

## II.

## MAMMALS.

By OLDFIELD THOMAS.

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THIS collection was made by Dr. Hartert and Mr. Hilgert during an expedition southwards to Tidikelt, in the centre of the Western Sahara, a region hitherto entirely uncollected, at least so far as Mammals are concerned. Considering the difficulties of the country and the fact that Birds and Insects were their chief object, the collection of mammals is of remarkable extent, and gives a good idea of the Fauna of the country.

This proves, however, to be disappointingly similar to that of the Northern Sahara, only one mammal, the Gundi, being distinct enough to need description as new. The others are all known desert animals, some described by Lataste from the region between Biskra and Ghardaïa, and others wide-ranging forms extending even into Egypt.

No sign of an admixture of Ethiopian forms occurs in the collection, the animals being all typical N. African species, only differing—when they differ at all—from their Algerian relatives by their greater adaptation to a desert life—this adaptation being generally in paler colour and larger ears.

Mention has here also been made of a few species collected in former years by the Hon. Walter Rothschild and Dr. Hartert in Algeria.

Mr. Rothschild has been good enough to present to the National Museum most of the animals collected, and these form a most valuable accession to the Museum, which had not previously possessed any mammals from the Sahara south of Biskra.

1. *Asellia tridens* Geoff.

♂ 41, ♀ 42; El-Golea. (Also some in spirits.)

Paler than ordinary Egyptian specimens of *A. tridens*, but equalled in this respect by a few exceptional individuals from that country.

[Many hundreds of this bat were found in one of the semi-subterranean forsaken houses among the ruins of the ancient Zenata fortress on the hill above El-Golea. This was the only place where we met with the species.—E. H.]

2. *Plecotus christiei* Gray.

♀ 22; Oumash, near Biskra. (W. Rothschild and E. Hartert.)

Agrees with Egyptian specimens in the size of the bullae, which are far larger than in the European *P. auritus*.

3. *Pipistrellus kuhli* Kuhl.

♂ 4; El-Golea.

♂ 45, 46, 47; 50 km. south of Ghardaïa.

Specimens of this common bat were also obtained at El-Kantara and Biskra.

[These Bats sleep in houses, and begin to fly about fairly early. We found them very common at El-Kantara and Biskra as well as in El-Golea, also in the Bordj of the little oasis of Sebseb, 50 km. south of Ghardaïa.—E. H.]



4. *Myotis oxygnathus* Monticelli.

♂ 7, ♀ 8; Djebel Taya, N. Algeria. February 1911. (Also some in spirits.) (W. Rothschild and E. Hartert.)

It is probable that all specimens from N. Africa hitherto referred to *M. myotis* (*Vespertilio murinus* of Dobson and earlier authors) are really referable to the smaller species described from S. Italy by Monticelli.

[This Bat inhabits a side-chamber of the great cave on Mount Taya, east of Constantine. This is the Bat mentioned by Kobelt, *Reiseerinnerungen aus Algerien und Tunis*, p. 285, which Herr von Berlepsch "had recognised as a new species, but not yet—in 1885—described." Doubtless this was an erroneous statement, for "Herr von Berlepsch" (*i.e.* Freiherr Hans von Berlepsch, who was at that time staying at Hammam Meskoutine), had no knowledge of Bats, and could never have intended to describe it.—E. H.]

5. *Fennecus zerda* Zimm.

♀ 5; 27 km. south of El-Golea.

Agrees closely with a specimen from the Natron Valley, N. Egypt, except that the bullae are smaller. Another specimen from Algeria in the Museum collection, however, has the same large bullae as Egyptian examples, so that this character would seem to be variable.

[The Fennec is entirely restricted to the sandy desert, and especially to the dunes, where they are not entirely without vegetation. It does not seem to occur near Biskra, or anywhere north of Tougourt. We have seen the traces as far south as the Erg between Hassi Meksa and Oued Saret. Near In-Salah it does not seem to exist, although there is plenty of sand. It seems to be fond of beetles.—E. H.]

6. *Gerbillus pyramidum* F. Cuv.

♀ 14; Igosten, near In-Salah.

♂ 19, 21, ♀ 20, 22, 23, 28, 29; In Salah.

