

the art of smelting them". It would appear that iron smelting ceased about 120 years ago in Natal.

H.A. Junod "The Life of an African Tribe" mentions the Venda practising the art of mining ore from northern Zoutpansberg and using ant hills for their furnaces. He is unable to throw any light on who taught the Venda. Apparently the "Lebombo natives" possessed iron weapons as early as the 16th century. In concluding he states, "The origin of iron and the date of its introduction into South Africa is still a mystery."

With modern accurate methods of carbon dating, iron smelting dates are no longer unknown. The big question is who practised this sophisticated art in Southern Africa and Tongaland nearly 1400 years ago. The presence of clay pottery within the furnace site adds further to the confusion. Schofield has drawn attention to pottery found in northern Natal which bears some resemblance to that found in the Limpopo valley and Mashonaland sites, but this has not been confirmed (Brian Fagan 'Southern Africa'). Schofield's description of pottery he found in northern Zululand fits the description of the pottery fragments found in the Ndumu furnace site.

Dr. Eileen Krige gives a brief description of the Zulu 'smith' in her 'Social System of the Zulu'.

The progress of iron working apparently came to north Africa in 300 B. C. and reached the north-western coastal bulge in 200 B. C., the Zambezi in 100 A. D. and northern Natal about 500 A. D. ("Southern Africa" by Brian Fagan). The earliest Rhodesian iron age date is 90 A. D. (after J. D. Clarke).

The purpose of this short paper is merely to record the finding of Ndumu's first primitive furnace which might stimulate the finding of further sites to fill the paucity of iron age records for Zululand. Apart from numerous references on Rhodesia and Transvaal little appears on record for Zululand.

Acknowledgements

I wish to thank Dr. de Moor and Dr. Vogel for their kind assistance.

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CHECKLIST OF THE TICKS FOUND ON THE LARGER GAME ANIMALS IN THE NATAL GAME RESERVES.

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NOTE: The "A" or "I" against each species refers to "Adult" or "Immature;" the letters that follow indicate the locality (vide (a) under "Comments" at end of list).

1. **Canis mesomelas** Schreber
BLACK-BACKED JACKAL
I. pilosus (b) AI CM
A. hebraeum A*I CMN
H.l. leachi AI CM
R. appendiculus AI CMNS
R. eyertsi I CMNS
R. muhlensi I CMNS
R. sanguineus A CM
R. simus A CMN
2. **Crocuta crocuta** (Erxleben)
SPOTTED-HYAENA.
A. hebraeum I CM
H.l. leachi A CM
R. maculatus A* CM
R. simus A CM
3. **Panthera leo** (Linnaeus)
LION
A. hebraeum AI* CM
H.l. leachi A CM
H. truncatum A C
R. appendiculus A CM
R. simus A CM
B. decoloratus AI CM
4. **Acinonyx jubatus** (Schreber)
CHEETAH.
H.l. leachi A CM
H. truncatum A C
A. hebraeum A*I* CM
R. appendiculus A CM
R. maculatus A* CM
R. simus A CM
5. **Loxodonta africana** (Blumenbach) **ELEPHANT**
A. tholloni AI N
R. appendiculus A N
R. maculatus A N
R. muhlensi A N
R. simus A N

6. **RHINOCEROS** sp.
A. eburneum A* Rare C
A. hebraeum AI C
A. rhinocerotis A C
H.l. leachi A C
H. truncatum(c) A C
D. rhinocerinus A C
R. appendiculus I C
R. maculatus AI C
R. muhlensi I* C
R. sanguineus A C
R. simus A C
7. **Diceros bicornis** (Linnaeus)
BLACK RHINOCEROS.
A. hebraeum AI CMN
A. rhinocerotis AI* CMN
D. rhinocerinus A C N
H. truncatum A C N
R. appendiculus I CMN
R. maculatus AI CMN
R. muhlensi I* CMN
R. simus A CMN
R. spec. near R. bequarti (d) A C
R. zumpti (provisional) e A C
8. **Ceratotherium simum** (Burchell) **WHITE RHINOCEROS**
A. hebraeum AI* CMN
A. rhinocerotis A CMN
D. rhinocerinus A C N
H. truncatum A* C N
R. appendiculus A* CMN
R. maculatus A CMN
R. simus A CMN
9. **Equus burchelli** (Gray)
BURCHELL'S ZEBRA
A. hebraeum A*I* CM
H. leachi s.sp. I* C

(c) *Hyalomma truncatum*: A dry area tick, in Natal found only in hot dry river beds.

