

# SCIENCE

NEW SERIES  
VOL. 95, No. 2476

FRIDAY, JUNE 12, 1942

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## Texts for Summer Courses

### Three Books on Organic Chemistry

By E. WERTHEIM, Ph.D.

*University of Arkansas*

#### Introductory Organic Chemistry

This 1942 text has been prepared to meet the needs of students in a brief course in organic chemistry. It stresses the points of fundamental importance in the science. Its aim is to establish a link between general chemistry and the more specialized and advanced courses which follow, and to ground the student in such fundamentals as an appreciation of the significance of the graphic formula, the importance of fundamental groups in the reactions of compounds and the relationships of simple compounds to each other. 82 Illus., 482 Pages. \$3.00. (1942)

#### Textbook of Organic Chemistry

Presenting material for a thorough course, this text is intended for students who will major in chemistry and for those enrolled in premedical or chemical engineering courses. Salient facts are stated in a definite manner. Numerous cross-references are used to give emphasis to the important relationships between compounds and reactions. Charts and summaries aid in the initial study and facilitate review. Detailed flow sheets illustrate important industrial processes. Portraits and biographical sketches of chemists are included. Tables of physical constants of organic compounds are given. 110 Illus., 830 Pages. \$4.00. (1939)

#### Laboratory Guide for Organic Chemistry—2nd Edition

This guide presents experimental material for a year's course in elementary organic chemistry. Brief directions for conducting experiments in the identification of compounds, and a short section on "spot tests" are included. Illus., \$2.00. (1940)

#### College Physics, 3rd Edition—Foley

Widely adopted, this text has distinct pedagogical value. It is notable for its arrangement of topics, extensive and practical problems, and excellent illustrations.

By Arthur L. Foley, Ph.D., *Indiana University*. 470 Illus., 757 Pages. \$3.75. (1941)

#### Chordate Anatomy—Neal and Rand

Clear, concise and well organized, this book presents material for a sound morphological course enriched by an interweaving of embryological, histological and physiological material. By H. V. Neal, Ph.D. (Tufts) and H. W. Rand, Ph.D. (Harvard). 378 Illus., 467 Pages. \$3.50. (1939)

#### Introduction and Guide to Histology—Lambert

Intended for a foundation course in histology, this book presents a study of the various structures, organs and systems of the human body and includes comprehensive directions for laboratory work.

By A. E. Lambert, Ph.D., *State University of Iowa*. 185 Illus., 542 Pages. \$5.00. (1938)

#### Elements of Genetics—Colin

This successful text presents material for an introductory course in the elements of genetics for college students. It includes a discussion of the economic importance of genetics to plant and animal breeding; the contribution of genetics to human biology, and genetics as an aid to the understanding of evolution.

By E. C. Colin, Ph.D., *Chicago Teachers College*. 47 Illus., 386 Pages. \$3.00. (1941)

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*Science: published weekly by The Science Press, Lancaster, Pa.*

*Entered as second-class matter July 18, 1923, at the Post Office at Lancaster, Pa., under the Act of March 3, 1879.*