Very much like the brighter coloured of the Egyptian specimens in the Museum, but not so bright as those from Tripoli which formed the basis of my *G. pyramidum tarabuli*.

[These little beasts were brought in in numbers by boys, who obtained them in the "gardens," or better palm-groves of the oasis.—E. H.]

7. *Gerbillus gerbillus* Oliv.

♀ 6; 27 km. south of El-Golea.

♂ 16; In-Salah.

♂ 32, ♀ 31; Oued el-Abiodh, near In-Salah.

♂ 38; 30 km. south of Fort Miribel.

Quite like typical Egyptian *G. gerbillus*.

8. *Dipodillus campestris rosikae* Thos.

♂ 15, 16, 24; Chetma, near Biskra. (W. Rothschild and E. Hartert.)

♂ 3, ♀ 43; El-Golea.

♂ 8, 9; Fort Miribel, 138 km. south of El-Golea.

♂ 15; Igosten, near In-Salah.

♂ 17, 18, ♀ 24, 25, 26, 27; In-Salah.



The specimens of this group from the Algerian Sahara are less vividly buffy than those from Tripoli which I named *D. dodsoni*, but I think that they will be found to grade into each other. The majority are also smaller than *D. dodsoni*, but No. 8 from Fort Miribel is as large as most Tripolitan specimens.

[This form was first described from specimens brought in by Arabs at Biskra in 1908, where at that time Mr. W. Rothschild, myself, and Mr. Steinbach collected mammals, chiefly for the sake of fleas, for the Hon. N. Charles Rothschild.—E. H.]

#### 9. *Dipodillus garamantis* Lat.

♂ 13; Chetma, near Biskra. (W. Rothschild and E. Hartert.)

♂ 37; 60 km. south of Fort Miribel.

Type locality, Ouargla.

#### 10. *Meriones schousboei* Loche.

♂ 2; half-way between Ouargla and El-Golea.

♂ 34 (young); 50 km. north of Aïn Guettara.

[The Arabs called it "farr" or "djerd."—E. H.]

#### 11. *Psammomys algiricus* Thos.

♂ 28-29; Tiltrempt, between Laghouat and Ghardaïa. (W. Rothschild and E. Hartert, 1911).

[This species is very common near Biskra, where the Arabs call it "djerd."—E. H.]

#### 12. *Jaculus jaculus* L.

(a) ♀ 51; plateau 46 km. east of Ghardaïa.

(b) ♀ 30; Oued el-Abiodh, north of In-Salah.

♀ 40; 85 km. south of El-Golea.

♀ 44; 160 km. south of Ghardaïa.

The three southern specimens (b) differ from a, and from examples from Biskra—with which the latter agrees—in their paler and more yellowish colour, and by the presence of a distinct whitish ring round the tail proximal to the broad black subterminal band. They agree, however, in both respects so closely with examples from Cairo, the type locality of *J. jaculus*, that it would not be advisable to distinguish them. Whether Loche's *Dipus deserti* from Ouargla is a or b does not appear from his description, and can only be settled by the examination of topotypes.

#### 13. *Massoutiera mzabi* Lataste.

♂ 48, ♀ 49-50; Ghardaïa.

This striking form of Gundi, discovered by Lataste in 1881, was not represented at all in the British Museum collection until the beginning of this year, when Mr. F. R. Ratcliff presented a skin with a broken skull. The specimens with perfect skulls now obtained by Dr. Hartert at the typical locality are therefore of much general interest, besides having been of particular value in the working out of the Oued Mya species next following.

They are entirely confirmatory, if confirmation be needed, of the generic distinctness of *Massoutiera* from *Ctenodactylus*, the ordinary Gundi of Algeria. In colour and general external appearance the two are remarkably alike, the



smaller hands and longer tail of *Massoutiera* being the most obvious distinctions; but the different shape of the feet, as described by Lataste, affords ample reason for considering *Massoutiera* as distinct from *Ctenodactylus*.

*Felovia* again, founded by Lataste \* as a subgenus of *Massoutiera* to contain his *M. cae*, I should consider sufficiently distinct from either *Massoutiera* or *Ctenodactylus* to stand as a separate genus. Besides its grooved incisors it is distinguished by yet another shape of the molar teeth, its skull is peculiarly flat, and its bullae are even smaller than those of *Ctenodactylus gundi*, the bullae being immensely swollen in *Ct. vali*, *Massoutiera mzabi*, and the new species of *Massoutiera* now to be described.

