the results are not always satisfactory either to authors or readers. In the present case, the results must be regarded as remarkably satisfactory, when looked at from the point of view of the common run of students. It is to be expected that the book will not satisfy the demands of everybody, but teachers of geology will agree that brevity has its advantages as well as its disadvantages. For example, the condensed statement of the three principal theories regarding the origin of the earth is the best we have seen, though it does not, of course, do away with the necessity of studying their fuller discussion elsewhere. The book is not, however, a simple condensation of the larger work, for the results have been gleaned and added from many papers published since the larger work came out.

In our opinion the authors have done well to lump dynamical and structural geology together and to treat it as a whole.

The chief faults that can be found with the work are matters of editing, and consequently are of no great importance.

The several maps showing the land and water areas at different periods have the rather annoying defect of lacking explanations of the conventional shadings. References are made, to be sure, to preceding cases, but inasmuch as such a book is seldom read consecutively, one finds it pretty tiresome to have to back up, as it were, from page 830 clear to page 445 to be sure that he is interpreting the conventionals properly.

Many of the effective illustrations of physiographic forms used in the larger works are given in this volume also. It seems unfortunate that some of the political boundaries that belong in the originals from which these extracts are taken have been left to mar these excellent illustrations. For example, in Plate XI., opposite page 172, are fragments of two such lines that are entirely meaningless in the plate. In Plate IX., opposite page 156, the international boundary might advantageously be omitted entirely, as it is already omitted in part. In Plate VIII., opposite page 133, the line down the middle of the stream in Fig. 1 might well be cut out. Opposite page 96, Plate I., Fig. 1, is another such line that is over conspicuous and meaningless as the illustration stands. Of course these lines in some instances serve some purpose, in others they do not. The work of cutting them out of the engraving is very little, even if they are not "stopped out" in making the plates.

At page 288 the shading of Fig. 186 to represent the land seems to have been overlooked. At page 240, Fig. 196, a photograph of the Fiescher glacier, is labeled "Aletsch glacier."

The larger work by these authors must long remain as a landmark in North American geology and the work of reference for all serious students and for all teachers and workers. But the "College Text-book" meets the larger demand of a larger number of readers both in our institutions of learning and outside of them.

The appearance of this new and important book again calls attention to the shortcomings of some of our best American publishers. When are we to have in this country a book on geology as well manufactured as Geikie's text-book? We have the geologists competent to prepare the text, but our publishers seem to be afraid that the cost of a really well-made book will shut it out of the market. We can not believe it. It is true that we have more text-books on geology than we need, but not more by such men as Chamberlin and Salisbury than we need.

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STANFORD UNIVERSITY, CAL.,
December 10, 1909

A Revision of the Entelodontidæ. By O. A. PETERSON. Mem. Carn. Museum, Vol. IV., No. 3, 1909, pp. 41–146, with Pls. LIV.–LXII. and 80 text figures.

In this important memoir Mr. Peterson discusses at length the remarkable group of swine-like forms generally known as the Elotheres. In his introductory remarks, however, the author replaces the more familiar family name Elotheridæ Pomel by that of Entelodontidæ Amyard on the ground of inadequate description, no illustrations and loss of type by Pomel, though the name he proposed may have appeared first.

A careful revision of the family, genera and species follows in which are described as valid the genera *Entelodon* with two species; *Archæotherium* with four species and one subspecies —including those usually grouped under the genus *Elotherium;* the subgenus *Pelonax* including three species; *Dœodon,* two species; *Dinohyus,* one species, and *Ammodon,* one species. The forms known as *Elotherium imperator* and *Elotherium superbum* can not be generically determined.

A history of the discovery and working of the famous Agate Spring Quarry follows together with geologic notes and a diagram of the Miocene section.

In discussing the cause of the deposit at Agate Spring which has rendered up so abundant and wonderfully preserved a fauna, Mr. Peterson imagines the location to have been the favorite crossing place of a stream which at times contained engulfing quicksands. The remains are those of animals which attempted to cross at the unfavorable intervals.

A detailed description of that marvelous Suilline, *Dinohyus hollandi,* is next given—a brute of rhinocerine bulk. Two restorations are given of the skeleton, one of which is an actual photograph of the mounted specimen followed by that of a model showing the possible appearance of the animal in the flesh.

In conclusion Peterson tells us that the Entelodontidæ constituted a collateral branch of the Suidæ which diverged in early Eocene time. They are nearest the pig and hippopotamus among recent forms.

In geographical distribution they are found especially in Europe and North America, none as yet having been reported from Asia. They were comparatively abundant on the flanks of the Rocky Mountains and existed also in California and New Jersey. From the Lower Oligocene upward and before the close of the Miocene they occupied certain areas from the Pacific to the Atlantic coasts of North America.

Mr. Peterson's work shows painstaking care and thought and advances our knowledge of this interesting group very materially. It is especially valuable in the clearing up of synonymies and in defining the various valid types.

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The Cranial Anatomy of the Mail-cheeked Fishes. Edward Phelps Allis, Jr., in Zoologica (herausg. von Professor Dr. Carl Chun), H. 57, B. 22. Stuttgart. E. Schweizerbartsche Verlagsb. 1909. Quarto, 219 pages, 8 plates.

This is another example of the painstaking descriptive work for which zoology is so greatly indebted to Mr. Allis. The work is illustrated by splendid lithographic plates after drawings by the artist Nomura from special preparations. The greater part of the paper is devoted to the descriptive anatomy of the skeleton of the head, and its chief value lies in the attention to detail in the text and the accuracy with which the figures are executed. The morphology of the myodome and the criteria of segmental relations in the cranial nerves are discussed at some length. The myodome is believed to be the homologue of the cavernous and intercavernous sinuses of the human skull.

With regard to the segmental relations of cranial nerves, Allis states that "there is a marked tendency to consider the central origin of a given cranial nerve of much more importance for the determination of its segmental position than the course of the nerve and its general relations to the skeletal elements." This he attributes to the acceptance of the neurone theory, according to which nerve fibers follow always the path of least resistance to their destination. According to this conception the points of origin of nerve components in the central nervous system give the only positive criteria as to their segmental position, and their peripheral course is explained by accident, individual experience or elective selection. The author thinks this view unfortunate and not well founded.

The reviewer has never observed the tendency of which Mr. Allis speaks. On the contrary, the segmental position of a nerve is determined primarily on the basis of its periph-