blame for them, many obscurities in the credits for records received later, and some errors, resulting from the innumerable changes made in the editorial office of the New York State College of Agriculture. They were made in violation of a definite agreement, and they refused to rectify them in proof. I may say that the proof of the "Lepidoptera of New York" (Memoir 68) had received similar treatment, and that the agreement was made in that connection and reiterated in later letters.

WM. T. M. FORBES

CORNELL UNIVERSITY

THE EASTLAND HORNED "TOAD"

MUCH attention has been attracted recently to a Horned "Toad" (*Phrynosoma cornutum*) which is alleged to have been placed in the corner stone of the Eastland County courthouse, Eastland, Texas, in the year 1897. The animal, it is claimed, remained entombed in the granite corner stone until February 18, 1928, a period of thirty-one years. On the latter date it is said to have been removed from the stone alive, before a large crowd of spectators which had gathered for the occasion.

On February 22, 1928, the writer had the opportunity to go to Eastland and make an examination of the external features of the animal in question. It appeared to be a perfectly normal specimen which had undergone winter hibernation. It was probably an old one for the horns about the head region were considerably worn and the right hind leg had been broken but was healed. Otherwise it appeared no different from a normal Horned "Toad" at this season of the year.

WILLIS G. HEWATT

TEXAS CHRISTIAN UNIVERSITY

THE BRASSO FOSSILIFEROUS MIOCENE OF TRINIDAD, WEST INDIES

To avoid any possible future confusion, it seems well to note that the Brasso Miocene clay and Brasso conglomerate described by Mr. Gerald Waring, in his Geology of Trinidad, Johns Hopkins Studies in Geology No. 7, pages 69, 71, and Legend of Map, 1926, are entirely distinct from the fossiliferous Brasso Miocene of my report, Miocene of Trinidad, *Bulletin of American Paleontology,* No. 42, pages 10, 16, 1925. The black clays and conglomerates mentioned by Mr. Waring *underlie* the Manzanilla formation. The fossiliferous beds, typical at Brasso Junction, mentioned in my memoir, *overlie* the Manzanilla, and carry a fauna of Middle Miocene Age, related to the Gurabo and Bowden faunas.

CARLOTTA J. MAURY

YONKERS, N. Y.

SCIENTIFIC BOOKS

THE CEPHALASPIDAE

PALEONTOLOGISTS the world over may justly feel a thrill of pride that one of their number, Erik A. Son Stensiö, has produced such a splendid publication containing important, new and much needed information on the earliest known vertebrates, those curious mailed Silurian and Devonian chordates, which we have been calling Ostracoderms.[1] The most striking feature is the abundance of data, mostly new, on the nervous and vascular systems, the special sense organs, the finer anatomy of the skeleton, and suggestions as to habits of life. After examining the work one feels that he has been studying a treatise on modern fishes. The author has combined with the usual paleontological methods, those of the anatomical laboratory. His needle dissections under a binocular, the object immersed in a non-refracting medium; his use of the wax-plate method of serial section, invented by Sollas for fossils, his painstaking correlations with refractory material, form welcome and highly useful methods in Paleontology.

Following the first expedition fitted out by Prince Albert I, of Monaco, in 1906, there have been eleven expeditions to Spitsbergen up to 1925. The remains of the Cephalaspidae studied by Stensiö, 105 specimens in all, were assembled from the collections of these Norwegian expeditions. This forms one of the most important discoveries of fossil vertebrates ever made.

The historical account, covering sixteen pages, itself an undertaking of no small magnitude, reviews the published accounts of the geological occurrence, taxonomy and anatomy of forms known. This is followed by a discussion of the anatomy of the Spitsbergen species; 205 pages being devoted to this phase of the work. Description of the genera and species occupies fifty-one pages. There are five genera, four of which are new, and twenty-four species, *all* new. A brief discussion of the Trematapidae, and the general relations of other groups of primitive chordates to the *Cephalaspidae,* concludes the text. A reasonable bibliography of ten pages makes no pretense at completeness, but the interested student can safely use these references as a guide to the field. Personally, I should like the references given to be more exact, and to refer specifically to the part of the work which discusses the Cephalaspidae. It would lighten the labor of future workers. The second volume of

[1] "The Downtonian and Devonian Vertebrates of Spitsbergen." Two volumes octavo, pp. 1–391, 1 map, 103 text-figures, 112 plates. Det Norske Videnskaps-Akademi I Oslo. Resultater av de Norske Statsunderstøttede Spitsbergenekspeditioner. Nr. 12, 1927.