[In habits "*Massoutiera*" does not differ from *Ctenodactylus gundi*. They inhabit rocks with caves and hollows, and are fond of running along ledges and under overhanging cliffs. They come out in the full sunshine, but one sees most of them in the morning and towards evening. We found them generally fairly shy, and they often have the habit of stopping motionless on a rock, and then they are almost invisible, having the same colour as the rocks. One hears sometimes a short squeak, and an apparently excited or angry clicking sound. The tail is frequently jerked up and down, and they frequently sit up like a hamster, holding food between their fore-feet, when eating.

We found *Massoutiera mzabi* only in the Mزاب country, in the neighbourhood of Ghardaïa, and saw it once about 50 km. south of the latter town. The Arabs call it "gundi," and do not distinguish between it and *Ctenodactylus gundi*. The latter is common on the rocks near Biskra and El-Kantara, and we saw young ones of various sizes in April.—E. H.]

#### 14. *Massoutiera harterti* sp. n.

♂ 13, ♀ 12; Oued Mya, south of Fort Miribel, about 28° 30' N., 3° E. Alt 400 m.

Like *M. mzabi*, but with larger bullae.

External characters as in *M. mzabi*, the pelage equally fine and silky, and the colour of the same pinkish buff. Tail-hairs longer, though this may be an accidental condition, and the tail itself longer according to the collector's measurements.

Skull very similar to that of *M. mzabi*, but the bullae distinctly larger, the size of the bullae being a characteristic feature of the different species of the group. In the new form the greatest breadth on the bullae is slightly greater than the zygomatic breadth, slightly less in *M. mzabi*; the inflation of the bullae is greater throughout, and their lineal diameter longer (see measurements below). Incisors smooth, without any trace of the groove present in *Felovia*. Molars quite as in *M. mzabi*.

Dimensions of the type, measured in the flesh :—

Head and body 230 mm.; tail "47" (? 37, the other specimen 38); hind foot 37; ear 18.

Skull, greatest median length 48·5, greatest diagonal length 51, condylo-incisive length 43·2; zygomatic breadth 30; length of nasals 17·8, interorbital breadth 13; greatest breadth on bullae 31·5; interparietal 8·7 × 11·5; palatilar length 37·8, palatal foramina 7·6; upper molar series (crowns) 8·7; bulla, greatest

\* *Le Nat.* iii. p. 287. 1886.



diagonal horizontal diameter, as seen from above, 18.4; ditto below 19.8; height 17.8.

*Hab.* As above.

*Type*: Adult female. B.M. No. 12. 11. 14. 57. Original number 12. Collected April 8, 1912.

Although the differences between this animal and *M. mzabi* are not very great, they are of importance because of the complete geographical isolation of the two forms. Gundis are inhabitants of rocky ground only, and, unlike Jerboas, Gerbils, and other desert animals, they are unable to pass the barriers presented by the rolling sand-dunes and stoneless areas of the Sahara. The rocky area of the Oued Mya inhabited by *M. harterti* is about 300 miles south of Ghardaïa, where *M. mzabi* occurs, and intergrading specimens are therefore not likely to be found.

With regard to the sizes of the bullae, so important among the Gundis, I may note the following dimensions as occurring in the different forms; the measurement given being the greatest diagonal horizontal diameter as viewed from above:—

<i>Felovia vae</i>	.	.	.	.	.	12	mm.
<i>Ctenodactylus gundi</i>	.	.	.	.	.	14.5	„
„ <i>vali</i>	.	.	.	.	.	17.4	„
<i>Massoutiera mzabi</i>	.	.	.	.	.	17	„
„ <i>harterti</i>	.	.	.	.	.	18.4	„

[It was only in the Southern Oued Mya region, and the wild rocks of Aïn Guettara, that we saw this animal, and besides the two examined by Mr. O. Thomas we shot one at Aïn Guettara, which was put into spirits.—E. H.]

#### 15. *Lepus kabylicus* de Winton.

♂ 3; Hammam Meskoutine, east of Constantine. (W. Rothschild and E. Hartert.)

The comparatively dark hare of the northern zone of Algeria.

