

a dark purple-coppery colour) and by the much more delicate and less close punctuation of the thorax and elytra.

Hab. Batchian (*C. Curtis*).

Coptengis Melvilli.

Læte cyaneus, nitidissimus; elytris maculis quatuor flavis notatis.
Long. 19 millim.

Closely resembles *C. Sheppardi*, but is of a deep blue colour, the legs being also blue. Besides the difference in colour, this species is distinguished by the punctuation of the elytra, which is as strong as in *C. Sheppardi* but less close.

Hab. New Guinea.

Presented to the Museum by J. Cosmo Melvill, Esq.

L.—*Remarks on Dr. A. Strauch's Catalogue of the Geckos in the Zoological Museum of the Imperial Academy of St. Petersburg* *. By G. A. BOULENGER.

THIS important memoir contains an enumeration of all the Geckoid Lizards (inclusive of the Eublepharidæ and Uroplatidæ, which are united with the Geckonidæ) in the St. Petersburg Museum. We learn that 122 species are represented in that collection by upwards of 637 specimens. A dichotomical key is given of all the genera, but only such species as are new or imperfectly known are described. The author has not adopted the sequence followed in the British-Museum Catalogue, in which the series of genera commences with the least specialized forms, *i. e.* those in which the digits are not dilated; he prefers commencing with the most "typical" forms, in which the Geckoid character is most highly developed. Two new genera are established, viz. *Cnemaspis*, allied to *Gonatodes*, for a new species from Pulo Condor, and *Ptenodactylus*, allied to *Stenodactylus*, for a Turkestan form, *P. Eversmanni*, Wiegman, which had never been properly described before. Twelve other new species are established, on three of which I have to offer some remarks.

First with respect to the new *Gehyra*, *G. Fischeri*, from Ternate; I am inclined to think that this is a young male of the same form that I described, almost simultaneously, from an adult female from Morty, and named *G. marginata*. The volume in which I published its description having been

* "Bemerkungen über die Geckoniden-Sammlung im zoologischen Museum der kaiserlichen Akademie der Wissenschaften zu St. Petersburg," *Mém. Acad. St. Pétersb.* xxxv. no. 2, 1887.

issued on March 26, 1887, and the Russian memoir, as I understand from a communication of Dr. Strauch, not before the 1st of April, the name *G. marginata* will, if my identification proves correct, have a few days' priority.

In the genus *Tarentola*, of which the author gives a synopsis of all the species hitherto described, two new ones are established under the names of *T. neglecta* and *T. angusticeps*, each based upon a single specimen from Batna, Algeria. With these, or rather with this new species, for I regard *T. neglecta* and *angusticeps* as individual variations of one and the same form, I have been acquainted for the last two years, three specimens, from the Algerian Sahara, having been presented to the Natural-History Museum by M. Lataste in March 1885; but their donor having expressed his intention of describing the new species, I had put them aside awaiting his publication, and therefore no mention is made of them in the Appendix to the third volume of the 'Catalogue of Lizards.' I will retain for the species the name *T. neglecta*. The presence or absence of a faint keel and the degree of convexity of the head-scales are most unsatisfactory characters for separating species in the genus *Tarentola*. The Natural-History Museum possesses specimens of *T. mauritanica* with distinctly though feebly keeled upper head-scales, and of our three specimens of *T. neglecta* two have them keeled, the other not. Before leaving the genus *Tarentola* I must express my regret at seeing the Linnean name *mauritanica* rejected in favour of Aldrovandi's *facetana* (1663). With the majority of modern systematists, I hold that the right of priority, in binomial nomenclature, should not extend back beyond Linnaeus's twelfth edition of the 'Systema Naturæ' (1766). In the case of the species of *Teratoscincus* Dr. Strauch disregards the rule of priority in favour of his name *Keyserlingii* (1863), against that of *scincus* (Schlegel, 1858), simply remarking that there is no sufficient ground for giving preference to the latter. Schlegel's little book 'Handleiding tot de Beo-fening der Dierkunde' (ii., 1858), not being much known, I cannot do better than reproduce the description by which he has unquestionably secured priority:—

