

Fishing is engaged in mainly as a means of livelihood.

Cowries and dried sharks' flesh are bought by Kismayu traders.

Pearling might become profitable, but the Bajuns do not possess the power of deep diving.

Coarse 'carriage' sponges are to be found.

Ambergris and turtle shell are rarities.

The question of grain for food deserves special consideration. The Juba river strip is in the hands of Arabs financed by Indians : the Bajuns on the islands consequently starve.

The coral rag of the islands is not fit for agriculture : an attempt is made to grow crops on the mainland a few yards from the shore : this is but little better.

The only arable land adjoining would seem to be the almost well-watered valley or 'tug' stretching from Mtoni at the head of Anole Creek to Busbushli, twenty miles up the Birikou Creek. The Chore or Joreh country is also watered.

Coco-nuts grow well on Tula Island, and would do well at Kudai and Port Durnford.

Trees of commercial value are to be found at Chovai, Anole, and Birikou creeks. These are 'borities'; 'mweah,' small borities used in the construction of native huts; 'mkandieh,' a wood used for burning lime; 'mutu,' a tree used for making native beds, chairs, etc., and burning lime.

Wild rubber is to be found in the vicinity of Port Durnford.

NOTES ON EAST AFRICAN MAMMALIA (OTHER THAN
HORNED UNGULATES) COLLECTED OR KEPT IN
CAPTIVITY 1915-1919. PART II.

By ARTHUR LOVERIDGE

One day I tossed the still warm body of a newly-killed rat to her to see what she would do. First seizing the tail in her mouth she defied anyone to take it from her, then she subjected it to a critical examination, opening the mouth and looking inside, licked the blood from its nose, examined its fur minutely

and appeared to capture and eat some fleas which she found there. After this she climbed to her box upon which she sat, and placing the rat between her knees nursed it in a most comical way. She clung to this rat for two days, defeating every effort to deprive her of it; by the end of this time all the fur was off, the carcase was positively green and liquid, and as she held it in her mouth the flies buzzed all about her.

On the third day she gnawed through the telephone wire with which she was attached to her pole, and escaped. I recaught her the same afternoon and fixed her with a light chain; after several attempts on this, she settled down and became very docile and affectionate. Alas! Two months later she died. One morning there were signs that she had had a bad attack of diarrhoea during the night; in the morning she was lying on her side toying with bits of gravel. I immediately let her loose and she took a little milk and sugar, she then went to the wash-basin in which she stood her fore paws and drank deeply. I lifted her on to the bed and she bit me. I made her comfortable but she arose and went to the other monkey, throwing herself down beside him in a very exhausted manner. *C. rufilatus* showed its sympathy by trying to clean Jenny's fur.

At 7 A.M. she went towards the bush where my boy found her about 9 A.M. and brought her back, whereupon she bit him. One would have supposed by her appearance that she was too sick to walk, but at 2 P.M. she went off again and hoping she might find something in the way of medicine for herself I said she was to be left alone. At 4 P.M. she walked into camp very slowly and on reaching the first hut she fell down in the shade in the most abandoned manner. Salimu brought her up and laid her on the bed looking most humanly forlorn. Almost immediately, however, she sprang up, clambered up a strand of wire with agility, hurried across the top of the python's cage, descended the wire netting on the further side and ascended to her own box. All this was done with such agility that I remarked to the boy that I feared she was not so ill as she looked, but native-like was making the most of it.

How grossly I had misjudged her was revealed next

morning, when her dead body was found in the mouth of a drain or waterway which led from the python's cage. Whether she had gone there seeking water, or had crept in with the idea of hiding away, it would be impossible to say.

Colobus abyssinicus caudatus, Thos.—A troop of the beautiful White-tailed Guerezas were seen in the West Kenya Forest, where they went springing and swinging through the tree tops ; their arched tails with long hanging fur looked very fine. Professor Gregory, in his work 'The Great Rift Valley,' says that far from making them conspicuous, as one might suppose, the long hanging fur has the effect of making them appear like one of the great tufts of lichen (*Usnea*) with which the trees are draped. The only specimen the writer has seen in captivity was captured in a village near Kabete. When I saw it six weeks later the children who had made a pet of it had made it so tame that it would feed from the hand. This animal was very old ; young ones have a little thumb which disappears with advancing years.

Papio ibeanus, Thos.—No baboons were ever collected. In the Forest Reserve at Nairobi they were very plentiful. They were very noisy animals, uttering a deep bass semi-bark which has, I believe, been likened to 'chaoma.' If one remains quiet in the forest, they come within about fifty yards and look down from amongst the foliage ; as soon as one stirs, away they go crashing from tree to tree, setting all the branches swaying. One morning my attention was drawn to a party of them on the Limoru road, near 3rd Avenue. Though it was only 8.30 A.M., there was a fair amount of traffic passing along the road. These baboons had come from the forest and were rooting about among the huts of a temporary P.W.D. road-makers' camp. The natives were all away at work, the grass huts were deserted, so the baboons had it all to themselves. One old fellow seemed very busy stuffing handfuls of something into his mouth. Keeping a galvanised-iron shed between us, I walked quietly across to him so that he did not see me until I was within twenty feet. He then looked up, gave a bark, and cantered away like a great dog. He only retired a short way, then swung himself up into a very small tree, where

he joined two others that had escaped my notice. The rest of the troop acted in a similar way instead of making off into the forest.

When making camp one stormy evening in the Kedong Valley we heard the familiar bark, and looking up saw one great brute silhouetted against the sky; he was sitting on a large boulder on the very brink of a two-hundred-foot precipice.

At Longido West we were called upon to stand to arms at 2 a.m. one morning (24/11/16), as shots had been heard up the mountain. In the morning it transpired that a troop of baboons, stealing down to the water to drink, had been mistaken for German askaris by the Indian picket; the latter had fired upon the animals, killing two.

Trekking between Arusha and Moshi, in dry, rock-strewn kopje country, several parties of baboons were seen overturning stones in search of insects which they like. At Kongwa, parties of them raided the mealies in broad daylight. Sentries posted in prominent places kept a good look-out and gave warning of the approach of anyone with a gun. It was intensely amusing (except to the owner of the mealies, I suppose) to watch them making off when thus disturbed. Big and little ones, with an armful of mealies and a mealie or two in their mouths, would lop away on three limbs, and in a few instances on two limbs, having the arms occupied with the mealies.

At Dodoma they lived on the kopjes; on the lower slopes of the Uluguru they might be found any evening, generally rooting about in the natives' shambas or among the open bush in the ravines. The largest party ever seen was crossing a plain at West Kenia; there must have been nearly two hundred of them, and many of the mothers were carrying young ones on their backs.

Small Grey Lemur.—When at Msiha River (Shell Camp), I heard that one of the men in the Calcutta Volunteers had a tame lemur. I called to see it. The little creature was not more than eighteen inches from tip of nose to end of tail. This prisoner of war was chained to a sapling with a little belt around its woolly waist. It had the distinction of living on army rations, and one of its principal stunts was to get

inside empty two-lb. jam tins, which one would have thought impossible. Once inside it would revolve slowly round and round until the tin was as bright as the day it left the factory. It would then bolt for its tree, and mounting to the topmost branches sit down at leisure to lick the jam off its fur.

