

of mathematics and logic; and he supports his opinions by a short discussion of the main contentions of the formalist and of the intuitionist schools.

An interesting admission concerns the status of logical constants, which "must be treated as part of the language, not as part of what the language speaks about" (p. xi). In this way, Russell believes, logic becomes much more linguistic than he believed it at the time when he first wrote his book. Another reflection concerns the theory of types, which the author still defends in its purpose to establish a set of rules for deciding whether a given series of words is or is not significant. Summing up his estimate of the progress of mathematical logic, Russell is of opinion that the result is an outlook which is less Platonic, or less realist in the medieval sense of the word. "How far it is possible to go in the direction of nominations remains, to my mind, an unsolved question, but one which, whether completely insoluble or not, can only be adequately investigated by means of mathematical logic" (p. xiv). We might point out, however, that this opinion looks rather like an encouragement to his followers, if we take into account two facts: the tendency of logicians to reduce this symbolical apparatus to a minimum, and to return more and more to linguistic explanations of their views; and the tendency of 'logical' mathematicians and of 'mathematical' logicians to consider mathematics and logic as two separate disciplines in spite of their common elements. T. G.

### Trigonometry

By Prof. T. M. MacRobert and William Arthur. Part 2: Higher Trigonometry. Pp. ix+203-341+xi-xiii. 4s. 6d. Part 3: Advanced Trigonometry. Pp. viii+343-478+ix-xi. 4s. 6d. Part 4: Spherical Trigonometry. Pp. vii+479-542+ix-x. 3s. (London: Methuen and Co., Ltd., 1937-1938.)

THESE books are companion volumes to Part 1, published earlier and dealing with that portion of the subject usually read by first-year students in the universities and by pupils of advanced courses in schools.

Part 2 is designed to provide an introduction to analytic trigonometry and to the theory of logarithmic and exponential functions. The authors have given very lucid discussions on complex numbers, Demoivre's theorem, expansion in infinite series and hyperbolic functions. In the final chapters, the methods of the calculus have been freely used.

Part 3 deals mainly with convergence. There are three chapters, the first of which gives an elementary account of convergence; then follows a chapter on uniform convergence; whilst the final section is concerned with infinite products and with functions of a complex variable. Some interesting applications of the theory of Dirichlet's integrals to trigonometrical series are also included. An appendix is added in which there is a discussion of the length of a circular arc.

Part 4 is devoted entirely to spherical trigonometry and consists only of one chapter. Proofs of all the standard formulæ connected with spherical triangles are given, and the authors have suggested what

appears to be quite a good scheme for the systematic solution of spherical triangles.

In each part numerous sets of exercises are provided at the ends of the chapters for the student's practice, and where necessary, answers are given. The four parts together form a thoroughly sound and comprehensive course in trigonometry which should be very useful to students of mathematics.

F. G. W. B

### Medical Studies

#### A Pocket Medical Dictionary

Compiled by Lois Oakes, assisted by Dr. Thos. B. Davie. Third edition. Pp. xx+397. (Edinburgh: E. and S. Livingstone, 1938.) 3s. net.

THE first edition of this useful and handy little work appeared in 1933. It has now been brought up to date by the inclusion of a large number of new words and 120 fresh illustrations. A considerable amount of heterogeneous information has been appended, such as notes on infant feeding, poisons and their antidotes, methods for working out doses, eminent medical men and gas warfare protection.

#### Climate and Acclimatization:

Some Notes and Observations. By Sir Aldo Castellani. Second edition. Pp. x+198+4 plates. (London: John Bale, Sons and Curnow, Ltd., 1938.) 10s. net.

THIS excellent little book, which is based on the eminent author's prolonged experience of residence in various tropical climates, will prove of value not only to medical practitioners but also to missionaries, nurses and others who propose to take up work in the tropics. The work contains four chapters devoted respectively to introductory remarks on climate, to which the author attributes more importance than some of his immediate predecessors, such as Manson and Gorgas; the effects of climate on various systems of the body; a description of atmospheric pressure, trade winds, sun-rays, chemical rays and moon-rays; and acclimatization, including an account of the sanitary condition and health of white troops during various tropical wars, and particularly the Italo-Ethiopian War, in which the author was director-general of the medical services. A classified international bibliography is appended.

### Meteorology

#### Hurricanes:

their Nature and History—particularly those of the West Indies and the Southern Coasts of the United States. By Ivan Ray Tannehill. Pp. x+257. (Princeton, N.J.: Princeton University Press; London: Oxford University Press, 1938.) 16s. net.

THE early part of the book under notice gives a description of hurricanes, the tropical cyclones of the West Indies and the southern coasts of the United States, followed by a discussion of their tracks, the variations of pressure, the distribution of rainfall, the destructive effects of the high winds, and a full description of some historic hurricanes.