

VETERINARY HERITAGE

Nenta or Krimpsiekte

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A plant poisoning called nenta was first recorded in 1778 and has persisted into the 21st century.

The Swedish traveller, CP Thunberg, medic, surgeon and botanist recorded as follows: “*The Hottentots called by the name of 'nenta' a plant (Zygophyllum herbarium repens) which was said to be poisonous to sheep.*”

(Footnote: Zygophyllum spp are toxic but has not been associated with krimpsiekte)

Thus the word ‘nenta’ described a plant and ‘nenta’ is ‘krimpsiektebos’ in Afrikaans. Alternative spellings are: c’nenta, t’nenta, n’centa, cneuto and rita. It is not clear whether these are phonetic or linguistically derived. As examples Hutcheon (CVS) used the word ‘cneuta’ to describe a cerebrospinal meningitis in goats while Soga, Assistant Veterinary Surgeon named the disease both Ncenta and Nenta.

The sheep mentioned by Thunberg were of the ‘Cape’ type viz. hairy and with degrees of fat tails while the ‘goats’ were kept for milk and meat.

HISTORICAL

?- 1876 : Pastoralists and botanists.

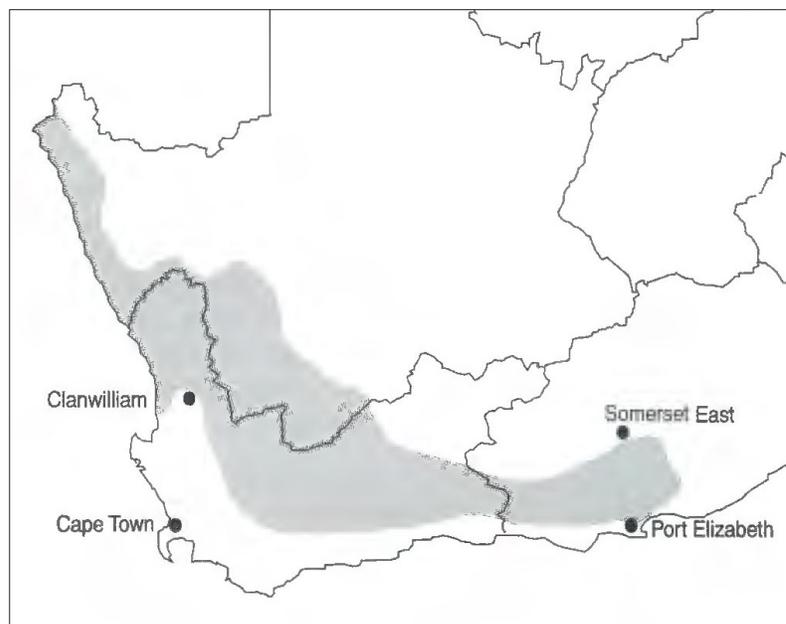
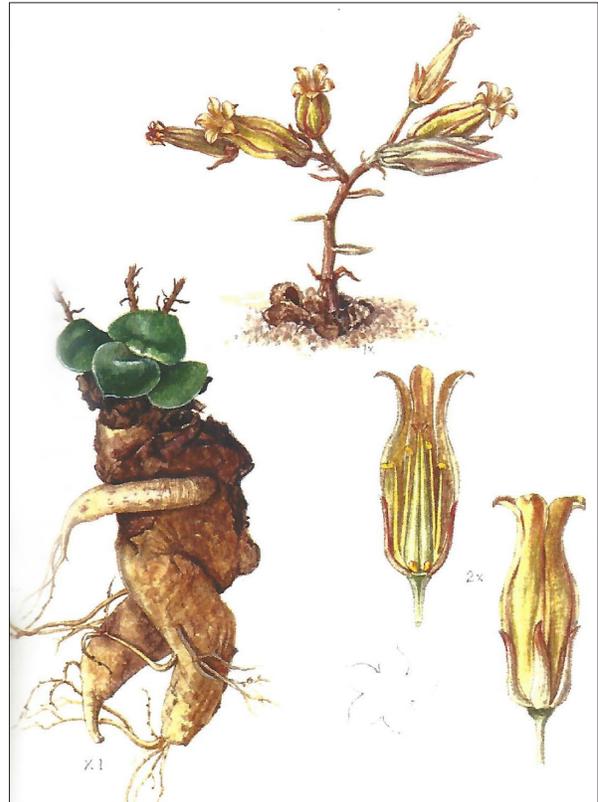
The Khoe (or Khoi) name recorded by Thunberg clearly indicates that the Khoe recognised a plant intoxication, nenta.

An interesting reference by Louis Trichardt in 1838 indicated knowledge of a disease condition as “een soort van nintas” when referring to mortalities of sheep. This was probably heartwater but Trichardt was considering the clinical format of the disease.

Before 1876 references to plants reportedly associated with nenta were identified by botanists who usually acted on reports by farmers and rarely saw the disease. Their reports are contained in a commission assigned to investigate diseases in cattle and sheep published in 1877.

Cape sheep were replaced by fine woolled sheep and the indigenous goats introduced into the south-western and eastern Cape were being replaced by mohair-producing goats. The economically significant importance of wool and hence concerns about factors affecting wool production lead to this Commission and the appointment of the first Colonial Veterinary Surgeon, William Catton Branford in 1876.

The Report read: “There is a disease called “Rita” which is very destructive to goats. It



affects them in a way that seems to indicate paralysis of the nervous system". Prof MacOwan, inter alia, had heard that this disease was ascribed to *Lessertia annularis*.

