted to £30,964. Of this sum £5,752 was expended in salaries and £2,236 in native wages; the remainder was spent as under:—

Purchase of live stock	£10,983
Maintenance of live stock	5,700
Compensation for mules dying under inoculation	2,202
Purchase of laboratory apparatus, general stores and equipment and sundries ..	3,815
Rent and insurance	276

It will be seen that by far the heaviest expenditure in connection with this Division is in the cost of animals for experiment and on their maintenance, and it was realised in December, 1905, that the unsuitability of the site of the Laboratories at Daspoort as a place to keep large numbers of animals militated very seriously against all endeavours to keep the latter expenditure within bounds. To partially remedy this state of things, the farm Linwood was leased at that time, and later the farm Sjamboks Oude Kraal was hired for winter grazing, but although by this means an economy in the maintenance of live stock was effected, the remedy could only be said to be partial, as in both cases the farms were situated at a distance from the Laboratories, and consequently only such animals as were not immediately required in the Laboratories could be sent to them, and in neither case was there any convenience for the protection of live stock, nor was it possible to grow crops to supplement the grazing for such animals as were in need of extra care and feeding. The rapid increase in the work at the Laboratories, and in consequence the increase in the number of animals required for experiments, made it clear that the inadequacy and unsuitability of both the laboratory and stable accommodation necessitated that the whole question of the future of this Division should receive careful consideration, and the outcome of this was the purchase in November, last year, of a portion of the farm Onderste-poort as a site for a new laboratory, and the commencement of the new Laboratory buildings which are now under construction.

The number of animals purchased during the year were:—

362 horses, 284 mules, 40 donkeys, 60 cattle, 300 sheep.

As all of these animals were purchased for experimental purposes, and generally some special qualification was necessary, it was not possible to obtain them as cheap as might have been done were all sources of supply available. To explain what I mean, it was necessary that the sheep should have been bred and lived in a district in which blue tongue was unknown, and for this reason they were imported from the Cape Colony. The cattle had to be brought from a district free from South African redwater, and it was necessary that the donkeys and mules should have been recently imported from the Argentine to eliminate the possibility of their having previously contracted and recovered from either horse-sickness or biliary fever. The horses alone, with the exception of a few from the Argentine, which were procured for a special experiment, could be selected without regard to their origin and previous history, and in purchasing these, as a rule, the cheapest horses obtainable have been bought. Of the 362 horses purchased, 190 were obtained at prices ranging from £5 to £10 each, but for the remaining 172 larger prices had to be paid.

There has been a constant difficulty in obtaining a sufficient number of horses for experiment at a reasonable price, but although the large demand for the class of animal required has undoubtedly increased their market value

in Pretoria, the prices paid compare very favourably with prices paid in the past.

The number of horses that have died under experiment is large, and up to now it has not been advisable to buy any but the cheapest that can be obtained; but with mules, however, it is different, as the greater number of those that died were purchased at a very cheap rate for virus, and were expected to die, and of the others the losses chiefly occurred at the early part of the year in experimenting to fix the dose of serum for general use, and the death rate amongst the mules which were used to test the serum was not unduly greater than the death rate through inoculation all over the country. For the purpose of testing serum consequently, it was thought desirable to purchase a class of mule that would be readily saleable again, and accordingly young sound mules were purchased at prices ranging from £17 to £20 each. Before proceeding to the cost of the upkeep of live stock, it will be well to consider the number of the animals kept and the way these were fed.

During the year the average daily number of animals kept at Daspoort has been—

139 horses, 60 mules, 15 donkeys, 46 cattle, 124 sheep and goats.

In addition to these, a number of animals were out at grass at Linwood, Onderstepoort, and at Sjamboks Oude Kraal; the daily average at grass, taking these three farms together, was—

48 horses, 154 mules, 18 donkeys, 53 cattle, 200 sheep and goats, so that the daily average number of animals kept by the Division was—

187 horses, 214 mules, 32 donkeys, 99 cattle, 324 sheep and goats.