"*Kamvingers* (*Stenodactylus*).—Vingers sonder schijven, maar van onderen met gevone, ter weêrszijde met eene rij van, als stekeljes verlengte, schubben bekleed. Zij leven op zand-groden in Afrika en Asië. De gewone soort, *Stenod. guttatus*, bewoont Noord-Afrika. Eene andere, *Stenod. scincus*, wijkt van alle overige Gekko's daardoor af, dat haar romp en staart met zeer groote, elkander op de wijze van dakpannen over-

dekkende schubben, bedekt zijn. Zij bewoont de zandige oevers der Ili-rivier, ten oosten van Turkestan."

Dr. Strauch's contribution is preceded by a lengthy introduction, in which he reviews the recently-published 'Catalogue of Lizards' in the British Museum. After some flattering remarks on the general character of the work, by which, coming from so high an authority, I feel much honoured, an *attaque en règle* is directed against the classification which I have proposed. I can well understand that the principles which have guided me in the formation of the primary groups of the order Lacertilia do not meet with Dr. Strauch's approval. The celebrated Russian herpetologist has always been averse to the introduction into systematic zoology of any but purely external characters. But this does not meet the requirements of modern science. In this case he again proposes to revert to the classification of Wiegmann and Duméril and Bibron. It would occupy too much space were I to discuss all the points in which we differ as to the relationships of Lizards, and it must be left to those who devote themselves to a study of that order, not based merely on epidermic characters, to judge which of Dr. Strauch's or my views on the classification is the nearest approach to nature. But there are some points in Dr. Strauch's criticism which I cannot leave unanswered.

First of all, objection is made from a purely practical point of view to the introduction of osteological characters in classification. How is the family to which a specimen belongs to be determined without injuring or partly destroying it? How is a beginner to find out to which group any given specimen is to be referred? Now I have already remarked, in my introduction to the 'Catalogue of Batrachia,' that a specimen need not be sacrificed to make out the few osteological characters which seem to be of systematic value. A few slits, made here and there with a little skill, are usually quite sufficient for the purpose. By simply feeling with the finger on a complete specimen it is, in most cases, easy with a little experience to make out the presence or absence of a bony supratemporal roof, of postorbital and supratemporal arches, of bony dermal scutes, or of a supraorbital bone (which latter character appears to have so greatly puzzled Dr. Strauch in the case of the genus *Tarentola*). Nor do I consider that classifications are made for the convenience of beginners. Before engaging in systematic work a beginner must make himself acquainted with the elements of Lacertilian osteology. For this purpose a set of eight skeletons, which he will find in any museum, or can easily have prepared, or can procure

from any dealer in zoological specimens, will suffice. This set, I would suggest, may consist of the following skeletons:—

