tant collaborators the phrase "assisted by the authors" occurs. This remark applies to the whole book. Never before have we had such short, concise, yet ample taxonomic descriptions. Paleontologists (and others) would do well to "read, mark, learn, and inwardly digest." The bibliographic references are full and well chosen.

Shimer and Shrock have managed to combine the strictly scientific with the fully utilitarian. Paleontologists will thank them for the time they have spent in determining genotypes, time saved for the individual worker. Stratigraphers will thank them for the excellent illustrations and lucid descriptions. Every geologist and paleontologist must have access to a copy, and to those whose livelihood depends upon stratigraphic knowledge it is indispensable.

I shall not use the trite expression that it is a "labor of love" on the part of the authors. It is a labor of service. They get nothing from it except the thanks of those whom they have so well served and the realization that a long arduous task is finally done, and I think all will agree with me, extremely well done.

The book has, of course, the inevitable minor faults. A few letters and figure numbers got misplaced, and some authors are free, who should be in brackets. But the whole work gives evidence of the most painstaking care; and of careful selection of those fossils most likely to prove useful. Some workers will deprecate the fact that almost twice as many pages are devoted to the crinoids as to the Foraminifera, for the latter are thousands of times more abundant than the former, and infinitely more useful. But there are good manuals for the identification of "forams," whereas the determination of a crinoid until now has been a matter of lengthy search. Moore and Laudon's diagrams are most helpful in bringing the crinoids within the grasp of the non-specialist. Cooper's chapter, 89 pages, goes a long way toward restoring the brachiopods to their once honored position as highly important index fossils. All in all, this book gives to the general practitioner much that has been the property of the specialist. Accurate identifications can be made far more easily than heretofore. It is the greatest contribution to advancement in our branch of science since the first edition of the Eastman-Zittel Text-book of Paleontology .

PERCY E. RAYMOND
MUSEUM OF COMPARATIVE ZOOLOGY

VEGETABLE FATS AND OILS

Vegetable Fats and Oils (Their Chemistry, Production and Utilization for Edible, Medicinal and Technical Purposes). By GEORGE S. JAMIESON. Second edition. 508 pp. New York City: Reinhold Publishing Company. 1943. $6.75.

IN writing the second edition of his book, Dr. Jamieson has again performed a valuable service to all those engaged in the study and use of vegetable fats and oils. Although there has been no extensive alteration of the arrangement of subject-matter, Dr. Jamieson has corrected several misstatements and many awkward phrases that crept into the earlier edition. The ideas are now clearly expressed.

Several devices have been used to bring the book up to date. Whole paragraphs or pages of new material have been added, especially in the description of fats and oils analyzed only since the publication of the first edition and in the chapter on methods. At other points, new literature references were added to the lists furnished previously with many sections throughout the book or, as on page 16, a sentence refers the reader to a symposium and another book in the field.

The reviewer had hoped that, in bringing out his second edition, Dr. Jamieson would attempt a more critical appraisal of the existing literature. With his intimate acquaintance of so many varied approaches to the subject and his acknowledged prestige, the author was in a unique position for that kind of much needed writing. The book does serve to introduce the newcomer to the field and to provide the specialist with a well-organized body of useful information on the source, the general and detailed characteristics and composition, methods of analysis and the uses of the vegetable oils and their component fatty acids.

HERBERT E. LONGENECKER

AMERICAN MEN OF SCIENCE

SCIENTIFIC MEN RECEIVING STARS IN THE SEVENTH EDITION

FOR the seventh edition of the Biographical Directory of "American Men of Science," there have been selected, by the same objective methods as have been used in previous editions, two hundred and fifty-five names of those not included in earlier selections who are regarded by their colleagues as among the leading scientific workers in the United States. This method has been fully described in the fourth and earlier editions of the work. Table 1 gives the number of those now living that have appeared in each of the seven editions of the directory.

The names, given below, of those who received stars

TABLE 1

STARS IN AMERICAN MEN OF SCIENCE
Included in Seventh Edition

	First Edition	Second Edition	Third Edition	Fourth Edition	Fifth Edition	Sixth Edition	Seventh Edition	Total
Anatomists	10	4	5	3	5	5	7	39
Anthropologists	3	2	6	2	5	5	5	28
Astronomers	10	3	15	11	13	13	13	78
Botanists	37	16	21	23	25	25	25	172
Chemists	28	26	42	40	41	43	44	264
Geologists	24	16	24	21	23	24	27	160
Mathematicians	31	13	26	18	20	20	21	149
Pathologists	14	11	21	14	14	15	15	104
Physicists	46	20	43	34	36	37	37	262
Physiologists	9	8	16	9	9	10	11	72
Psychologists	19	7	15	9	11	12	13	86
Zoologists	58	20	30	30	35	36	37	246
Totals	289	155	264	214	237	245	255	1659

in the seventh edition are grouped under twelve sciences. This is the same grouping as has been used in previous editions.