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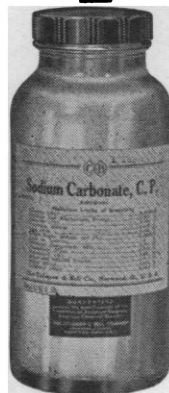
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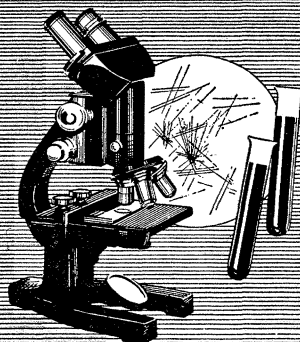
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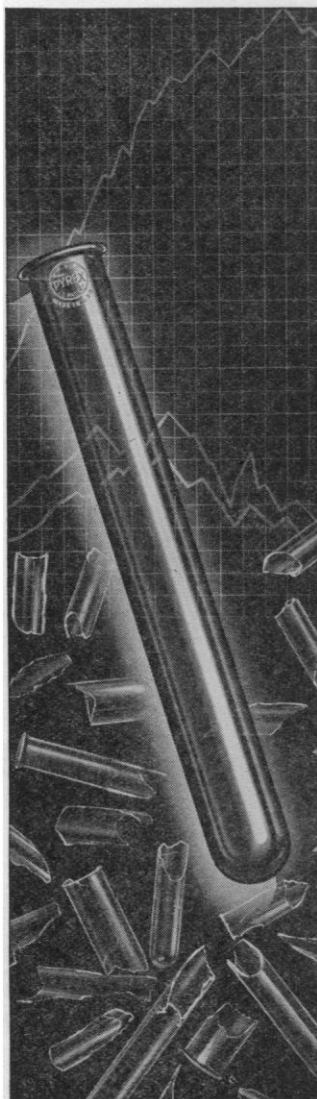
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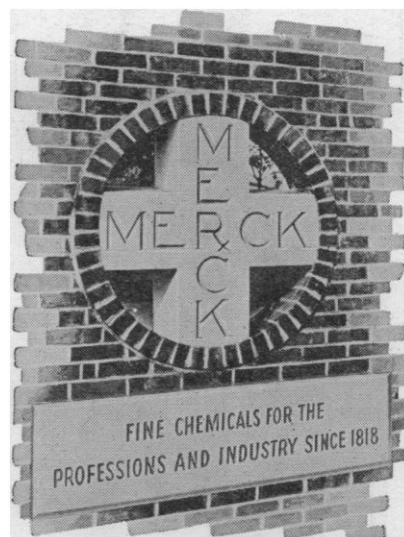
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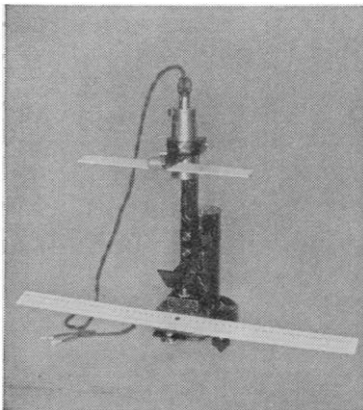
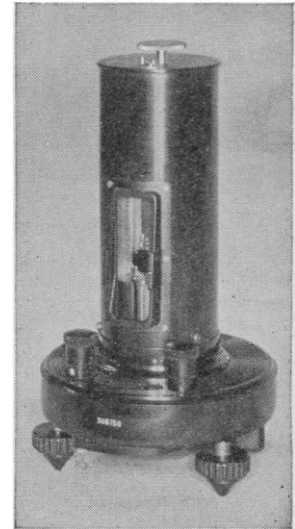
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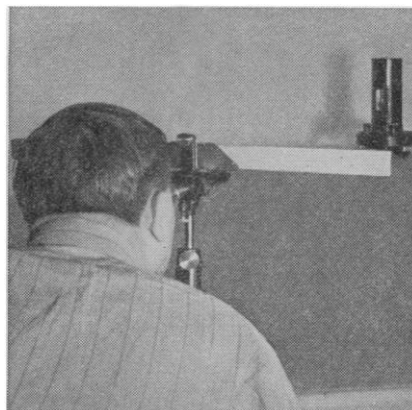
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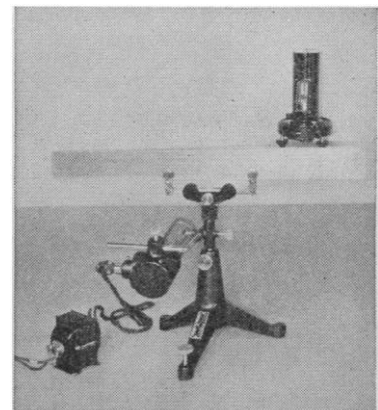
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2500-a	0.5 microvolt	5	50	12
2500-b	0.0005 microampere	6	10,000	500
2500-c	0.005 microampere	5	300	40
2500-e	0.003 microampere	3	2,200	500
2500-f	0.0001 microampere	14	22,000	500
2500-g	0.0005 microampere	6	7,000	500



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# SCIENCE

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## IS THERE LIFE ON THE OTHER WORLDS?<sup>1</sup>

By Sir JAMES JEANS

PROFESSOR OF ASTRONOMY

So long as the earth was believed to be the center of the universe the question of life on other worlds could hardly arise; there were no other worlds in the astronomical sense, although a heaven above and a hell beneath might form adjuncts to this world. The cosmology of the *Divina Commedia* is typical of its period. In 1440 we find Nicholas of Cusa comparing our earth, as Pythagoras had done before him, to the other stars, although without expressing any opinion as to whether these other stars were inhabited or not. At the end of the next century Giordano Bruno wrote that "there are endless particular worlds similar to this of the earth." He plainly supposed these other worlds—"the moon, planets and other stars, which are

<sup>1</sup> Afternoon lecture, Royal Institution of Great Britain, November 20, 1941.

infinite in number"—to be inhabited, since he regarded their creation as evidence of the Divine goodness. He was burned at the stake in 1600; had he lived only ten years longer, his convictions would have been strengthened by Galileo's discovery of mountains and supposed seas on the moon.

