

JAUNDICE IN SHEEP IN SOUTH AFRICA – CONFUSION AND RESOLUTION

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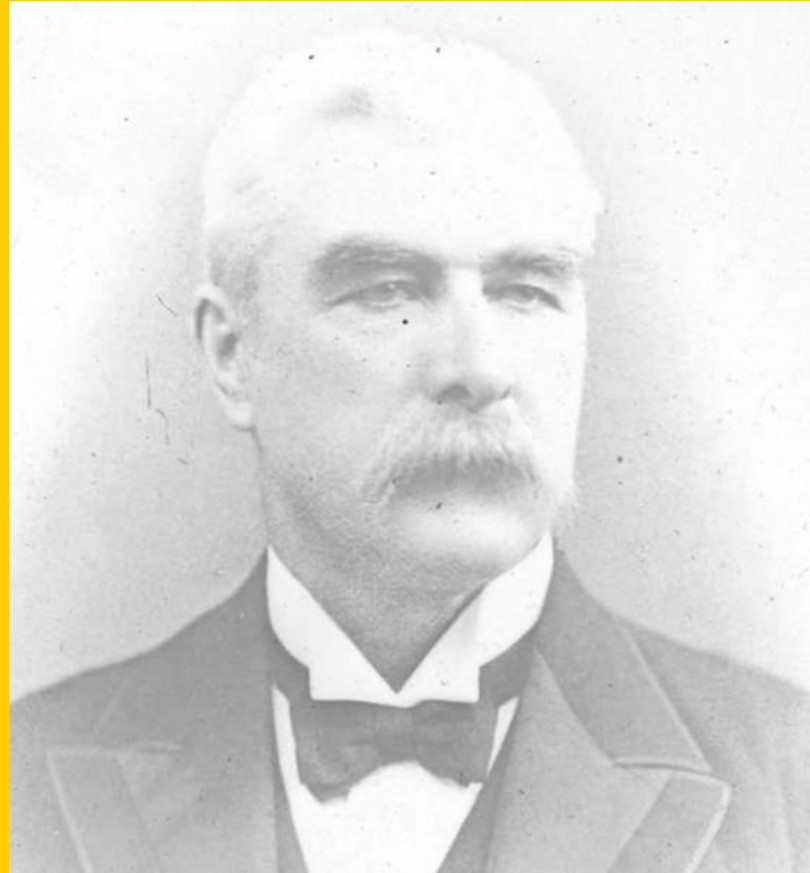


EARLY EFFORTS

- Veterinarians trained in Europe - 19th Century
- Unknown Diseases
- Farmer observations and opinions
- Researchers only appeared from 1874
- One of the conundrums was jaundice in sheep that led to high mortality

