scarcely be worthy of the name of sciences to-day but for studies conducted on simpler forms. Do not psychologists sometimes forget, as anatomists long did, that the human is scarcely to be comprehended apart from the study of simpler creatures? Should we not look at psychology as the naturalist now does at zoology, and endeavor to discover the various grades in psychic processes, if such there be, and it is only, so far as I can see, by comparative investigation that their existence or non-existence can be established.

To do such work at its best requires a knowledge of both biology and psychology, and an intimate acquaintance with the ways of animals. Closet lucubrations can not be expected of themselves to advance comparative psychology very much.

Might not human psychology be made more objective still, and is not the amount of wheat garnered much out of proportion to the quantity of sheaves brought to the thresher? Has individual psychology received the attention it deserves? Might not the inductive method be more fully applied to psychology? I have long been convinced that differences for races and for individuals have been insufficiently recognized in physiology, and at last there seems to be a reaction against the former reckless leaps from frog or rabbit to man.

The physiologist cannot, however, afford to ignore the frog or the rabbit even when his goal is man; nor, if I may venture to express an opinion, can the psychologist do so either without some loss,—possibly great loss, to his subject.

I hope to see published in the next few years detailed studies on many individual human beings of both sexes and also on individual animals. We must have more facts for our conclusions. The departures of French psychologists are very welcome, whatever the final outcome may be. It cannot be doubted that the study of hypnotism, double personality and morbid states of various kinds has greatly advanced our knowledge of the normal man, and his fellows lower in the scale; and I should be disposed to say that the investigation of the psychic processes of animals aids in the comprehension of even such abnormal states as those to which reference has been made.

At the recent great Psychological Congress at Munich there was, among others, a department for comparative psychology; and an endowed lectureship on this subject has recently been established at Aberdeen, so that it is clear that in this, as in other directions, the world is moving.

If my view is correct that we are in need of vastly more facts and observations, then is there room for many workers. The experimental has a wide range of application in comparative psychology and as yet but little has been done. In this direction, as I have urged for years on our members, we could do much to advance the subject we have at heart.

It has been my happy privilege to attend every meeting of this Association held since its foundation, and reviewing the work of the past ten years I feel that, although it has been a humble one, the Society for the Study of Comparative Psychology in Montreal has not existed in vain.

Wesley Mills.

McGill University.

PAREIASAURIA SEELEY (COTYLOSAURIA COPE) FROM THE TRIASSIC OF GERMANY.

The first notice on *Triassic Pareiasauria* was published in 1857 by Professor Fischer, of Freiburg in Breisgau, based on notes received from the eminent paleontologist Hermann von Meyer, to whom he had sent the specimen for examination. The title of the paper is: *Über Sclerosaurus armatus* H. v. Meyer, eine neue Saurier-Gattung aus dem Bunten Sandstein bei Warmbach gegenüber Rheinfelden. Hierzu Tafel III

nach einer Photographie [und eine Figur, Wirbel und Rippen]. Neues Jahrb, f. Mineral., Geogn. Geol. und Petrefactenkunde, Jahrgang, 1857; Stuttgart, 1857, p. 136–140. Two years later H. v. Meyer gave an excellent description with a very good plate of this specimen in the Palaeontographica Bd. VII., 1. June, 1859, p. 35–40, Taf. VI. "*Sclerosaurus armatus* aus dem bunten Sandstein von Rheinfelden." This most interesting form has been entirely overlooked in all modern text-books and hand-books of paleontology and by all authors who have written about the *Pareiasauria.**

The specimen was found in the upper layers of the 'Bunte Sandstein,' near Ingerfelden, in Baden, n. w. of Rheinfelden, in Switzerland, with *Gyrolepis alberti*, Agassiz. The fossil consists of twelve consecutive presacral vertebræ, the ribs in connection, the pubis, the two femora, and the dermal armour.

The vertebræ, the rib-articulations, the pubis are typically Pareiasaurian. Of the greatest interest is the dorsal armour. There is a median series of rhombic plates, somewhat broader than long, the posterior end a little overlaped by the anterior end of the following plate. Each of these plates corresponds to a single vertebra. With the posterior sides of the plates of the median row, 2 or 3 more or less rhomboidal plates are connected, which cover the ribs. Therefore for each segment there are one median and 2 or 3 lateral dermal plates. Their connection is loose.

In *Pareiasaurus* Owen we have also a dorsal armour. Three rows of scutes extend down the median line of the back, and are partially in contact with the neural spines. The median row is placed on the summits of the neural spines. In connection with these, laterally, there is a pair of scutes extending transversely outwards (Seeley). In 1878 Wiedersheim* published a paper entitled *Labyrinthodon Rütimeyeri.* Ein Beitrag zur Anatomie von Gesammtskelet und Gehirn der triassischen Labyrinthodonten. Abhandlungen der schweizerischen palaeontol. Gesellsch., Vol. V. 1878, p. 1–56, Pl. I.—III.

The specimen on which the description is based was discovered in 1864 at Riehen (Switzerland), near Lörrach (Baden). The locality in which *Sclerosaurus* was discovered is only 11 kilometers distant from the locality in which Wiedersheim's '*Labyrinthodon*' was found. In both places *Gyrolepis Alberti* Agassiz occurs, and there is no doubt that these forms came from exactly the same horizon of the Upper Bunte Sand-Stein.

