accumulating water. But it is difficult, not to say impossible, to believe that these forces would be adequate to the production of any such results as he supposes. The total amount of displacement which could result from them could be only a few feet.

Combined with the theory of moderate oscillations in the earth's crust at the proper places, Captain Taber's views are helpful in appreciating the effect of the ocean currents in so distributing heat and moisture as to produce glacial conditions both in the southern and northern hemisphere. But, unless he admits these changes of land level, we see little force in his arguments, and consequently his prognostication of a coming ice age is without any scientific basis.

G. Frederick Wright.

Researches upon the Antiquity of Man in the Delaware Valley and the Eastern United States. By Henry C. Mercer. Ginn & Co., Boston. 1897. 8vo. Illustrated. Pp. 178.

This volume is one of the series in 'philology, literature and archæology' published by the University of Pennsylvania. They are not intended to be 'popular,' but to convey the products of original research work. Such is the character of the present number. It is a plain and careful description of a series of studies conducted in the last few years, with the object of finding out whether there is sufficient evidence in the locality selected to assert that man lived there in the glacial or early post-glacial period.

Such assertions have been and are confidently advanced by several prominent American archæologists, especially with reference to the exhumation of chipped stones from the glacial gravels at and near Trenton, New Jersey.

On this particular point Mr. Mercer's personal researches are negative. His repeated examinations of the Trenton grounds 'failed to reveal a specimen in place' (p. 32); the caves he examined along the Delaware river contained nothing of man's handiwork which pointed elsewhere than to the Indian as we know him; and the so-called 'turtle backs' of argillite, found in the Trenton gravels, were probably 'intruded by modern Indians' (p. 60); and, finally nothing was found 'to corroborate the alleged antiquity of the chipped blades from Trenton,' and not a little to weaken it (p. 85).

These results, though in a measure negative, leave the supporters of the 'glacial man' theory at Trenton, with a large fraction of their argument exploded, since much has been made of the 'argillite implements' as proving antiquity. Now we know that whole quarries of argillite were worked by the modern Indian.

Other essays in the volume describe the exploration of an Indian ossuary on the Choptank River, Maryland, with a description of the physical characters of the bones by Professor Cope, and a discussion of their diseased (probably syphilitic) conditions by Dr. R. H. Harte; investigations by Mr. Mercer in an aboriginal shell heap on York River, Maine, in which traces of cannibalism were discovered; and excavations at the 'Indian house' and at Durham Cave, by the author. Among other interesting facts which Mr. Mercer has been enabled to substantiate by those studies is that in long post-glacial times the peccary, the tapir, the mastodon and the fossil sloth (*Megalonyx*) roamed the forests of the eastern United States. This, however, 'refers to an epoch in the past removed by many milleniums from the discovery of America' (p. 175), in the author's opinion.

The earlier pages of the volume recite several important investigations of the author in the 'quaternary' deposits of France and Spain. These gave him an excellent standard of comparison in his American work and the thoroughly scientific manner in which he carried it out is visible on every page.

There are a number of accurate and well-taken illustrations of localities and specimens, and the notes will aid the student in gaining access to the literature of the subject. It is to be regretted that no index was prepared.

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SCIENTIFIC JOURNALS.

PHYSICAL REVIEW, MARCH–APRIL.

The Lead Cell: By B. E. Moore. The extension of the theory of free ions, solution ten-