The Extinct Reptiles of Rodriguez.

By Dr. A. Günther, F.R.S.

The earliest notice of the Tortoises and Lizards of Rodriguez we find in Leguat (Voyages et Avantures). He says "that there are such plenty of Land-Turtles in "Rodriguez, that sometimes you see two or three thousand of them in a flock, so "that you may go above a hundred paces on their backs." According to Admiral Kempinfelt, who visited the island in 1761 (see Grant's Maurit. p. 100), small vessels were constantly employed in transporting these animals by thousands to Mauritius for the service of the hospital. But early in the present century the work of extermination appears to have been accomplished, and there is, at present, of the Rodriguez Tortoise not a single living example in the island, or in any other locality.

Remains of this Tortoise had been discovered and had reached Europe many years ago, but no particular attention was paid to them. M. J. Desjardins, one of the first explorers of the fauna of Mauritius, sent a bone of a Tortoise found in 1786 in a cave in Rodriguez, with some remains of the Solitaire, to Paris,* where they were examined by Cuvier and Blainville, who erroneously stated them to have been recently found under a bed of lava in Mauritius.† Another Mauritian naturalist, C. Telfair, in searching, in 1832, for bones of the Solitaire in Rodriguez, succeeded in obtaining "numerous bones of the extremities of one or more large species of Tortoise," which were presented to the Zoological Society of London, and exhibited at one of the meetings.‡ These bones were still in the possession of the Society three or four years before the publication of Strickland and Melville's memoir on the Dodo (1848); but no further attention being paid to them they were lost. Another portion of Telfair's collection was presented by him to the Andersonian Museum at Glasgow, where they are still preserved.

Some well-preserved bones, kindly sent to the writer by M. Bouton, of Port Louis, in 1872, satisfactorily proved that the Tortoise of Rodriguez is distinguished from all its congeners by well-marked characters (Ann. & Mag. Nat. Hist., 1873, xi. p. 397); but it was only when these remains were supplemented by those preserved in the Andersonian Museum at Glasgow, and entrusted to me by the curators of that institution for examination, and when, finally, the extensive series collected during the Transit-of-Venus Expedition arrived, that our knowledge of its specific characters became tolerably complete. No further important additions can be expected from Rodriguez, with the exception of the small bones of the foot and caudal vertebræ;

* Proc. Comm. Zool. Soc. ii. p. 111. Strickland and Melville, "The Dodo," pp. 51–53.
† Edinb. Journ. Nat. Sci. iii. p. 30. ‡ Proc. Zool. Soc. 1833, p. 31.

and these will be but of small value, unless they be found in their natural connexion.

With the aid of the carapaces brought home by Mr. SLATER we are now enabled to recognize the Rodriguez Tortoise in some carapaces which reached Europe in the last century, probably during the lifetime of the species, and which we find noticed by the following herpetologists:—

1. SCHOEPFF (Histor. Testud. 1792, p. 103, pl. 22, fig. B.) has reproduced a sketch of a Tortoise $2\frac{3}{4}$ feet long, which was communicated to him by Vosmaer, who examined the specimen which then was in "Museo Principis Arausionensis" in the Hague. This seems to have been a male, with a carapace very similar in form to that of the male described below; its front and hind margins, being still provided with the epidermoid scutes, have an undulated outline. Schoepff was informed by Vosmaer that the carapace had been brought from the Cape of Good Hope; and expressing himself uncertain whether it should be considered a distinct species, or a sexual, local, or individual variety of the Tortoise described by Perrault, he named it "*Testudo Indica, Vosmaeri.*"

2. DUMÉRIL and BIBRON recognized Schoepff's Tortoise in a skeleton with complete carapace in the Paris Museum. The description of the specimen, whose shell measured 75 centims. over the curvature, again perfectly agrees with our male specimen, and supplies a detailed account of the outer epidermoid covering. The authors adopt the binominal term, "*Testudo vosmæri,*" which, of course, supersedes that proposed by myself (*Testudo rodericensis*, Ann. & Mag. Nat. Hist., 1873, xi. p. 397). By the singular resemblance of the general form of the male of this species to that of some of the Galapagos Tortoises, they were led into the error of supposing that *T. vosmæri* came from the Galapagos Islands (Erpétol. Génér. ii. p. 140).

3. A second specimen, probably a young female, likewise in the Paris Museum, and without known history, was considered by the French herpetologists a distinct species, *Testudo peltastes* (ibid. p. 138). This description agrees in every respect with our young carapaces from Rodriguez.

