

Die mathematischen Grundlagen der Variations- und Vererbungslehre. Von P. RIEBESELL. Leipzig, B. G. Teubner, 1916. 45 pp.

THIS little book is volume 34 of the Mathematische Bibliothek, published under the editorship of Lietzmann and Witting. It is doubtless intended for the biological, rather than for the mathematical public, although its title might lead one to expect a somewhat more fundamental analysis of the larger mathematical questions which arise in modern biological research. The first 32 pages are devoted to an exposition of the elements of the theory of probabilities and of the problems connected with the determination of a function that will represent a given distribution of statistical data. To make the task of reading the book as easy as possible for the non-mathematical reader, the theory is followed step by step by numerical examples. In the last 9 pages there is found a discussion of some of the biological questions in which the mathematical problems play a rôle. Probably the greatest use that one may expect from a book like this would come if it should stimulate some mathematician to acquaint himself further with the mathematical problems that arise in biological theory or if it should lead a biologist to more extended mathematical studies. If two sciences are to cooperate effectively, there must be trained "agents de liaison," who will make possible a partial overlapping of the spheres of interest.

ARNOLD DRESDEN.

Methoden zur Lösung geometrischer Aufgaben. Von B. KERST. (Mathematische Bibliothek herausgegeben von W. Lietzmann und A. Witting, Band 26.) Leipzig, Teubner, 1916. 12mo. 2 + 47 pages. Paper, price M.0.80.

AMONG the scores of books, pamphlets and articles which have been written concerning methods of solving problems of elementary synthetic geometry, the work of the late Julius Petersen, the Dane, is easily the best by reason of its elegant exposition, comprehensiveness, and suggestiveness. The first edition was published in 1866;* but the enlarged second edition, of which English and German translations were published in the same year, 1879, is the one whose contents are most familiar.†

* *Methoder og Theorier til Løsning af geometriske Konstruktionsopgaver, anvendte paa c. 300 Opgaver.* Kjøbenhavn, 1866. 4 + 85 pp. + 1 pl.

† There have been at least 18 editions of this remarkable work: 6 in

In his "Vorwort" Kerst states: "Von der benutzten Literatur ist zu erwähnen: Tropfke, Geschichte der Elementar-Mathematik, 1903; Petersen, Methoden und Theorien zur Auflösung geometrischer Konstruktionsaufgaben, Kopenhagen, 1879 (im Buchhandel nicht mehr zu haben); R. Von Fischer-Benzon, Programm Kiel Gymnasium, 1884. Einige Aufgaben entstammen dem Aufgaben-Repertorium aus Hoffmanns Zeitschrift für math. u. naturw. Unterricht."

When it is recalled that Tropfke's work is wholly historical and that the part of Fischer-Benzon's work dealing with "method" is acknowledged to be largely due to Petersen, we would expect to find here much which has been made familiar by our old friend. In this expectation we are not disappointed. All of the methods and most of the problems are in Petersen's work.

It is, then, hardly necessary to indicate at length the nature of the contents of Kerst's little book except to say that it contains 17 paragraphs each developing a certain method, for the most part by the solution of problems. In all, there are seventy of the problems given with solutions, and about as many more to solve.

In presenting a solution of the problem of Apollonius by means of Petersen's parallel translation of circles, Kerst makes the unwarranted statement (page 47): "Das ist wahrscheinlich auch der Weg, auf dem Apollonius selbst zur Lösung gelangte."

There is probably no English reader in this country who would ever turn to this work in preference to that by Petersen. But of course the latter costs six times as much. It is doubtless significant of the dearth, or cost, of German supplies about two years ago that this number of the Mathematische Bibliothek appeared in paper covers instead of with the cloth back and board covers which had become familiar to us in connection with the first twenty volumes of the series.

R. C. ARCHIBALD.

Danish, 5 in French, 2 in Russian and one each in Dutch, English, German, Hungarian, and Italian. The English edition is readily obtainable from Copenhagen, and the French edition from Paris.