(d) *R. bequaerti* sp.: The next nearest record is Northern Tanzania.

(e) *Rhipicephalus zumpti*: Prevalent in Mocambique, but rare in Zululand. *R. zumpti* has been synonymised with *R. reichenowi* but may prove to be a valid species.

(f) *Ornithodoros moubata*: (c.f. authors) has been shown to be a catchall for several very closely allied species and sub-species.

(g) *Haemaphysalis silacea*: Confined to hot dry river valleys.

(h) *Rhipicephalus pravus*: A semi-dry area tick.

(i) *Haemaphysalis aciculifer*: Found in a number of different vegetation types. Occurs in more humid areas than *H. silacea*.

(j) *Rhipicephalus simpsoni*: Theiler (personal communication) states that this is essentially a parasite of the large edible rat and of the cane rat.

(k) *Ixodes n. sp.*: This is a new species (Theiler) apparently confined to high altitudes.

(l) *Rhipicephalus capensis s. sp.*: A new sub-species (Theiler) apparently confined to the Eastern slopes of the Drakensberg. Curson 1928 (i)

The record *A. variegatum* off Ox, Dog and Warthog may be *Amblyomma eburneum* although not one of these three has been recorded as a host as yet.

A. marmoreum - off white Rhino - may be a purely incidental occurrence (present in Zululand) - thus far not recorded off Rhino elsewhere. It cannot be *A. sparsum* - the Tortoise-Rhino-Buffalo-tick as this species is not known to occur in Zululand. It cannot be *A. nuttalli* - which does occur in Zululand but as yet has never been recorded from the Rhino.

Haemaphysalis parmata off Bushbuck is most likely an *H. aciculifer*. In so far as Curson recognises an entity *H. silacea* different from his *H. parmata* - it cannot be *H. silacea*. *H. parmata* is essentially a tick of humid forests - (N.B. much more humid than any forests to be found in Zululand). *H. aciculifer* to a certain extent does resemble *H. parmata* and could be mistaken for it especially if only females were encountered. Though also a tick of warm humid regions *H. aciculifer* can tolerate drier conditions than can *H. parmata*.

Hyalomma aegyptium in most instances can be equated with *H. truncatum* - (*H. rufipes* mainly figures as *H. aegyptium impressum* by the older workers.)

R. masseyi = *R. mühlensi*

A. petersi = *A. rhinocerotis*

Aponomma laeve = *A. latum*.

Adult *R. evertsi* off Warthog is not an "impossible record" for it may occur on Pig, though seldom. Curson may have known the immature stages of *R. evertsi* - though Theiler questions whether he scraped the ears of the Warthog.

THE DISTRIBUTION OF TICKS IN THE NATAL GAME RESERVES.

1. COMPLEX

Ixodes pilosus, *Amblyomma eburneum*, *A. hebraeum*, *A. rhinocerotis*, *Haemaphysalis aciculifer*, *H. leachi leachi*, *H. silacea*, *Dermacentor rhinocerinus*, *Hyalomma truncatum*, *Rhipicephalus appendiculatus*, *R. bequaerti*, sp., *R. evertsi*, *R. maculatus*, *R. mühlensi*, *R. sanguineus*, *R. simpsoni*, *R. simus*, *R. zumpti*, *Boophilus decoloratus*.