The arguments of Kepler and Newton led to a general recognition that the stars were not other worlds like our earth but other suns like our sun. When once this was accepted it became natural to imagine that they also were surrounded by planets and to picture each sun as showering life-sustaining light and heat on inhabitants more or less like ourselves. In 1829 a New York newspaper scored a great journalistic hit by giving a vivid, but wholly fictitious, account of the activities of the inhabitants of the moon as seen

tance wire carrying current to emerge from liquid surface, and to insure against this possibility it may be desirable to provide a constant level device. Other

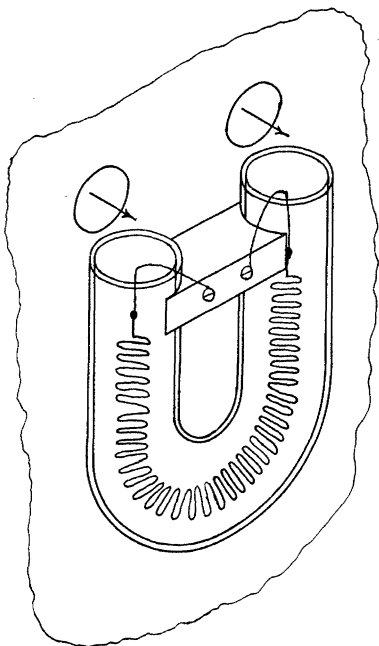


FIG. 1.

adaptations may provide convenient means of vaporizing propylene glycol or other non-conducting fluids in experimental air disinfection.

W. F. WELLS

LABORATORIES FOR THE STUDY OF  
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### HEAT INACTIVATION OF WHEAT MOSAIC VIRUS IN SOILS

WHEAT mosaic virus *Marmor tritici* H.<sup>1</sup> is of interest not only because of the economic losses induced in winter wheat in certain wheat-growing areas of the Midwest, but also because it may be directly transmitted from the soil. Previous studies<sup>2, 3, 4</sup> on the relationship between soil and virus suggested an investigation to determine the resistance of the virus in the soil to heat. Virus-infested soil at optimum moisture content was passed through a screen of  $\frac{1}{4}$ -inch mesh,

<sup>1</sup> These laboratories are supported by a grant from the Commonwealth Fund to the University of Pennsylvania for studies in the prevention and control of air-borne infection.

<sup>2</sup> F. O. Holmes, "Handbook of Phytopathogenic Viruses." Minneapolis, Minn.: Burgess Publishing Company.

<sup>3</sup> H. H. McKinney, U. S. Dept. of Agr. Bull. 1361, 1925.

<sup>4</sup> R. W. Webb, *Jour. Agr. Res.*, 35: 587-614, 1927.

<sup>5</sup> R. W. Webb, *Jour. Agr. Res.*, 36: 53-75, 1928.

placed in stoppered test-tubes 3 cm by 20½ cm in size and tamped lightly. Twenty-five soil samples contained in these tubes were heated at each of the temperatures: 40°, 50°, 60°, 70° and 80° C. A thermometer was inserted into the center of one tube in each series of tests and the samples immersed in an electrically heated and thermostatically controlled water bath. The tubes were spaced and the water forced to circulate freely between them by means of an electric stirrer. After the soil had reached the desired temperature in the tube containing the thermometer, a 10-minute exposure was given, after which the tubes were removed and immediately cooled in running tap water. The soil was then emptied into No. 10 tin cans. Wheat seeds of variety Purdue No. 1 were planted in the treated soil and the young plants kept outdoors over winter. After dormancy was broken it was found that all wheat plants grown in soil heated at 40° and 50° C were affected with mosaic, while all plants in the remaining series were healthy. These results indicate that wheat mosaic virus is inactivated in the soil between 50° and 60° C at an exposure of 10 minutes.

FOLKE JOHNSON

DEPARTMENT OF BOTANY,  
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### BOOKS RECEIVED

