

mathematical induction and the binomial theorem. The place assigned, as is usual in text-books, to mathematical induction shows how broad is the gulf between psychology and logic. The collection should prove useful.

(4) It is pleasant to read such a practical book as this one. The authors have dealt only with those parts of mathematics which seemed to them to be of real value in practical work, and the whole book is pervaded by the spirit of Prof. Perry. The very form of the questions is refreshingly non-academic: we are concerned with the important things of life—with kilowatts, gearing, and Whitworth standard nuts. It would seem to be a mistake to give (as on p. 257) areas and volumes of certain figures, and then remark:

"The formulæ are proved most conveniently by the aid of more advanced mathematics than need be given in this volume." It warms one's heart to see (p. 5): "*A formula* is practically the simple single statement in general terms of a whole series of particular facts." It seems to us that Prof. Perry and his school are doing much incidentally to help the development of mathematics by opening our eyes to the fact that what Boole called "a premature converse with abstractions" is ruinous for a boy's whole mental life.

(5) Is simply a reproduction of the second part of (6) with a new preface. Whereas the preface of (6) gives a list of the "distinctive features" of the book, (5) states somewhat ambiguously: "Whatever unusual merit the book possesses must be largely sought for in the following points. . . ."

In (6), then, we find that, both in plane and in spherical trigonometry, triangles are solved in detail by graphical methods before analytical methods are presented, and there are many other innovations—thus, Napier's rules are proved and the three fundamental formulæ for the spherical triangle are derived simultaneously. Having read (p. v.): "The references to algebra are limited to those with which every beginner may be reasonably assumed to be familiar," we are surprised to find (p. 278) the imaginary unit defined shortly as the solution of the equation $x^2 + 1 = 0$, no evidence having been given that this equation has a solution. After this, we cannot be surprised that there is not the slightest attempt either to point out to the student the very great and fundamental difficulties that there are in the theory of convergence (see especially p. 312) or even to treat the subject correctly. The historical references are sometimes faulty: Wessel was a Dane and not a German; the trigonometrical form of a complex number is due to Euler and not to Cauchy (p. 285).

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OUR BOOKSHELF.

The Schools and the Nation. By Dr. Georg Kerschensteiner. Authorised translation by C. K. Ogden. Pp. xxiv+351. (London: Macmillan and Co., Ltd., 1914.) Price 6s. net.

THIS is a book of exceptional interest for all who are engaged in the work of education and for those who are seriously concerned with the future social and economical well-being of the children of the nation.

It is a record of the aims and of the achievements of Dr. Kerschensteiner, of Munich, during the past twenty years in the sphere of continued education for the youth of that city. As a consequence of his assiduous enlightened effort, coupled with the ultimate goodwill of employers and employed, he has been able to establish a complete system of continued trade education for practically all the industries of Munich providing not only for the continued general education up to the close of their eighteenth year of the children leaving the elementary schools, but also for their technical training in industry and commerce combined with instruction bearing upon their daily life and duties and in relation to their future responsibilities as citizens.

The system has been gradually developed, but always in close cooperation with the City Trade Guilds, and its success has been assured by the adoption by the municipality of compulsory measures requiring the attendance of all apprentices and others engaged in employment at the courses provided within the usual working hours.

Special buildings have been erected providing for about fifty-six various industries, chiefly handicraft, many of them demanding much artistic knowledge and skill. This concrete illustration of the successful treatment of the problem of continued education deserves the most serious study.

How Man Conquered Nature. By Minnie J. Reynolds. Pp. v+249. (New York: The Macmillan Company, 1914.) Price 1s. 8d. net.

THE style of this little book will appeal to children. The language is simple without being babyish. Man's development is traced from the time when, realising the "opposition of the thumb," he threw his first stone, down to his use of a flying machine. Not unnaturally, perhaps, Miss Reynolds, in the first part of the book especially, gives great prominence to woman's part in the civilising process. We are told, for instance, "woman was the first harvester," "the first miller," "the first baker," "the first salt maker," "the first furrier," and so on.

Excelsior School Map of the United States. In four sheets. Size 62 in. by 48 in. (London: G. W. Bacon and Co., Ltd.) Mounted to hang, with rollers and varnished; or mounted, cut to fold, with eyelets. With political colouring, 15s.; the same with contour colouring, 16s.

THIS wall map is constructed on a conical projection on a scale of 1:3,200,000, or 50.5 miles to an inch. It is provided with an inset map of