is an organization of scientists banded together for the good, not of any one country, but of all. Its aims are the welfare and happiness of all mankind, through the advancement of civilization by the triumphs of chemistry. No science offers greater opportunities for service and beneficent achievement. When the Union and its affiliated congress meet, as at Rome last year, where about 3,000 attended, representing some 30 nations, national boundaries and misunderstandings are forgotten, and mutual appreciation, esteem and good fellowship prevail. This spirit of friendship and regard, carried back home by all the delegates, is often like a breath of fresh air in dispersing the fogs of a murky local atmosphere of misapprehension and suspicion. Nor does it cease upon their arrival in the homeland, but in many cases is continued through correspondence. Individually the bonds of friendship so established may seem relatively unimportant, but collectively their Lilliputian character becomes a force not to be ignored.

The usefulness of the International Union of Chemistry and of its various commissions and committees will be determined primarily by the wholeheartedness with which the associated nations cooperate, and the fact that certain nations are now at war is no reason why the other nations concerned should not continue to cooperate and, to the best of their ability, take advantage of those opportunities for important useful service which the International Union offers, so that when the world finally returns to normal we shall be that much further along on the road to our goal. Even in the warring nations, it is to be hoped that they will still "carry on," as conditions permit, for their own ultimate benefit and that of the rest of the world. Their chemical societies are still active. Why should their international chemical problems be either dropped or forgotten?

To suspend activities now might give the impression of a malingering and pessimistic attitude, totally at variance with the inspiring vision and courage of chemists the world over.

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SCIENTIFIC BOOKS

RECENT BOOKS IN GEOLOGY

Geology: Principles and Processes. By W. H. EMMONS, G. H. THIEL, C. R. STAUFFER and I. S. ALLISON. 2nd edition. 451 pp. 468 figs. New York: McGraw-Hill Book Company. 1939. $3.50.

Elements of Geology (with Reference to North America). By WILLIAM J. MILLER, professor of geology, University of California at Los Angeles. 2nd edition. viii + 524 pp. 367 figs. New York: D. Van Nostrand Company. 1939. $3.50.

Textbook of Geology, Part I—Physical Geology. By CHESTER R. LONGWELL, ADOLPH KNOPF and RICHARD F. FLINT. 2nd edition. ix + 543 pp. 340 figs. New York: John Wiley and Sons. 1939. $3.75.

THE second edition of the book by Emmons, Thiel, Stauffer and Allison, members of the department of geology in the University of Minnesota, originally published under the short title "Geology," has been considerably revised and completely reset. It is intended for use in a one-semester introductory course for college students, dealing with the physical phases of the science. The chapter on the atmosphere and the work of the wind has been enlarged and includes a brief consideration of certain meteorological principles as well as the discussion of weathering. The treatment of varved glacial lake sediments and their importance in glacial and post-glacial chronology has been expanded. The chapter on diastrophism has been enlarged to include structure of rocks. A new chapter on sediments and sedimentation has been added. The chapter on earth history is omitted. The volume is well organized, and its subject-matter is presented in an interesting manner. It contains an unusually large number of excellent photographs, sketches and maps. The numerous block diagrams are a valuable feature. The layman as well as the student will benefit from reading it.

First published in 1931, Professor Miller's textbook is one of the few designed to serve a one-semester course in general geology, covering both the physical and historical phases of the science. The principal changes made in this new edition are outlined by the author in his preface. Distinct and important improvements are the enlarged, more attractive format, superior quality paper and especially the greatly improved reproduction of the photographs. More photographs and block diagrams are used, and these have been brought up to date. Several chapters have been rewritten to coincide with modern data and concepts. A unique feature is the discussion of the instability of the earth's crust immediately after the introduction before the materials of the earth are considered. The chapter is understandable even at this early stage in the development of the subject and serves to stimulate interest at the beginning of the course. The text may seem to be rather long for a one-semester course, but this characteristic is shared

by most other texts intended to serve such a purpose without becoming too "popular" in character. A relatively large number of technical terms and stratigraphic names are used.