Late 1800s

Duncan Hutcheon – the Father of Veterinary Science in South Africa

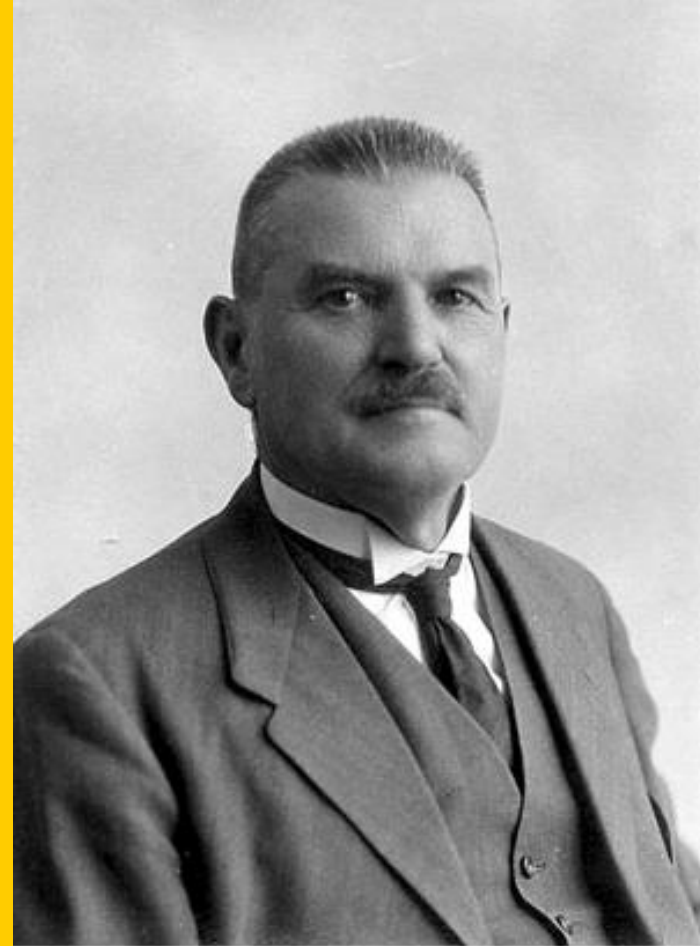


1880

THEILER AND TRIBULOSIS

- Methodical approach
- Tested many options
- Careful observations
- Full description
- Reproduced the disease
- Geeldikkop or Tribulosis

1918



Tribulus terrestris



Geeldikkop



Theiler, Henrici and Green



DE KOCK AND ENZOOTIC ICTERUS

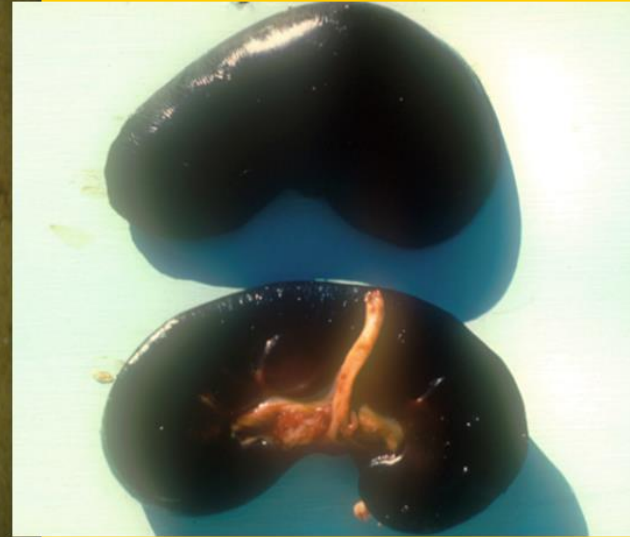
- Same area as Geeldikkop (arid Karoo)
- Sheep sent by train to Onderstepoort
- Died soon after arrival
- Severe jaundice
- No photosensitisation
- Cause unknown

1928

Gilles de Kock



Enzootic Icterus



JOHN QUIN AND PATHOPHYSIOLOGY

- Why and how are jaundice and photosensitivity linked?
- Why only in ruminants?
- Photodynamic agents
- Ligation of the bile duct induced photosensitisation
- Identified phylloerythrin
- Origin was chlorophyll

1930s

John Quin



MARGUERITE HENRICI AND DUBBELTJIES

- Excellent Botanist
- Studied *Tribulus terrestris* and other Karoo plants
- Physiology studied
- Findings not used and discounted
- Feeding dried plants failed to cause Geeldikkop



1930s & 1940s

JMM BROWN AND SELENIUM

- Excellent Physiologist
- Studied Geeldikkop and Enzootic Icterus long distance
- A time of great renewed interest in trace elements
- Selenium analysis was problematic
- Concluded that both diseases were caused by selenosis

1950s & 1960s

Mobile lab - c1900



Mobile lab # 2, c1958



VAN TONDER – BACK TO TRIBULUS

- Grazed sheep on Tribulus-only Geeldikkop-affected veld
- Caused classic Geeldikkop
- Histopathology better defined
- Frozen plants remained toxic
- Alcohol extracts were toxic

