
Making Plague a Tropical Disease

SUSAN D JONES, DVM PHD
UNIVERSITY OF MINNESOTA
MINNEAPOLIS, USA

WAHVM 2020
PRETORIA, SOUTH AFRICA



“Tropical” disease...definitions

“Tropical diseases are those occurring only, or are specially [*sic*] prevalent, in warm climates. Certain diseases are common to man and the lower animals...and are found [where] these species...are most frequent.”

--Patrick Manson, *Tropical Diseases* (1912), xiii/xvi

“Changing land use, agriculture...and poverty and inequality make tropical diseases.”

--Randall Packard, *The Making of a Tropical Disease* (2007)

Surveillance for plague: keeping Europeans and cities safe

1914

Plague on a
highveld farm

Domestic
animals?

Racial hierarchy
of plague
susceptibility



**FATAL CASES OF
PLAGUE**
10/4/35
**TWO EUROPEANS AND
THREE NATIVES**

The bulletin of the Department of Public Health for the week ended April 6 reports more cases of plague.

In the Boshof district one native died on the farm Lynfontein, six miles north-east of Dealesville, and there was another fatal case on the farm Sterkfontein, 12 miles north-east of Dealesville. In the Heilbron district two European cases (one fatal) were reported on the farm Davidsdam, 16 miles east of Heilbron. In the Jacobsdal district there was a fatal native case on the farm Hartbeesnek and

Louis Fourie Papers,
Adler Museum

Veld rodents

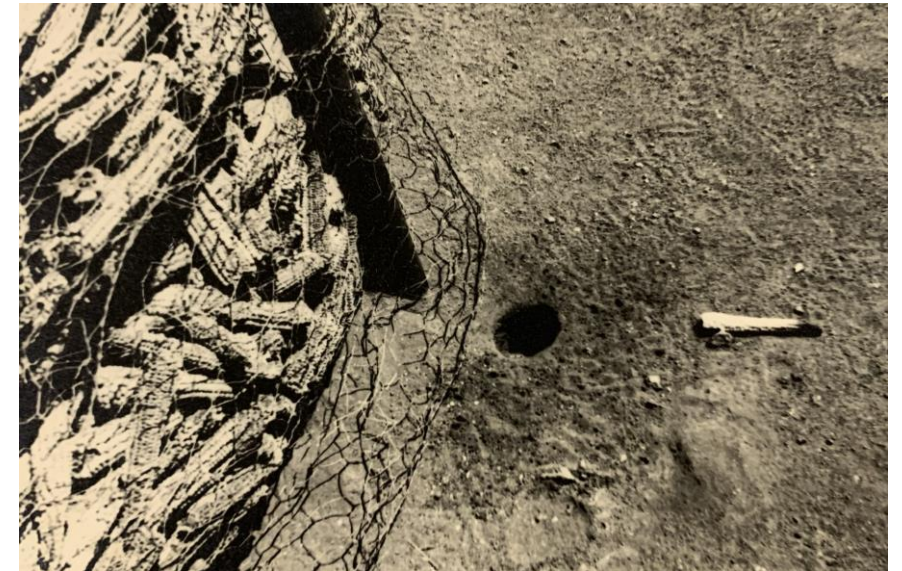


gerbilles mice

Taterona, Desmodillus,
Mastomys spp.

& fleas

*Xenopsylla, Dinopsyllus
spp.*



Veterinary Institute's role in plague studies



A. Theiler of Onderstepoort
Veterinary Institute

G.A. Bedford, entomologist
at Onderstepoort



1909:

The new
Bacteriological
Laboratory at
Onderstepoort

K.F. Meyer
(center)