The well-known text-book by Longwell, Knopf and Flint has likewise been thoroughly revised to include much new material from laboratory and field studies of recent years. Although the general plan of the book remains unchanged, two new chapters have been added. One of these considers such movements of surficial material as those resulting from creep and landsliding, all of which are included in the suggested term "mass-wasting." The other is devoted to the sculpturing of the lands and follows the development of the principles of weathering, mass-wasting and stream erosion. This gives opportunity for the consideration of the erosion cycle under diverse climatic conditions and leaves room in the preceding chapter for a brief but effective treatment of the problems of soil erosion and destructive floods. In contrast to certain other comparable text-books, technical terms have been avoided as much as possible, and some of the newly added references are to popular or semi-popular books. Many of the new illustrations are also in keeping with this highly commendable tendency to put vitality into a subject which ought to have a wide appeal to everybody.

Physiography of Eastern United States. By NEVIN M. FENNEMAN. 691 pp., maps, photographs and diagrams, index. New York: McGraw-Hill Book Company. 1938. $6.00.

THIS excellent reference work summarizing the physiographic features of Eastern United States is a companion volume to the author's "Physiography of Western United States" and follows the same general plan. The portion of the United States east of the Great Plains is divided into provinces and sections similar, but not precisely equivalent, to those shown on the map of the "Physical Divisions of the United States" which accompanies the earlier volume. The boundaries of each province and section are traced in detail, and the reasons for the choice of boundaries are discussed. Each province and section is systematically treated by means of a brief résumé of the lithology and structure, a general description of the topography, an account of the origin of the topography and finally the history of its development. The space given each province corresponds roughly to its size and importance. The book is well indexed and so systematically divided that the description of any particular region can easily be found.

In discussing the origin and history of the topography the views of many workers are carefully considered and appraised, the conservative view being finally accepted in most instances of conflict. Frequent references to important physiographic problems and their proper interpretation enhance the interest in the subject-matter and the value of the book for the student.

The enormous amount of descriptive material packed into the volume places a severe strain upon the memory of the reader, and unfortunately many of the illustrations do not aid him in understanding the text as much as might be desired. But the very difficult task of assembling such a vast amount of uncoordinated data and reconciling the conflicting opinions of so many workers has been accomplished with remarkable success. The book is a valuable reference work for any natural scientist who may have occasion to be interested in the land surface of the eastern states and its genesis.

A Textbook of Geomorphology. By PHILIP G. WORCESTER. 565 pp. 375 illustrations. New York: D. Van Nostrand Company. 1939. $4.00.

GEOMORPHOLOGY is the interpretative description of the relief features of the earth. So runs the definition preferred by the author of this handsome volume, who for many years has been professor of geology in the University of Colorado. The term is therefore practically synonymous with physiography, the designation more commonly used in America for the science of land forms. Probably there is an advantage in using a term that by derivation implies study or interpretation rather than one that implies merely description.

The book has been planned for an introductory course in the geological sciences, and its table of contents differs only slightly from that ordinarily found in an elementary text for a course in dynamic geology. From it one may learn to distinguish orthoclase from plagioclase, as well as eskers from drumlins. More space is given to the causes of vulcanism than to the topographic forms resulting from the deposition of wind-blown sand. Professor Worcester approaches the subject from the point of view of the geologist rather than from that of the geographer.

There is still need for a treatise on geomorphology of a more advanced nature, designed for use by those who are already fairly well acquainted with the principles of dynamic geology and who need a thorough-going critique of the resultant land forms and their interpretation. Neither the volume now in hand nor the recently published book by Dr. A. K. Lobeck is adequate for the professional geomorphologist; both are intended for the beginning student and for the layman interested in the landscape. As a matter of fact, Professor Worcester appropriately stresses in his preface the cultural value of geomorphology and the responsibility of the teacher for the "thousands [who] may become interested in the subject and gain endur-

ing pleasure from continued studies of their physical environment, wherever they may be."

