has proven that Claypole's paper was read before the American Philosophical Society on September 21, 1883, and printed on November 2, 1883.

Hall submitted his paper in his thirty-sixth annual report to the Senate on January 12, 1883 (see Senate document 53). This Senate document, in which Hall's paper with figures is printed, had according to law (Law 1859, Chapter 437) to be printed and distributed before the end of the year. The printer, however, was wont to deliver the Senate documents before the end of the fiscal year, which then was September 30, in order to receive payment, and the bills of the year 1883 show that he also did so that year. That means that copies of the Senate documents with Hall's paper included were distributed before October. A separate reprint of Hall's thirty-sixth report was published and distributed in 1884. This report bears the date 1883 on the title page and that of 1884 on the paper cover. Furthermore, he also had still a reprint of his paper on Stylonurus distributed in 1884. These facts have led to the erroneous conclusion that Hall's paper was not in print until 1884, when as a matter of fact it was in print in Senate document 53 sometime in the summer of 1883, long before Claypole read his paper.

This typical case serves to explain numerous cases of doubt of the proper date of publication of the New York State reports. It has been even suggested that Hall dated his publications ahead. The fact is that the date of publication of many of our earlier museum reports and bulletins is the date of the Senate document, in which they first appeared. This is the date on the title page. Reprints which were often widely distributed bear later dates, but those are not the dates of first publication.

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A NEW WORD

IN the issue of SCIENCE for September 25, 1936, page 291, Dr. Robert T. Morris suggests that a new word might be useful, similar in form to benthon, nekton, plankton, etc., to designate the more or less organic mud of *shallow* bottoms on which various fishes, mollusks, birds and other animals feed. Why not "ilyon," from the Greek ἰλύς,-ύος, meaning mud or slime? With various appropriate suffixes, one might speak of "ilyonic" food, of animals living in the bottom mud as "ilyobic" or of those that feed on it as "ilyophagous." If the simple word "mud" is not clear enough, the new term would have to be more accurately defined to meet the requirements of ecological description.

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SCIENTIFIC BOOKS

THE PHILOSOPHY OF MATHEMATICS

Mathematics and the Question of Cosmic Mind and Other Essays. By CASSIUS J. KEYSER. Scripta Mathematica Library No. 2.

THE welcome effort of the Scripta Mathematica Library to encourage discussion of the philosophical and cultural aspects of mathematics is continued in this booklet, which contains some of Professor Keyser's essays collected from various sources. These essays, written clearly and enthusiastically, aim to explain several phases of mathematics to those laymen "who live to think and who are not satisfied with being merely told."

The first three essays form a sequence leading to the question suggested in the title of the book. First, the nature of mathematics is analyzed in terms of its method, which is taken to be strictly postulational. In other words, a mathematical doctrine starts with certain undefined primitive terms, which are really variables, and with a certain number of consistent axioms, and proceeds by defining new terms by means of the primitive ones and by deducing new statements from the axioms. This abstract concept of mathematics is explained vigorously and lucidly. However, some mathematicians might consider this identification of mathematics with postulational thinking to be incomplete. Does mathematics start with any old system of postulates whatever or does it content itself with any arbitrarily chosen deductions from a given set of postulates? Does the postulational approach account for the fact that, historically, mathematics consists of the elaborate development of a few particular postulate systems? How can the all-important consistency of these postulate systems be abstractly established, especially when Gödel has indicated the great difficulty of formal consistency proofs?

The second essay engagingly explores the "Bearings of Mathematics"—"a certain rich manifold of light-giving relations connecting mathematics with those great human interests . . . in which there is, properly, no question of establishing mathematical propositions." Such relations concern the art of exposition, the universality of the mathematical concepts of change and invariance and the ideal of logical rectitude.

The title essay then reviews the light which mathematics can throw on the question, "Is the world essen-