Separated from

SPOLIA ZEYLANICA. Vol. 25, Part 2

Published by the *Colombo Museum*, Ceylon

Some Scientific Results of Two Visits to Africa

BY

P. E. P. DERANIYAGALA, M.A. (Cantab.); A.M. (Harvard); Hony. Fellow American Herpetologists League; F.C.P.S.; F.L.S.; F.Z.S.,
Director of Museums, Ceylon

(With Fourteen Plates including Two Paintings, and Four Text Figures)

December 30, 1948

Some Scientific Results of Two Visits to Africa

By

P. E. P. DERANIYAGALA M.A. (CANTAB); A.M. (HARVARD); F.C.P.S.; HONY. FELLOW AMERICAN HERPETOLOGISTS LEAGUE; F.L.S.; F.Z.S.

Director of Museums, Ceylon.

(With fourteen plates including two paintings, and four text figures.)

The present paper embodies some of the results of two trips to Africa. The first of these was when the Ministry of Education permitted the writer to accept the Kenya Government's invitation to the first Pan-African Prehistoric Congress at Nairobi in January 1947, the journey both ways being by air. The second visit was when the Ministry decided that the National Museums of Ceylon should participate in the University of California's African Expedition, contributed the equivalent of ten thousand dollars towards the expedition, and sent the writer as Ceylon's official delegate. On this occasion the writer worked in the Fayum area of the Libian desert and joined the advance party of the expedition which proceeded in four U. S. Army trucks to Lake Victoria and Lake Rudolf. The photographs taken by the writer were with a Zeiss Ikon camera 4·5 lens on 120 film, usually panchromatic.

This paper is divided into (*a*) Narrative, (*b*) Geological correlation, (*c*) Faunistic routes, (*d*) Prehistoric man, (*e*) Fossilization, (*f*) Pleistocene fossils of hippopotamus, (*g*) and elephant, (*h*) Catadromus fishes, (*j*) Reptiles, (*k*) Mammals, (*l*) Some African races, (*m*) Acknowledgments, (*n*) References to literature, (*o*) Explanation of plates.

Narrative.

The aerial trip from Colombo to Nairobi was fascinating. Ceylon's masses of green trees and white foam line above her fringing reef, together with her submarine ridges and channels were connected to the arid south Indian plain, by the chain of islands of Rama's bridge which showed as a line of white dots as the breakers foamed over their shallows. In the Madras area are numerous ruined 'tanks' similar to those of Ceylon for they are so connected that water flows through them from river to river. Once outside Ceylon, semi-desert conditions commence and increase to desert conditions as one flies westward.

Although there are several large Indian rivers even these pass through arid country with only scrub forest. This aridity is probably largely due to man clearing away the primeval jungle and thereby checking the heavy rainfall resulting from forest covered hills. The unprotected land surface is also washed away making the country infertile. An accumulation of such denuded sand is the enormous delta of the Indus river to cross which the plane requires about half an hour. The delta is a net work of streams but apart from a few mangrove swamps and some areas inhabited by man, it is barren, affording a striking contrast to the delta of the Nile. Stronger aridity affects the land further westward and the mountains seen along the shores of Baluchistan and Iran are largely flat-topped and barren. The waters of the Gulf of Oman present wonderful underwater scenes in varying shades of blue, yellow and green. There are ridges, mountains, valleys and crevasses which become clearer in the Persian Gulf, while dark tracts indicate beds of pearl oysters in the vicinity of Bahrein Island. This Island is also the centre of many petroleum reservoirs and dark oily patches over much of the desert show that petroleum is abundant in the area that is next traversed, namely, from Basra in Iraq over the Syrian desert into Trans-Jordania. The plane rises gently, then descends into an enormous gash in the earth. At the bottom lies the famous Dead Sea where the water is so salt that it stings when taken into the mouth. The Dead Sea is the northern end of the Great Rift system of enormous cracks which extend from the Sea of Galilee through the Dead Sea, Red Sea, and Abyssinia, down a series of lakes to the Zambesi river.

2——J. N. A 83372–1,005 (11/48)

The second genus is *Tetraodon* Linné. In the Indo-Pacific countries it possesses a few catadromous species, but as in the case of *Lates*, in Africa it has evolved a purely fresh water species, namely *Tetraodon fahaka* Hasselquist.