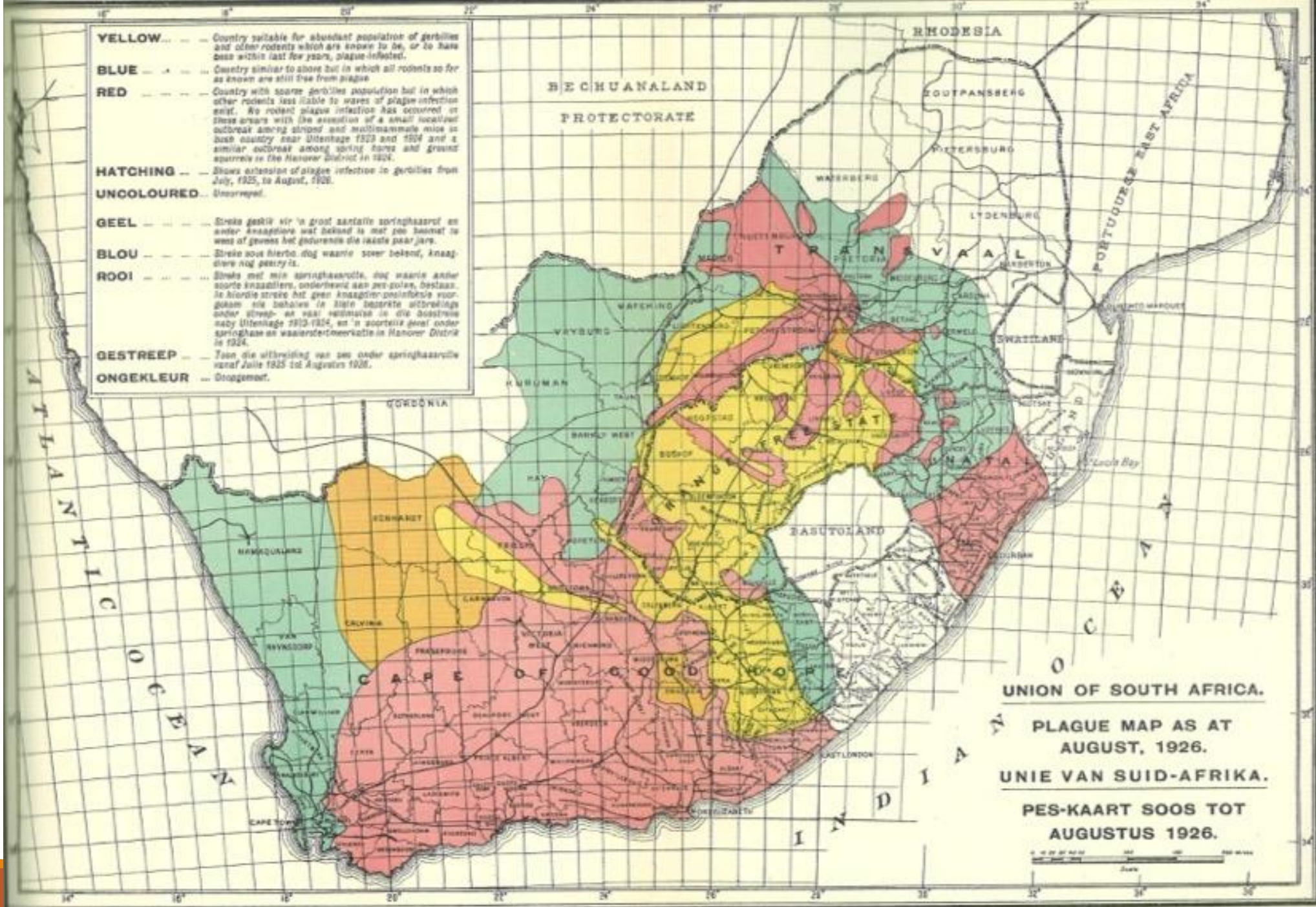
A. Theiler's vet
pathologist – and
nemesis

Meyer became
the U.S. plague
expert



K.F. Meyer Papers, Bancroft Library,
Stanford Univ. USA

- YELLOW**... — Country suitable for abundant population of gerbilles and other rodents which are known to be, or to have been within last few years, plague-infected.
- BLUE** — Country similar to above but in which all rodents so far as known are still free from plague.
- RED** — Country with sparse gerbilles population but in which other rodents less liable to waves of plague-infection exist. No rodent plague infection has occurred in these areas with the exception of a small localized outbreak among striped and multimammate mice in bush country near Uitenhage 1923 and 1924 and a similar outbreak among spring hares and ground squirrels in the Hanover District in 1924.
- HATCHING** — Shows extension of plague infection in gerbilles from July, 1925, to August, 1926.
- UNCOLOURED** — Unsurveyed.
- GEEL** — Streke geskik vir 'n groot aantal springhaasrot en ander knaagdiers wat bekend is met 'n besmet te wens of gevrees het gedurende die laaste paar jare.
- BLOU** — Streke sou hierdie dog waarin sover bekend, knaagdiers nog gesond is.
- ROOI** — Streke met min springhaasrotte, dog waarin ander soorte knaagdiers, onderhewig aan pes-geestes, bestaan. In hierdie streke het geen knaagdier-pestinfeksie voorgoed sig behou in die laaste paar jare uitbrekings onder streep — en wat verduidelik is die besmetting naby Uitenhage 1923-1924, en 'n soortgelyke geval onder springhaas en wasierstermerkatte in Hanover Distrik in 1924.
- GESTREEP** — Toon die uitbreiding van pes onder springhaasrotte vanaf Julie 1925 tot Augustus 1926.
- ONGEKLEUR** — Droegemaak.



UNION OF SOUTH AFRICA.

PLAGUE MAP AS AT AUGUST, 1926.

UNIE VAN SUID-AFRIKA.

PES-KAART SOOS TOT AUGUSTUS 1926.



Conclusions

Plague became a “tropical” disease in the early 1900s, when:

1. Agricultural workers fell ill with bubonic or pneumonic plague; and
2. South African scientists realized plague had become endemic in native wild rodents.
3. International publications and reports:
 - Furthered ideas of racial susceptibility to plague
 - Reinforced the “ecological” approach to investigating plague outbreaks
 - Established the idea of permanent centers of endemic plague south of the equator

KEEPING THE PLAGUE AT BAY



The poison belt which protects Johannesburg from the approach of rodents is shown in light shading in this map.

the south along two avenues south-east and south-west of the city. They travel along the valleys, where food is most abundant and where they find the sweet juicy grasses which give them both their food and their water.

It is the duty of the rodent inspectors to keep a constant patrol along the boundaries of the city and three miles beyond, and as Johannesburg has a perimeter of over 40 miles, their task is by no means a simple one. The veld

cyanide gas and leave grains of wheat, impregnated with strychnine at the entrances. One grain of wheat is enough to kill a rodent.

ger "H and to cold half a mile away in search of company.

often. When the fleas in his nest become too troublesome, he finds himself another. Once he enters the poison belt it is merely a matter of time before

is live in "We don't t down to said the found dead Crown Mines In that time, working

BY
L. SOWDEN

LAGUE was unknown in South Africa before 1899.

occupier, he may find a building infested with rats, and immediate

Louis Fourie Papers, Adler Museum, Univ Witswatersrand