1960s & 1970s



Wilted dubbeltjies



Wilted & lush dubbeltjies



ENZOOTIC ICTERUS – GATHERING THE EVIDENCE

- Histopathology
- Pathology
- Blood and tissue chemistry
- Epidemiology
- Plant analyses
- Geology
- Conclusion: chronic copper poisoning

1970s

A DEVIATION INTO MYCOTOXICOSES

- An excellent toxicologist
- Progress with toxic fungi
- Lupinosis
- Facial eczema
- Tribulosis?
- Eventually discounted
- Isolated the toxic principle



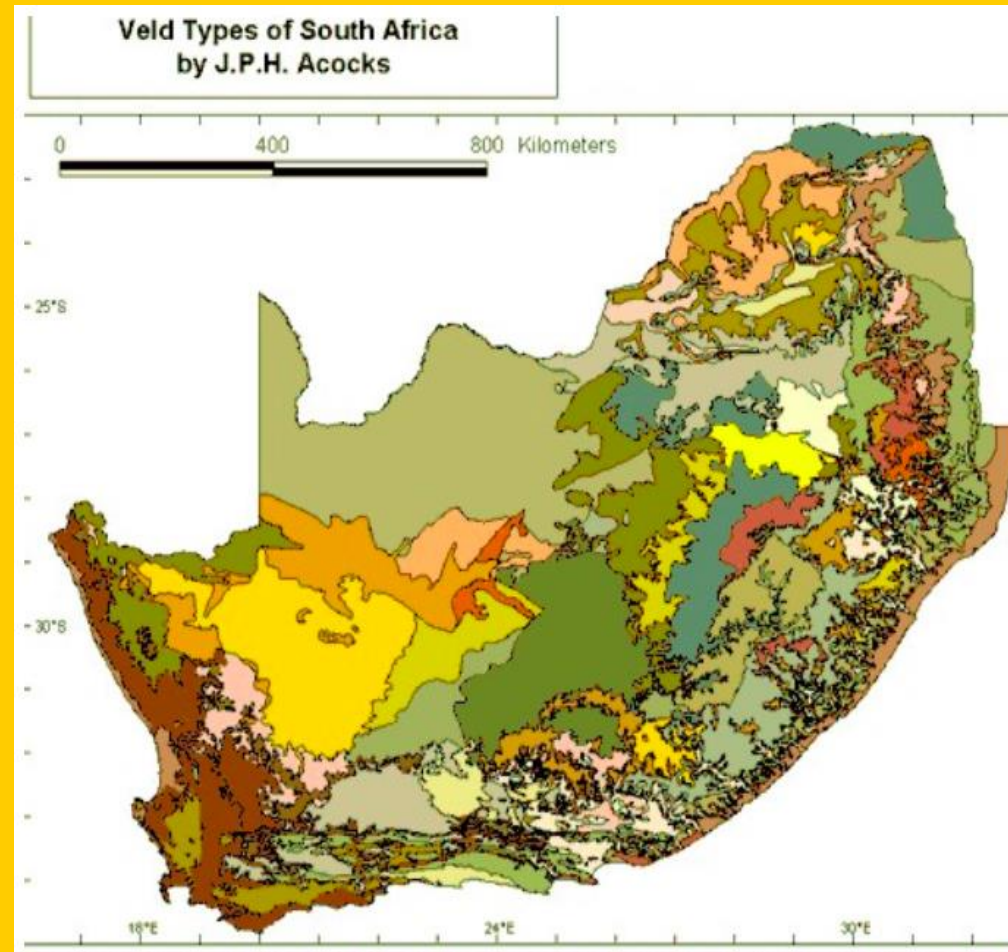
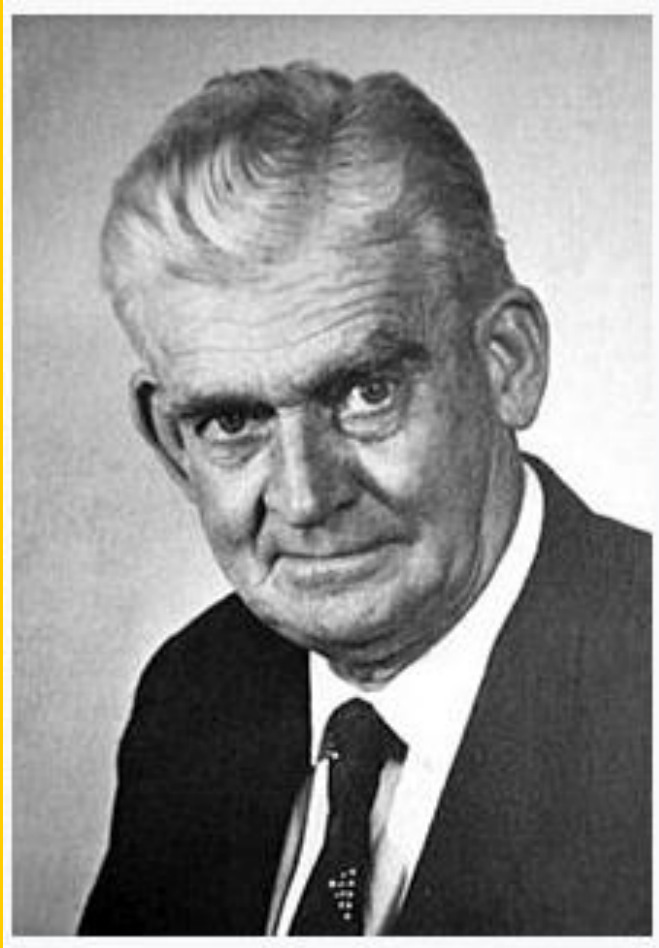
1980s & 1990s

