

general knowledge of the elements of physical chemistry.

It is an unfortunate beginner into whose innocent hands such a book is placed, and this leads to a few words in reference to this phase of the subject of teaching science. It is a fair question to ask whether the error is not frequently made by over-zealous teachers, of placing works that are too advanced in the hands of their pupils. The reviewer recalls having heard a teacher of organic chemistry announce rather boastfully that his class of beginners in organic chemistry was given Richter's book, and made to master its entire contents, *i. e.*, master it from the standpoint of examination.

This was only a little more unfortunate than the placing of Ostwald's inorganic chemistry in the possession of those who were just beginning the study of general chemistry. The result in both cases would be the same, of course, inevitable failure.

A similar result would be secured by beginning the study of physical chemistry with the book under review.

A few words must be added in reference to the English translation. The translation of the first edition of this book into English, as is well-known, left much to be desired. It is not too much to say that it was inadequate and unsatisfactory. It was with some feeling of relief that the new translation was greeted. It seemed that this admirable book would now be rendered into satisfactory English. It is deeply to be regretted that the examination of the translation showed that it did not fulfil this expectation. The translator states in his own preface that 'The bulk of the old text, however, remains as it was.' This is most disappointing.

If we examine the translation page by page, we shall find so many glaring violations of good, clear, idiomatic English that we soon become disheartened. These reasons alone lead us to advise those who would work through the book to use the original German; and this raises the further question, whether it is even desirable to translate such an advanced work from the German into English? Any one who can use this book with profit can,

or at least should be able to read German with ease. Is it not catering to a wrong principle to make such a work accessible to those who *must master German*, if they would follow scientific thought to any depth, to say nothing of making contributions to scientific knowledge? Every one will answer this question for himself.

In criticizing the translation adversely, it must, however, not be forgotten that to secure even this result involved an enormous amount of drudgery on the part of the translator, which will be appreciated by every one who has translated even a small book.

HARRY C. JONES.

SCIENTIFIC JOURNALS AND ARTICLES.

THE contents of *The American Journal of Anatomy* for September are as follows:

FRANKLIN P. MALL: 'On the Angle of the Elbow.'

E. LINDON MELLUS: 'A Study of the Location and Arrangement of the Giant Cells in the Cortex of the Right Hemisphere of the Bonnet Monkey (*Macacus Sinicus*).'

SUSANNA PHELPS GAGE: 'A Three Weeks' Human Embryo, with Especial Reference to the Brain and the Nephric System.'

WILLIAM SNOW MILLER: 'The Blood and Lymph Vessels of the Lung of *Necturus maculatus*.'

FRANK A. STROMSTEN: 'A Contribution to the Anatomy and Development of the Venous System of *Chelonia*.'

The Journal of Nervous and Mental Diseases for August opens with a study of clinical and post-mortem records bearing on the operability of brain tumors and their symptomatology, by Drs. G. L. Walton and W. E. Paul. Following this, Dr. S. D. Ludlum reports an experimental study on the regeneration of the peripheral nerves; and the presidential address delivered by Dr. Spiller before the American Neurological Association, on the importance in clinical diagnosis of paralysis of associated movements of the eyeballs, especially of upward and downward movements, is concluded in this number. It is extensively illustrated and elucidated by tables. The leading article in the September issue is by

Dr. Theodore A. Hoch, on a case of acute anterior poliomyelitis in a youth, sixteen years old, who died in thirteen weeks after the onset of the disease. The clinical and post-mortem records of the case are given, and the microscopical examination is extensively illustrated. The article is to be continued. Following this, Dr. Paul Masoin, physician at the colony of Gheel, Belgium, reports and briefly discusses five cases of epileptiform attacks occurring in the course of dementia præcox among patients at the colony, comparing them with the other motor exteriorations of hebephreno catatonic subjects. Dr. Guy Hinsdale next presents the history of a remarkable case of paraplegia from fracture of the first, second and third dorsal vertebræ. The patient suffered seven other fractures in the accident, an explosion. A laminectomy was performed, removing the arches of the first, second, third and a part of the fourth dorsal vertebræ. Three years after the accident the patient is able to turn herself in bed, and to walk with assistance. Dr. M. A. Bliss reports a case of small round cell sarcoma of the spinal column, and Dr. G. L. Walton one of family atrophy of the peroneal type.

SPECIAL ARTICLES.

SKULL AND SKELETON OF THE SAUROPODOUS DINOSAURS, MOROSAURUS AND BRONTOSAURUS.

1. *Skull of Morosaurus.*

ONE of the most fortunate discoveries resulting from the American Museum excavations in the Bone Cabin Quarry deposits, in the Wyoming Jurassic, was the skull of *Morosaurus*. Hitherto our knowledge of the skull of the Sauropoda has been limited to the skull of *Diplodocus* and the posterior portion of the cranium of one specimen of *Morosaurus*, both described by Marsh.

The present specimen (Amer. Mus., No. 467) was traced by Dr. W. D. Matthew from a series of crushed cervical vertebræ. It was found in an extremely crushed condition and was restored with great skill and care by Mr. Adam Hermann, the preparator of the museum. In the region of the occiput some aid was gained from the specimen described by

Marsh and from the posterior portion of another cranium also found in the Bone Cabin Quarry.

All three specimens exhibit a well-defined *parietal foramen* at the junction of the parietals, frontals and supraoccipitals. This foramen is smoothly lined with bone and leads directly down into the cerebral cavity. It is thus highly probable that it lodged a large pineal eye, an organ the existence of which was left problematical by Marsh.¹ In Marsh's drawing the parietal opening is indicated rather as a fontanelle than as a foramen.

The skull of *Morosaurus* differs from that of *Diplodocus* principally in the highly convex forehead or antorbital region, which is undoubtedly correlated with the difference in character of the great cropping teeth, which contrast widely with the slender, pencil-like teeth of *Diplodocus*. This skull shows these teeth in different stages of wear and of shedding or succession. Above, there are four premaxillary and eight maxillary teeth, decreasing in size as they extend toward the back of the jaw. From twelve to thirteen mandibular teeth are preserved. The deep, massive proportions of the premaxillaries, maxillaries and mandibular rami are also mechanically correlated with the insertion and powerful functions of these large teeth. It is evident, however, that the animal had no power of masticating its food, and that these anterior teeth served simply for prehensile purposes.

The anterior narial openings are very large and face forward and obliquely upward, rather than more directly upward, as in *Diplodocus*. The antorbital openings are correspondingly reduced. As restored, the orbits are enormous, but there is considerable deficiency of bone in the surrounding parts, so that the contours are not quite certain. From the superior aspect of the skull it is evident that both frontals and nasals were much longer than in *Diplodocus*, the latter bones sending forward median

¹ "There is no true pineal foramen, but in the skull here figured (Pl. II.) there is the small unossified tract mentioned above. In one specimen of *Morosaurus* a similar opening has been observed, but in other Sauropoda the parietal bones, even if thin, are complete."