The Rodriguez Tortoise* differs from the Mauritius and Galapagos Tortoises by the more slender build of all the various parts of its skeleton; its neck must have been capable of still greater flexion, as is evidenced by the deep postapophysial impressions or actual perforations of the cervical vertebræ. Although careful comparative measurement show beyond doubt that this Tortoise had longer limbs and a longer neck than even some of the Galapagos Tortoises, yet, taking also into consideration the extreme thinness and fragility of its carapace, we must infer that this general slenderness of the bones must have been partially due to the same cause, probably a diminished supply of the calcareous salts, or a diminished power of assimilation of them.

* For the detailed illustrated description of these remains, I refer to "Gigantic Land-Tortoises (Living and Extinct). Lond. 1877. 4to."

The bones collected by the Naturalist of the Transit-of-Venus Expedition belonged to several hundred individuals; and there are in some cases as many as 40 specimens of one and the same bone in the collection; yet no variation in structure equivalent to that observed among the Galapagos, Aldabra, and Mauritius Tortoises could be detected, so that evidently in this small island there was room for one species only. The only variation which is worth recording is one which can be explained as a sexual difference, the female having been of a smaller size and somewhat stouter form than the male, as is the case in the other Gigantic Tortoises.

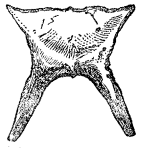
Bones far exceeding in size the majority of their kind are not rare, and prove that the Rodriguez Tortoise was quite equal in bulk to *Testudo elephantina*, many (probably male) individuals having had a carapace 4½ feet in length. From Duméril and Bibron's descriptions we learn that the scutes were perfectly smooth or nearly so, and that the shell of the adult was black, whilst the young were of a lighter brown colour, the sternum being dotted with yellow.

Two kinds of *Lizards* appear to have been known to Leguat. He says (p. 108), "Les Palmiers et les Lataniers sont tous chargez de Lézards de la longueur d'un "pied: on ne sçauroit se lasser d'en considerer la beauté. Il y en a de noirs, de "bleus, de verds, de rouges, de gris, et de tout cela du plus vif, et du plus éclatant. "Leur nourriture la plus ordinaire est le fruit du Palmier. Ils ne sont nullement "malsaisans, et sont si familiers qu'ils venoient souvent manger nos melons sur la "table en nôtre presence, et mêmes entre nos mains. Ils servent souvent de proye "aux oiseaux, sur tout aux butors. Quand nous les faisions tomber des arbres, "avec une perche, ces oiseaux accouroient et venoient les engloutir devant nous, "quoi que nous pussions faire pour les en empêcher; et lors que nous en faisions "seulement le semblant, ils venoient de la même maniere, et nous suivoient "toûjours."

"Il y a une autre espece de Lézards nocturnes, de couleur grisâtre, dont la figure "est fort vilaine: ils sont gros et longs comme le bras, et la chair n'est pas mauvaise. "Ils aiment beaucoup les Lataniers."

The former of these Lizards may have possibly a species of *Phelsuma*, a genus which is well represented in the Mascarene region, and the species of which are subject to great variation in colour. The latter is probably the species of which Mr. Slater collected, with remains of the Solitaire and Tortoise, several bones. He recognized them as the remains of a Lizard, possibly belonging to the family of Skinks. In my opinion it is a Geckoid Lizard, which, as far as the evidence before us goes, cannot be separated from the genus *Gecko;* but the species from Rodriguez appears to have attained a much larger size than *Gecko verus* (to which it is very similar), or than any other Geckoid known. Referring, then, this Lizard to the genus mentioned, I concur in Mr. Slater's proposal of naming it after Mr. E. Newton,—*Gecko newtonii.*

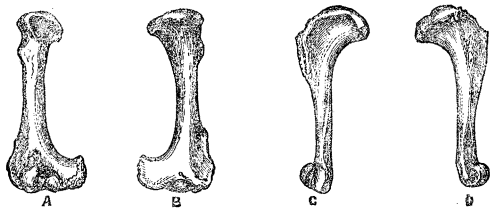
The bones collected consist of two parietals, posterior half of right ramus of lower jaw, right humerus, right half of pelvis, five left and two right femurs, and therefore must have belonged to at least five individuals, of which the one indicated by the pelvis was the largest. In the following description these bones have been compared with the skeleton of a *Gecko verus*, the vertebral column of which is 100 millims. long (exclusive of the caudal vertebræ), and the skull 45 millims.