OTHER CONFUSERS IDENTIFIED

- Ganskweek – same area
- Vuursiekte
- Rift Valley Fever
- Bacterial icterus
- Leptospirosis
- Clostridial infections
- Verminosis



John Acocks



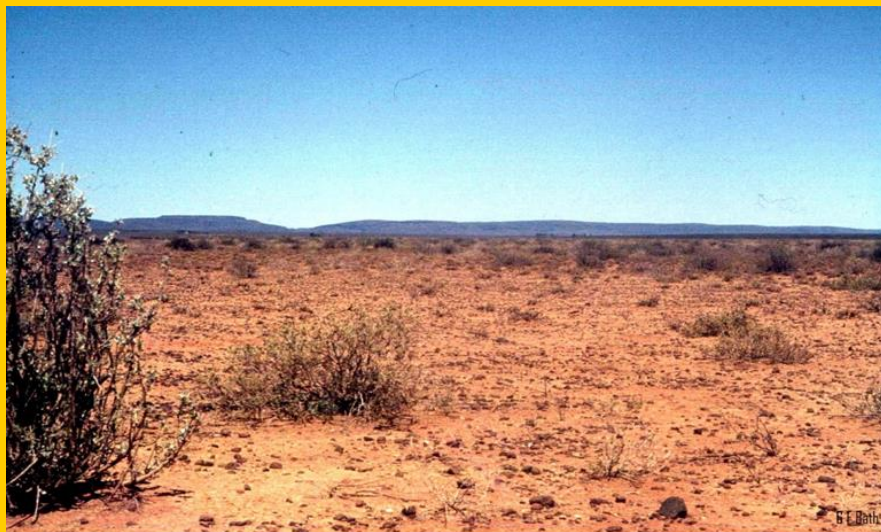
1950s to 1970s

UNDERLYING CAUSE AND SOLUTION

- Little importance currently – why?
- Stock Reduction Scheme – 1970s
- Better veld management systems
- Veld improved
- Farm production improved
- Plants responsible were suppressed
- Underlying factor: poor veld management

1950s onwards

Mismanaged Karoo



Well managed Karoo

