Review

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to make the application intelligible can be given by means of square root by interpolating *fractional* in a series of *integral* powers of any base—and for preference in starting. *Smith and Beman* in their *Higher Arithmetic* (Ginn & Co.) gave a serviceable section (pp. 109-121) on logarithms, and we should like to see their example followed by English writers.

The Story of Euclid. By W. B. FRANKLAND, M.A. 1s. (George Newnes.) We heartily recommend this book to the attention of mathematical teachers. The author seems to have accomplished a somewhat difficult task in a very satisfactory manner, and to have succeeded in avoiding the two pitfalls that beset any such attempt—on the one hand the too free use of technical terms which would have repelled all but mathematicians from reading it; on the other, the insipid vagueness which would be caused by the entire avoidance of them. A preliminary sketch of what is known of the achievements of Thales, Pythagoras, and other predecessors of Euclid who made his work possible, is followed by an account of the Alexandrian school, and an estimate of the famous “Elements.” But the author does not stop here—he also gives the story of Euclid’s successors down to Proclus, ‘the last of the Greeks,’ from whom he makes a long quotation. We then have an interesting account of the earliest printed Euclids, and a sketch of the rise of Modern Geometry. Finally we come to Lobachewski and Riemann of whom portraits are given. *An excellent shilling’s worth.*

Geometric Exercises in Paper Folding. By T. SUNDARA ROW. Edited and revised by BEMAN & SMITH. 4s. 6d. (Kegan Paul, Trench, Trübner & Co.) The original Madras edition was noticed in No. 3 of *The Mathematical Gazette* (Dec. 1894). Profs. Beman and Smith having had their attention drawn to it by a remark of Klein’s,* and having been convinced of its usefulness to teachers and students, obtained permission to bring out an American edition. This is embellished by upwards of 20 beautifully executed photographic reproductions of paper folds. In our opinion the author pushes paper-folding far beyond the stage at which it is really helpful in school teaching, but perhaps an enthusiast for any particular way of looking at a thing does good service in riding his hobby hard and thus attracting attention to its powers. He gives other odds and ends of mathematical lore likely to be helpful to teachers and through them stimulating to students. His geometrical illustration of the identity

$$(\Sigma r)^2 = \Sigma r^3$$

might be made still more geometrical, for there exists a fairly obvious geometrical proof that $1+2+1=2^2$; $1+2+3+2+1=3^2$, and hence that

$$2+4+2=2^3, \quad 3+6+9+6+3=3^3$$

and so on.

E. M. LANGLEY.

The Elements of Geometrical Drawing. By HENRY J. SPOONER, C.E. (Longmans, Green & Co., 1901.) 3s. 6d. Pp. xxxix. 298.

Mr. Spooner’s book is entitled *Geometrical Drawing*, but the author seems to intend it as a book of reference on various subjects. He informs us that 3 barleycorns = 1 inch, and that a stone is 14 pounds, but is 8 pounds in the London Meat Market, and he quotes the value of π to 32 significant figures.

In his attempt to be complete, the writer touches on many points far better left alone, and his numerous definitions, which show a surprising lack of sequence, can only serve to worry the reader.

There are many errors, some of which are accidental slips, but one finds it difficult to account for the following property of the Ellipse—“The product of the focal distances of any point P on the curve is equal to the square of half the major axis.” This property the author fixes in the minds of his readers by means of a special figure drawn for the purpose.

Some of the printed formulae supplied for reference are wrong, and others are quoted in a form most unlikely to appeal to the intelligence of the student.

The author mentions in his preface that the footnotes need not trouble the

* “Hermann Wiener has shown how by paper-folding we may obtain the network of the regular polyhedra. Singularly, about the same time a Hindu mathematician, Sundara Row, published a little book . . . in which the same idea is considerably developed. The author shows how by paper-folding we may construct by points such curves as the ellipse, cissoid, etc.” Klein’s *Famous Problems of Elementary Geometry*. (Ginn & Co.)