Galago hindei, Elliot.—The lemurs, known to the Swahili as komba, are to be heard crying in the trees at Frere Town, Mombasa, almost nightly. Probably they live royally upon the prolific mango crop. They are captured at times by the natives in the following manner. Pombe (native beer) is placed in the trees in the half of a coconut-shell; the lemurs are fond of this and drink until intoxicated. If the tree is visited early the following morning, the creature is found in a fuddled condition and falls an easy prey, for its judgment in making the prodigious leaps by which it would normally escape fails under these circumstances, and the creature, if it attempts to jump at all, falls to the ground. A single specimen was obtained some seven miles from Frere Town, where it was found sleeping in thick bush about fifteen feet from the ground.

Galago panguensis, Matsch.—For notes on this species, both in the wild state and captivity, see JOURNAL, No. 16.

PTEROPODIDÆ

Epomophorus crypturus, Peters.—This Fruit Bat was met with at Lumbo, Mozambique, where five specimens were shot one afternoon, hanging singly, not in colonies, in mango trees. They were all females, each containing a single foetus. Another shot at the end of September (30/9/18) had a much more developed one. The largest of these bats was 5½ inches in length, with a wing-spread of 2 feet less half an inch. Female, 148, 0, 20, 25, 596.

Epomophorus minor, Dobs.—This species was plentiful at Tabora, Morogoro, and Dar-es-Salaam. At the former place they were found in a mango plantation; at Morogoro hanging in the palms which border the roads, and also in the acacia trees; at Dar-es-Salaam hundreds of them occupied an old Arab building which was in ruins. It was a wonderful sight

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to see these bats hanging by their feet along the mid-ribs of the coconut-palm fronds at Morogoro. In January thirty-eight were counted on a single frond, twelve on another, and many of the other trees were loaded in a similar way. Two years later with two shots I procured twenty-one specimens. In July these creatures seem to go elsewhere, and not one was to be seen ; they had not been molested at all prior to this.

These bats have little white shoulder-tufts when mature ; by a curious in-turning of the skin they can conceal them from view. The largest specimens taken were from Morogoro, where two females had a body-length of $5\frac{1}{2}$ inches and a wing-spread of 28 inches. Female, 140, 0, 16, 19, 584.

Epomophorus wahlbergi, Sund.—Common at Nairobi and Dar-es-Salaam. At the latter place great numbers of them assembled in the mango trees, and their cries could be heard in the palace grounds all night long. It was by far the largest of the three species obtained, and also the handsomest, the fur being less brown and more mustard-coloured : there was considerable individual variation, however. The largest specimen was a male from Dar-es-Salaam, measuring $6\frac{3}{4}$ inches in body and $24\frac{3}{4}$ inches in wing-spread. Male, 160, 0, 22, 25, 290–630. Like *E. minor*, many specimens were infected with a small red acarine (?) parasite on the borders of the wing membranes.

EMBALLONURIDÆ

Taphozous mauritianus, Geoff.—Found on the trunks of mango trees at Morogoro and on the coconut palms at Dar-es-Salaam. The first specimen was seen on 13/1/17, whilst walking up the long road to Government House, Morogoro. In the native town this road is bordered with shady and generally very dusty mango trees, upon the bark of one of which I noticed something white. Upon closer inspection this proved to be a bat performing its toilet. The colouring of the back fur was fox-grey. The underparts were pure white, and the membranes of the wings so transparent that it had the appearance of a small tern when on the wing.

in daylight—this illusion was no doubt largely due to the manner of its flight.

A closer examination of the other trees proved the bat to be quite common; a pair would be generally found together clinging upside down to the trunk. As soon as they realise that they have been observed they scramble round the bole of the tree with the agility of a gecko—they almost appear to glide. It is due to their alertness in this respect that I have not discovered them before, though frequently passing along the same road. The only occasion on which they were found in a different situation was when a single pair were seen under the eaves on a rough-cast wall; in this instance they travelled along the wall and round the corner of the house with the same quick movements as they display on the tree trunks. The largest specimen was a female from Morogoro, $3\frac{1}{2}$ inches in length, head and body only, and a wing measurement of $16\frac{5}{8}$ inches. Female, 90, 32, 22, 422.

NYCTERIDÆ

Nycteris aethiopica luteola, Thos.—A specimen of this bat was smoked out of a drain running beneath a pathway at Frere Town.

Nycterus revoili, Robin.—Met with at Morogoro and Mpapua. In the former locality three specimens were captured in an ant-bear hole after digging down for five feet and along for perhaps six. This hole was out on the plain, and the find was interesting as it showed where these creatures put up during the day. The Mpapua specimen was found in a dark room in a house where there were some hundreds of bats.

There were patches of a red acarine (?) parasite behind the ears of one of the Morogoro specimens and on the wing of a female close to the body. In this specimen there were two holes in the wing-membrane, close to the parasites, which may have been caused by the host endeavouring with its claws to allay irritation. The largest specimen was a male measuring $2\frac{3}{4}$ inches in length and $14\frac{3}{4}$ inches across the wings. Male, 70, 56, 12, 32, 175–376.

MEGADERMIDÆ

Lavia frons, Geoff.—At Morogoro and Dar-es-Salaam. In the former locality they were found hanging in pairs, rarely more, in bushes or thickets on the plain. When first seen they appeared to be bright foxy-red in colour, but this impression is false, for it is only the huge ears and wings that are of this hue; the body is clothed with long, soft, blue-grey fur. They are expert in flitting about in dense thickets, and will not let one approach within ten feet of them. Towards evening they appear to leave the thicket and hang from some spray, exposing themselves to the last rays of the setting sun. At Dar-es-Salaam they hang in the bushes along the sea shore.

A male shot at Morogoro on 19/5/17 had five globular growths between skin and flesh on the breast and neck. These were about an eighth of an inch in diameter and came away readily, appearing to be a very thin-skinned sac containing aqueous matter. The largest specimen taken was a female, $2\frac{5}{8}$ inches long and $17\frac{3}{4}$ inches across the outspread wings. Female, 68, 0, 10, 45, 190-450.

RHINOLOPHIDÆ

Rhinolophus hildebrandti, Pet.—Taken at Mpapua and Kongwa in buildings. The pair from the latter locality were the larger, the female measured $2\frac{7}{8}$ inches in length and $16\frac{3}{4}$ inches across the wings. Female, 4, 42, 18, 29, 190-426.

HIPPOSIDERIDÆ

Hipposiderus caffer, Sundev.—A female was taken at Morogoro, 8/1/18. Length $2\frac{1}{8}$ inches, across wings $11\frac{1}{2}$ inches. Female, 54, 32, 7, 13, 131-292.

Hipposiderus ruber, Noack.—A couple of specimens of this bat were found bottled in a German house at Morogoro.