[This is probably the common hare of the whole "Tell." It was not at all rare near Hammam Meskoutine, but as we were there during the close time we could not very well go out for hare-shooting.—E. H.]

#### 16. *Lepus pallidior* B.-Ham.

♂ 23; 20 km. north-east of Biskra. (W. Rothschild and E. Hartert.)

♀ 1; Kef-el-Dor, Algerian Sahara. (E. Hartert and C. Hilgert.)

The series of hares obtained in Algeria illustrates the gradual modification of the species as the country becomes more and more desert southwards. The hare of the "Tell," or northern fertile region, *L. kabylicus*, is comparatively dark, then follows the present paler and more greyish species in the Biskra region, to be succeeded farther south by the pinkish buff *L. whitakeri* of the Sahara. Widely different as they look from each other, all would appear to be modifications of one animal, as no essential differences in skull or teeth are to be found.

#### 17. *Lepus whitakeri* Thos.

♂ 53, ♀ 52; Oued Nça, east of Ghardaïa.

♂ 7 (young); near Hassi Marroket, 40 km. south of El-Golea.

♀ 10; Sidi-Djilali-Lakhdar (Oued Mya), 180 km. south of El-Golea.

♂ 11, ♀ 36; Oued Mya, north of Ain Guettara.



There is some temptation to think the more southern specimens 10, 11, and 36 different from those from Oued Nça, their ears being a little longer and their colouring more orange. But a comparison with them of the original skins from Tripoli renders it evident that they cannot be satisfactorily divided on the material at present available. For the Tripoli specimens have the ears of more or less intermediate length, their general colour is more like that of the Oued Nça specimens, while in the detailed colour of the hair-rings (always a doubtful character to use) they more resemble the Oued Mya skins.

The whole series agree in the practical absence of cement from the incisive grooves, by which character they are distinguishable from the otherwise similar *L. isabellinus* Cretzschm. of Egypt.

[These very fine reddish sand-coloured hares with their enormous ears were not rare in the Oued Mya and its tributaries, and quite numerous in the wide, ancient river-bed of the Oued Nça, between Ghardaïa and Guerrara. It was, however, not very easy to shoot hares in the Oued Mya, as they seemed to rest, in the daytime, more among the rocks and stones bordering the river-bed, where one could not easily walk noiselessly, and they were quite shy; during the night-time they came to the Oued, and pulled down the branches of the Retam (*Retama raetam*), of which they seemed to be rather fond. In the Oued Nça hares were so frequent that one often came across them, and could shoot them without difficulty.—E. H.]

### III.

#### NOTES ON RUMINANTS AND OTHER LARGE MAMMALS.

By ERNST HARTERT.

1. *Gazella cucieri* Og.—This Gazelle, the "Edmi" of the Algerian Arabs, is common enough in the southern ranges of the Atlas, especially in the more or less bare rocks near El-Kantara, and it never leaves the mountains or their close neighbourhood. It appears to be generally found in the same districts as the Barbary Sheep, but to be absent from the real Sahara, and we never saw or heard of it south of Biskra. Edmi are shy and somewhat difficult to shoot, but can often be approached under cover. (Edmi seems to be a Berber word?)

2. *Gazella leptoceros loderi* Thos.—The "Reem" (Rim) of the Arabs, or "White Gazelle," is essentially a desert animal, being entirely restricted to the Erg or rolling sand-dunes. It is found in the Erg between Biskra and El-Oued, and is common in the Great Western Erg between Ouargla and Rhadames. We found it also among the dunes south of El-Golea, and between El-Golea and Ghardaïa. It is probably found in every Erg of any great extent. Owing to the hilly nature of the dunes and the noiseless walking on the sand, the Reem is easily stalked, and generally killed with shot by the Arabs, who have no idea of sportsmanlike shooting: they often catch the young (with or without the help of dogs), then make it squeak, and kill the mother when coming to the help of her young. In this way, and by waiting patiently for days and nights in ambush, these and other Gazelles are decimated, and they will soon be rare or disappear from all the more or less frequented districts of the northern Sahara.



Thomas, Oldfield. 1913. "Ernst Hartert's expedition to the central western Sahara; Mammals." *Novitates zoologicae : a journal of zoology in connection with the Tring Museum* 20, 28–33.

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