In the feeding of live stock so large a sum of money is expended that it is a matter to which particular attention has been paid, as it seemed that if a more economical manner of feeding could be adopted, considerable economy might be effected, and, in fact, this has proved to be the case. The appointment of a yard foreman at the commencement of the year has facilitated this, and has also resulted in a very noticeable improvement in the condition of all the live stock on the station, and although a certain number of deaths from natural causes must always occur where a large number of animals of such a poor class are kept, I believe that there has been a marked decrease in mortality due to these causes.

In the feeding of serum horses, it has been ascertained that it is a better policy to keep them always in the highest condition, since the cost of the extra feeding is recompensed by it being possible to obtain larger quantities of serum, and consequently it is not necessary to keep so large a number of animals for the purpose. Previously it was the custom to bleed serum horses once a month and to take at each bleeding four litres of blood, but it was found that a large number could not be bled as often even as that, and that the average number of days' interval at which each horse was bled was nearly forty days. With better feeding, it has now been found possible to bleed all horses every fourteen days, and horses which do not keep their condition under this treatment are rejected, and so the cost of their feeding is saved. By keeping a smaller number of horses to produce the same quantity of serum, even though the actual cost per head is somewhat higher, the cost per dose of serum has been very materially reduced, and in this manner there is some prospect of it being possible in the near future to reduce in like proportion the fees charged for inoculation.

It has been also found a sound policy to keep all live stock that are under experiment in as good condition as possible, so that when they are discharged a heavy expenditure may not be incurred in getting them into condition for sale or loss through selling when in a poor and debilitated condition.

The total sum expended on corn and forage amounted to £5,700, which was £800 less than was spent in the previous year, although the number of animals kept had certainly in the latter months of the year largely increased.

The quantities of corn and forage used were—

125 tons oats, 250 tons mealies, 50 tons bran, 27 tons oil-cake, 6 tons salt, 215 tons oat forage, 210 tons veld hay, and 50 tons green forage, and in addition about 200 tons of green forage that was grown at Onderstepoort.

The animals at Daspoort have, of course, had to be entirely fed on purchased corn and forage, with the exception of the relatively small quantity of green forage that was sent in from the farm in the latter months of the year. In addition to these animals at Daspoort, the horses that were out at grass received a ration of corn all the year round, as these were the horses that were used for the preparation of serum. The mules also during a part of the year had to receive some additional food, owing partly to the scarcity of grass and partly to a number of them being in a poor condition when they were sent out to the farm. It is probable that had all the mules been in good condition in the autumn that they would have come through the winter well on the grazing at Sjamboks Oude Kraal. This, however, was not the case, as the majority of them were sent out to the farm just after recovering from either horse-sickness or biliary fever or both, and were in a low condition from the commencement.

With such a large number of animals, it is not surprising that the cost of feeding them is a very heavy item, and it is made the more so through the necessity of having to keep so large a number of them at the Laboratory at Daspoort, where, of necessity, they had to be kept stabled and fed on purchased forage all the year round.

On account of the want of accommodation, it has always been necessary to keep a much larger number of animals at Daspoort than would be necessary had there been stables on the farm. Horses and other animals after having passed through an experiment, and which will subsequently be used again in further experiments, have to undergo a period of rest during which they may eliminate from their systems any results that might remain from the previous treatment, and during this time it is, of course, necessary that they should be under observation, and that their temperatures should be taken twice daily. These animals could all be out at grass during the day if there was accommodation for them to be stabled at night, but from the lack of this accommodation it has been necessary to keep them at Daspoort, whereby the cost of their feeding is enormously enhanced. Again, animals in the early stages of experiment could always with advantage be allowed to graze during the day; and, in fact, it is reasonable to suppose that the more normal the condition under which they are kept and the more those conditions assimilate to such as would occur in practice, the more reliable will be the deductions from the experiments. From what I have said it will be seen that the ideal state would be an abundance of grazing of good quality and in close proximity to the Laboratory, as it would not be possible to send these animals long distances twice a day to their grazing. To comply with these conditions for such a large number of animals a farm would be necessary with pasture such as is not to be found in South Africa. The best alternative, however, which is possible, is a partial soiling system, so that all animals may have their daily run at grass and the deficiency in feed made up by supplies of green forage. The advantage of this system also would be that the farm will be continually increasing in fertility, so that in time it will be able to carry three or four times the head of stock that it would do at present, and so more nearly conform to the ideal desired.

