as short sections on graptolites (by C. E. Decker and fossils in Paleozoic rocks near the main fossil locality (by Y. O. Fortier).

Main interest attaches to the age of the fossil-bearing formations and content of the faunal assemblage. Based on occurrence together of some supposed Late Ordovician (Richmond) species with forms that elsewhere predominantly occur in Middle Ordovician (Trenton) strata, the cephalopod assemblage is interpreted to signify an early part of Late Ordovician times. Other fossils, especially the trilobites, point less ambiguously to Trentonian age.

New paleontological information obtained from the northern margin of the North American continent is not only furnishing basis for accurate interpretation of the geologic history of this region but may contribute importantly to understanding paleontological features of formations in the interior of the continent.

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Basic Mathematics for Science and Engineering. Paul G. Andres, Hugh J. Miser, and Haim Reingold. Wiley, New Work; Chapman & Hall, London, 1955. vii + 846 pp. Illus. $6.75. (A revision of *Basic Mathematics for Engineers,* 1944.)

This textbook is proposed for a unified freshman year of mathematics work to include algebra, trigonometry, and analytic geometry. It is an adequate basis for the study of the calculus and is directed, as its title states, to students in science and engineering. This is a revision of an earlier volume by the same authors. Considerable space (about 100 of the 800 pages) is given to prerequisite high-school mathematics so that students may have ready access thereto. This review material is unusually well treated with emphasis on radicals and exponents, fractions, and solution of equations. There is an abundance of word problems, many of an unusual form; and manipulation of many formulas with other variables besides x and y is carefully included.

The usual material in college algebra, trigonometry, and analytic geometry is adequately covered. The authors are to be congratulated on a careful analysis of important material and on the omission of certain topics that still appear in many textbooks *only* because of tradition. For example, the solution of certain oblique triangles by the law of tangents or half-angle formulas is replaced by the use of the laws of sines and cosines—a commendable feature in this day of electric desk calculators. Reference is frequently made to applications in science and engineering with the primary purposes of stimulation in study and of bridging the gap between mathematics and its utilization. As a second example of these authors' analysis, the solution of simultaneous linear equations is treated by the Doolittle method; hence, in the study of determinants, the students should realize that they are concerned beyond the mere solution of three or four equations in as many variables. The theory of determinants, so requisite to matrix theory and to computer theory, is covered only for second- and third-order determinants but more competently than is usual; evidently the belief of the authors is that students can learn the theory for the general order more thoroughly and easily in a later course.

I would have preferred more emphasis in analytic geometry on the locus derivation and, consequently, on fewer boldface formulas (which really do not need to be memorized). The treatment of solid analytics is too brief (31 pages in all), and cylindrical and spherical coordinates are omitted.

The slide rule is treated in the first chapter; far fewer problems than usual follow in the text with trick numbers of solutions. This is both commendable and desirable, for the psychological attitude of expecting simple answers is an inevitable but unfortunate consequence of study with many textbooks.

This textbook, then, is of some significance in the current trend of experimentation that is so important if mathematics instruction is to be progressive and not static. I wish that some other way could be found to cope with the inadequate preparation of the entering student than to make the requisite material available for reference in a college-level textbook; certainly improvements in education in the high school must occur if college instruction is to yield more and better trained students in science and engineering.

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Books Reviewed in The Scientific Monthly, April

Plant Taxonomy, E. L. Core (Prentice-Hall). Reviewed by L. Constance.

Quantitative Analysis, A. F. Daggett and W. B. Meldrum (Heath). Reviewed by A. D. Bliss.

Advanced Calculus, A. E. Taylor (Ginn). Reviewed by A. W. Hobbs.

The Botany of Cook's Voyages and Its Unexpected Significance in Relation to Anthropology, Biogeography and History, E. D. Merrill, vol. 14, No. 5/6 (Chronica Botanica; Stechert-Hafner). Reviewed by J. M. Fogg, Jr.

Die Binnengewässer in Natur und Kultur. A. Thienemann (Springer). Reviewed by A. D. Hasler.

Rome beyond the Imperial Frontiers, M. Wheeler (Philosophical Library). Reviewed by M. H. Adams.

Fact, Fiction, and Forecast, N. Goodman (Harvard Univ. Press). Reviewed by R. J. Seeger.

Contributions to Plant Anatomy, Irving W. Bailey (Chronica Botanica; Stechert-Hafner). Reviewed by J. Philpott.

Introduction to Social Welfare, W. A. Friedlander (Prentice-Hall). Reviewed by W. W. Boehm.

The Unified System Concept of Nature, S. T. Bornemisza (Vantage). Reviewed by G. Hardin.

Sir Joseph Banks, the Autocrat of the Philosophers, 1744–1820, H. C. Cameron (Batchworth). Reviewed by J. Ewan.

The Luminescence of Biological Systems, F. H. Johnson, Ed. (AAAS). Reviewed by C. E. ZoBell.

Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, *but to the publisher or agency sponsoring the publication.)*

Informe de la Tercera Conferencia sobre los Problemas de Nutrición en la América Latina. Held at Caracas, Venezuela, 19–28 October 1953. Publicaciones Científicas No. 12. Oficina Sanitaria Panamericana, Washington 6, 1954. 54 pp.

The Sergestidae of the Great Barrier Reef Expedition. Great Barrier Reef Expedition 1928–29, Scientific Reports, vol. VI, No. 5. Isabella Gordon. 11 pp. 5s.

The Otiorrhynchine Curculionidae of the Tribe Celeuthetini (Col.). Guy A. K. Marshall. 134 pp. 35s. British Museum (Natural History), London, 1956.

Learning about Tests. Junior Life Adjustment Booklet. Joseph C. Heston. Science Research Associates, Chicago 10, 1955. 40 pp. $0.50.

The Report of the Principal to the Trustees and Ten-Year Reports of the Department Chairmen. vol. 52, No. 1, of *Phillips Exeter Bulletin.* Phillips Exeter Academy, Exeter, N.H., 1955, 61 pp.

Handbook of Toxicology. vol. I. WADC Tech. Rept. 55-16. William S. Spector, Ed. Wright Air Development Center, Wright-Patterson Air Force Base, Ohio, 1955. 408 pp.

Lung Function in Coalworkers' Pneumoconiosis. Medical Research Council Rept. Ser. No. 290. J. C. Gilson and P. Hugh-Jones. Her Majesty's Stationery Office, London, 1955. 266 pp. $3.78.

Cytotaxonomic Studies in Allium. I, *The Allium canadense Alliance.* Research Studies of the State College of Washington, Monographic Suppl. No. 1. Marion Ownbey and Hannah C. Aase. State College of Washington, Pullman, 1955. 106 pp. $2.