Professor Thompson's text-book on Elementary Solid Geometry will be received with pleasure by American teachers of elementary mathematics. It fills an almost unoccupied place by confining itself to a narrow field. Colleges that do not require solid geometry for entrance will find it especially useful.

There are six chapters devoted to those parts of the elementary solid geometry ordinarily taught in our colleges and secondary schools, one appropriate chapter on the conic sections and one on mensuration. Each chapter, excepting the fifth, includes a large and well selected set of exercises.

Of course plane geometry is assumed but the first seven pages are given up to a careful, though designedly not exhaustive, consideration of certain fundamental notions. It is well stated that postulates are propositions 'taken without proof and upon which a train of reasoning is to be built,' and 'that it is no part of geometry to justify their use except in so far as their form is concerned.'

The sequence of propositions is developed in a scholarly and logical though decidedly conservative manner. The assumed construction is rigorously excluded. Many of the demonstrations are informal or left entirely to the student. The treatment of mensuration, apart from the geometry proper, is a good feature.

Considering the completeness of the work as a whole, the proof on pages 122 and 123 is noticeable. The theorem is: "The arc of a great circle less than a semicircle is the shortest line on the surface of a sphere between two given points not diametrically opposite." This proposition can only be proved by the use of some such postulate as the following: "The magnitude of a curved line is the limit toward which a broken line made up of consecutive chords of that curved line approaches when the number of chords is increased in such a manner that the chords are all diminished without limit." (Thomas S. Fiske, SCIENCE, Vol. IV., p. 724.) The words 'curved line' and 'broken line' are to be understood to mean respectively 'a line no part of which is a great circle arc' and 'a line made up of great circle arcs.' It seems unfortunate that such a postulate was not explicitly stated.

The terminology used is, on the whole, that of the average text-book, but the author has rendered a genuine service to the American geometric vocabulary by the introduction of Mr. Hayward's term 'cuboid' in place of the clumsy expression 'rectangular parallelepipid.'

The pages have a different appearance from those of the majority of our text-books, for they are solidly printed in the English style and no abbreviations are used.

C. B. WILLIAMS.

Thirty Years of Teaching. L. C. MIALL. London and New York, The Macmillan Company. 1897. Pp. viii+250. $1.00.

There is at present in the educational systems of all countries a circle—to call it a vicious circle would be over-emphatic—discriminating in favor of the classical languages and against the sciences. Those having a classical education at college and university find positions in the schools and in turn prepare boys for the classical course at college. The circle tends to remain unbroken. Teachers of the classics, being a great majority of all teachers, are apt to write most of the educational books. But from the point of view of the man of science a new era has begun when students of biology, such as Huxley, Morgan and Miall, begin to write on educational topics. The circle is broken and adjustment will follow in accordance with the physical principle of gravitation or the biological principle of the survival of the fittest.

Professor Miall's papers, reprinted with some additions from the *Journal of Education* (London), cover a wide range of subjects. He does not hesitate to write on the teaching of history, of geometry and of Latin grammar, as well as on nature study and school musuems, but throughout he urges by precept and by example the methods of natural science, of nature. Treat the child as a child, speak plainly, be interesting—such maxims are sufficiently trite, but they carry weight and influence when put in a book that treats the teacher as a teacher, and addresses him in a plain and interesting manner. Professor Miall's book will repay reading by the teacher, whether of the classics or of science, whether in the kindergarten or in the university.