VESPERTILIONIDÆ

Pipistrellus nanus, Pet.—Some of these small black bats were brought me by a native collector. I think they were found in banana palms. The bodies were no larger

than that of a Death's Head Hawk Moth. The largest specimen was a female 1 $\frac{1}{2}$ inches long and 9 $\frac{1}{2}$ inches across the wings. Female, 41, 41, 5, 11, 108-238.

Scotophilus nigrita dingani, A. Sm.—Only one specimen of this yellowish bat was taken at Dar-es-Salaam, 11/18.

Scotophilus viridis, Peters.—A single specimen was taken at Morogoro on 15/9/17.

Eptesicus rendalli, Thos.—This species was occasionally seen flitting about in the gloaming at Lumbo. It was, however, far from common, and the only specimen obtained was brought me on 27/9/18. This was a male 2 inches in length, 52, 32, 6, 10, 24.

Glauconycteris argentata, Dobs.—This West African bat is considered somewhat rare, and was only met with at Morogoro, where it was certainly very local. They appeared to be confined to three roads—namely, Palm Street, Horne Street, and Station Road. The first time they were seen (16/1/17) I climbed upon a barrel and obtained five with one sweep of a butterfly net. A few months later (6/4/18) I made a close examination of the palm trees in the neighbourhood. On two trees were single female bats, and on a third were sixteen bats on a single palm frond : they cling to the 'leaves' near the mid-rib in groups, only two to four on each leaf ; they do not hang clear with heads down, but cling to the leaf with their tails towards the mid-rib ; the head of the one nearest the mid-rib rests upon the back of the next bat in front of him. Generally they were assembled upon the lowest branches at a height of 20-25 feet from the ground. By stopping a cart loaded with sacks of mealie and climbing upon it, I was able to come within reach of a group of eighteen, of which I secured ten. The biggest number ever seen on one frond was thirty-two (21/11/18).

The largest specimen was a female, 2 $\frac{1}{4}$ inches in length and 12 $\frac{3}{4}$ inches across the wings. Female, 58, 0, 29, 17, 144-324.

MOLLOSSIDÆ

Chærephon emini, De Wint.—A single specimen of this bat was collected at Dar-es-Salaam on 7/11/19. There were

large numbers of these bats in the roof of the Kaiserhof Hotel and adjoining buildings. Length, 2 $\frac{1}{2}$ inches; across wings, 12 $\frac{1}{2}$ inches. Male, 65, 46, 12, 17, 150-318.

Cherephon limbatus, Peters.—This specimen was very abundant in the neighbourhood of Mombasa, being a perfect pest in some of the houses at Frere Town, where they lived beneath the roof. Considerable variation in colouring was to be seen in the large series of skins collected. The parti-coloured brown and white of breast is most common, but in many specimens the white was almost absent, the darker colour of the flanks impinging upon it. In the young the darker colour was more of a blue-black than brown. In the adults brown of the back fur is liberally sprinkled with white hairs. The largest specimen was a female 2 $\frac{1}{2}$ inches long and 11 $\frac{1}{2}$ inches across the wings. Female, 58, 34, 5, 16, 133.

SORICIDÆ

Crocidura fumosa johnstoni, Dollm.—This small shrew was occasionally found when clearing away sisal fences at Morogoro. This sisal harbours much dirt and many small creatures. On one occasion a shrew, only 3 inches in length, was put into a tin with a mouse (*Leggada bella*, subsp.) and a gecko (*Hemidactylus brooki*). On opening the tin a very little while after it was found that the shrew had killed and eaten the mouse except for the feet and a few fragments of fur and skin; the tail of the gecko had also been devoured. Male, 90, 57, 14, 10.

Crocidura hirta, Peters.—A single specimen was found bottled in a German house at Morogoro; after spending four months at Lumbo a specimen was found dead upon the railway line only a day or two before departure, so it can hardly be reckoned as common there. Female, 92, 51, 12, 6.

MACROSCELIDÆ

Rhynchocyon petersi, Boc.—At Makindu (Shell Camp), 20/7/16, I was brought a large and handsome Elephant Shrew, shot in the bush near by. Female, 270, 213, 83, 82.

Elephantulus oocularis, sp. nov. Kersh.—This new species of Elephant Shrew was common at Dodoma, though very difficult to obtain owing to its custom of bolting into the densest thorn-thickets when approached. One of the largest females measured 142, 120, 33, 24.

Petrodromus nigriseta, Neum.—Not very common in open bush near Morogoro. A specimen was shot one morning (12/6/17) on a path which was being crossed by a safari of siafu. The stomach of the shrew was full of the ants. It seemed a most extraordinary thing that so timid a creature could capture and eat siafu. Largest specimen taken was a female, 225, 170, 50, 36.

Petrodromus rovumæ, Thos.—These shrews were heard on several occasions, but not seen for two months after arrival at Lumbo. Local natives were then consulted, and we learnt that the creatures might be captured with comparative ease. Bag-nets are made with fine sisal thread ; the closing thread around the neck is attached to a twig fixed in the ground alongside the path where the bag is set open. A drive is then made by natives pushing their way through the under-growth ; this is sufficient to scare the shrews along their runs. The action of the shrews bolting into the bag closes the neck of the bag so that the animal is netted uninjured and is picked up immediately by the following native, who, liberating it from the bag, transfers it to a sack. On arrival in camp they were chloroformed.

On examining their stomachs only ants were found ; but at 7 p.m. one evening I saw a young one which had been liberated in my boma pounce upon a large burrowing cricket, with which it ran under the bed. Its actions were as rapid as those of a cat under similar circumstances. Feeding them in captivity was not a difficult matter, as the place swarmed with ants : a piece of bad meat was put in the shrew's cage ; in a very short while a steady stream of ants was going to and from this bait ; these were licked up by the shrew as required. Both old and young drank diluted Ideal milk, though one could see that they were unaccustomed to drinking by the awkward biting way they went about it. Whilst drinking the nose was held up at an obtuse angle. How the

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animals subsist here without water is hard to say ; for a month past there had been no rain, the days glaringly hot and the nights close without a trace of dew except on two nights.

Only one young one is produced at birth, and this takes place during the month of October. Two young males, born on the seventeenth of the month, measured 3 inches in head and body and $3\frac{1}{2}$ inches respectively ; a foetal female on the same date measured $2\frac{1}{2}$ inches. A live young one brought to me on the twenty-first was $3\frac{3}{4}$ inches, whilst another found on the twenty-second was much the same--both of these were running about actively and difficult to catch. The largest male and female measured were : male, 190, 170, 48, 32 ; female, 195, 172, 48, 35. The average of twenty-two specimens of both sexes was 180, 157, 49, 31.

The ears of every adult specimen were in a very bad state owing to numbers of small grey ticks on the posterior border. Some ears were ragged, presumably made so by the scratchings of the animal in its attempts to rid itself of the irritating parasites. Here the ticks confined themselves to the ears, but at Morogoro the ticks on *P. nigriseta* were found all over the body, being particularly plentiful on the under-side of the tail. Round worms were found sparingly in the stomachs of several.

