author offers a deserved tribute. Another valuable feature is the list of references for collateral reading, the outcome evidently of long-continued use of the note-book in the author's own reading. The order of presentation of the successive topics is a little different from usual, and out of 346 pages only 49 are devoted to magnetism and electricity, including 5 closing pages on electrostatics. Formulas are but sparingly employed and no problems are offered. To many this may seem a distinct element of weakness.

Mr. Gilley's book is a mixture of class text-book with laboratory manual, and as such it may be commended to those who are partial to such a mixture. The opening chapter treats of density, both experimentally and theoretically, density being defined as the quotient of weight by volume. This identification of mass and weight is convenient, but obviously not always allowable. Much space is occupied with minute instructions and precautions for the guidance of the student in manipulation, and there are many indications that the author is ingenious and energetic as a teacher. He has introduced many well-chosen problems, and his theoretical discussions are generally satisfactory. Like Professor Slate he gives scant attention to electrostatics, less than 4 pages out of 530 being thus devoted to 'surface electricity.' For elementary students this plan has much to commend it. Much of what passed for school instruction in the subject of 'frictional electricity' a half century ago was mere trifling; and such theoretic discussion as can now be given about it requires greater maturity than that of the high-school student.

Passing now to a manual which is not a mixture but intended exclusively for the laboratory, the high-school guide by Professor Crew and Dr. Tatnall is exceedingly good. Only simple exercises have been selected, involving for the most part apparatus that is commonly in use or fairly inexpensive if specially made. Nearly every exercise is introduced with references to one or more of seven elementary text-books in which the student may find a discussion of the theory involved. Then comes a list of the apparatus to be used; a clear statement of the problem to be experimentally solved; such instructions as are needful for the manipulator; and, finally, in the earlier part of the book, tabular forms are given to aid the student in acquiring methodical laboratory habits. These forms are discarded for the most part after the second chapter. Some of the exercises are merely qualitative, especially in electricity. Of those that are quantitative some will perhaps be welcomed not only in the high school, but for beginners in institutions that assume more pretentious names.

Kelsey's 'Physical Determinations' are intended for students of rather more advanced grade, having been written for a technical school. The author's aim was 'to supply outline directions which might enable a class of students to proceed with work until the demonstrator could give individual instruction to each group.' Discussion of detail is hence omitted, and to such an extent that the book does not seem destined to meet 'a long-felt want' in very many American laboratories, in view of the considerable number of more helpful books of this kind already in the American market. The explanations of theory are not always very clear, inconveniently long steps being occasionally taken; nor are the instructions about manipulation sufficiently full to warrant the student in making much headway with his work while impatiently waiting for the arrival of the demonstrator. Nevertheless the book would never have been prepared had not its material served a useful purpose in the laboratory for which it was intended.

W. LeC. Stevens.

Washington and Lee University,
July 25, 1902.

SOCIETIES AND ACADEMIES.

RESEARCH CLUB OF THE UNIVERSITY OF MICHIGAN.

Since last reported, the club has held two meetings. At the first meeting Professors Russell and McMurrich gave papers; the former, using lantern slides, detailed his explorations in Idaho last summer, and the latter addressed the club on the phylogeny of the muscles of the human forearm. At the last meeting of the year, held in May, Professor Craig explained the process by which

the Assyrian inscriptions were deciphered, and Professor Vaughan gave the results of a long series of experiments made during the past two years by his students and himself in endeavoring to ascertain the nature of the specific bacterial toxins. An abstract of this paper will be published in SCIENCE.

FREDERICK C. NEWCOMBE.

DISCUSSION AND CORRESPONDENCE.

SIX NEW SPECIES.

TO THE EDITOR OF SCIENCE: There has just come to my attention a copy of the 'Ninth Annual Report of the Ohio State Academy of Science,' for the year 1900. Although apparently published in 1901, it contains one article that is still deserving of wider notice! This is a paper on 'Six new Species, Including two New Genera, of Fossil Plants,' by H. Herzer, the reading of which is calculated to cause mixed reflections, alike to the student of English and the paleobotanist. His first species, quoted entire, reads as follows: 'Palæophycus clavifrons. Nov. Spec. A much ramifying marine weed, shooting at once at sharp angles a number of branches, which at distant intervals multiply again in the same manner. Each branch seems a barren, rugged cylinder, beginning at its outgrowth thin as twine, then assuming a thickening of $\frac{3}{8}$ inch, giving the rather lengthy branches a club-like form.—Sandstone flagging, Harmar Hill, Marietta, Ohio."

Of his 'Caulopteris magnifica, Nov. Spec.,' he says: "Among the numerous silicified remains of plants of the carboniferous age, from Athens County, Ohio, that have been liberated out of the Mahoning sandstone, we find quite a variety of species grouping under different genera, which are by their internal organization closely allied to each other. The great interest in these thus preserved plants is presented in the minute preservation of internal structure by which their classification is greatly facilitated and at once obvious. * * * Our species here is a well-preserved, magnificent treefern, once beautifying the unbroken wilds of its time"!!

"Psaronius junceus, Nov. Spec. As has been shown in one of our former meetings, Psaronius is not a conical stalk of aerial roots, enclosing the base of tree-ferns, but is a plant *per se*. We present the one before us as a new species, having in its central arrangement the structure of a fern or a Sigillaria or likely a Lepidodendron; for all these characters are closely allied to one another; but also being remarkably made up of cellular fascicles, enclosing like individuals that center and joining one another so densely, as to have no interstinct tissue between them. Each fascicle is throughout the whole trunk, which attains the thickness of $1\frac{1}{2}$ in., as thin and slender as bulrushes, from three sixteenths to one eighth inch thick, crowding each other in various angles. In each fascicle is a star-like center of coarse woody cells, surrounded by small circular cells. The main center two inches in diameter and being a pithy cylinder, has the same long vermicular woody bundles as are common to the above mentioned trees."

This is undoubtedly a new species, if not indeed a new order. The absence of 'interstinct tissue' settles that!

The first mentioned of the so-called new genera (*Cystiphycus*) is introduced by the lucid statement that 'Like many other fucoids this species had the same mode of growth.' The other may be quoted entire. "Nodophycus thallyformis [*sic*], a New Genus. The fronds of this seaweed must have been very large. I find them covering large slabs of sandstone. The nodose elevations of the frond are from one third to one half inch apart and look as if a soft thallus had spread over peas"!

The first mentioned 'new' genus is incorrectly formed, etymologically, and both generic and specific words in the other are hybrid Latin and Greek combinations. Can anything be worse?

I submit that not one of these descriptions is adequate or even intelligible, and, with the possible exception of the *Caulopteris*, the figures are as bad. Those illustrating *'Palæophycus clavifrons'* and *'Nodophycus thallyformis'* might, with equal propriety, be used to illustrate a paper on meteorites.

In the name of paleobotanists I protest against such solecisms as these being con-