2. MKUZI

Ornithodoros moubata, *Ixodes pilosus*, *Amblyomma hebraeum*, *A. rhinocerotis*, *Haemaphysalis leachi leachi*, *H. silacea*, *Rhipicephalus appendiculatus*, *R. evertsi*, *R. maculatus*, *R. mühlensi*, *R. pravus*, *R. sanguineus*, *R. simus*, *Boophilus decoloratus*.

3. NDUUMU

Amblyomma hebraeum, *A. rhinocerotis*, *A. tholloni*, *Dermacentor rhinocerinus*, *Hyalomma truncatum*, *Rhipicephalus appendiculatus*, *R. evertsi*, *R. maculatus*, *R. mühlensi*, *R. pravus*, *R. simus*, *Boophilus decoloratus*.

4. ST. LUCIA - FALSE BAY

Haemaphysalis silacea, *Rhipicephalus appendiculatus*, *R. evertsi*, *R. maculatus*, *R. mühlensi*, *Boophilus decoloratus*.

5. GIANT'S CASTLE - LOTENI

Ixodes n. sp., *Hyalomma rufipes* (Giant's Castle only), *Rhipicephalus capensis s. sp.*, *R. evertsi*, *Margoropus winthemi*, *Boophilus decoloratus*.

BRIEF DESCRIPTION OF VEGETATION IN NATAL GAME PARKS.

Hluhluwe, Umfolozi and Corridor Complex

The altitude varies between 300 and 1800 feet above sea level, most of it being less than 1000 feet.

The greater part of the area is acacia and grass parkland.

On the humid upland areas the vegetation consists of grassland and woodland, the latter can be divided into typical closed evergreen-coastal forest and parkland.

The dry valley zones are made up of parkland with different dominant tree- and shrub-associations of thornless and thorny plants, often forming dense thickets.

In addition to these a narrow belt of riverine vegetation fringes the rivers and streams.

Mkuzi Game Reserve

This reserve differs from the other Zululand reserves in that the area is largely flat open country, varying in altitude between 200 and 500 feet. The greater part is dry with little permanent surface water.

The vegetation can be divided into four broad types. In the west is the Tall Tree Savanna. Here the soil is shallow and stony, with 15 to 25 foot high trees widely scattered in tall Themeda grassland.

Riverine woodland, with trees as high as 100 feet, occurs along the banks of the Mkuzi River.

Tongaland Sand Forest runs in strips parallel to the coast.

The remaining area, forming the major part of the reserve, alternates from savanna vegetation on the red sands, to a scrub vegetation on the poorly drained black clays.

Ndumu Game Reserve

This reserve lies between 100 and 600 feet above sea level, the majority of it being at the lower level.

The vegetation picture is complex showing the following main types.

Riverine and flood-plain vegetation with thick tall riverine forest, marginal flood-plain woodland, and flood-plain grassland.

Deciduous tall acacia savanna and Savanna woodland.

Dry thicket scrub and woodland of Acacia and Albizia.

Tropical semi-evergreen dry forest and deciduous broad leaf savanna woodland.

St. Lucia and False Bay

This area, only a few feet above sea level, is a half mile wide belt surrounding the shores of Lake St. Lucia, the vegetation consisting of large areas of dense coastal bush, and dry thicket-scrub and woodland.

Loteni and Giant's Castle.

The country of both these reserves is characterised by bare mountain crags, grass-covered valleys intersected by rivers and kloofs. The altitude varies between 4,500 and 9,000 feet above sea-level. Tree and scrub growth cover the kloofs, and to some extent border the rivers.

ACKNOWLEDGEMENTS

Acknowledgement is gratefully accorded to:-

1. Dr. Gertrud Theiler, formerly of Onderstepoort, for making available all her records and for assistance in the preparation of the manuscript.
2. To the Natal Parks Board Field Staff for interest taken in tick collecting.
3. The Director of Veterinary Services for permission to publish.

1. Curson, H.H. - 1928 Metazoan Parasites from Zululand. S.A. Journal Natural History 6 (3): 181-189.
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* New records for this host subsequent to Theiler 1962, which was used as a standard reference.