In the Addendum MacOwan referred to 'nenta' ascribed to *L. annularis*.

VETERINARIANS

Branford participated in the above-mentioned Commission but made no mention of 'nenta'

in his subsequent annual reports.

Hutcheon

The second CVS, Duncan Hutcheon was appointed in 1880 and described his observations regarding 'Cneuta'. Farmers were almost unanimous that the disease was caused by some bush eaten by goats but more than ten bushes were shown to Hutcheon.

Hutcheon proceeded to test some of the bushes, including *L. annularis* on healthy goats, without effect. But he could induce the condition by feeding livers of diseased goats to dogs which developed the condition in two days. A dog fed on stomach and bowels(content?) did not succumb.

Subsequently he reproduced the condition in healthy goats, which fed on the stomach of diseased goats, developed the symptoms after two days.

Hutcheon was satisfied that nenta was caused by plants but not sure whether plants per se were the intrinsic cause and could not decide on why the disease occurred.

SOGA

The second Assistant Veterinary Surgeon, Jotello Festiri Soga MRCVS, was appointed in April 1888.

He described briefly, in his 1891 Annual Report, how he followed instructions by Duncan Hutcheon to proceed to Jansenville district (Eastern Cape) in July 1890 to investigate a disease called 'Ncenta'. He stated that he had verified that a plant, *Cotyledon ventricosa*, caused 'Ncenta' in goats. The plant was identified by MacOwan.

The seven lines in the Annual Report was fortunately expanded in an article "Disease "Nenta" in Goats" in the Agricultural Journal of 29th January 1891. This increased the public awareness of his research.

Soga credited a Mr C Weyer of Darlington, Somerset East, for drawing attention to the plant *Cotyledon ventricosa* and providing experimental healthy goats.

In this article Soga listed a number of "farmer" remedies but concluded that the only preventative was uprooting and destroying the plant.

Despite the proof MacOwan questioned the toxicity of this plant and was corrected by Mr Weyer in 1892, who had previously sent the plant to MacOwan. MacOwan contended that Soga was wrong and reasserted his claim that *Lessertia annularis* was the culprit as he had claimed in 1877. MacOwan acknowledged that the plant Weyers had sent in for identification was *Cotyledon ventricosa*.

Soga, September 1892, repeated that he was "thoroughly" satisfied that *C. ventricosa* was the cause of nenta.

This plant was shown to farmers at Swartruggens by the Agricultural Officer MacDonald. Many farmers stated that they had never seen this plant which was countered by Soga that it was difficult to see from horseback.

Henning 1932 lists further research and support of Soga's claim by e.g. Borthwick, Tomlinson and Dixon.

Despite all the incrimination of this plant, it was not universally accepted as the causal factor but that e.g. it carried some infectious or parasitic agent thus causing an infectious disease.

Hutcheon concluded that *Cotyledon ventricosa* is at least one of the plants which induce the disease known as nenta or krimpsiekte in goats.

20TH CENTURY

At the end of the 19th century one plant had been shown to cause Krimpsiekte. The colloquial Dutch name “Krimpsiekte” commonly replaced ‘nenta’ and refers to the clinical manifestations of the condition.

During the 20th Century numerous reviews, additional plants and elucidation of the toxic principles appeared in articles and textbooks.

Two textbooks that appeared are Henning (1932) and Steyn (1949) which reviewed the lists of additional plants and identification of toxic principles. E.g. Steyn (1949) mentions a “cotyledon toksiene” (Cotyledon toxin) belonging to the ‘picrotoxin group’ that stimulates the central nervous system and consequent paralysis.

The disease ‘nenta’ and associated plants were extensively reviewed in 1962 by Drs Watt and Breyer-Brandwijk. The taxonomy reflects the names of plants as of 1962. The references include South African authors e.g. Soga, Hutcheon and Steyn. Of note is the change *Cotyledon ventricosa* to *Cotyledon ventricosus*.

A review of this atlas is beyond the scope of this note.

Further taxonomical changes have occurred since e.g. *Cotyledon* to *Tylecodon* in 1978.

21ST CENTURY

Research continued, relevant plants were reviewed and considerable literature regarding the structure and actions of the toxic principles associated with cotyledonosis.

Of note is the DPhil thesis of Christo Botha of 2003 titled Krimpsiekte, a paretic/paralytic syndrome of small stock in South Africa.

An illustration of *Tylecodon ventricosus* illustrates the small size of the plant that supports Soga’s contention that this plant is difficult to see from horseback.

A map demonstrates the distribution of the disease from Somerset East/Port Elizabeth in the eastern Cape pass Clanwilliam to the Namibian border.

A textbook of the toxic plants in South Africa of 2005 by Kellerman, Coetzer, Naude and Botha contains a chapter “Chronic poisoning with bufadienolides that have a cumulative neurotoxic effect.

The taxonomy as applicable at the time of publishing is utilized.

CONCLUSION

Nenta is a Khoi word and demonstrates the communication between Khoi and European pastoralists.

Botha considers that Krimpsiekte is arguably the most important plant poisoning of small stock in the Little and southern Great Karoo.

Soga’s efforts of 1890 have withstood the test of time and he should be considered as one of the veterinary pioneers who provide the shoulders for veterinarians to stand upon.

This brief review does not do justice to this novel affliction and the science involved. ■