FELIDÆ

Felis leo massaica, Neum.—A lion passed through the outskirts of Nairobi on the night of 24/4/15—its spoor on the flower-beds in the Commissioner's garden was shown me ; at dawn it was seen near the Arboretum. Lions were very abundant on the slopes of Mt. Siswa when we camped there (20/7/15), and a fortnight previously a lioness had been wounded almost on the very spot where our tent was pitched. When on picket at Longido West (22/11/16, etc.) it was a common occurrence to hear them roaring. When in open bush country near Moshi (15/3/16) a sergeant rising one morning saw a lion standing, looking at the bivouac, some four hundred yards away. Other observers took it to be a leopard, however.

At Gulwe, near Mpapua, where large herds of cattle were kept for military supply, they were a great nuisance. A lioness shot herself in a gun-trap one night, some two hundred yards from the open hut in which I slept. This was the fifth lioness obtained in a fortnight (20/4/17). The natives gathered round as it was being brought in, and one old crone mumbled 'Lions are just like men, they send the lionesses into the trap first and so they never get caught.' There was a general laugh at this, but another interpretation occurred to me. The lionesses might be greedy in pushing forward, and the lions politely standing aside reaped virtue's own reward.

Felis pardus suahelica; Neum.—At a military grass-cutting camp at Ngong a trap was set for leopards. One was caught, but during the night was attacked by two hyenas, who bit off its tail and snatched a mouthful of flesh from its haunch (20/9/15). Leopards were very plentiful at Longido West in January 1916. One afternoon a sergeant of the E.A.M.R. discovered one lying under a bush in a donga some nine feet below him. It made off immediately. Their coughing cry was to be heard by the pickets almost nightly.

One morning at Morogoro the writer received a message asking him to come and shoot a leopard which had been trapped near the German Mission. On arrival, however, I was told that the leopard had made off. At daybreak it had dragged the heavy trap on to a large rock, where it lay growling and worrying at the trap until 8.30 A.M., when it got free; it bounded off the rock to the ground some twenty feet below and went off on three legs. The trap had plenty of fur on the jaws and plainly bore the marks of teeth and claws (19/10/17).

It was also at Morogoro in the bush, just before sunset, whilst I was taking aim at a cuckoo, in line with the sights but at a distance of sixty yards, a half-grown leopard or large serval leapt down from a blasted tree on one of whose branches it had apparently been lying. On running to the spot its spoor was found, and about fifteen feet from the tree were also very fresh tracks of a bush-buck which had been pawing up the ground, presumably to get at some roots.

Acinonyx jubatus, Schreb.—On 16/7/15 a cheetah was put up at very close range near the opening gorge of the Kedong Valley, Naivasha end. It had been lying in open country with very little cover, but we did not see it until almost upon it. A paragraph appeared in one of the local papers about a pair of captive cheetah cubs—‘our representative who called upon them found them to be charming little fellows, allowing themselves to be handled freely, *sheathing their claws.*’

HYAENIDÆ

Hyæna, sp.—One of the compensations of picket-duty at Longido West was to see the hyænas at daybreak disputing for, or gorging on, the offal which was left on the killing ground for them to clean up. One of the creatures passed within six feet of me on its way to supper one night. When taking a message across country near Mkomasi I met a hyæna at 3 o'clock in the afternoon, bright sunshine; a scrap had taken place just before lunch, and a body which I had passed ten minutes before was probably the cause for this activity.

When staying at West Kenia my host cautioned me not to put my boots outside the guest-hut at nights, as the hyænas would surely carry them off. He related how on one Christmas Eve he heard a noise outside. On opening the door an animal ran past; turning back for gun and lantern, he afterwards walked round the house, and in so doing came suddenly upon a large hyæna eating the leg of an eland which it had pilfered—it was then but thirty feet from the door. For some seconds it seemed dazed at the light and merely crouched over the meat, but recovering its senses bounded away, and as it did so he shot it dead.

CANIDÆ

Jackals were often met with, but no specimens collected. They appear to be very curious creatures. On one occasion, having shot a bustard on West Kenia plains, I was kneeling beside the bird, plugging nostrils and beak with wool. Some-

thing caused me to look round, and there stood a jackal scarce fifty yards away, regarding me intently. It cantered away only when I stood up—this occurred about 10 A.M. Another time at Lumbo, B.E.A., I had forced my way through some thick bush and was silently watching some waterfowl on the lagoon ; a slight noise behind me caused me to spring round in time to see the disappearing flank and tail of a jackal not ten feet from me.

MUSTELIDÆ

Mellivora sagulata, Holl.—The only occasion on which a live ratel, or honey badger, was seen was at Longido West (22/2/16). About 2.30 A.M., whilst I was on picket on an ‘ant-hill,’ a small animal which I mistook for a ‘Scotch Terrier’ came trotting past. It was brilliant moonlight at the time. Some hours later, when taking my second watch, it returned and came sniffing up to within five feet of my blankets and within ten feet of a sleeping man. At Dodoma (4/12/18) two were caught in a trap set for leopards. I saw the skins, which were drying.

VIVERRIDÆ

Civettictis civetta orientalis, Matsch.—It is curious how a particular species may not be met with in a particular locality for a long time, and then for a short period specimens crop up continuously. I was in the Morogoro district for a year before meeting with a civet, and then two specimens came in on the same day, having been killed by motorists in different districts. The male, which had been shot, measured 44½ inches from nose to tail, and its stomach contained skins of mango fruit (?), warningly coloured grasshoppers, many maggots, and parasitic worms. The female kitten had been run over by another car, and measured 31½ inches.

One brilliant moonlight night at Morogoro (27/3/18) a terrific caterwauling arose in the bush quite near camp. The boys asserted that it was caused by civet cats (‘Fungc’) fighting. I got very near to them, when the outcry ceased as suddenly as it began, and I suppose they must have heard me. In a

mangrove swamp near Frere Town, Mombasa (20/5/18), there was a great outcry of natives and barking of dogs most evidently hunting something. I arrived just after the kill, for a civet cat had been hunted down and battered to death with clubs and sticks. The boys said that it had been after poultry, that the cackling of the fowls had started the dogs barking, and I presume the barking of the dogs had set the natives yelling. In November, 1918, I purchased two civet kittens from a native at Morogoro ; they could just walk, and rather reminded me of collie pups, their feet being huge and out of proportion to their bodies. They would frequently stumble in their walk ; when first received they hissed like snakes when approached, and gave vent to startlingly sudden spitting noises ; after a few weeks this was given up and they became perfectly tame. I was too busy to look after them at the time, and so passed them on to someone who wished to take them home. Another man I knew had a civet kitten of the same age as mine and at the same time ; judging by the three records, therefore, the young are born at Morogoro about the beginning of November.

Genetta, sp.—At Morogoro (10/12/17), on the slopes of the Uluguru Mountains, are many fine deep dongas. In one of these, nearly choked with euphorbias and other undergrowth, my boy saw a gennet cat leave its earth. He was sent into the donga to drive out anything that might be there. On hearing his cry not to shoot I came down from the top end and reached the spot where he was already clambering up the almost vertical cliff-like bank. On reaching the hole, and after a few minutes' work of breaking away the entrance, he drew forth a scratching, spitting kitten which he dropped into his haversack ; a second was captured in like manner.

