ometric participation therein." It is pointed out in the book that a catalyst sometimes undergoes a physical change in the course of its action, the instance given being that of manganese dioxide which passes from a crystalline to an amorphous condition when used in the preparation of oxygen from potassium chlorate, but in this case the material is strongly heated, and this may be the cause as much as any specific action as a catalyst.

Many of the common industries are now dependent on catalytic methods for proper and economic operation, and the more important of these are described in concise and convenient form. The general style, printing and arrangement of the book are commendable.

HENRY LEFFMANN.

DICTIONARY OF EXPLOSIVES. By Arthur Marshall, A.C.G.I., F.I.C., F.C.S., Chemical Inspector, India Ordnance Department., 8vo. xiv-159 pages. Philadelphia, P. Blakiston's Son & Co. \$3.75, net.

The extensive experience of the author of this book and his success in presenting the literature of it in highly satisfactory form, prevents any doubt as to the value of the present compilation. It presents brief statements of the composition of the several hundred explosives that are now known, enumerated alphabetically by their trade names and also classified according to their uses. The classes are: coalmine, blasting, high, miscellaneous and propelling. The resources of language have been strongly drawn on for the many names that have been coined to indicate the changes that have been rung on the comparatively few mixtures and compounds that are available for use as explosives. The reviewer has been a little puzzled by an allusion to an explosive termed "imperialite," the name being derived from that of the Marquis Imperiali, who used his private means in experimenting on explosives. He started a factory for the manufacture of some, and on the first day of its operation an explosion killed five workers. He rebuilt the factory and the day after it was re-started it blew up again, and the marquis was killed. The puzzling item in the account is that Marshall states that its history is that of the explosive that we meet "in the comic papers." There must be a joke here, but the reviewer is not "on to it."

The book contains a large amount of information, and will be of much use to chemists who cannot afford the more expensive works on the subject. The reviewer is moved to ask why there is no recent authoritative and comprehensive work on explosives emanating wholly from American sources, especially from the experts of the great du Pont works.

HENRY LEFFMANN.

NOTES ON CHEMICAL RESEARCH: AN ACCOUNT OF CERTAIN CONDITIONS WHICH APPLY TO ORIGINAL INVESTIGATION. By W. P. Dreaper, O.B.E., F.I.C. Second edition, small 8vo, xv-195 pages, no index. Philadelphia, P. Blakiston's Son & Co. \$2.50, net.

As the author said in the preface to the first edition, modern science is based on the record of past investigation. He might have added that a feeling of gratitude should actuate all who practice a profession or a science which will induce each one to labor as far as in him lies to increase the stock of

knowledge. The bulk of the book is devoted to a free and extensive presentation of the methods of research and the apparatus to be used, taking the word in its widest sense to mean the literature and laboratory facilities. There is, as might be expected, a good deal of philosophic discussion which represents the author's views, entitled to serious consideration for he has given much thought to the subject, but concerning which there is room for difference of opinion.

The reviewer is most interested in the chapter on the course of training for the student, and hoped that some attention would be given to the earlier training, especially an expression of opinion as to the comparative value of the old university course in the so-called "humanities" and the modern so-called "practical" course. Dreaper, however, considers only that part of the students' training which concerns the later work, when specializing in the science. He refers to the "Heuristic" method of teaching without giving any details. The reviewer confesses ignorance of this method, but does not suppose that it consists in studying the properties of matter while bathing, as the word suggests. The author says that the period between the ages of 17 and 23 is a critical one. Unquestionably, but so is the period between 12 and 17. "Just as the twig is bent, the tree's inclined." Nothing is said about the training in language. The reviewer believes in the study of the classics in school life and the study of French and German in college life for all students intending scientific work, especially physics and chemistry.

With the great mass of Mr. Dreaper's statements, the reviewer has no quarrel.

HENRY LEFFMANN.

A TEXT-BOOK OF ORGANIC CHEMISTRY. By E. DeBarry Barnett, B.Sc. (Lond.), A.I.C. Lecturer in Organic Chemistry, Sir John Cass Technical Institute. Small 8vo, xii-369 pages, index and 15 illustrations. Philadelphia, P. Blakiston's Son & Co. \$5.00, net.

A neatly printed book on good paper giving a survey of the field of organic chemistry in the form now usual in smaller manuals. It opens with the statement that "organic chemistry is best defined as the chemistry of the compounds of carbon" and proceeds to point out that the substances included in descriptive organic chemistry were called organic because they were regarded as formed only under the influence of "vital force," but that this idea was exploded when Wöhler, in 1828, obtained urea from inorganic sources. This is the usual phraseology. It is not quoted here to disapprove it, but to suggest that it would be an interesting matter to investigate the origin of the application of the term organic to a special field of chemistry. It is hardly true that the basis of the division of chemistry into its two familiar branches was "completely exploded" by Wöhler's discovery. Every chemist feels that some line of demarkation exists between the mineral kingdom and the living one, though it is true that in the highest levels of philosophy the unity of nature impresses itself upon us and we realize that "all are but parts of one stupendous whole." Indeed, the author says that the division is merely "a matter of convenience."

So far as the mass of text of the book is concerned, no unfavorable