Anatomists

William Bloom, University of Chicago
Elizabeth Crosby, University of Michigan
Chester H. Heuser, Carnegie Institution, Baltimore
Joseph C. Hinsey, Cornell University Medical College
J. Parsons Schaeffer, Jefferson Medical College
Gordon H. Scott, University of Southern California
William F. Windle, Med. Sch., Northwestern University

Anthropologists

John M. Cooper, Catholic University of America
Carl E. Guthe, University of Michigan
Alfred I. Hallowell, University of Pennsylvania
Wilton M. Krogman, University of Chicago
Harry L. Shapiro, American Museum of Natural History

Astronomers

S. Chandrasekhar, Yerkes Obs., University of Chicago
Wallace J. Eckert, U. S. Naval Observatory
Robert R. McMath, McMath-Hulbert Observatory
Nicholas U. Mayall, Lick Obs., Univ. of California
Rudolph Minkowski, Mt. Wilson Obs., Carnegie Inst.
William W. Morgan, Yerkes Obs., University of Chicago
Svein Rosseland, Princeton University
Martin Schwarzschild, Columbia University
Lyman Spitzer, Yale University
P. Swings, Yerkes Obs., University of Chicago
A. N. Vyssotsky, University of Virginia
Fred L. Whipple, Harvard Observatory
Olin C. Wilson, Mt. Wilson Obs., Carnegie Institution

Botanists

Ernest G. Anderson, Calif. Institute of Technology
John M. Arthur, Boyce Thompson Institute
Eugene C. Auchter, U. S. Department of Agriculture
George S. Avery, Jr., Connecticut College
P. R. Burkholder, Yale University
William H. Chandler, University of California
Jens Clausen, Stanford University
John N. Couch, University of North Carolina
Charles Drechsler, U. S. Department of Agriculture
Adriance Foster, University of California
Robert F. Griggs, George Washington University
John S. Karling, Columbia University
George W. Keitt, University of Wisconsin
David H. Linder, Harvard University
Walter F. Loehwing, Iowa State University
Barbara McClintock, Carnegie Inst., Cold Spring Harbor
Paul C. Mangelsdorf, Harvard University
George W. Martin, State University of Iowa
Walter Muenscher, Cornell University
Lee O. Overholts, Pennsylvania State College
Albert J. Riker, University of Wisconsin
George L. Stebbins, Jr., Univ. of Calif., Berkeley
Kenneth Thimann, Harvard University
Philip R. White, Rockefeller Institute, Princeton
Frederick A. Wolf, Duke University

Chemists

John Aston, Pennsylvania State College
Paul D. Bartlett, Harvard University
Henry E. Bent, University of Missouri
Gerald E. K. Branch, Univ. of Calif. at Berkeley
Laurence O. Brockway, University of Michigan
Wallace R. Brode, Ohio State University
George Calingaert, Ethyl Gasoline Corporation
Ralph Connor, University of Pennsylvania
Arthur C. Cope, Columbia University
Moses L. Crossley, Calco Chemical Company
Peter Debye, Cornell University
Malcolm Dole, Northwestern University
John T. Edsall, Harvard Medical School
Robert C. Elderfield, Columbia University
Kasimir Fajans, University of Michigan
Merrell R. Fenske, Pennsylvania State College
Paul J. Flory, Esso Laboratory
Karl A. Folkers, Merck & Company, Inc.
Frank T. Gucker, Jr., Northwestern University
Henry B. Hass, Purdue University
Ernst A. Hauser, Mass. Institute of Technology
Kenneth C. D. Hickman, Distillation Products Inc.
Maurice L. Huggins, Eastman Kodak Company
Ernest H. Huntress, Mass. Institute of Technology
Warren C. Johnson, University of Chicago

Martin Kilpatrick, University of Pennsylvania
Charles G. King, University of Pittsburgh
Phillip Leighton, Stanford University
Bernard Lewis, U. S. Bureau of Mines
Samuel M. McElvain, University of Wisconsin
Randolph T. Major, Merck & Company, Inc.
Herman F. Mark, Polytechnic Institute of Brooklyn
Joseph E. Mayer, Columbia University
Carl R. Noller, Stanford University
John L. Oncley, Mass. Institute of Technology
Kenneth S. Pitzer, Univ. of California at Berkeley
Gerhard K. Rollefson, Univ. of California at Berkeley
G. Frederick Smith, University of Illinois
Lee I. Smith, University of Minnesota
Wendell M. Stanley, Rockefeller Institute, Princeton
Charles A. Thomas, Monsanto Chemical Company
Hubert B. Vickery, Connecticut Agr. Exp. Station
Everett S. Wallis, Princeton University
E. Bright Wilson, Jr., Harvard University