The earth, he said, was unlined but perfectly clean ; it consisted of a circular chamber and two bolt holes beneath the roots of a tree that had long since disappeared. Whilst he was climbing up through the undergrowth of the further bank one of the kittens escaped from the haversack and got away in the long grass : we could hear it crying—more like a squeak than a mew—and heard the mother coming towards it, but it was already too dark to see anything.

For the first forty hours the remaining kitten hunger-struck, and when one approached turned on its side and spat and clawed. I must confess that I was somewhat afraid of it, its spitting was so alarmingly sudden and explosive ; realising that if this continued we should never come to terms, I picked it up and allowed it to bite, which I found was little more than a pinch, as its teeth had only milk dentition. A little rubbing of its ears and fore-paws eased its mind considerably, and it settled down inside my shirt whilst I wrote up these notes—this had its disadvantages, for, though beautiful and leopard-like in its markings, it teemed with ticks and fleas. Introduced to the baby lemur it nosed up in quite friendly fashion ; but the lemur, though only half the size of the gennet, reared up on its hind feet and then flopped on to the gennet's nose. This occurred each time they were brought together.

The kitten refused to touch meat, and milk it would only take if sweetened with sugar to the consistency of treacle. She drank water readily, though there was none anywhere in the neighbourhood of the donga where she was found. She was very fond of jam, and ate the contents of birds' eggs.

On December 27 a native caught an adult gennet, which was brought to me with a cord very tight round its neck and caged in a piece of wire-netting. On opening this there was a great exhibition of teeth and claws, accompanied by spitting. Just as it was being introduced to its cage it clawed the boy who was holding it ; he promptly dropped it with a yell.

We surrounded the grass hut in which it had taken refuge, and searched the grass walls carefully ; finally it was detected, and one native called out triumphantly that he had secured it in some towels. Once more, with greater caution, the door of the cage was opened and the creature tossed in, towels and all. Too dazed with such unusual treatment to move—there lay my gennet kitten on its head. I picked it up and comforted it, and the hunt for the old cat commenced once more and ended in its capture.

The cage in which the cat is put is 12 feet long by 4 feet wide and 5 feet high. The kitten has been put in with the cat, but gets out every night through the large wire mesh

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and wanders about till daybreak. She resents being picked up, but once settled on one's lap she will sleep contentedly enough.

She frequently comes into my bell-tent at night and climbs up between the outer and inner canvas in search of insects, which are attracted by the light. One night she ate a large cricket which I had devoured and re-stuffed with arsenic-saturated wool and carefully set; this apparently disagreed with her, and she vomited up the lot within a few feet of the setting board. It is very pretty to watch her pounce on a locust, which is a favourite article of diet with her.

On the night of February 12-13 there was a great deal of caterwauling and fighting outside, and in the morning I found the gennet kitten dead and draggled with mud: it had apparently been killed by stray domestic cats. It measured 19 inches from tip of nose to end of tail. The old cat made a journey from Morogoro to Nairobi, living on 'bully' a good part of the way. In Nairobi it was given to a lady, who had it for a year or more; her little girl succeeded in taming it so that she might handle it; the gennet would not let anyone else come near it, however. Finally, its cage door being left open, it escaped, probably to make trouble for systematic mammalogists making subspecific local races.

Nandinia binotata arborea, Heller.—A specimen of this forest cat was shot by a sergeant of the E.A.M.R., in Meru Forest, near Arusha, Tanganyika Territory (12/4/16).

Mungos mungo, Gmel.—The banded mongoose, until recently better known as *Crossarchus fasciatus*, was common at Lumbo, B.E.A., though not in such numbers as the sub-species at Morogoro, G.E.A. The packs at Lumbo rarely exceeded five or six individuals. One burrow was found at the roots of a tree, another beneath a huge rock on the shore, others again were living in the termite heaps. The cry is a very bird-like note emitted when hunting; hunting consists in turning over stones and scratching for insects in likely spots. When captured by the scruff of the neck these animals squeal deafeningly.

A female and young one which were brought to me alive

were in a very emaciated condition, being literally riddled with what I took to be the larvæ of the Tumbo Fly (*Cordylobia*). The maggots after evacuating for purposes of pupation left great raw holes. The tail of the adult was particularly infested.

The largest male and female taken measured $22\frac{3}{4}$ inches and $28\frac{1}{2}$ inches respectively, from tip of snout to end of tail. Male, 370, 210, 67, 28. Female, 360, 230, 70, 25.

Mungos mungo colonus, Heller.—Several specimens of this race were taken at Morogoro, where it was particularly plentiful. Four records were made of birth and age of young. A female with very small foetus was found (11/11/17), a single naked young one no larger than one's thumb in a nest (7/8/17), an unweaned kitten in the road (3/11/17), and two kittens able to run about and feed themselves (3/8/18). The notes at length are as follows :—

(7/8/17.) 'In clearing some land near here the boys found the dead body of a female mongoose considerably decomposed; near by was a nest containing a young one about the size of one's thumb. I kept this alive for three days on diluted Ideal milk, but though it drank eagerly it appeared to pass no excreta, and the stomach increasing in size, it finally died. I intended to preserve it but was frustrated from doing so by an adult Mongoose, which, in its daily cruise about the camp in search of tit-bits, was seen to carry it off.'

(8/2/17.) 'Returning home about 6 P.M. after a heavy downpour of rain which had left the road in a semi-flooded state, I noticed a dozen men watching what I took to be a kitten; it looked very forlorn and uttered a shrill, piercing cry not unlike the note of a canary. On closer inspection it proved to be a very young mongoose no larger than a rat and which had presumably been washed out of some drain. It ran well, and when covered with a towel bit its captor fiercely through it. Carrying it to my quarters, I provided it with milk, raw liver, and boiled meat, none of which it touched excepting the milk in which it lay down. All the time it persisted in its monotonous cry or whistle.'

'The immediate effect of its cries was to elicit an answering call from a stray cat downstairs—such a cry as a cat answers

her kittens with. Presently she came up through a hole in the floor and approaching the box with caution, stood upon her hind legs and viewed the prisoner through the wire netting. As it continued to cry all night and was a nuisance to the neighbours, I chloroformed it in the morning. Male, $9\frac{3}{4}$ inches, of which $3\frac{3}{8}$ inches was tail.'

(8/8/18.) 'Purchased two young mongoose which had been found running about by a native child, they followed to heel in the most remarkable manner and in this way accompanied my boy home for a quarter of a mile. In build they are rather otter-like, but in size no bigger than a large rat. When introduced to the monkey, they sat up on their hind legs with their short fore-paws dropping on their stomachs—meerkat fashion—then they spat explosively and pretended to bite. They are very quarrelsome; fighting over tit-bits of food. Though so small they are well able to look after themselves and spend their time running hither and thither, rooting about or digging up insects with their strong claws.'