All the other catadromous tetraodons are of small size being about 3 to 6 cm. long. But *Tetraodon fahaka* of the Nile as seen from specimens examined at the mouth of the Sobat tributary, is about 20 cm. long. This species also occurs in Lake Rudolf where according to Copley it is only about six centimetres and thus resembles the catadromous species of the Indo-Pacific. Its closest relatives appear to be *Tetraodon cut-cutia* Ham. Buch. of India and Ceylon and *T. palembangensis* Bleeker of Borneo, Sumatra and Thailand. The Lake Rudolf form is here regarded as new race and is designated :—

Tetraodon fahaka rudolfianus ssp. nov.

Type.—The illustration figured by H. Copley in fig. 26 on Plate 8, of his " A Short Account of the Fresh Water Fishes of Kenya ".

Locality.—Lake Rudolf.

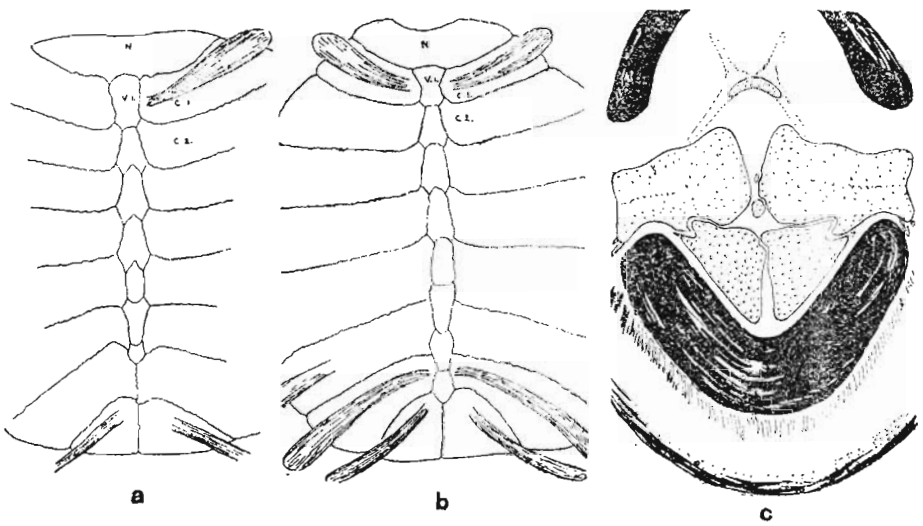
This small, comparatively unmodified race from Lake Rudolf suggests that the fish has spread from the Indian Ocean to the Rift valley and from thence into the Nile, where it has evolved a large race.

Trionyx triunguis (Forskal)

Testudo triunguis Forskal 1775 Descrip. Anim. p. ix.

This is one of the largest members of the superfamily Trionychoidea and occurs in the water systems of the Nile, Congo and Sengal rivers and in Lake Rudolf, West Africa, the Gaboon and Gambia.

The examination of about twenty carapaces and skulls, and about six plastra, of young and adolescent specimens, and of the complete corselet, head and foot of a freshly killed adult showed differences from the existing descriptions of specimens from the Nile. (Boulenger 1889.) As a result of this examination the Lake Rudolf terrapin is regarded as a separate subspecies.



P. Deraniyagala del.

Fig. 5. *a* and *b* internal surfaces of two carapaces and *c* external surface of the type ' plastron of *Trionyx triunguis rudolfianus* ssp. nov. figured in Pl. XIII. fig. *c*.

In the carapaces the second rib should slightly overlap the posterior of the nuchal bone, and is incorrectly drawn. N = nuchal bone, V I = first neural, C I = first costal.

Trionyx triunguis rudolfianus ssp. nov. (Plate XII., Fig. *c*.)

Differs from the "forma typica" of the Nile in that (*a*) the eighth costal plates are not always completely contiguous mesially, being often partially separated anteriorly by the last neural, (*b*) In some specimens however the seventh costals are almost completely contiguous, (*c*) there are more than four plastral callosities in some adult specimens. For example the "type" (Plate XII., fig. *c* and text fig. 5 *c*) possesses the following—one entoplastral, two hyo-hypoplastrals, two xiphiplastrals, two umblilicals.—Neurals eight or seven.

