of this report will be pleasantly surprised to find that this document is a successful attempt to reproduce the freshness of spirit which is found when a dozen or more brilliant individuals are assembled for the purpose of struggling with an exciting intellectual problem. I found that once I had started reading the report I could not put it down.

The basic material on which the report is based consists of 16 papers presented at the conference with varying degrees of formality and a very large amount of spontaneous discussion. The contributors, in editing their own discussion reports, have successfully retained those portions of the discussion which add significantly to the development of ideas presented within the papers themselves. In order to accomplish this purpose, discussion is freely reproduced within the text of many of the papers. Thus, each section of the report presents considerable continuity of ideas and a degree of organization which is usually lacking in such reconstituted material.

It is not feasible here to discuss the content of particular contributions. These vary from highly organized presentations, such as that of Guilford on the structure of human abilities, to speculative and free-flowing presentations which are highly imaginative even if they are not supported by any data.

A valuable feature of the work is a series of reports of committees, which are reproduced in a concluding section. The committees have been successful in gathering together the major ideas presented in the earlier reports and discussions. These committee reports are presented in the same informal manner as the rest of the material and are interspersed with the comments of the audience to which the committee reports were presented.

A final bibliographic section rounds out the report by providing a list of 131 references to which the reader may turn to find support for much that was presented earlier. All in all, one may expect that this report will be considered a major reference work in the area for at least a decade to come.

ROBERT M. W. TRAVERS
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Biographical Memoirs of the Fellows of the Royal Society. vol. 2, 1956. The Royal Society, London, 1956. 345 pp. Illus. + plates. 30s.

This is the second volume of a new series of brief biographies that is a continuation of the *Obituary Notices of Fellows of the Royal Society (1933–1955)*. As in the first volume and as in the older series, each article is accompanied by a full-page photograph or portrait of the subject and a complete bibliography of his publications. The articles, which describe the lives and principal scientific accomplishments of the subjects, maintain the standard of excellence of the older series.

Biographies of the following are presented: Walter Sydney Adams, Gleb Anrep, Oswald Theodore Avery, Henry Frederick Baker, Patrick Alfred Buxton, Sheldon Francis Dudley, Lewis Leigh Fermor, Alexander Fleming, William Michael Herbert Greaves, Arthur Lewis Hall, Henry George Albert Hickling, Harold King, Charles James Martin, John William Nicholson, Robert Cyril Layton Perkins, Richard Friedrich Johannes Pfeiffer, Alexander Oliver Rankine, Sigmund Otto Rosenheim, John Alexander Sinton, William Kingdon Spencer, Edmund Taylor Whittaker, and Robert Williams Wood.—G. DUS.

Dahlak. With the Italian National Underwater Expedition in the Red Sea. Gianni Roghi and Francesco Baschieri. Translated from the Italian by Priscilla Hastings. Eleanor Brockett, Ed. Essential Books, Fairlawn, N.J., 1957. 280 pages. Illus. + plates. $6.

The members of this expedition spent 6 months off the southwestern shore of the Red Sea, among an archipelago of which Dahlak was the largest island. Headquarters was a 135-ton motor vessel. The staff, eight in number, was divided equally into scientific and "sports" groups, but this volume deals almost entirely with the activities of the latter—their failures, successes, and especially their narrow escapes. These sportsmen were armed with shotguns, rifles, arrows, lances, harpoons, spear-guns, and dynamite. They were outfitted with goggles, compressed-air respirators, and fins. It is, thus, the most recent of a long list of volumes dealing with encounters with, and dangers of, the eternal barracudas, mantas, moray eels, and especially sharks. The authors claim that these "direct" methods take precedence, in collecting and scientific results, over the old-fashioned nets and hooks. As proof, they tell of 53 tanks of Formalin, containing 800 pounds of fish and quantities of invertebrates.

Scattered throughout the text are hints of the neglected or half-seized opportunities for behavior observation. Even these notes are negatived by superficial descriptions, lack of identification, and complete absence of an index.

