sexual differentiation; another (*P. Mahadeva*) in which, while agreeing in structure, they differ to a considerable extent in markings and colour, and the secondary sexual characters of the male are much more pronounced; another (*P. Castor*) in which they differ from one another to such a remarkable extent, that no less an authority than Prof. Westwood originally described them under different names, and still maintains their distinctness, and Mr. Wallace* placed them in different groups of the genus—the male having acquired the most pronounced secondary sexual characters (including rudimentary tails), which have been partially transmitted to some females but not to others, and the two forms of female having retained, one of them the form of wings, and both the general style of colouring, characteristic of both sexes in the first-named species; and, finally, others (*P. Helenus*, *P. Chaon*, &c.) in which the male has perfectly transmitted to the opposite sex all the secondary sexual characters (including the long tails) that he had acquired, the female only differing from him in such trifling points as the lighter coloration of the outer half of both wings and the dingier shade of the upper surface generally.

From these and other facts, we are, I think, entitled to infer the probable descent of all the members of this group from an ancestor with tailless, rounded wings in both sexes, closely resembling *P. Dravidarum*, but with diffused discal markings in the hind wings, and probably also in the fore wings—the conspicuous wing-blotches of *P. Helenus*, *P. Castor*, &c. having apparently resulted from the concentration, so to speak, of such diffused colouring in the direction of the breadth of the wing, just as have the discal bands of short spots in *P. Dravidarum* and *P. Mahadeva* from a similar process of modification in the opposite direction.

If his conclusions are correctly reported, Prof. Westwood's drawings must represent a species different from either of those alluded to herein; and I look forward with much interest to the appearance of his paper.—*Proc. As. Soc. Beng.* 1880, No. 3.

On a highly organized Reptile from the Permian Formation.

By M. A. Gaudry.

M. Roche, director of the Ironworks of Igornay, to whom we are already indebted for several discoveries of curious fossils, has just found, in the Permian, a new genus of reptile, which he has presented to the Museum of Paris. The Igornay animal is the most perfect of those which have hitherto been met with in the Primary formations of France. I propose to name it *Stereorachis dominans*.

In *Stereorachis* the vertebræ present a striking contrast to those of the reptiles of the same deposits. While in *Actinodon* and

* In his well-known memoir "On the Phenomena of Variation and Geographical Distribution as illustrated by the Papilionidæ of the Malayan Region," in Trans. Linn. Soc. Lond. vol. xxv. pp. 33, 34.

Euchyrosaurus the centra are composed of a median part, or hypocentrum, and two pleurocentra not soldered together, in *Stereorachis* the centra are in a single piece, which adheres to the neural arch; the vertebral column has therefore acquired much more solidity, which has led me to invent the name *Stereorachis*. It must, however, be noted that the centra of the vertebræ were still extremely hollow; their anterior and posterior faces were so concave that they formed two cones united end to end; I would not even assert that there was not a perforation establishing the continuity of the notochord. This is a condition analogous to that of many fishes.

The new genus found by M. Roche presented another mark of superiority over the Reptiles that lived with it. Its humerus had a neuro-arterial canal in its distal part. I had already called attention, in *Euchyrosaurus*, to the rudiments of the arch indicating a tendency to the formation of this canal; in *Stereorachis* the formation was completed. When we find that, besides the neuro-arterial canal, the humerus had its epitrochlea and its epicondyle widened as in those animals in which the supinator and pronator muscles, or the extensor and flexor muscles, are greatly developed, we are led to think that the old quadruped of Igornay had arms more perfectionated than those of existing reptiles.

Stereorachis must have been a carnivorous animal of considerable size; one of its mandibles, although a little broken, measures 18 centims. The upper and lower jaws are armed with conical teeth, deeply immersed in the sockets; their section is nearly circular; they are smooth externally, with a radiate structure in the interior; the front ones are stronger than the rest; an inferior tooth has a crown 32 millims. high; a superior tooth, the point of which unfortunately is broken, must have been at least 40 millims. There is an entosternum which recalls that of the Labyrinthodonts; it is very broad in its anterior third, and narrowed behind; its length is 15 centims. Beside it there is a large nearly quadrilateral bony plate, 14 centims. long and 5 centims. broad; I suppose this to be the homologue of the coracoid and scapula. There is also a curved bone which I believe to be the homologue of the great bone in fishes regarded by Mr. Kitchen Parker as a clavicle (episternum of the Ganocephalous reptiles). I must also notice long arched ribs, formed of two pieces united end to end; a large coprolite; bones of the head with a rugose surface; and hard, brilliant, very fine, long, aciculate scales, as in *Archegosaurus* and *Actinodon*.

In some respects *Stereorachis* shows affinities with the Ganocephala and Labyrinthodonts. In other respects it shows tendencies towards certain genera of the Permian of Russia and the Trias of South Africa, upon which Prof. Richard Owen has made admirable investigations, and for which he has proposed the name of Theriodonts. Perhaps it still more nearly approaches some North-American animals, such as *Empedocles*, *Clepsydrops*, and *Dimetrodon*, ranged by Prof. Cope in his group of Pelycosauria; but at

present I know no genus with which it could be identified. It is a curious thing to find such numerous and varied reptiles in the Primary formations, which for a long time seemed to palæontologists to be almost destitute of them. The discovery in the Permian of a highly organized reptile like *Stereorachis*, or those lately indicated in North America by Prof. Cope, leads us to expect others; these animals are so far from the initial state of reptiles to lead us to suppose that before them there were many generations of ancestors, and that some day, no doubt, we shall meet with their remains even in the Devonian.—*Comptes Rendus*, Oct. 18, 1880, p. 669.

A new Genus of Rodents from Algeria.

M. Ferdinand Lataste has recently described a remarkable Rodent, which he obtained in the Algerian Sahara, as the type of a new genus of Muridæ, which he names *Pachyuromys*. It belongs to the subfamily Gerbillinæ; and its most striking external character is its tail, which is short, claviform, greatly swollen, and apparently naked, its minute annulations and fine white hairs not concealing the rosy tint of the skin in the living animal. Still more remarkable is the structure of its skull, in which the auditory bullæ are so greatly developed behind that they are only separated by a groove, about 5 millims. in depth, at the bottom of which lies the foramen magnum. Mr. Alston informs M. Lataste that such a development of the bullæ, both in their tympanic and more especially in their mastoid portions, is not met with in any genus of Muridæ with which he is acquainted, and that a parallel can only be found in the Geomyidæ, in the North-American genus *Dipodomys*.

Pachyuromys Duprasi, of which M. Lataste possesses several living specimens, is a small animal, measuring about 100 millims. in length of head and body, and 40 millims. in that of the tail; the upper parts are fawn-colour, the lower pure white. Its discoverer promises a more detailed description, with figures of the animal and its skull and observations on its habits.—'*La Naturaliste*,' ii. pp. 313–315 (Nov. 15, 1880).

Researches on the Comparative Anatomy of the Nervous System in the different Orders of the Class of Insects. By M. E. Brandt.

In 1879 I had the honour of bringing before the Academy my investigations upon the nervous system of insects*. The present note contains the principal results of my comparative researches upon the nervous system in the different orders of the class Insecta.

The *nervous system of the Coleoptera* has been studied in a great many representatives of various families by M. E. Blanchard †. This naturalist is the only one who has studied it as a whole; and

* Comptes Rendus, tome lxxxix. pp. 475–477.

† Ann. Sci. Nat. 3e sér. tome v. (1846).