Type.—The complete corselet, head, and foot of an adult from Ferguson's Gulf, Lake Rudolf. The specimen was kindly secured for the writer by the District Commissioner of the Turkana area, Mr. L. E. Whitehouse, the day after it had been slaughtered in March, 1948. As there were no facilities for transporting the specimen to Ceylon the writer presented it to the Swedish Museum of Upsala's Zoological expedition which was then with him. A photograph of the specimen (Plate XII., *c*) a sketch of the plastron (text fig. 5 *c*) and measurements were secured. The last are as follow :—

Straight length of entire carapace	70 cm.
Straight length of bony carapace	41 cm.
Straight width of entire carapace	54 cm.
Straight width of bony carapace	40 cm.
Total length of plastron	48 cm.
Length along bony elements of plastron	40 cm.
Width across bony elements of plastron	48 cm.

Skull length 18 cm., skull width 11 cm., basal width of mandible 3 cm.

Paratypes.—(*a*) A carapace of an adolescent specimen 370 mm. long and with the eighth neural partially separating the eighth costals. (*b*) A plastron of another adolescent with four plastral callosities. (*c*) Three adult crania and one broken mandible, in the Colombo Museum collection.

Type locality.—Ferguson's Gulf, Lake Rudolf, Africa.

Probable New Races of Nile Crocodile.

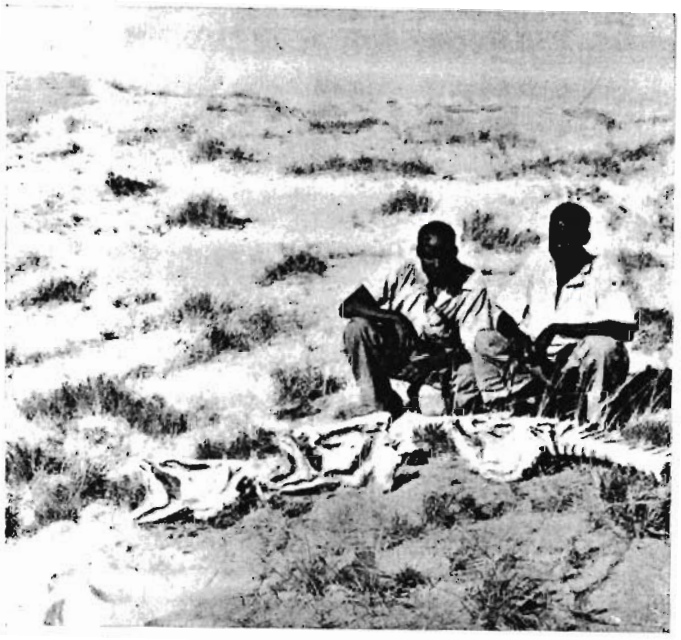
The Nile Crocodile known as "Timsaah" in Egypt and as "Mamba" to the Turkanas of Ferguson's Gulf at Lake Rudolf ranges from the Nile to the Cape, and also occurs in Madagascar, Syria and until recently in Palestine. In Egypt it is now almost unknown, below the second cataract. The animal is generally known as *Crocodylus niloticus* Laurenti although originally this name was applied to a South American caiman.

An examination of two Nile specimens from Wadi Halfa and Assuan, three from Ferguson's Gulf in Lake Rudolf, and one from Lake Victoria revealed that the Nile specimens should be regarded as a race apart from those of Lake Rudolf, while even in the East African lakes the statement of Worthington (1932*a*) that the crocodiles of one of them are smaller than in the others, being less than 8 feet in length, suggests that these small crocodiles of lake Baringo might be a subspecies to which the name *Crocodylus niloticus worthingtoni* might be applicable.