Except when fully fed they keep up a continual bird-like chirping and cheeping. Except for the first week I did not shut them up at nights, during the day they were always free to wander about, but never seemed to go outside a radius of 200 yards from their sleeping box. After three weeks they made up to the monkey, and it was a pretty sight on a hot afternoon to see the three of them lying together in a shady spot.

A dead cobra being brought me, I gave the body to the mongoose after first cutting off the head. It was most amusing to see the caution with which they approached it and sprang back, apparently with the object of 'drawing it' if alive. The bristles on their otter-like tails stood up. When sufficient courage had accumulated, they first attacked the tail which they worried and bit and afterwards gorged themselves on the entrails.

Their method of dealing with eggs was most interesting. They would roll the egg towards some wall or solid object. When near enough it would be taken up in the fore-paws and held against the chest; standing on its hind legs, the creature would then waddle a little closer to the wall, turn its back upon

the wall, straddle out its legs and suddenly fing the egg between them against the wall with the result that the egg would be broken and they could devour the contents. Given a large cockle-shell they went through the same performance, but never succeeded in breaking the shell ; they grew very excited and would steal the shell from one another and each try their hardest.

The attitude of adults to snakes was interesting ; a dead snake they would always devour, a live one aroused interest, but they were excessively cautious. Even when a harmless species such as a brown house snake was turned out in the open the mungoose would treat it with respect, running in to bite at the tail and jumping back before the snake had time to strike.

In the stomach of one specimen examined were the following —three frogs, two centipedes, four slugs, a carabid beetle, cock-chafers, cockroaches, locusts, grasshoppers and a large spider. This gives some idea of the omnivorous nature of their dietary, and shows how useful they must be in assisting to keep down a lot of undesirable insects. The quantity consumed by one mungoose in the course of a day must be very large.

There were some peculiar parasitic worms in the intestines of a male specimen that was shot. These were *Porocephalus* sp., a worm usually found in pythons but which has also been found in man (native, Dar-es-Salaam, 1918). In the case of this mungoose it is probable that it had eaten a snake, and so introduced the parasite into its own economy. Fleas and ticks were very abundant in the fur of most specimens.

Herpestes sanguineus ibeæ, Wrought.—A single specimen was obtained at Msia River, Makindu, G.E.A. (Shell Camp).

Herpestes mossambicus, Matschie.—Four specimens were shot or dug from their burrows at Lumbo, B.E.A. It is a handsome species, of general rufous colour with black-tip to the tail. The head has a particularly evil appearance, due in part to the fierce eyes and very small ears. They are expert climbers, and remind one of martens when so doing. A pair kept in confinement were as fierce and implacable after a month's captivity as on the day they were caught. During this time they were fed upon bullock's flesh cut into very small pieces. They drank water. Their glossy coats testified to

their good condition and their stomachs were very full when dissected. The largest male measured 20½ inches (284, 240, 57, 23) and the largest female 21½ inches (300, 250, 55, 23).

Helogale ivori, sp. nov., Thos.—These small mungoose must be very abundant, though more often heard than seen. They make quite a noise as they run about in the undergrowth hunting for the insects upon which they feed. Immediately they become aware of the presence of anyone in their vicinity they make off. They live in the holes of termite-heaps, which are such a feature of the country around Lumbo where they were met with. They are fond of lying near their holes and sunning themselves in the early mornings. Four and five respectively were dug from two of these holes one morning. In one instance they were found inhabiting the same hole as a large lizard (*Gerrhosaurus major*) ; a still stranger companion was a five-foot snake (*Rhamphiophis oxyrhynchus*) which was taken out of the same burrow as two mungoose.

No nest is made, and the female brings forth her young in the bare earth during the month of October and possibly November. A litter consists of four or five young (three observations) ; when born they measure male, 69, 32, 7, 5, and female, 65, 33, 12, 5. The young have a bird-like cry. In captivity they were kept on an almost exclusively meat diet. They showed a great liking for crickets which they would snap out of one's fingers in their eagerness. Crabs were also relished, though not to the same extent. Butter they would not touch ; a single individual developed a liking for jam ; cheese, chicken and eggs were taken ; the latter are broken open in the same way as practised by the banded mungoose.

On an underlined sand snake (*Psammophis subtaeniatus*) being introduced into the cage, it was immediately pounced upon and crunched up, the whole of it was apparently eaten by the one mungoose which growled like a cat continuously and flew at its mate whenever she ventured near, which she did again and again. Lizards were also seized with avidity. This mungoose is in the habit of sitting up on its haunches with its fore-paws resting on its stomach after the manner of a meerkat. They also showed great expertness in climbing the shrub which was put in their cages.

The largest male measured 147 inches (242, 135, 40, 20), and largest female, 15 inches (240, 140, 40, 20). Over twenty specimens were obtained.

Tumbo fly had infected one specimen, but the remainder were apparently very free from parasites, they kept themselves very clean externally, but one rather shirked the examination of their stomachs as these smelt so strong.

SCIURIDÆ

Paraxerus flavivittis mossambicus, subsp. nov., Thos.—A long series of this new sub-species was obtained at Lumbo. It is possible to live in close proximity to these squirrels without being aware of their existence, so expert are they in climbing round the trunks of trees, flattening themselves out on branches and making themselves scarce generally. They are extraordinarily fond of heat ; soon after sun-up they crawl out on a branch, and flattening themselves out to absorb all they can, they bask like lizards. Young ones would lie at 3 o'clock in the afternoon on a table in the full glare of a sun that quickly rendered metal tools too hot to handle. Whilst in captivity adult-caught specimens seemed but little tamer after three months' confinement, young specimens go to the opposite extreme and seek human companionship.

The young are brought forth in September (three observations), the nest is composed of a mass of fine grass and is placed in a hollow tree-trunk. Young taken on October 4 from such a nest were fed on milk for the first few days, then they were given sugar and raw oatmeal, and in due course ground-nuts, potatoes, bananas, jam and milk puddings. The favourite food was bananas, over which they would grow quite excited. Natives assert that they gnaw holes in clothing (!), on one occasion I disturbed one in my tent.

After the first three days in captivity the young ones were allowed their liberty and slept wherever they liked, above all they preferred a sack of kapock. They would burrow into this and not re-appear until 11 A.M. next day. It is difficult to know how they could breathe in such fluffy stuff. In the mornings they would climb a mango tree and bask in the

sunshine until called down by the sight of food. A plantain-eater was kept in a large cage on the ground and they would get in through the wires, climb into the porridge plate and sprawl about eating heartily. They were but little larger than the plantain-eater's head, yet the bird never molested them, but would continue feeding with the uninvited guests.

On another occasion one of them was plundering the food of an old male squirrel, when he came down from his sleeping-box, approached slowly, then suddenly snapped viciously at the intruder. The little creature only moved slightly so that he missed his aim; this was repeated a second time with like result. Then the old squirrel, apparently 'liking its style,' pounced upon the mite and gave it—a licking from head to tail.

