acteristic American forms, and a few—a very few—such forms are figured. With few exceptions, however, both the types and the forms described for comparison are European species, some of which differ materially from their American cousins; and we think the American editor might have taken the trouble to select American representatives of such common types as the tortoise, frog, salamander, snail, grass-hopper, *Nereis* and sea-anemone, or to describe the anatomy of the common squid instead of the European cuttle-fish. The book is nevertheless a very excellent one and will doubtless be welcomed by American teachers.

E. B. W.

A First Book of Organic Evolution. By D. Kerfoot Shute, A.B., M.D. Chicago, The Open Court Publishing Company. 1899. Pp. xvi + 285.

This is a brief account of some of the facts and theories that cluster around the central idea of Organic Evolution. The principle of heredity forms the guiding idea in connection with which is given, among other things, a discussion of the cell-theory, of variation, of the influence of environment, natural selection and the evolution of man. The last section gives a synopsis of the classification of animals, and, *in a half page*, of plants. There is a list of works of reference that may be useful to the general reader, and a glossary of terms that is on the whole accurate. The majority of the illustrations are good, especially the series of full-page plates prepared especially for the work. In the chapter on man sociological and ethical questions are discussed, the idea of design is upheld, and the author decides for a cosmic soul that 'may be self-conscious, wills, thinks, acts and designs.' "Man is the highest and greatest fruitage of the tree of animal life." "He has been the goal and is the completion of organic evolution." "He is not only the highest creature that has ever appeared on the globe, but it seems a safe induction to say that he is also the highest animal that evolution will ever develop here."

If anyone doubts that man is 'the topmost flower on the highest and *straightest* branch of the tree of life,' he has only to consult the diagram on p. 182.

In reading 'this little book' one has continually to remind oneself that it is a 'first book,' that is a primer, and that all the author has tried to do is to sketch an *outline* of modern biology as related to the theory of descent. Considering the limits of space and the almost infinite number and variety of the data from which selection is to be made, it must be admitted that the author undertook a difficult task. When we say, that one altogether unfamiliar with scientific biology might digest the whole book without acquiring any very serious errors of opinion, we are giving high praise. But, if such an one were to come later to the practical study of medicine or advanced biology, he might be surprised to learn, that the diagram of the maturation and fertilization of the *human* ovum given on p. 30 is a pure figment of the imagination, seeing that no one has ever observed these phenomena in the egg of man, that the chromatin of the nucleus is ever in any other form than that of threads, and that therefore *chromatin* and *chromosomes* are *not* synonymous terms (glossary and *passim*), that the nutrition of a cell does *not* include irritability and contractility (p. 7), that a cell is not necessarily *encysted* because it possesses a cell-wall, that parthenogenesis is not a form of budding (p. 42), nor is the fertilized egg '*hermaphrodite*' (p. 43). These are but a few examples of the altogether uncritical use of illustrations and terms, which is only partly excusable on the ground of the popular nature of the book.

The book is also dogmatic. A certain amount of dogmatism is unavoidable, and perhaps even to be desired in so popular a work. But it would be difficult to justify the following statement: "Intemperate people * * * also transmit" (by inheritance to their offspring) "the fatal tendency to crave for *the very substances* that have acted as poisons on these germ-cells before and after fertilization." The transition from fact to theory is, indeed, everywhere so easily made, that one uninitiated must be in constant doubt of his footing.

While the book never rises above the intellectual or literary level of the freshman class

in college, it seems to me perhaps as good an epitome as we possess, within so narrow limits, of the facts and principles of organic evolution.

FRANK R. LILLIE.

Produits aromatiques artificiels et naturels. By GEORGES F. JAUBERT, Docteur ès Sciences, ancien Préparateur de Chimie á l'École Polytechnique. (Encyclopédie scientifique des Aide-Mémoire.) Petit in-8. Pages 169.

This is the sequel to the author's previous book 'Matières odorantes artificielles' (reviewed in this JOURNAL, XI., 710), and resembles it closely in all respects. The former volume contained the nitro and halogen derivatives, phenols, and aldehydes; while, in the present one, the remaining odoriferous substances are grouped in the following chapters:

I. Aromatic alcohols (34 listed).
II. Aromatic acids and their derivatives (70 listed).
III. Terpenes (22 listed).
IV. Camphors (20 listed).
V. Terpene alcohols, aldehydes, and acids (10 listed). This includes such compounds as geraniol, citral and ionone, but no terpene *acids* are mentioned.

There are in all 169 pages—41 pages of text (including the Preface), 121 pages of tables, and 7 pages of index.

No one could guess from the title just what might be the scope of this book, and most chemists, even after a careful examination, will still be in doubt as to what the author is endeavoring to tabulate, for many of the compounds listed are 'aromatic' only to the extent of containing a benzene nucleus and have not the remotest interest in perfumery, although the author's idea of a perfume seems to be different from that of most chemists, since he says on page 48: "Les acides benzoique et cinnamique sont á l'état pur des parfums puissants."

The column in the tables headed 'Literature and Patents' is unsatisfactory, being either meagre and not up to date, or else merely a reference to some larger work and not to the original article at all; while, in spite of the heading, not a single patent reference is given in the entire book.

By endeavoring to expand to two volumes what could much better have been given in one, the author has been forced to introduce a large amount of wholly extraneous material, and has thus completely defeated the main object of memory aid, which is to present the important facts concisely and entirely free from all that is either irrelevant or of only remote interest.

MARSTON TAYLOR BOGERT.

COLUMBIA UNIVERSITY.

The Compendious Manual of Qualitative Chemical Analysis of C. W. ELIOT and F. H. STORER, as revised by W. R. NICHOLS. Nineteenth edition, newly revised by W. B. LINDSAY, Professor of general and analytical chemistry in Dickinson College, and F. H. STORER, Professor of agricultural chemistry in Harvard University. New York, D. van Nostrand Co. 1899. Pp. 202. Price, $1.25.

It is now over thirty years since the first edition of this book was published, and throughout this time it has held its place as one of the best simple manuals. The present edition is thoroughly modern and satisfactory. It is the avowed scheme of the editors to give but one method for each separation, and considering the elementary nature of the book their choice of methods must be commended. In its present form 'Eliot and Storer' will maintain its past reputation.

E. RENOUF.

Victor von Richter's Organic Chemistry or Chemistry of the Carbon Compounds. Edited by PROFESSOR R. ANSCHÜTZ, University of Bonn. Authorized translation by EDGAR F. SMITH, Professor of Chemistry, University of Pennsylvania. Third American from the eighth German edition. Vol. II. Carbocyclic and Heterocyclic Series. Philadelphia, P. Blakiston's Sons & Co. 1900. Pp. 671. Price, $3.00.

The first volume of this book was reviewed in SCIENCE, Vol. IX., p. 729. The praise given to the first volume should be extended to the second. One needs merely to open the volume at random and read, to recognize the merits of the book. The chapters on diazo compounds, on azines, on terpenes, on quinones are notable examples of thoroughness, and of the amount of recent research often condensed into a few lines.

It must be noted that this is not a book for