This was one of the chief reasons for advocating that the new Laboratory should be situated on a farm where all live stock, when not too sick, can have a daily run at grass and in addition be supplied at all times with ample quantities of green forage.

This latter is most necessary for animals kept under the abnormal conditions such as must maintain in an experimental station; for, on consideration, it is clear that the horses that are used for the preparation of serum naturally do not require to be fed as if they were horses in hard work; on the contrary, although high feeding is absolutely necessary to help them to withstand the strain of constant bleeding, soft and easily digested food is indicated, and under a liberal allowance of green forage these horses have been found to keep better condition and stand the constant bleeding better than on dry food alone. A trial was also made with cooked food, and although from want of convenience for continuing this on a large scale the experiment could not be fully carried out, it was sufficient to show that it is a matter which is worth going into more fully when it is possible with the better accommodation at the new Laboratory. The horses under experiment again must be considered as sick animals, and consequently require careful feeding, for which purpose green forage is most suitable, and when convalescent they need to be fed up into condition again on a liberal diet. It must also be borne in mind that, as all horses are in the first instance purchased with a view to experiment, and that only a small proportion eventually have up to now survived all experiments, that only the cheapest horses obtainable are bought, and it is even difficult sometimes to get horses at all at a reasonable price; consequently it is not surprising that a certain number of them are old, in poor condition, and broken down in constitution through hard work, and these do not always quickly respond even to liberal feeding. It is necessary, therefore, sometimes to keep them for a long time before they are fit to be bled, which up to now has been the ultimate destiny of all horses that, after passing through all tests, have become salted.

The remarks that I have made with regard to horses apply in an equal degree both to cattle and sheep. Cattle are all used first for the production of vaccine lymph, and during the time that they are under treatment for this purpose a very severe strain is put on the animals; as soon as they have recovered from this they are then used for experiment in redwater and other diseases, which is again a heavy tax on the animals' constitution. During the whole time that these cattle are kept at Daspoort it is necessary therefore that they should be very highly fed, and there is no doubt that the best possible food for them would be green forage, supplemented by an allowance of corn and oil-cake when such is found necessary.

Sheep were and will be more largely kept in future for the preparation of vaccine against blue tongue, and in their case, again, they not only have to undergo the disease, but are also bled to obtain the blood from which the vaccine is prepared. It was not anticipated last season that these sheep, since they are only bled once, would require much extra feeding, and as soon as they had returned to a normal condition of health after bleeding they were sent out to grass. The result, however, was disastrous, as not only did they at once fall away in condition, but a large percentage died, and that after they had been put back on to a liberal allowance of corn. It is probable that had they been fed from the beginning on green lucerne, this would not have occurred, and that in future with an abundant supply from the farm that the whole of the sheep may be saved and the cost of feeding not be excessive, and it would, of course, be impossible to produce blue tongue vaccine at a penny a dose if heavy expenditure on feeding, in addition to a large loss through deaths, were to continue. All other animals that are under

experiment have for similar reasons to be well looked after and well fed, and it is obviously not possible to make a comparison in the cost of feeding animals kept under such conditions as they must necessarily be at these Laboratories with the cost of feeding animals kept under normal conditions.

From what I have said it will be clear that for all animals on this station the most suitable feed is green forage. Unfortunately up to now the cost of this has made it practically impossible to use it in any quantity.

The market price of green forage varies from as much as 7s. per 100 lbs. to 2s. per 100 lbs., and may be said to be rarely lower than the latter price, except for short intervals when there is a glut in the market. The average price paid during the year has been about 4s., and at that price it is plain that the expense of feeding it in large quantities would be altogether prohibitive, and in consequence, unless green forage can be grown on the place, that the most suitable manner of feeding animals is out of the question.

