tions in practical chemistry are generally conducted are probably largely to blame for this unsatisfactoriness. Examiners require a knowledge of the separation and identification of organic acids, in addition to the ordinary power of analysing a mixture of inorganic substances; one day is probably considered sufficient time to devote to the examination. Candidates must make themselves acquainted with a few of the tests for organic acids; they find these in all the text-books of analysis; they repeat the tests, and manage to stumble through the examination. The truth is that the detection of organic compounds, even when but a few of these are present, is far too complex and difficult a process for repetition in the hurry and bustle of the examination-room. Were all organic compounds omitted from the examinations in practical chemistry at the leading schools of medicine and science, we have no doubt that in a few years the processes for detecting these compounds would be largely improved.

We should strongly advise all students who wish to acquire just that amount of knowledge of organic analysis which may perhaps enable them to pass an examination *not* to procure Dr. Barfoed's book, and as strongly advise all who wish to study this branch of analysis in a thorough and accurate manner to procure the book, or rather that part of it which is now published, at once. The publishers of this work announce that the book will be completed in three parts; if the second and third are as fully and accurately compiled as the first, the book will undoubtedly be the standard work of reference in the department of organic qualitative analysis.

The first part, extending to 192 pp., contains the more important acids, cellulose and starch. A full account is given of the properties and reactions of each compound so far as these are of value in qualitative analysis; methods of separation, varying according to the conditions of complexity of mixtures, are also given. The book is not arranged after the ordinary plan of the text-books of inorganic analysis; it is rather a full and accurate store of information regarding the reactions of organic compounds from which the student may select materials according to the special conditions of the problem presented to him.

The work contains no preface or indication of the ground to be covered by the completed book; judging however from the scope of the first part, the author would seem to aim at presenting a complete account of the reactions of all those commonly occurring organic compounds which can, with a fair degree of certainty, be identified by qualitative analysis.

A Synopsis of Elementary Results in Pure and Applied Mathematics; containing Propositions, Formulæ, and Methods of Analysis, with Abridged Demonstrations. By G. S. Carr, B.A. Vol. i. Pp. xxiv. 256. (London: C. Hodgson and Son, 1880.)

WE shall not enter upon any discussion as to the utility or inutility of such a work as the present, but simply confine ourselves to an account of its contents. It is not a work of yesterday, for the author tells us that it is compiled from notes "made at various periods of the last fourteen years, and chiefly during the engagements of teaching." Mr. Carr's chief aim has been so to arrange his matter that the student may be assisted in the revision of bookwork, hence he generally confines himself to indicating the main features of a proof or to a mere reference to the theorems by which the proposition is proved. To aid in this end he has employed a system of cross-references, each article being numbered progressively in "large clarendon figures." A feature to which the author rightly draws attention is the compression he has attained without sacrificing clearness in his "last section, in which in the space of twenty-four pages are contained more than the number of propositions usually given in treatises on geometrical conics," together with clear large figures, and in most cases the demonstrations. This, we think, he has done well. This first part he divides into seven sections. The first contains a large collection of mathematical tables (Factor Tables, Values of the Gamma-function, and many other useful and frequently-recurring constants), in addition to an introduction on the C.G.S. system of units. Algebra is treated of in articles 1-380; Theory of Equations, 400-593; Plane Trigonometry, 600-859; Spherical Trigonometry, 870-910; Elementary Geometry, 920-1099; Geometrical Conics, 1151-1267. It will be seen from the above numbering that there are breaks; these have been "purposely made in order to leave room for the insertion of additional matter, if it should be required in a future edition, without disturbing the original numbers and references." It is obvious to object here that the new matter may not fit into the plan adopted in this edition.

Owing to causes which Mr. Carr names, the earlier part of his work contains a rather long list of errata; most of these are pointed out, but not all. The utility of such a work greatly depends upon its reliability for purposes of reference, and our confidence is somewhat shaken when, on opening the work casually, as we did at p. 6, we find "$\log_{10}\pi = 1{\cdot}4971499$, $\log_e\pi = 0{\cdot}6679358$," and this not corrected elsewhere.

Having carefully read the whole of the text, we can say that Mr. Carr has embodied in his book all the most useful propositions in the above subjects, and besides has given many others which do not so frequently turn up in the course of study. The work is printed in a good bold type on good paper, and the figures are admirably drawn.

Estudio Micrográfico ne Algunos Basaltos de Cuidad-Real. Par Don Francisco Quiroga. (Madrid, 1880.)

IN this memoir the author gives an account of the microscopic characters exhibited by the basalts of the volcanic district of the Campos de Calatrava, which basalts he shows to have been erupted in Tertiary times. These rocks appear to belong to Dr. Boricky's classes of the Nepheline-basalts and the Nephelinitoid-basalts, in the former of which the nepheline is fully crystallised, while in the latter it exists as a glassy base in which crystals are beginning to make their appearance. The primary minerals of these rocks are nepheline, augite, magnetite, and olivine, which may be regarded as their essential constituents, and apatite and hornblende, which the author regards as accessory or accidental constituents. The secondary or derivative minerals are kaholite, hinsuite, and hematite, magnetite, serpentine, and aragonite. The memoir is illustrated by a coloured plate of rock-sections.

Il Binomio di Newton. Per Ignazio Cameletti. 7 pp. (Genova, 1880.)

BY performing the successive multiplications and writing, after the following fashion—

$$\begin{array}{rll} (1+x)^m = & 1 + x & (m = 1 \\ & \overline{x + x^2} & m = 2 \\ & x + x^2 & \\ & x^2 + x^3 & m = 3, \end{array}$$

and so on, the author succeeds in an ingenious manner, by summation of simple series, in getting the successive coefficients of the general expansion, and so proves his theorem, which is—

$$(a+b)^m = a^m + \Sigma_{p=1}^{p=m} \frac{m(m-1)\ldots(m-p+1)}{1\,.\,2\,.\,.\,.\,.\,p}\, a^{m-p}\, b^p$$

or the Binomial Theorem of Newton without having recourse to the doctrine of combinations.

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