Geologists

Charles A. Anderson, University of California
Marland P. Billings, Harvard University
Josiah Bridge, U. S. Geological Survey
Wilbur S. Burbank, U. S. Geological Survey
Gustav A. Cooper, U. S. National Museum
Carey Croneis, University of Chicago
Everette L. DeGolyer, Office Petrol. Coor. Nat. Defense
Richard F. Flint, Yale University
David T. Griggs, U. S. Geological Survey
John W. Gruner, University of Minnesota
Wm. O. Hotchkiss, Rensselaer Polytechnic Institute
Earl Ingerson, Carnegie Institution, Washington
G. Marshall Kay, Columbia University
Paul F. Kerr, Columbia University
Philip B. King, U. S. Geological Survey
William C. Krumbein, University of Chicago
Arville I. Levorsen, Tulsa, Oklahoma
John B. Mertie, Jr., U. S. Geological Survey
Walter H. Newhouse, Mass. Institute of Technology
Reno Sales, Anaconda Copper Mining Company
John F. Schairer, Carnegie Institution, Washington
S. James Shand, Columbia University
Max N. Short, University of Arizona
George G. Simpson, American Museum of Natural History
George Tunnell, Carnegie Institution, Washington
Charles E. Weaver, University of Washington
Howel Williams, University of California, Berkeley

Mathematicians

Emil Artin, Indiana University
Claude Chevalley, Princeton University
Joseph L. Doob, University of Illinois
Kurt Godel, Institute for Advanced Study, Princeton
Jacques Hadamard, Columbia University
Gustav A. Hedlund, University of Virginia
Witold Hurewicz, University of North Carolina
Nathan Jacobson, University of North Carolina
Derrick H. Lehmer, Univ. of California, Berkeley
Saunders MacLane, Harvard University
Karl Menger, Notre Dame University
Richard von Mises, Harvard University
Deane Montgomery, Smith College
Otto Neugebauer, Brown University
George Polya, Stanford University
John B. Rosser, Cornell University
Carl L. Siegel, Inst. for Advanced Study, Princeton
Paul A. Smith, Columbia University
Andre Weil, Lehigh University
Samuel S. Wilks, Princeton University
Antoni Zygmund, Mt. Holyoke College

Pathologists

Rene J. Dubos, Harvard University
Rolla E. Dyer, U. S. Public Health Service
Thomas Francis, Jr., University of Michigan
Harry Goldblatt, Western Reserve University
Frank L. Horsfall, Rockefeller Institute, New York
Robert F. Loeb, Columbia University
Balduin Lucke, University of Pennsylvania
James H. Means, Harvard University
J. Howard Mueller, Harvard University
Peter Olitsky, Rockefeller Institute, New York
Edwards A. Park, Johns Hopkins University
John R. Paul, Yale University
Oswald H. Robertson, University of Chicago
James S. Simmons, U. S. Army
Shields Warren, Harvard University

Physicists

Luis W. Alvarez, Mass. Institute of Technology
Katharine B. Blodgett, General Electric Company
Leon Brillouin, Brown University
H. Richard Crane, University of Michigan
Robley D. Evans, Mass. Institute of Technology
Enrico Fermi, Columbia University
Wendell H. Furry, Harvard University
W. W. Hansen, Stanford University
Gaylord P. Harnwell, University of Pennsylvania
Raymond G. Herb, University of Wisconsin
Frederick V. Hunt, Harvard University
Elmer Hutchisson, University of Pittsburgh
Francis A. Jenkins, University of California
Mervin J. Kelly, Bell Telephone Laboratories
Donald W. Kerst, University of Illinois
Paul Kirkpatrick, Stanford University
Paul E. Klopsteg, Central Scientific Company
Karl Lark-Horovitz, Purdue University
Edwin M. McMillan, University of California
Henry Margenau, Yale University
A. C. G. Mitchell, Indiana University
Seth H. Neddermeyer, Calif. Institute of Technology
Alfred O. Nier, University of Minnesota
Wayne P. Nottingham, Mass. Institute of Technology
Brian O'Brien, University of Rochester
Wolfgang F. Pauli, Inst. for Adv. Study, Princeton
Louis N. Ridenour, University of Pennsylvania
Bruno Rossi, Cornell University
Ralph A. Sawyer, University of Michigan
Frederick Seitz, Jr., University of Pennsylvania

