Review
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There is a very complete table of contents and a valuable index to facilitate reference, and at the end is a number of blank pages for a student's notes and solutions—a somewhat unique and very useful feature in a text-book, which, we think, might be imitated by other authors.

We ought not to conclude without stating that where the solution of a problem requires the finding of the common points of two coaxial homographic ranges the author in his worked-out examples, which are numerous, has actually constructed these points and completed the solution by a new method which is very simple and leads to most accurate results, and which he explains very fully. The same method enables him to construct pairs of corresponding points with great facility, and is of special interest as, though not specifically mentioned by the author, it is applicable to the construction of geometrical images in systems of lenses, which, indeed, are a particular case of coaxial homographic ranges.

The diagrams throughout the book are most accurately drawn and are models of what such diagrams should be, and in Chap. XVI. we find the ideal chords and common self-conjugate triangle drawn in all the cases where two conics do not intersect in four real points.

We prophesy a great future for this most interesting and valuable book. It is suitable for scholarships and university purposes, and is full of interest for the expert, being not only a text-book but a historical survey by a man who is unusually well equipped for the task and has evidently found it a labour of love. We wish it all success. L. A.


M. Winter's problem is: What is the method which, at the present time, offers scientific guarantees sufficient for the critical examination of the foundations of mathematics?

The book is divided into three parts: (1) The metaphysical methods (pp. 1-48) must, says the author, be dismissed. In the metaphysics of science the primitive ideas are the vague notions of common sense. (2) On the attempts to determine the laws of mathematical thought by logistics (mathematical logic, pp. 49-101). Regarding logistics as a calculus, M. Winter tries to map out the "restricted but real domain of the science founded by Boole and Schröder" (p. 11). The author's opinion of logistics is moderately favourable, but he considers that the essential of mathematical thought has not been absorbed into it, and it throws no light on certain mathematical questions. (3) M. Winter then applies to two theories (the theory of numbers since Gauss, and the genesis and development of the theory of the resolution of algebraic equations) the historical and critical method used by Mach, "the only method which seems capable of giving interesting results" (p. ii).

In general, one can say of this book what Dr. Venn said of another French book, that it "possesses the national merit of lively and transparently clear exposition of all that is understood." M. Winter, for Mr. Russell's work, quotes Couturat, and so makes the somewhat natural mistake, owing to Couturat's wording, of considering Russell to be a formalist, as Professor Natorp does. M. Winter does not recognise (p. 97) the fundamental character of the paradoxes of the theory of aggregates.


This is the second edition of the first part of the fourth volume of Teubner's collection of text-books on mathematics, issued in connection with the Encyklopädie der mathematischen Wissenschaften, and—what is an unusual delight with German books—well bound in strong and neat cloth.

Like the first edition of the work under review, this edition contains four sections, on the concepts of magnitude and natural number, and the analytic and synthetic theories of rational numbers. This edition has been thoroughly revised and worked through: some notes left by the late Professor Stolz have been