The wealth of illustrations deserves high commendation and contributes much to the value of the book, especially for the audience which Professor Worcester has in mind. Most, though not all of the photographs, are superb both from the point of view of photography and of reproduction. All are well chosen to illustrate the ideas ably presented in the text. The line drawings, including many block diagrams, are uniformly excellent and for the most part were originally prepared for this book by Julian W. Low. Many of the contour maps are reproduced in two colors, with the drainage features in blue. Both author and publisher are to be congratulated for producing so excellent a volume.

Geology and Engineering. By ROBERT F. LEGGET. xviii + 650 pp. 223 illustrations. New York: McGraw-Hill Book Company. 1939. $4.50.

DURING the last few years the application of the science of geology to the art of civil engineering has become a matter of prime importance. Whereas a generation ago the geologist was frequently called for a post-mortem examination of a leaking dam, collapsed bridge or faulty tunnel, he is to-day even more frequently requested to cooperate in the preliminary investigations of the materials on which or in which the engineer is to build his structure or do his work. The results in the saving of human lives and the reduction in the cost of engineering works are beyond estimate. Such cooperation has also contributed much valuable information to geological lore. Professor Legget's up-to-date treatise is a veritable milestone on the highway of human progress toward accurate synthesis of the diverse problems encountered in the arena of interplay between man and his environment.

As stated by Professor P. G. H. Boswell, of the Imperial College of Science and Technology, London, in his foreword, the several text-books of engineering geology previously available have been written by geologists. "Where engineering applications are discussed, in particular, they indicate what the geologist from his rather different viewpoint, imagines that the engineer should know." In contrast, "this book is the work of an engineer with the additional training of a geologist" and has a background that would scarcely be possessed even by a geologist of wide experience as a consultant on engineering problems. It therefore fills a long-felt want and will be widely used in engineering schools and as a valuable tool of the professional geologist and civil engineer. Many a college teacher of geology will use to good advantage in his classroom the accounts of the practical application of geological principles with which Professor Legget has pointed his precepts.

The first four chapters introduce the engineering student to those phases of geological science with which he is most likely to be later concerned. The remaining sixteen chapters deal lucidly and succinctly with the application of geology in civil engineering. Tunnels, open cuts, road construction, bridge foundation, dam sites, silting up of reservoirs, wells and boreholes, landslides and soil mechanics, these and many other topics are ably handled. Especially commendable is the wealth of illuminating experiences drawn from engineering practice the world over and including such current projects as those of the T.V.A. and Boulder Dam. There are four appendices, which include a glossary of geological terms, an annotated list of the geological surveys of the English-speaking world and a list of geological societies and periodicals.

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SOCIETIES AND MEETINGS

THE SEMI-CENTENNIAL CELEBRATION OF THE MEDICAL SCHOOL OF THE UNIVERSITY OF MINNESOTA

THE University of Minnesota celebrated from October 12 to 14 the fiftieth anniversary of the founding of its Medical School. The occasion was used as an opportunity to bring together a number of contributors to scientific medical progress in several fields, who presented accounts of recent advances with particular emphasis upon the unsolved problems which have been exposed and appear to be amenable to solution.

Progress in the application of physical chemistry to medicine was discussed by Professors Herbert M. Freundlich and Maurice B. Visscher, of the University of Minnesota, and John P. Peters, of Yale University. These investigators described living organisms as systems at steady states frequently, if not usually, at some distance from true equilibrium. The importance of the structure and properties of the colloidal systems in cells and of the metabolic energy-yielding reactions in maintaining these steady states was discussed.

Some recent investigations in metabolism were detailed by Professors Lee I. Smith and George O. Burr, of the University of Minnesota, who discussed organic chemical problems in relation to Vitamin E, and the metabolism of the fatty acids, respectively, by Professor George H. Whipple, of the University of Rochester, who treated the problem of production, utilization, and significance of the blood proteins, and