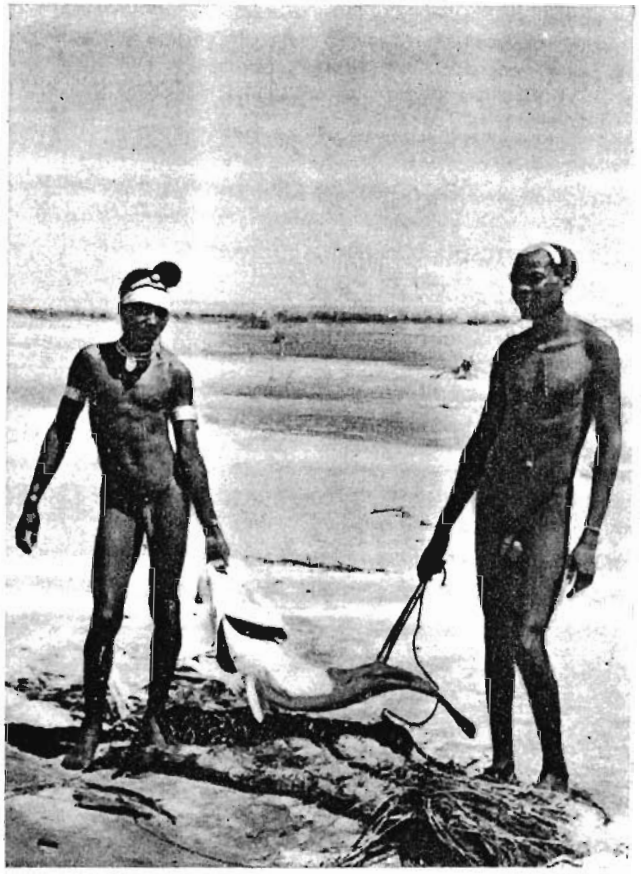
According to the British Museum Catalogue (1889) the dorsal scutes of the Nile Crocodile are in 16 or 17 transverse series. An adult skin at the headquarters of the Southern Area Camel Corps at Assuan, and another at Wadi Halfa possessed 17 transverse rows of dorsal scutes each. Two adult skins from Lake Rudolf made available to me by Mr. L. E. Whitehouse and an adolescent skin kindly presented to me by Mr. A. L. Griffith of Lodwar showed that one of these possessed 15 and two of them 16 transverse dorsal rows, while Mr. H. W. Parker informs me that three Lake Rudolf specimens now in the British Museum and numbered D. E. F. in Table VI. possess 16, 16 and 17 rows whereas 12 other African specimens possess 17 and one 15.

a

c



b



e

d

A Sudanese greyhound and photographs from the Turkana area, Lake Rudolf.

Plate X.—A fossil skull of the Egyptian race of the African elephant *Loxodonta africana* (Blumenbach) from the compacted marl of the lake beds in the Fayum desert. Discovered by P. Deraniyagala in November, 1947. (Photographed by P. Deraniyagala).

Fig. (*a*) A palatal view of the skull 'in situ' showing the occiput to the left of the photograph and the left and right upper molars. A six centimetre scale alongside. × $\frac{1}{7}$

Fig. (*b*) The same as fig. (*a*) after shellacing. A foot ruler alongside. × $\frac{1}{5}$

Fig. (*c*) The second and third left lower molars with a six centimetre scale on white paper. Cracks in the compacted marl show in the left corner of the photograph. This is the holotype. × $\frac{1}{4}$

Plate XI.—Remains of a neolithic feast off an elephant that had been slaughtered as it came to a now vanished lake in the Fayum desert. Discovered and photographed by P. Deraniyagala in November 1947.

Fig. (*a*) The white fragments are the broken up elephant skeleton among which were also teeth of a large bovine possibly a buffalo. Seated is Wendell Phillips, standing is W. F. Albright. The black lump in the foreground in line with Phillips are choppers fashioned from pebbles by the neolithic hunters. These choppers are shown enlarged in fig. (*b*) where a six centimetre scale is in the foreground.

Fig. (*c*) Left to right are W. F. Albright, W. Phillips and three Gufti workmen. In the distance are about eight buttes of compacted sand which fringe the former lake. The track left by a truck is on the right.

Plate XII.—A Sudanese greyhound and photographs from the Turkana district. (Photographs *a* to *d* by P. Deraniyagala).

Fig. (*a*) A Sudanese greyhound from near Shendi. Note the deep chest, arched loins and curled tail tip. × $\frac{1}{20}$

Fig. (*b*) Two Kikuyu camp men with three skulls of adult *Lates niloticus rudolfianus* from Ferguson's gulf, Lake Rudolf.

Fig. (*c*) A Turkana holding the type corselet of a soft terrapin *Trionyx triunguis rudolfianus* ssp. nov. with its plastron towards the observer. A skull of *Crocodylus niloticus pauciscutatus* lies on the sand.

Fig. (*d*) Two Turkanas holding a moderate sized *Lates niloticus rudolfianus*.

Fig. (*e*) A termite hillock with P. Deraniyagala in the foreground.

Plate XIII.—A Denka girl of the Wau area with a calabash. A conical mud grain horde in the foreground, a platform hut and an ordinary one in the background. Painted by P. Deraniyagala. × $\frac{1}{9}$

Plate XIV.—A Masai lion hunt. This painting is based upon a personal study of the Masai and descriptions of such hunts by onlookers. Painted by P. Deraniyagala.