Parietal bone of *Gecko newtonii*. Upper aspect and of natural size.

The *parietal* agrees in size and shape entirely with that of *G. verus*, in which the two long processes into which this bone bifurcates behind are separated by a large vacuity from the paroccipital. In *Phelsuma* (which genus is so well represented in these islands and on the coasts of this geographical region, and which might have been expected to occur in Rodriguez) the parietal has quite a different shape (*P. seychellense*), and its posterior processes are addressed to the paroccipital.

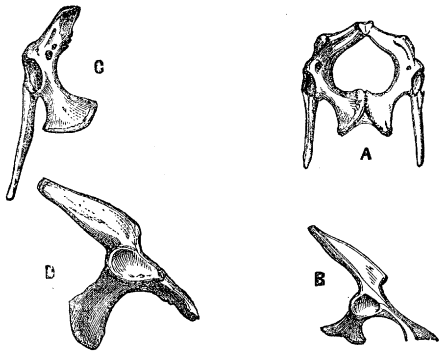
The *articulary* piece of the mandible differs nowise from that of *G. verus;* like the latter it is produced behind the condyle into a hamate grooved process, which, however, is much more concave on its upper surface in the Rodriguez species than in *G. verus*.



Humerus of *Gecko newtonii*, nat. size. A, anterior, B, posterior, C, ulnar, and D, radial aspects of bone.

The *humerus* offers a more striking difference from *G. verus* than the preceding bones; it is much stronger, and especially its extremities are comparatively much more dilated. Its head is transversly elongated, passing into a curved and projecting prominence, which answers to the ulnar tuberosity. The radial crest is strongly developed, and does not extend beyond the proximal third of the length of the bone. The transverse diameter of the distal extremity is nearly rectangular to that of the proximal. The whole of this part of the bone is much dilated, particularly by a broad trenchant crest running along the radial border of the bone. Of the two condyles the radial one is much the more prominent one and projects towards the anterior side of the bone. In all these particulars *G. newtonii* resembles *G. verus*, all the ridges and prominences being, however, much more developed.

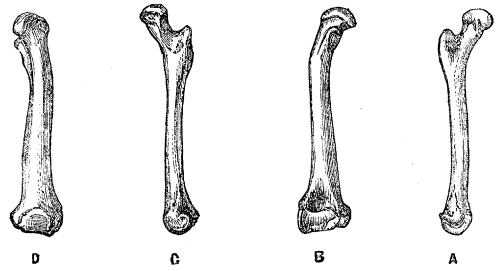
	G. verus. millims.	*G. newtonii.* millims.
Length of the humerus - - - -	$22\frac{1}{2}$	25
Least width of the shaft - - - -	2	3
Transverse diameter of proximal end - -	$5\frac{1}{2}$	9
Transverse diameter of distal end - - -	$6\frac{1}{2}$	10



A. Inferior surface of the pelvis of *Gecko verus*. B. The outer aspect of the right os innominatum of the same animal. C. Lower surface of the right half of the pelvis of *G. newtonii*, and D, its exterior surface. All the figures are of natural size.

The *pelvis* and *femur* are so similar to those of *G. verus* that the accompanying figures and statements of measurements will suffice to give a perfect idea of those bones.

	G. verus. millims.	*G. newtonii.* millims.
Length of the os ilium (from acetabulum) - -	11	13
Greatest width of os ilium (from acetabulum) -	4	$5\frac{1}{2}$
Length of os pubis (from acetabulum) - -	11	(injured)
Width of os pubis at its base - - -	3	$5\frac{1}{2}$
Length of os ischii (from acetabulum) - -	$6\frac{1}{2}$	11
Least width of the os ischii - - - -	$2\frac{1}{2}$	11
Length of femur - - - - -	26	30
Width in the middle - - - -	$1\frac{1}{2}$	3
Width of its lower extremity - - -	$5\frac{1}{2}$	$7\frac{1}{2}$



The femur of *Gecko newtonii* in four different aspects and of natural dimension.

The Extinct Mollusca of Rodriguez.

The only extinct form as yet discovered is a land-shell (*Helix bewsheriana*), which was obtained in a sub-fossil condition in the bone caves by Mr. Slater. This species will be again referred to in the account of the recent mollusca of the Island.