The largest male measured $13\frac{1}{4}$ inches (176, 160, 40, 15), and female $13\frac{3}{4}$ inches (175, 175, 40, 18). Average measurements of fifteen specimens of both sexes was 162, 159, 39, 17.

Paraxerus ochraceus, Huet.—Specimens of this squirrel were collected at Morogoro, Dodoma and Kongwa. The largest specimen came from the last-named locality, and was a female $12\frac{7}{8}$ inches in length (174, 152, 35, 21).

Paraxerus ochraceus aruscensis, Pagen.—Collected in Mt. Meru Forest, a few miles from Arusha. This species is also common at Mombasa and Frere Town where specimens were taken.

Paraxerus ochraceus jacksoni, De Wint.—The common forest squirrel about Nairobi. Attracted by the cries of some birds on the outskirts of the Parklands Forest, one of these squirrels was observed turning round and round a branch like a Catherine wheel, though more slowly. It made off immediately on being approached, and the birds also scattered, to continue their outcry at a more discreet distance; a puff adder, however, was found lying on the ground about eight feet from where the squirrel had been performing. Probably the squirrel had seen it also, and was showing his objection to the disquieting discovery in his own fashion. The largest specimen was a male measuring $14\frac{1}{4}$ inches (180, 180, 38, 19).

Xerus rutilus saturatus, Neum.—Was very common in the neighbourhood of Longido West. It was probably the same

ground squirrel that was seen at Mbuni and Mkomasi. A Longido female obtained on January 31 measured $17\frac{3}{4}$ inches (242, 216, 53, 18), and had two foetuses in uterus, nothing but green leaves in stomach.

CRICETIDÆ

Taterona leucogaster, Peters.—Three specimens of these light brown rats with white bellies were dug out of ant-heaps.

The largest specimen was a female measuring $9\frac{3}{4}$ inches (140, 154, 35, 20), the biggest male was only a little shorter in the tail.

Taterona swaythlingi, sp. nov., Kersh.—Common at Morogoro, especially under sisal hedges, in the clearing of which a good many specimens were obtained. The largest male measured $12\frac{1}{2}$ inches (180, 128, 37, 22), the largest female $12\frac{1}{4}$ inches (140, 171, 34, 21).

Taterona taboræ, sp. nov., Kersh.—Obtained at Tabora, all the specimens had their ears affected with a mould or lichen-like parasite.

MURIDÆ

Steatomys loveridgei, sp. nov., Thos.—A single specimen of this fat mouse was obtained at Lumbo, 1/10/18. It measured $4\frac{3}{8}$ inches (male 77, 35, 15, 18).

Rattus fumatus, Peters.—Very common at Morogoro, where a large series was obtained. They were commonly found beneath any object in the bush or fields, particularly near dwellings.

Rattus coucha, subsp.—This species was also met with at Morogoro, a male was found in its nest in a hollow tree at about four feet from the ground, it bit fiercely on being picked up. Another specimen was taken as it emerged from a hole in the ground.

Rattus coucha panya, Hell.—Very common at Nairobi, where it is so bold that it will come out and feed in broad daylight.

Leggada bella, subsp.—Taken at Dar-es-Salaam. A single male measuring $3\frac{3}{8}$ inches (48, 37, 11, 10).

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Leggada bella, subsp.—Several specimens were taken at Morogoro. Two females measured 4 inches (53, 46, 12, 9).

Leggada bella, subsp.—A pair were taken at Tabora. The male being just under 4 inches (55, 45, 12, 9), and the female $3\frac{5}{8}$ inches (50, 42, 12, 8).

Arvicanthis abyssinicus neumanni, Matschie.—This sandy-coloured rat was very abundant at Dodoma in the thorn-bush and in open spaces in the village. It runs about during the heat of the day, but bolts into its burrows at the base of a thorn-bush when anyone approaches too close. I was told that twenty-four were captured in four wire traps set in a store during the course of a day. One of the specimens collected had three legs afflicted with what appeared to be elephantiasis. Some three dozen specimens were taken ; of these the largest male measured $10\frac{3}{8}$ inches (150, 113, 24, 17), and female $9\frac{1}{4}$ inches (125, 110, 25, 15).

Lemniscomys griselda rosalia, Thos.—At Morogoro a few specimens of this striped rat were taken, but the animal was far from common. A male measured $10\frac{1}{4}$ inches (21, 140, 26, 19). A female measured $9\frac{5}{8}$ inches (115, 130, 25, 19).

Grammomys surdaster, Thos. and Wrought.—At Morogoro and Lumbo. In both cases the animals had built their nests within those of weaver birds at a good height from the ground. Male measured 10 inches (108, 146, 48, 16).

An immature pair were taken in their nest which was constructed within that of a weaver bird, situated in a bush at a height of 5 feet from the ground. They were kept in captivity for a week and would eat almost any kind of food. The male escaping on September 20, 1918, the female was chloroformed. That the male was still in the vicinity of the tent was evidenced by sundry depredations. Exactly a month later this rat was taken in a fold of the tent in which it had gnawed a large hole and carried up fine shreds of grass wherewith to make a home for itself.

PEDETIDÆ

Pedetes surdaster, subsp.—Jumping Hares were to be found outside Morogoro. At Tabora a specimen was caught by some

natives after a heavy downpour of rain which was supposed to have washed it out of its burrow.

BATHYGERIDÆ

Helioscophus argenteo-cinereus, Peters.—This large grey mole rat was occasionally brought in by the natives who dug it up in their gardens. A male measured 6 $\frac{7}{8}$ inches (168, 6, 29, 0), a female was 5 $\frac{1}{2}$ inches in length (133, 7, 29, 2).

HYSTRICIDÆ

Hystrix galeata, Thos.—Six porcupines were killed in the course of a few weeks on an estate at Muthaiga, near Nairobi (June 1915). They do a great deal of damage, eating quantities of maize cobs, which they obtain by gnawing through the stem until the plant falls. When visiting at the house one day, a bull-terrier came in bristling with quills, blood running from his right shoulder, and lame in his right leg. It was thereupon decided to unearth the offender, and four kerosene tins of disinfectant were prepared and poured down one of the holes or entrances to its burrow. It did not bolt from the other outlet, so both holes were blocked up and a dozen natives sent into the thick scrub behind to beat it out, whilst a gun guarded the holes.

After a wait of nearly twenty minutes there was a grunt and a rush through the undergrowth, the beast suddenly appeared and dived into one of the entrances to the burrow, two dogs who were following at his heels were soon on top. A great pandemonium ensued, dogs and quills were falling in all directions, growls, yelps, squeals striking on the ear simultaneously defied description. In less time than it takes to relate, however, the porcupine scrambled out and made away through the cover, we in pursuit; but it made good its escape.

At Dodoma a well-used earth was found beneath a large rock, and a friend meeting the porcupine early one morning, shot it.

LEPORIDÆ

Lepus capensis abbotti, Holl.—A single specimen was obtained near Dar-es-Salaam. Male.

