

some 150 miles west of Bagamoyo. These two forms resemble each other very closely, and have a much broader orange subapical bar than the type.

(*To be continued.*)

NOTES ON TORTOISES COLLECTED IN EAST AFRICA
1915-1919

BY ARTHUR LOVERIDGE

CINIXYS BELLIANA (GRAY)

Specimens of Bell's Hinged Tortoise were collected at Longido West (19/12/16), Ngoga (24/5/16), Kerogwe (6/7/16), Morogoro (9/4/18), and Lumbo (10/10/18). The last-mentioned specimen was a very large female, 207 mm. in length, the ovaries contained a mass of ovules from the size of a pea up to some measuring 28 mm. in diameter; there were about fifteen of these very large ones.

TESTUDO PARDALIS (BELL)

The Leopard Tortoise was met with at Ruwira (1/11/19), Namanga (19/1/16), Moshi-Arusha veldt (24/3/16), and Kerogwe (6/7/16). This is the very large box-tortoise, which is not uncommon on the Athi Plains and elsewhere. A shell which I found in Arusha measured 14 inches long, 9 inches broad, and 8½ inches in height. This was a male. The sexes may be readily told in this species by the turning down of the terminal shield (caudal) of the upper shell (plastron) in the male, and the reverse in the female.

TESTUDO LOVERIDGII (BLGR.)

This new species, recently described by Mr. G. A. Boulenger, was obtained at Dodoma, G.E.A., on December 8, 1918, and two subsequent days. Eight specimens were obtained. When I procured these specimens I took them for the rare *T. tornieri* Sieb., of which only three specimens are known (Njoro, B.E.A.; Russisi and Lindi, G.E.A.). *T. tornieri*, which is its nearest ally, however, never loses its ribs, is not so broad, and lacks the groove on the under-surface of the caudal shield.

The new tortoise is very remarkable for several reasons. When born the young has a domed shell and ribs like any other member of its genus of a similar age. As it develops, however, instead of the ribs broadening out and ossifying together to form a bony shell, they are absorbed into the system (osteolysis), so that the maturing tortoise has nothing to support its horny case except the backbone. The tortoises are much depressed and, as they are without a bony shell, quite soft to the touch. As the genus is one of the most specialised of even Chelonians, it is an extraordinary retrogression which abandons the shell as a protection. The explanation of this will be found in the kind of country in which they are found, and the habits of life developed in consequence. The country is dry and sandy, thornbush-scrub and rocky kopjes are scattered throughout. The tortoise seeks shelter beneath the boulders and rock-masses, the depressed shell enables them to push their way farther into these retreats than if the shell were domed ; moreover, if they have warning that there is someone in the vicinity, they apparently take a deep breath, which enables them to get a better grip. All the specimens taken were found in such crevices, and it was noticeable if you came on them suddenly they were easily removed, but if your shadow darkened their retreat it was necessary to work them to and fro and use a little force ere they could be dislodged and withdrawn.

The specimens which I considered adults were all about 160 mm. in length, but Mr. Boulenger tells me that he is sure that they are little more than half-grown. The variation in colour and markings was pronounced. Males could be distinguished from females by their longer tails. A pair were presented to the Zoological Society after thirteen months captivity. Like both the foregoing species, I found they did well on a diet of lettuce or tender cabbage leaves ; at one time, when these were unobtainable, bread soaked in jam was taken by them without demur.

CHELONIA IMBRICATA (LINN.)

A dead specimen of the Hawksbill Turtle was found washed up on the shore at Frere Town, Mombasa (20/5/18).

52 SALT CAVES IN LUMBWA DISTRICT—

STERNOTHRÆUS SINUATUS (SMITH)

A head of this large water-tortoise was found bottled in a German house at Morogoro.

PELOMEDUSA GALEATA (SCHOEPP.)

Young female, measuring 83 mm. in length, was collected at Tabora (18/12/18), where they are probably not uncommon.

NOTES ON SALT CAVES IN LUMBWA DISTRICT—
BRITISH EAST AFRICA

By A. KNIGHT BRUCE.

There are believed to be nine of these caves of any size in Lumbwa District, their names being :

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|--------------|---------------|------------|
| 1. GITOI | 4. KIBARABARA | 7. SAUSIT |
| 2. KIBRISIN | 5. KIPTOI | 8. RIPTOIT |
| 3. KIBIPITEN | 6. CHOMA | 9. BAGAW |

The Lumbwa at the present day dig salt in these caves, which they remove in baskets, and feed to their cattle and sheep outside.

In Kibipiten the entry is made in the evening, the salt is dug out at night and removed in the morning. Apparently in most of the others, owing to the number of accidents which have occurred lately from falling rock, digging is confined to the entrance only.

NOTES ON BAGAW SALT CAVE, LUMBWA DISTRICT

This cave is situated near the top of the Escarpment which rises from the Nyando River on its left bank, between Lumbwa and Fort Ternan stations.

Its entrance is under a waterfall on the Sambula stream. It is difficult to arrive at even an approximate idea of its age, though the natives agree that it is not of any great antiquity.

Its origin is attributed to game being noticed nibbling at the face of the rock. Probably cattle followed their example,