form of the seven instead of the lambda form which is commonly supposed to be the earlier one, and this is true, it may be said in passing, not only of the manuscript from which Mr. Hill has taken his illustration, but also the other Escorial manuscript of the same work. Likewise the upright four, which we ordinarily think of as due to the Florentines of the fifteenth century, who indeed had much to do with establishing it, is shown to have been used in the thirteenth and fourteenth centuries by English scribes and early in the fourteenth century by the Italians, probably Florentine monks, and quite commonly in the fifteenth century by writers of English manuscripts.

What strikes the reader as most gratifying is that Mr. Hill has brought to the problem a perfectly judicial mind; he has no thesis to defend; he is advocate for no party to any controversy; he is the scholar seeking absolute truth. To his researches, to his patience, to his care in weighing evidence, all who have an interest in the history of mathematics are quite as much his debtors as those whose fields of interest are in the lines of numismatics and paleography.

DAVID EUGENE SMITH.

Introduction to Infinitesimal Calculus. By G. W. CAUNT. Oxford, The Clarendon Press, 1914. xx+568 pp.

THIS book is an attempt to present the calculus in a way that will appeal to students of engineering. The author expresses a hope that he has made the book rigorous enough to satisfy the instructor in a first course in calculus for a student in pure mathematics. This seems to be rather an exception, most texts being written for the pure mathematician, or at least chiefly from his viewpoint. The subject matter is that usually found in the texts on calculus with the addition of a chapter on differential equations, and the author presents the subject from the viewpoint of the engineer. The book is written for a first course in calculus and is arranged for a minimum amount of analytic geometry to precede it. The author usually introduces a subject by means of a number of illustrative numerical examples worked out in detail, thus leading the student into a subject by means of his interest in the purpose it serves. This use of numerical examples, completely solved out, prepares the student of engineering to make use of his mathematics in his engineering courses. Too often a

student gets through his calculus without being able to apply it to numerical problems, especially when they occur in a course not designated as mathematics. This should not be so, and is undoubtedly the reason why mathematics in our technical schools is in such disfavor with the students. This situation is most probably due partly to the mathematics teachers, partly to the engineering teachers and partly to the textbooks. Wherever the fault lies, any textbook written for engineering students should bridge this gap or wholly close it. If there is any essential difference between the calculus for the engineer and the calculus for the pure mathematician, then our textbooks for engineers should be written as such and should not be attempts to compile books that can be sold to both classes of students. The teacher of mathematics in an engineering school who is seeking to present the calculus to his students in a way that will make it appeal to them as being a subject they need instead of one they must take will find this book a help in that direction.

The first two chapters, especially the second on " Limits and continuous functions," are an attempt to get the student familiar with subjects that often remain hazy until the end of his course in calculus. They present the matter in a very clear way by means of many examples with full explanations. The remaining chapters are treated in much the same way. The book is so arranged that a shorter course can be had by omitting certain chapters without destroying the continuity of presentation. The book contains more material than most of our engineering schools could cover in the time now allotted to mathematics. The author seems to have had liberty from his publishers to give as much space as he desired to illustrative problems and lists of exercises. This is a very good feature of the book. On the whole the book should prove very teachable. T. E. MASON.

Die Rechenmaschinen und das Maschinenrechnen. Von Dipl. Ing. LENZ. Band 490, Sammlung aus Natur und Geisteswelt. Leipzig, Teubner, 1915. vi+114 pp.

OVER 500 separate numbers of this collection of booklets on science, the arts, and technology have been published and the set is not yet closed. Each volume is complete in itself and retails at M. 1.25.

No. 490—the one under review—aims to give its readers