William Shockley, Bell Telephone Laboratories
Hertha Sponer, Duke University
Julius Stratton, Mass. Institute of Technology
John D. Strong, California Institute of Technology
George E. Uhlenbeck, University of Michigan
John A. Wheeler, Princeton University
William H. Zachariasen, University of Chicago

Physiologists

David B. Dill, Harvard University
Carl A. Dragstedt, Northwestern University
Conrad Elvehjem, University of Wisconsin
William F. Hamilton, University of Georgia
Paul J. Hanzlik, Stanford University
Rafael Lorente de Nó, Rockefeller Inst., New York
Franklin C. McLean, University of Chicago
Henry A. Mattill, Iowa State University
Carl F. Schmidt, University of Pennsylvania
Arthur L. Tatum, University of Wisconsin
Maurice B. Visscher, University of Minnesota

Psychologists

Charles W. Bray, Princeton University
Elmer Culler, University of Rochester
Clarence H. Graham, Brown University
Joy P. Guilford, University of Southern California
Edwin R. Guthrie, University of Washington
Ernest R. Hilgard, Stanford University
Carlyle F. Jacobsen, Washington University
Donald G. Marquis, Yale University
Gardner Murphy, College of the City of New York
Burrhus F. Skinner, University of Minnesota
Stanley S. Stevens, Harvard University
Robert C. Tryon, University of California, Berkeley
Morris S. Viteles, University of Pennsylvania

Zoologists

James E. Ackert, Kansas State College
Howard B. Adelmann, Cornell University
Lester G. Barth, Columbia University
George W. Beadle, Stanford University
H. W. Beams, State University of Iowa
Alan A. Boyden, Rutgers University
Charles M. Breder, Jr., Am. Museum of Natural History
S. C. Brooks, University of California, Berkeley
J. William Buchanan, Northwestern University
Elmer G. Butler, Princeton University
Lee R. Dice, University of Michigan
Emmett R. Dunn, Haverford College
Boris Ephrussi, Johns Hopkins University
G. F. Ferris, Stanford University
Herbert Friedmann, U. S. National Museum
Myron Gordon, New York Aquarium
Viktor Hamburger, Washington University
Hope Hibbard, Oberlin College
Laurence Irving, Swarthmore College
M. R. Irwin, University of Wisconsin
Clarence H. Kennedy, Ohio State University
Harold Kirby, Jr., Univ. of California, Berkeley
R. R. Kudo, University of Illinois
S. F. Light, Univ. of California, Berkeley
Norman E. McIndoo, U. S. Department of Agriculture
Ernst Mayr, American Museum of Natural History
Peter Okkelberg, University of Michigan
Thomas Park, University of Chicago
Arthur W. Pollister, Columbia University
James A. G. Rehn, Acad. of Natural Sciences, Philadelphia
Karl P. Schmidt, Chicago Museum of Natural History
Francis O. Schmitt, Mass. Institute of Technology
Oscar E. Schotté, Amherst College
Tracy M. Sonneborn, Indiana University
C. L. Turner, Northwestern University
Albert Tyler, California Institute of Technology
William C. Young, Yale University

Much discussion has appeared in the columns of SCIENCE in regard to the desirability of the starring system and in regard to possible changes from the present method of selection.

It was planned to revise the system of starring for the seventh edition. A distinguished committee was appointed by the American Association for the Advancement of Science to study and to look into methods that might be used in order that a fair distribution of stars among the different sciences be made. Special attention should be given to those working in related and cross-over sciences, which under the present system do not necessarily have full consideration. Owing to the war, however, the committee of the Association was not able to function in time for the publication of the seventh edition, but it is hoped that a completely revised plan beginning with the eighth edition will be evolved.

JAQUES CATTELL,
Editor

SPECIAL ARTICLES

ANTIBIOTINS[1]

IN accordance with our interest in antibiotin compounds we have explored further the antibiotin activity of certain derivatives of biotin and other compounds which are structurally related to biotin. The antibiotin activity of desthiobiotin for some microorganisms has already been reported.[2,3]

We thought it also might be timely to record the microbiological activity of compounds which did not possess antibiotin activity but which stimulated the

[1] The authors wish to express their appreciation to Mrs. Glenn Ellis, Miss Carol Tompkins and Miss Kate Redmond for technical assistance in the bioassays.

[2] K. Dittmer, D. B. Melville and V. du Vigneaud, SCIENCE, 99: 203, 1944.

[3] V. G. Lilly and L. H. Leonian, SCIENCE, 99: 205, 1944.