Lepus whytei, Thos.—Half-a-dozen leverets were brought to me whilst at Lumbo, between July 10 and October 1. The young are evidently brought forth during the whole period, possibly all the year round. Two leverets were found in one form, usually they were found singly, as if only one were produced at a birth.

They make delightful pets, but are only short-lived in captivity. Four very small ones succumbed to diarrhoea, though their ideal milk was diluted with six parts of water. Their milk was fed to them through a glass blow-pipe, one end of which was retained in the writer's mouth so that the fluid should not flow too fast; they sucked eagerly at the tube, and one individual, if shewn the tube, would hop about the table after it. This specimen, after being fed a week upon milk, took to nibbling grass, and appeared to be doing all right, when an accident occurred. Whilst 'out to grass' in charge of a native, it bolted. On overtaking it the boy pounced upon it as it squatted in a clump of grass. One of the blades, presumably, punctured the eye. From that time it moped, refused food, and died on the third day after.

Another was kept for over a month fed upon a mixture of tea leaves and stiff porridge, with the addition of greens when obtainable. Its death was also an unusual one. Its run, which was 8 feet long by 2½ feet broad, was invaded one night by ants, which apparently attacked eyes and mouth; in the morning it was found dead with the lips badly eaten away. When out in the bush they were not often seen—possibly one per week. They appear to be quite unable to rid themselves of burrs when these become attached to the fur.

SUIDÆ

Potamochoerus chaeropotamus, subsp.—At Morogoro, on January 9, 1918, some natives brought me five young wild pigs, characteristically striped. The mother had left them under a bush in a rubber plantation. They averaged 14 inches in length, of which 3½ would be tail.

PROCAVIIDÆ

Procavia frommi, Brauer.—Rock Rabbits were common, both at Dodoma and Tabora, where they were found on rocky kopjes. They might often be seen on the branches of trees as well as on the rocks. They always carry a lot of worms in the stomach, both Nematode and Cestode. The following were found in one Dodoma specimen :—*Crossophorus collaris*, *Hempshi* and *Ehrb.*, *Anoplocephalus spatula v.* Linst., *Inermicapsifer*.

The largest male (Tabora) measured $17\frac{1}{2}$ inches (450, 0, 62, 29), and largest female (Dodoma) $18\frac{1}{2}$ inches (470, 0, 67, 35).

Procavia, sp.—When at Morogoro I saw some skins of a Hyrax exposed for sale in a Greek's shop. I inquired where they were obtained and learnt that they came from near the top of the Uluguru Mountains. I made it known among the boys that I would be glad to purchase specimens if brought in the flesh. It was more than a year before a specimen was brought to me. It was a female measuring $23\frac{1}{2}$ inches (595, 0, 79, 32). In the uterus was an embryo 38mm. long, with a coccyx 1mm. in length.

MANIDÆ

Manis temmincki, Smuts.—On January 10, 1918, a native brought me a pangolin which he had captured near Morogoro. He had inflated views of its value and wanted 27s. for it, so that I did not purchase it. He returned on the 15th inst. and sold it to me at a more reasonable figure. It was well over three feet in length. When all was quiet it would cautiously unroll, revealing its long pointed nose; if nothing happened it would then begin to trot away with the fore-legs, looking painfully awkward, almost as if the creature were trying to walk on its wrists, nevertheless it managed to travel fairly quickly. It rolls up immediately on being disturbed, and gives a little snort of annoyance; if you then attempt to pick it up, its plaited tail flies round with good force and then returns to protect the head. I spent two hours in making a run secure—as I thought; twenty minutes after being put in, however, it had disappeared, and was not to be found, though forty boys were out looking for it with lanterns. On February 1 a young

specimen about 18 inches in length was brought me, but I did not purchase it.

ORYCTEROPODIDÆ

Orycteropus aethiopicus, Sund.—Aard Vark, ant-bear or earth-pig, as they are variously called, were common at Morogoro and Tabora, but never seen unless dug for. Having located a burrow at Tabora on December 11, 1918, I set eight boys to dig it out at 7 A.M. They kept on till I joined them at 4 P.M., having knocked off work for an hour at noon. They had dug a furrow about twenty feet long and varying in depth from six to ten feet, they reported having twice caught sight of its tail. I kept them working fast in relays and presently saw what I took to be a foot throwing back the earth. I fired at this, but it proved to be the tail which is extraordinarily thick and an aid to the feet in throwing out the soil.

After another half-hour's digging, a boy seized the creature by its tail, two more boys held on to the first boy's legs, nevertheless, he was slowly but surely drawn into the burrow up to his waist. Muffled cries proceeded from him and finally letting the animal go he was pulled out fairly smothered in the loose, sandy soil. Digging at once went on, and when the creature was again sighted ropes were attached to the two hind legs, these were used to draw it like a refractory cork from a bottle, it was not long before one was snapped, but the creature came out, plunging like a tethered bull. To my great surprise it was about five feet in length, and a couple of feet in height. I fired at it at a distance of twenty feet with No. 5 shot from a 12-bore, the shot hit it in the neck, but it took no notice except for a sudden plunge. A boy then approached and brought down the heavy end of a mattock on its head with full force. This resulted in the animal rearing up on its hind legs, snapping the second rope, after which it broke away across country at a peculiar yet fast gallop. It went to earth in a burrow on the railway embankment, and as we arrived at the spot, all that was to be seen was a few handfuls of earth being flung out.

If it had not been that the creature was possibly wounded more severely than was apparent, I should have liked to have ceased the chase and given it its well-earned liberty. Quite fifty natives had collected by this time and eager hands were

soon at work digging, when suddenly the ant-bear turned and charged out of the burrow, natives fell over in every direction and got in each other's way. A Kavirondo brought his club down on the animal's head which only had the effect of breaking the club, the animal continued for a hundred yards and went to ground in another burrow.

Someone seized its tail and hung on whilst others attempted to fasten ropes, boy after boy fell back to spit sand from his mouth, and clear it from his eyes and hair. The sand continued to be thrown out in powerful jets. A rifle which had been sent for arrived at this juncture, and a couple of shots killed the poor creature without further delay. It was found to measure $68\frac{1}{4}$ inches of which $23\frac{1}{2}$ were tail. (Male 1140, 590, 225, 175.)

For Notes on Horned Ungulates, Elephant, etc., see index to Natural History Diary for the period 1915-1919.

THE RAID OF THE PONERA

AN IMPRESSION

BY R. HARGER

An hour before an African sunset on the coast near the Equator. This afternoon there was heavy rain which lessened to a drizzle and has now ceased. The air is still, damp, and quite chilly in comparison with the pre-storm midday heat, which has left the earth much warmer than the atmosphere. Thus, already a slight haze is produced which is noticeable even within fifty yards. The light is subdued. Excellent conditions for certain insects to be on the move, especially those which travel on legs alone.

What a world to tackle for those whose eyes are, maybe, but one-sixteenth of an inch or less above the ground!—eyes which perhaps are not very keen of vision or long of focus.

Along a slight track, worn by native feet, are many obstacles. Many small pools of water held and bordered by fine mud. Here a sodden and tangled mass of grass stems. There a small washout still holding water held back by dams