Irrationalzahlen. By Oskar Perron. 2d revised edition. (Göschens Lehrbücherei, vol. 1.) Berlin, de Gruyter, 1939. 8+199 pp.

As the author says in his interesting preface to this second edition, there are no great changes except in the fifth chapter, which is longer by twelve pages and includes Estermann's beautiful proof of Kronecker's approximation theorem and a section on the *Gleichverteilung.* The bibliography has been increased by about fifty per cent to correspond to the changes; but it is unfortunate that, of the three important works on the subject omitted from the bibliography of the first edition (and clearly indicated in the review in this Bulletin by A. J. Kempner (vol. 29 (1923), pp. 34–36)) only one has been added in this newer edition. Also, the references are still to whole tomes and no hint is given as to chapter and verse.

The preface of this new edition seemed in some ways the most interesting part, on account of the reason that the author gives for presenting Dedekind's theory of irrational numbers rather than the theory of Cantor and Méray. In 1921, he did not seem to think it necessary to give any reason for basing his treatment on Dedekind's work; but in 1939, he devotes most of the preface to justify his giving Dedekind's rather than Cantor's theory. He refers to an article by Bieberbach and the famous one by Hardy in "Nature" on the J-type and S-type of mathematicians. One could easily wonder just what lies behind these careful justifications. However that may be, we wish him well, for Perron has done yeoman service in writing textbooks for universities and *technische Hochschulen.*

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Logic of Algebra. By Paul Dienes. (Actualités Scientifiques et Industrielles, no. 614.) Paris, Hermann, 1938. 76 pp.

In the preface Dienes says that it is his aim to clear the ground for a realistic discussion of the "crisis," and not to give a systematic description of the logical structure of algebra. To this end he has many discussions of the thought processes underlying our use of arithmetic and algebra. So long as he is discussing the more mathematical of these (counting, and the like), his treatment is sound, though antiquated. With some of the less mathematical thought processes, he is not so successful. In particular, his discussion of inference is extremely unsatisfactory.

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