elementary algebra as the commutative law and the distributive law. While attention was called to these laws in what is commonly regarded as the most influential mathematical text-book ever written, *viz.*, the "Elements of Euclid," very little stress was laid on them before the nineteenth century. As evidence of this fact we may note that modern mathematical historians have as yet furnished no instance where a special name was given to either of these laws before 1814 when a French writer, F. J. Servois, gave them their present names.

Another fundamental law which is now commonly explained in our text-books on elementary algebra is the associate law. It is well known that this law plays a prominent rôle in the modern subject known as the theory of abstract groups and that no one has as yet given an instance where a special name was assigned to it before W. R. Hamilton introduced its present name, about thirty years after F. J. Servois had introduced the names of the two laws noted above. It is known that A. M. Legendre directed attention to this law in 1798 and proved its validity as regards the multiplication of positive integers, but no one seems to have thus far noted any instance of its earlier explicit use. Its implicit use is very old since it is involved in the rule that the volume of a rectangular parallelopiped is equal to the product of three concurrent edges.

The history of these fundamental laws relating to the entire domain of mathematics, from the most elementary subjects to the most advanced, exhibits the slowness with which mathematical concepts sometimes gained their present positions in the literature. In particular, the attitude of mind which accords to the theory of groups a somewhat prominent position in the mathematics of to-day can perhaps be best explained by noting the growing stress placed on the laws which underlie very ancient mathematical operations. At any rate such profound changes relating to scientific questions should be of general interest even if it can not be foreseen whether they will be permanent. It is also possible that wide publicity relating to the present stage of our knowledge along these lines may lead to additions thereto.

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SOIL SCIENCE PUBLICATION IN RUSSIA

DR. A. YARILOV, editor of the Russian journals on soil science, "Bulletin Pochvoveda" and "Pochvovedenie" (Moscow, U. S. S. R., Vozdvizhenka 5, Gosplan) writes that beginning with the year 1928 the journals will publish papers in the original languages as submitted. He invites American colleagues to make use of these journals and in that way establish closer contact between soil science workers of the United States and Russia.

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SCIENTIFIC BOOKS

The Elements of General Zoology. A Guide to the Study of Animal Biology, correlating Function and Structure with notes on practical exercises. By WILLIAM J. DAKIN, D.Sc., F. Z. S., professor of Zoology in the University of Liverpool. Oxford University Press, London: Humphrey Milford, 1927.

METHODS of teaching zoology are as numerous as the teachers but they group themselves naturally in three classes, those stressing structure, those emphasizing function and those magnifying habits and life histories. Professor Dakin's method is obviously the second as shown by his sub-title, and hence the morphologist, as well as the natural historian, has to make a very conscious effort to form a fair opinion of the real merits of the book. Were it entitled, "The Elements of Animal Physiology," its contents and purpose would be much better indicated. It is somewhat irritating to find animal physiology arrogating to itself the title of zoology. No one wishes to deny the vast importance of function, not merely as the concomitant but even as the "explanation" (in large part at any rate) of structure, but it is after all only a portion of the field of zoology. Some physiologists are poor zoologists because of a deficient knowledge of morphology, a complete ignorance of taxonomy, and a total indifference to habits and life histories. The real zoologist is the man who is interested in animals as living organisms whose structures, relationships, and natural history are vitally important—not the man who looks on them solely as machines.

Aside from this objection to Professor Dakin's title, the main criticism of his book has to do with omissions. Naturally any attempt to deal with the whole animal kingdom in one volume, even if only function is considered, necessitates omissions both numerous and important. The success of the writer must be judged in part by what he excludes, as well as by what he includes. Some of the omissions from the present volume are, to say the least, surprising. The most considerable perhaps is the complete omission of echinoderms—the phylum is mentioned on page 5 as one of "the most important phyla" in the animal kingdom (ten are given) but no further reference is made to it. The striking features of the skeleton, the unique method of excretion, the equally