It was late in the season before a farm was purchased for a site for the new Laboratory, and it was not until the 14th of November that a commencement could be made with cultivation. The portion of the farm Onderstepoort purchased, which is situated about two miles north of Wonderboom Station on the Pretoria-Pietersburg line, is 237 morgen in extent, and has the Aapies River for its eastern boundary, with the farm Wonderboom to the south. The Pietersburg Railway passes through the farm, as also the main road to Pienaars River. There are about 80 acres which are capable of being put under irrigation, but of this not more than 10 acres were previously under cultivation. The whole 80 acres have now been ploughed up, and some dry land in addition, but all of this could not be put under summer crops last year, and it was not to be expected that the results during the first season would be good. The lateness in the year prevented the thorough cultivation necessary for preparing new lands for the summer crops, and considerable damage was done by locusts, but something like 200 tons of green forage was cut and fed to the animals with a very marked good effect on their condition and health. The prospects for the winter crops are, however, extremely good, and there are about 53 acres under oats and rye and 20 acres under lucerne. A larger area could not be put down in lucerne owing to the lateness of the season at which farming operations were begun and to the state of the land being such that until thorough cultivation had been given it would have been useless to attempt to lay down lucerne. It is, however, intended to sow the whole of suitable land with this crop, and during the coming season another 25 or 30 acres will be sown.

The work that is carried on in these Laboratories cannot be immediately reproductive in a commercial sense, and this is only to be expected, for the benefits to the country at large of new discoveries are not things that can be reckoned in pounds, shillings, and pence; nevertheless, preparations for the prevention of disease are sold and a certain revenue is obtained. The price fixed for these preparations is made as low as possible, and, of course, does not actually in many instances cover the cost of production, for in estimating this, in order to fix a price, that part of the first initial cost which may be considered as the ordinary routine work of the Laboratory is not taken into account. The aim has been rather to cover the extra cost that would be thrown on the Division by the extra expenditure that would be incurred to increase the output where the demand for any Laboratory products largely increased. In addition to the various Laboratory products sold, the fees for the immunisation of mules amounted to a large sum, and there was a considerable revenue from the sale of animals which were no longer required for experiments. The revenue from the sale of live stock was £6,006; 102 mules were sold out of hand at an average price of £22 4s.,

and 136 mules were sold by auction and realised an average of £16 11s. 6d. In addition to these a number of mules were supplied to other Divisions of the Department and some to other Government Departments—in all to the value of over £1,000. A few cattle and donkeys were also sold.

Horse-sickness serum was sold to other Colonies and Foreign Governments to the value of £1,825, and the fees for the inoculation of mules realised £4,924. From this latter, however, must be deducted the amount of £2,202 paid out in compensation to those owners of mules whose animals died whilst undergoing the treatment, so that the nett proceeds only amounted to £2,722.

The fees for the immunisation of mules it may be possible to reduce in the future, although this has in the past probably barely covered the cost of the preparation of serum and of the expenses incidental to inoculation, together with the cost of compensation for mules dying under inoculation. Economies are possible in two ways, first, the cost of production may be reduced; second, the percentage of losses under inoculation may be reduced and so the cost of compensation be lessened. The latter, I understand, there is good prospect of effecting. The former has been materially reduced by obtaining a larger quantity of serum from each horse, as I have explained above, and also, now that the preparation is no longer in an experimental stage, by making it in larger quantities and testing it in bulk, by which a smaller number of mules are required to be provided for this purpose, and the expenditure on their upkeep is saved. The revenue from vaccine lymph satisfactorily covers the cost of production, although the price charged is far less than lymph can be obtained for in most other countries. No revenue was obtained from the sale of blue tongue vaccine, as, being in an experimental stage, it was issued last year free of cost, but in the present year a charge of 1d. per dose will be made, which, it is anticipated, will cover the cost of production if there is a demand for large quantities.