The account of the parturition dance of the mantas is intensely interesting but would have had great significance if the observers could have distinguished and verified the characteristics of newborn mantas. Many cowries were collected, but apparently not a note or painting was made of the complex patterns and coloration of the owners of these shells. Nearly 2 months were spent in search and capture of the strange fish Cefalone. The notes would have been of real value if, before publication, a photograph of the fish had been sent, for naming, to some competent Italian ichthyologist.

A human being, kicking and swimming his way under water from reef to reef and brandishing lethal weapons, has little chance of making worth-while observations. A man running through the jungle, waving arms and legs, could not expect the birds and animals to behave in a natural manner. It is high time that an expedition was given over to trained scientific observers, armed with waterproof paints, paper, and pencils. The results would be beyond any expectation. There is much to be said for the old-fashioned diving helmet, tethered by a hose.

Francesco Baschieri has contributed an appendix which consists of a brief geologic history of the Red Sea, an account of former expeditions, and short generalized paragraphs on groups from plankton to mammals. Some of the photographs are excellent.

WILLIAM BEEBE
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American Men of Science. A biographical directory. vol. III, *The Social and Behavioral Sciences.* Jaques Cattell, Ed. Bowker, New York, ed. 9, 1956. 762 pp. $20.

American Men of Science is edited by Jaques Cattell, son of the late James McKeen Cattell, who in 1906 issued the first edition of this directory, which has become an indispensable tool to scientists everywhere.

The present edition is divided into three volumes, of which *The Social and Behavioral Sciences* is the third. This volume contains names of individuals in some fields not included in the eighth edition, published in 1949. Psychologists, geographers, and anthropologists were dealt with in earlier editions, but, in addition to these categories, the present volume also lists workers in the social sciences, some of whom were previously included in the *Directory of American Scholars.* It was originally planned to list historians in the present volume. On advice of the American Historical Association, however, it was decided to omit historians here and include them in the forthcoming new edition of the *Directory of American Scholars.*

The eighth edition of *American Men of Science* contained some 50,000 biographies, which made a book that pressed

the danger point of binding as a single volume. This led to the decision, since the present edition might contain in all more than 90,000 names, that it should be issued in three volumes: volume I, *The Physical Sciences*; volume II, *The Biological Sciences*; and volume III, *The Social and Behavioral Sciences*. From the standpoint of optimum convenience, it is unfortunate that all American men of science can no longer be listed in a single volume. This is, of course, a commentary on the Gargantuan growth of American science in the past half-century: even the mechanics of modern printing and binding cannot keep pace with it.

The preparation of three volumes for the listing of present-day scientists led to difficult decisions concerning which volume was most appropriate for some individual listings. For example, medical scientists are included in *The Biological Sciences,* and, since psychiatrists are medical men, their names appear in this volume. This is true even in the case of psychiatrists primarily interested in "social psychiatry" and the social sciences in general. On the other hand, most psychologists appear in *The Social and Behavioral Sciences*. This means that, except for a handful of experimental psychologists who are active in various biological scientific societies and, hence, appear in volume II, most of the physiologically oriented psychologists of the country appear in *The Social and Behavioral Sciences*. A similar comment may be made in regard to some geographers. These statements are not made in criticism of the classifications used in the three volumes, because such problems are inevitable when an editor must deal with the classification of research men and scholars according to named areas of research.

The biographies are presented in a standard form. The criteria on which names are included and the biographical facts given are, as the present editor points out, very similar to those used by his father in the first edition, 50 years ago. An excellent table of abbreviations is given.

Considerable care has been exercised by the editor to provide the type face and the spaces necessary to make the material presented in this well-bound book as legible as possible, in view of the need for economy of paper that was, of course, paramount.

The scientific and academic world owes the editor of this volume and of the two preceding volumes of the ninth edition a debt of gratitude. He has performed a notable service for the American learned world in issuing, in convenient form, this large and valuable work of reference.