The specimen of *Labyrinthodon* is nearly complete, but some of the bones have been destroyed, leaving only the vacuities. This fossil is no *Labyrinthodont* at all, but a *Pareiasaurian* identical with *Sclerosaurus armatus* H. v. Meyer.

Already *Zittel*† has doubted its Stegocephalian nature, and stated that it probably belongs to the reptiles, giving several reasons for this opinion. The latest contribution is from *Seeley. On the complete skeleton of an Anomodont Reptile (Aristodesmus Rütimeyeri, Wiedersheim) from the Bunter Sandstone of Riehen, near Basel, giving new evidence of the relation of the Anomodontia to the Monotremata.*‡ Seeley has examined the specimen

*I may mention here that the same is true for *Pristerodon McKayi*, Huxley from the Permo-triassic of South Africa. T. H. Huxley. On *Saurosternon Bainii* and *Pristerodon McKayi*, two new fossil Lacertilian Reptiles from South Africa. Geol. Magaz. Vol. V. No. 5, May, 1868, p. 1–4, pl. XI. and XII.

*This paper is absolutely useless, full of mistakes and unsound ideas, indicating absolute inability to handle the material.

† Zittel, Karl A. Handbuch d. Palaeont. Palaeozool. III. Band., 1888, p. 407-408.

‡ Ann. Mag. Nat. Hist. (6) Vol. 17. Febr., 1896, p. 183-184. (From Proc. of the Royal Society.)

and reaches the following result: The reputed humerus is the interclavicle; the reputed scapula is the humerus; the reputed supra-scapula is the left coracoid; the reputed supra-scapula is the right scapula; the reputed right and left coracoids are the pre-coracoid (epicoracoid) and coracoid of the right side; the reputed clavicles are ribs. Five digits are identified in place of four. The fossil is referred to a new genus —*Aristodesmus*. It is identified as an Anomodont reptile, chiefly on the basis of resemblence to *Procolophon* and *Pareiasaurus*. He also compares it with the *Monotremata*. In conclusion, he argues that the points of structure are so few in which *Monotreme* mammals make a closer approximation to the higher mammals than is seen in his fossil (*Aristodesmus*) and other *Anomodontia*, that the *Monotreme* resemblances to fossil reptiles become increased in importance. He believes that a group *Theropsida* might be made to include *Monotremata* and *Anomodontia*, the principal differences (other than those of the skull) being that *Monotremes* preserve the marsupial bones, the atlas vertebra and certain cranial sutures. *Aristodesmus*, which suggests this link, is at present placed in the *Procolophonia*, a group separated from its recent association with *Pareiasaurus*, and restored to its original independence because it has two occipital condyles [!], with the occipital plate vertical, and without lateral vacuities, and has the shoulder-girdle distinct from *Pareiasauria* in the separate precoracoid extending in advance of the scapula. In the same remarkable communication Seeley discusses, also, the relation of the Labyrinthodont type to the existing Amphibia, and *regards the Labyrinthodont osteology as demonstrating closer relationship with Ichthyosauria and Anomodontia. The group is therefore regarded as reptilian, forming a branchiate division of the class* [*!*]. What are such wild speculations good for?

To conclude I give the synonyms of this reptile.*

Sclerosaurus armatus, H. v. Meyer. Neues Jahrbuch f. Min., 1857, p. 136.

Labyrinthodon Rütimeyeri, Wiedersheim, Abhandl., Schweiz. Pal. Gesellsch. v. 1878, p. 1–56.

Aristodesmus Rütimeyeri (Wiedersheim); Seeley, Ann. Mag. Nat. Hist. (6), Vol. 17, 1896, p. 183.

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Current Notes on Physiography.

McGee on Sheetflood Erosion.

Sheetflood is a term coined by McGee (Bull. Geol. Soc. Amer., VIII., 1897, 87–112) to name the thin sheets of water that occasionally flow over the thinly gravel-covered intermont slopes of the Sonoran district in Arizona and bordering Mexico. It is contrasted with streams, in which a water current is gathered into a channel. Sheetfloods may be a mile or even ten miles wide, yet only a foot or two deep, running rapidly down slopes of one or two hundred feet to a mile; everywhere 'at grade;' that is, their ability to do work everywhere nicely balanced against the work that they have to do. By sheetfloods, not by streams, the peculiar gravel-covered rock floors of the Sonoran district are thought to have been planed down; and the abrupt transition from streams in the mountain gullies to sheetflood on the piedmont surface is taken to explain the equally abrupt transition from mountain to plain; the rocks remaining the same. Unlike the aggraded plains of the Utah, where intermont depressions are heavily filled with mountain waste, the

* *Basileosaurus Freyi* Wiedersheim (Über einen neuen Saurus aus der Trias. Mit einer Tafel. Abh. Schweiz. Pal. Ges., vi., 1879, 4 pp.) from Riehen is too insufficiently described and figured to determine its true position. It is doubtless a reptile, but, according to Wiedersheim, not *Sclerosaurus*.