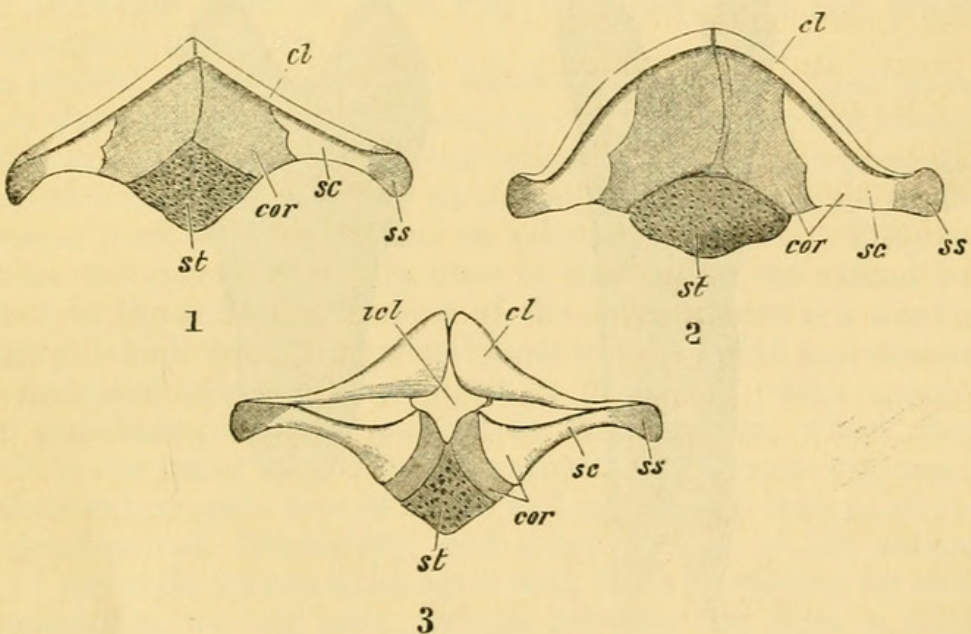
1. A Gecko (any common species, such as *Tarentola mauritanica* or *Gecko verticillatus*); 2, an Agamoid (*Calotes* or *Uromastix*) or an Iguanoid (*Iguana*); 3, a Slow-worm (*Anguis fragilis*); 4, a *Varanus*; 5, an *Ameiva* or a *Cnemidophorus*; 6, an *Amphisbæna*; 7, a Scincoid (*Chalcides ocellatus* or *Eumeces algeriensis*, or any other common species); 8, a Chameleon. When he is acquainted with the structure of these eight types he will have no difficulty in understanding the diagnoses of the families as expressed in the Catalogue of Lizards. If external characters are solely to be relied upon I would ask my critic the reason why *Teratoscincus* should not be a Scincoid (in the sense in which he takes that family), and how a typical Teioid is to be distinguished (so far as the family characters are concerned) from a Lacertoid? Dr. Strauch is entirely mistaken in the estimate he makes of the number of species which have been examined by me as to their osteological characters, probably owing to his reckoning only the prepared skeletons enumerated in the Catalogue; and especially in the case of *Æluroscalabotes* I am surprised at his believing that so peculiar a type should have passed without investigation at my hands. I may state that *Æluroscalabotes* has the parietal bones distinct and the vertebræ amphicœlian, and that consequently he entirely spoils my family Eublepharidæ, a most natural association, by adding that genus to it.

Passing to the intrinsic value of the characters employed by me for classification, apart from practical considerations, Dr. Strauch declares the result attained to be unnatural save in the points on which I have adhered to old-accepted ideas. He particularly objects to the introduction of the character of the shape of the clavicle in the definition of families, on the ground that the organ is not present throughout the group, disappearing in some of the limbless forms. I have, however, in the synopsis of the families which heads the first volume of the 'Catalogue,' made the restriction "clavicle present *whenever the limbs are developed*." As the character of the clavicle is accompanied by a combination of others which must be regarded as of systematic importance, it is quite feasible and within the limits of scientific induction, by deriving certain degraded forms from types in which the pectoral arch is fully developed, to incorporate them in the group characterized by a definite form of clavicle; in the same way as the class Batrachians is usually characterized, in opposi-

tion to that of fishes, by the structure of the limbs, although limbless forms occur in both classes. Dr. Strauch proposes instead to group together the degraded forms; but I must urge that to me they seem to be the ends of diverging series of forms. This explanation answers also Dr. Strauch's objection that I have mixed up the families at random; it has never been in my mind to form a continuous linear series of families; contrary to what Dr. Strauch appears to think, I believe such a work to be impossible.