LEONARD CARMICHAEL
Smithsonian Institution

British Scientific and Technical Books. A selected list of recommended books published in Great Britain and the Commonwealth in the years 1935–1952. Published for Aslib. Clarke, London; Hafner, New York, 1956. 364 pp. $11.25.

This bibliography includes "the most important and useful books on science and technology published in the United Kingdom and the Dominions between 1935 and 1952." Books in the pure and applied sciences are included, together with those publications in psychology, documentation, architecture, and photography that are deemed to be of interest to technical readers. Economic and social sciences have been excluded, and such scientifically peripheral subjects as gardening and domestic science are covered less thoroughly than are the strictly technical subjects. The main body of the bibliography is arranged according to the Universal Decimal classification. In addition, there are author and title indexes and there is a list of publishers.

UNESCO Source Book for Science Teaching. United Nations Educational, Scientific, and Cultural Organization, Paris, 1956. 222 pp. Illus. $3.

This book, which is essentially a laboratory manual for elementary science instruction, is an outgrowth of a UNESCO book prepared by J. P. Stephenson, science master at the City of London school, shortly after the end of World War II under the title *Suggestions for Science Teachers in Devastated Countries*. The original went through several editions and was translated into French, Spanish, Chinese, Thai, and Arabic. The experience of science teachers sent into the field by UNESCO led to the devising of new experiments and the adaptation of new materials for science instruction.

The book abounds in examples of the ingenious transformation of the refuse of civilization into usable, even though crude, laboratory instruments. These, supplemented by a few tools and inexpensive materials from the hardware store, the grocery, and the drugstore, suffice to permit a wide range of experiments, especially in elementary physics. Adherents of the sealing-wax-and-string school of laboratory practice will be delighted to see how much can be done with simple materials: "spring" balances from rubber bands or old automobile cushion springs; tripods, heaters, air ovens, and steam baths from tin cans; a Liebig condenser from an iron pipe, corks, and a glass tube; tweezers from strap iron; a sextant from bits of cork, strips of wood, pieces of silvered glass, and a protractor; an aneroid barometer from a glass jar, a sheet of rubber, and a broom straw; used bottle caps tacked to a board in such a way that they intermesh to form a train of gears, and so on.

In addition to instructions for the preparation of apparatus and suggestions for experiments, there are general suggestions for teaching and there are appendixes of weights and measures, stars and planets, the elements, rocks and minerals, densities, heat constants, relative humidity, the Greek alphabet, and a list of source books and periodicals.

Although the book is directed to the secondary school, anyone concerned with science teaching, from the grade school to the university, should find some interesting ideas that he could adapt to his laboratory teaching. Perhaps the most wholesome effect the book will have in this country is to demonstrate that a piece of equipment does not have to be chrome-plated to be useful. The book may be obtained from the UNESCO Publications Center at 152 W. 42 Street, New York 36.—G. DUS.

Biology and Medicine

A World Geography of Forest Resources. Stephen Haden-Guest, John K. Wright, and Eileen M. Teclaff, Eds. for the American Geographical Society. Ronald Press, New York, 1956. 736 pp. Illus. + plates. $12.50.

This handsome volume, *A World Geography of Forest Resources,* appears as a successor to the classic work by Zon and Sparhawk, *Forest Resources of the World,* published in 1923 and now both out of print and out of date. Unlike its predecessor, the present work is the fruit of specialized labor. It includes contributions from 35 authors, the majority from outside the United States. The editors have been generally successful in encouraging contributors to address themselves to a common purpose.

The purpose appears to be twofold: to provide a general and cosmopolitan summary of the relationship between forests and man and to furnish more detailed accounts of forests in each nation or region of the world. Introductory chapters deal with the importance of forests to man and with forest influences, the principles and practice of forestry, and the forest products industries. The outstanding contribution to this general section—partly, perhaps, because of its greater length—is Wendell Camp's "The forests of the past and present." In this chapter, Camp presents a splendid account of the development of forest vegetation through geologic time, in the light of a critical reading of the paleobotanical record.