112 plates, photographic in large part, leaves little to be desired. One may study these reproductions with a lens or reading glass with great profit. The descriptions of the plates are printed opposite the pictures, and they are given in full in each case—a praiseworthy feature.

Neurologists, especially those dealing with the brain and cranial nerves of fishes, will profit greatly by examining the author's discussion of the brain and adnexa of *Cephalaspis*. Stensiö tells us that he took two months to dissect the endocranial parts shown on plates 49 and 50. He finds the brain to be that of a cyclostome and on this basis as well as others, he says that the creatures we call Ostracoderms are cyclostomes. The differentiation of marginal electric fields will be a surprise, but while he has not defined the electroplaxes, yet it seems reasonable to agree that this neuro-muscular specialization may have taken place as early as the Silurian (Downtonian).

It has taken a long time to extricate the Ostracoderms from the eurypterids, from the arachnoids, from the annelids, but we feel that Stensiö has opened the way for us to believe, with him, that these early Paleozoic fishes are cyclostomes. The importance of this is very great, and if generally accepted will lead to still greater correlations. Our author says:

> It is clear now that the Ostracodermi, though very lowly organized, are true craniate vertebrates which have nothing whatever to do either with the Arthropoda or with the Annelida.
>
> The investigations carried out in this work have thus thrown light not only on the organization of the *Cephalaspidae*, but also on the Ostracodermi as a whole: and we have even been able to establish that the Ostracoderms still persist in the recent *Petromyzontia* and *Myxinoidea*, though they play a much less important part than during the early palaeozoic time.

Those who think the field of vertebrate paleontology is largely exhausted will receive a new stimulus in examining this work of Stensiö. It stirs our ambition to do further work to advance our knowledge of the vertebrates of ancient times. No more worthy scientific piece of work has appeared for decades and Stensiö is to be congratulated on the appearance of this, the most monumental study he has yet made.

ROY L. MOODIE

SANTA MONICA, CALIFORNIA

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A UNIVERSAL MUSCLE LEVER

THE problem of providing a universal muscle lever for the use of students taking their first course in experimental physiology led to the construction of the apparatus here described. The requirements to be filled are not met, to the writer's knowledge, by any instrument on the market—a lever with well insulated "head," so arranged as to allow free adjustment in the horizontal plane, a strong after-loading screw, and, above all, an instrument constructed so sturdily as to withstand rough usage.

A number of attempts were made to modify other muscle levers to suit our requirements but without satisfactory results. Finally, with the assistance of a pattern-maker, a model somewhat like the one sketched in Figure 2 was constructed from soft pine and a few brass castings made. When finished and assembled, the instruments were found to be quite satsifactory.

This instrument consists of a handle, a lever holder or head, and a lever. The handle is made from a 6-inch length of 3/8 inch round bakelite rod which is slipped into the tubular end of a switchboard lug having an opening of that diameter. A hole is then drilled through the lug and the bakelite rod and the rod riveted into place. The flattened portion of the lug is centered and drilled to allow the passage of a number six machine screw.

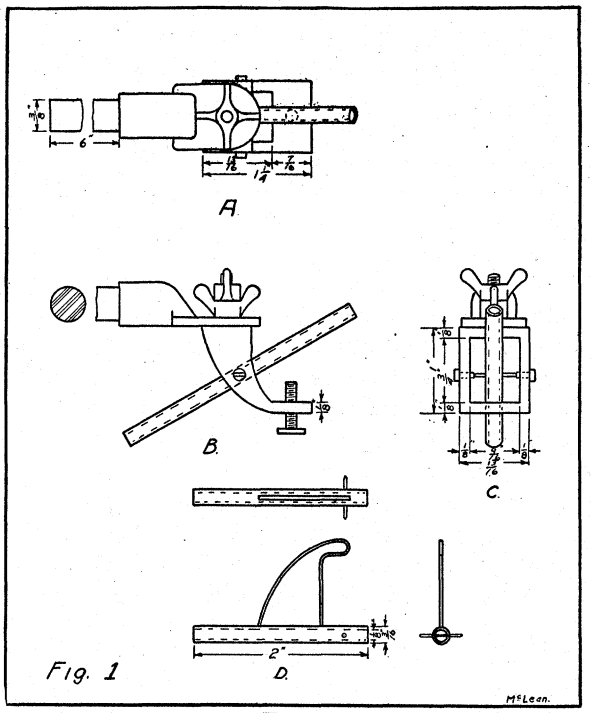

FIG. 1

The holder, the distinctive part of the apparatus, is made according to the dimensions given in Figure 1, A, B, C, showing top, side, and end views, respectively. This holder or head consists of a table, with dimensions as shown in the figure, from two parallel sides