

*Was ist Mathematik? Unterhaltungen während einer Seereise.* By Lothar Heffter. Freiburg i. Br., Theodor Fischer, 1922. 160 pp.

*Les Mathématiques.* By Pierre Boutroux. Paris, Albin Michel, 1922. 183 pp.

*Problems of Modern Science.* Edited by Arthur Dendy. *Mathematics.* By J. W. Nicholson. New York, Henry Holt and Company, 1922. 237 pp.

Judging by the number of books that are appearing which devote themselves to the popular exposition of various branches of science, it would appear that the general public is becoming increasingly interested in the nature of scientific progress. Or is it only that publishers are beginning to realize the existence of this interest and are gradually becoming bold enough to meet the resulting demand? Of the books listed above the first two endeavor to give a popular account of mathematics as a whole; they are attempts to answer for the layman the question he so often asks: "What is mathematics all about, anyway? I know a little something about elementary algebra and plane geometry. But you people (meaning the mathematicians) talk about 'mathematical research', you use a lot of technical terms and a mass of mysterious looking symbols that nobody else can understand. Can't you tell something about it in terms that are intelligible to us?" The two books referred to offer replies to these questions in very different ways. The first is by far the less formal and is concerned primarily with ideas; the second is more formal and is primarily concerned with processes. The former can be more easily read, the latter is more adapted to study. Both cover a wide field.

The little book by Heffter is in the form of a dialog between a mathematician and a merchant, is delightfully written, and admirably accomplishes its purpose within the limits which the author has imposed on himself. "In the beginning was number" is the title of the third chapter (the first two are introductory) and here the author speaks genially of the concept of whole number (positive and negative), calls attention to the fact that there exist an infinitude of such numbers although each one is finite, illustrates the commandment "Thou shalt not divide by zero," discusses prime and composite numbers, congruence and quadratic residues and diophantine equations, not neglecting Fermat's last theorem and the Wolfskehl prize. The next chapter deals with the successive extensions of the concept of number up to and including the introduction of complex numbers, not omitting the Dedekind cut, the concept of transcendental numbers and the squaring of the circle, the fundamental theorem of algebra and the distinction between the existence of a root of an algebraic equation and its algebraic solvability. In Chapter V, the story of Achilles and the tortoise serves to introduce the notion of infinite series and products and continued fractions.