- Annual Review of Physiology.* Edited by JAMES MURRAY LUCK. Pp. 709. American Physiological Society and Annual Reviews, Inc. \$5.00.
- BENEDETTI-PICHLER, ANTON ALEXANDER. *Introduction to the Microtechnique of Inorganic Analysis.* Pp. vii + 302. Wiley. \$3.50.
- BOWLBY, JOHN. *Personality and Mental Illness.* Pp. viii + 280. Emerson Books. \$2.75.
- Bulletin of the Health Organization.* Vol. IX, No. 4. Pp. 371-491. League of Nations, Geneva. \$1.00.
- CLARK, PAUL F. and ALICE SCHIEDT. *Memorable Days in Medicine.* Pp. 305. University of Wisconsin Press. \$2.00.
- DEMING, HORACE G. *Introductory College Chemistry.* Second edition, revised. Pp. xii + 521. Wiley. \$3.00.
- GANN, ERNEST K. *Getting Them into the Blue.* Pp. 154. Illustrated. Crowell. \$2.00.
- HOGG, JOHN C. and CHARLES L. BICKEL. *Laboratory Manual to Elementary General Chemistry.* Pp. x + 283. Van Nostrand. \$1.60.
- JOHNSON, FREDERICK. *The Boylston Street Fishweir.* Pp. xii + 212. 16 figures. 14 plates. Phillips Academy Foundation.
- PEPPER, STEPHEN C. *World Hypotheses.* Pp. xiii + 348. University of California Press. \$2.50.
- Proceedings of the Eighth American Scientific Congress.* Volume I. Edited by PAUL H. OEHSER. Pp. 539. Department of State, Washington, D. C.
- SAMPSON, KATHLEEN and J. H. WESTERN. *Diseases of British Grasses and Herbage Legumes.* Pp. 85. 15 figures. 8 plates. Macmillan. \$1.50.
- SARGENT, PORTER. *Education in Wartime.* Pp. 224. Sargent. \$1.50.
- SHELDON, WILLIAM H. *The Varieties of Temperament.* Pp. x + 520. Harper. \$4.50.
- TENNENT, DAVID HILT. *The Photodynamic Action of Dyes on the Eggs of the Sea Urchin, Lytechinus Variegatus.* Pp. 153. 40 figures. 8 plates. Carnegie Institution of Washington. Paper, \$1.25. Cloth, \$1.75.



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# NEW BIOLOGY TEXTS FOR FALL CLASSES

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## MAN AND THE BIOLOGICAL WORLD

By J. SPEED ROGERS, T. H. HUBBELL and C. FRANCIS BYERS, University of Florida. In press—ready in September

Presents the background, facts, and principles that will enable the student to understand and evaluate his own biological heritage and his relations with other organisms. Emphasis is placed upon biology as a science and biological principles rather than upon the concrete achievements of applied biology. The subject matter comprises the examination of the organism from four successive viewpoints: (1) the organism as an isolated individual: structure and function; (2) the organism as a link in a sequence of generations: reproduction and genetics; (3) the organism as the product of evolution: operation of genetic principles over a long period of time; history of life on earth; evolution of man; and (4) the organism as a member of an economic and social complex: ecology.

## BIOLOGY

The Science of Life.

By MARY STUART MACDOUGALL, Agnes Scott College, and ROBERT HEGNER, late of Johns Hopkins University. In press—ready in August

Written for the beginning student in biology, this text is a combination of the principles and types courses and is so flexibly arranged that either course can be readily followed. The primary aim of the book is to tell the story of biology simply and accurately. In keeping with the modern trend, stress is placed upon human biology in relation to human affairs. At the same time, plant biology is included in every general discussion of principles, respiration, excretion, reproduction etc. All difficult points are illustrated by diagrams and photographs.

## TEXTBOOK OF GENERAL ZOOLOGY

By TRACY I. STORER, University of California, Davis, California. *McGraw-Hill Publications in the Zoological Sciences*. In press—ready in September

An introductory text for students with no previous knowledge of zoology. The subject matter is carefully arranged and segregated for convenience in assignment of readings and for reference purposes. Part I comprises general animal biology, including structure, physiology, reproduction, genetics, ecology, distribution, evolution, history, and classification. Part II covers the animal kingdom from Protozoa to man, describing the structure, functions, natural history and economic relations of common representatives, and a classification of each group. An effort has been made to treat animals as they live in nature rather than as dead specimens in the laboratory. To this end the ways in which many anatomical details serve them in their respective life cycles are indicated and the "natural history" of some members of each phylum or class is discussed.

## GENERAL ENTOMOLOGY

By S. W. FROST, The Pennsylvania State College. *McGraw-Hill Publications in the Zoological Sciences*. 524 pages, 6 x 9. \$4.00

This important new book approaches entomology from the standpoint of ecology rather than morphology or classification. The introductory chapters present such fundamental material as the position of insects in the animal world, the morphology of insects, studies of immature insects, and a discussion of insect orders. The major portion of the book deals with habits and habitats of insects. Generalizations have frequently been made to illustrate similarities in the habits of certain insects. Recent advances in the various fields have been covered, and there are special treatments of leaf rollers, subterranean insects, and casemakers.

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