Dr. Strauch is at a loss to find the reason why the Pygopodidæ are placed among the forms with non-dilated clavicle. "Ferner ist es mir nicht gelungen," he says, "zu eruiiren, welchem Princip Herr Boulenger bei Bestimmung der Reihenfolge für die einzelnen Familien seiner Unterordnung *Lacertilia vera* gefolgt ist, und was ihn z. B. bewogen hat, die Familie Pygopodidæ, deren Repräsentanten bekanntlich keine Vorderextremitäten und folglich auch kein Schlüsselbein besitzen, gerade zu der Gruppe mit einfacher, am proximalen Ende nicht erweiterter Claviculen zu rechnen." The reason is simply that, in spite of the absence of fore limbs, the Pygopodidæ have a clavicle which is not dilated proximally, and that they present the characters enumerated in the heading of the group alluded to.

I append the following figures which represent the shape of the clavicle in the Pygopodoid genera *Pygopus* and *Lialis*



Pectoral arch of

1. *Pygopus lepidopus*. (After Fürbringer.)

2. *Lialis Burtonii*. (Ditto.)

3. *Lygosoma præpeditum*, an apodal Scincoid from Australia.

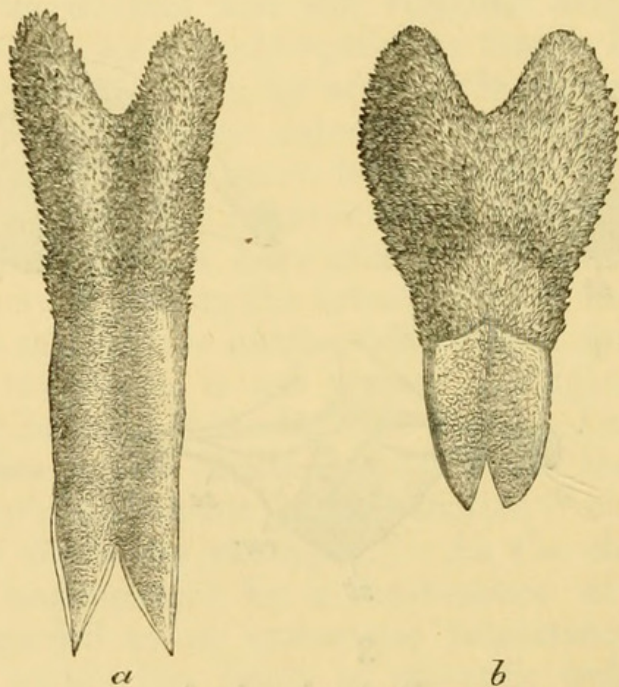
cl, clavicle; icl, interclavicle; cor, coracoid; sc, scapula; ss, suprascapula; st, sternum.

and in an apodal Scincoid; they are sufficient to show that even in these limbless forms this organ affords a good systematic character.

My nameless groups are only established in the key to the families simply to facilitate the determinations and to avoid useless repetition; had I considered them natural groups I would have bestowed names upon them.

The family Anguidæ, as defined in the Catalogue, appears to Dr. Strauch a most unnatural association. Here, however, the osteological characters are accompanied by striking external ones, which Dr. Strauch, like most of his predecessors, appears to have overlooked. I will only allude to the wonderful similarity in the scaling of the head of *Anguis* and *Ophisaurus* (*Pseudopus*), unlike anything to be found in the family of Scincs, and to the fact that the scales of the sides of *Anguis* are arranged in straight transverse series, and not quincuncially, a fact already noticed by Leydig (Deutschl. Saur. 1872).

I fail to understand how it can be proposed to place *Heloderma* and *Anguis* in two suborders, the former in the Pachyglossa, the latter in the Leptoglossa. The following figures, carefully executed from nature, will allow the reader to judge for himself:—



a. Tongue of *Heloderma horridum* (one of Strauch's Pachyglossa).
b. Tongue of *Anguis fragilis*, enlarged (one of Strauch's Leptoglossa).



Boulenger, George Albert. 1887. "Remarks on Dr. A. Strauch's catalogue of geckos in the Zoological Museum of the Imperial Academy of St. Petersburg." *The Annals and magazine of natural history; zoology, botany, and geology* 19, 383–388.

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