The total revenue received was as under:—

Sale of live stock	£6,006
Fees for inoculation of mules	4,924
Sale of horse-sickness serum	1,825
Sale of vaccine lymph	4,125
Sale of other Laboratory products and sundries..	233
	<hr/>
Total	£17,113

The gross expenditure was £30,964, so that the nett expenditure, after deducting the revenue, only amounted to £13,851.

In the years 1905-6 the nett expenditure was £20,037, or over £3,000 more than during the year that is past.

I have the honour to be,

Sir,

Your obedient Servant,

E. B. H. PARKES,

Superintendent.

INTERVIEWS AND CORRESPONDENCE.

Numerous interviews were accorded to farmers and others interested in stock diseases and also in the work of this Laboratory.

As will be seen from the following statement, a remarkable increase occurred in the correspondence, and I am glad to record that farmers seem to recognise the utility of our Division, frequently enquiring on stock diseases, and in many cases forwarding specimens for examination.

RETURN OF LETTERS AND TELEGRAMS RECEIVED AND DESPATCHED DURING THE FINANCIAL YEAR ENDING THE 30TH JUNE, 1907,
AS COMPARED WITH THE CORRESPONDING PERIOD FOR THE PREVIOUS YEAR.

	1906-1907.						1905-1906.		INCREASE IN 1906-1907.	
	LETTERS.		TELEGRAMS		TOTAL.		TOTAL.		TOTAL.	
	Received.	Despatched.	Received.	Despatched.	Received.	Despatched.	Received.	Despatched.	Received.	Despatched.
Administrative Office	1,289	781	Included in Letters.	309	1,289	1,090	} 2,517	2,837	1,155	939
Technical Office	2,383	1,845		841	2,383	2,686				
	3,672	2,626		1,150	3,672	3,776	2,517	2,837	1,155	939

THE NEW BACTERIOLOGICAL LABORATORY AT ONDERSTEEPOORT.

In continuation of my last annual report regarding the prevalency of enteric fever at the Laboratory, I am glad to say that the late Government decided to remove our quarters to a fresh site, and the present Parliament carried on the scheme, voting an additional sum for the purpose. We were able to purchase a suitable site in the neighbourhood, on the farm "Ondersteepoort." This farm offers suitable conditions for our purpose, as it is within easy reach of Pretoria; a railway line passes quite close and a siding will be erected; the Aapias River forms one of the boundaries, and sufficient land can be irrigated for grazing and cultivation of our own crops.

The plans were designed by Mr. Eagle, Chief Architect of the Public Works Department; those of the main buildings, including the Laboratories and Administration Offices, have been approved, and these buildings were commenced at the close of the fiscal year.

In conclusion, I wish to place on record the good work performed by the staff, especially during the summer months.

I have the honour to be,

Sir,

Your Obedient Servant,

A. THEILER,

Government Veterinary Bacteriologist.

"A."—FURTHER NOTES ON PIROPLASMA MUTANS — A NEW SPECIES OF PIROPLASMA IN SOUTH AFRICAN CATTLE.

In my last Annual Report I established the fact that the rings and rods which sometimes appear in susceptible cattle after the injection of redwater blood have no connection with redwater (*P. bigeminum*), but must be considered as a separate piroplasm, which I have designated *Piroplasma mutans*.

The chief argument in favour of this is that an animal can be infected with redwater exclusively, and at any later period with *piroplasma mutans*. The incubation time of this latter parasite varies from 20 to 45 days, whereas the incubation time of redwater is from five days onwards. Naturally *piroplasma mutans* appears after the disappearance of *piroplasma bigeminum*.

I have in addition shown that not all the animals in the Transvaal are infected with *piroplasma mutans*, but those which are susceptible can easily be infected when injected with blood containing this new piroplasm.

The experiments I now bring forward will (1) add further proof of the duality of the two piroplasms, (2) show that the blue tick, which is the carrier of *piroplasma bigeminum*, does not transmit *piroplasma mutans*, (3) show that *piroplasma mutans* is distributed all over South Africa, and (4) show that the injection of blood containing *piroplasma bigeminum* and *piroplasma mutans* into cattle susceptible to ordinary redwater does not always cause the former parasite to appear.