SCIENCE

Vol. 97 | Friday, May 14, 1943 | No. 2524

Medals of the National Academy of Sciences:
- *Medal Presentations: Remarks by the President:* Dr. Frank B. Jewett ... 429
- *Presentation of the Henry Draper Medal for 1942 to Ira Sprague Bowen:* Dr. J. H. Moore ... 431
- *Presentation of the Agassiz Medal for 1942 to Columbus O'Donnell Iselin, II:* Dr. Thomas Barbour ... 431
- *Presentation of the Daniel Giraud Elliot Medal for 1935 to Edwin H. Colbert:* Professor William K. Gregory ... 433
- *Presentation of the Daniel Giraud Elliot Medal for 1936 to Robert Cushman Murphy:* Dr. Frank M. Chapman ... 434
- *Presentation of the John J. Carty Medal and Award to Edwin Grant Conklin:* Dr. O. E. Buckley ... 434

Obituary:
- *Mary Jane Rathbun:* Lucile McCain. *Recent Deaths* ... 435

Scientific Events:
- *Museum Attendance and the War; The American Coordinating Committee on Corrosion; The Brooklyn Botanic Garden; The Radcliffe Chapter of the Society of the Sigma Xi; Positions with the Navy; The American Chemical Society and the Kilgore Bill* ... 436

Scientific Notes and News ... 439

Discussion:
- *The Formation of Moss Peat Beneath Translucent Pebbles in Semi-arid Regions of the Great Plains:* B. H. Williams. *Biological Specificity of Folic Acid:* Dr. Herschel K. Mitchell. *The Kilgore Senate Bill:* Dr. Gustav Egloff ... 441

Quotations:
- *Science and the Censor* ... 443

Scientific Books:
- *Hydraulics:* Professor W. F. Durand. *Human Reproduction:* Dr. F. C. Koch ... 444

Reports:
- *Wartime Activities of Mellon Institute, 1942–43:* Dr. W. A. Hamor ... 445

Special Articles:
- *Synthetic Biotin:* Dr. Stanton A. Harris, Donald E. Wolf, Ralph Mozingo and Dr. Karl Folkers. *Persistence of Yellow Fever Virus in the Brains of Monkeys Immunized by Cerebral Inoculation:* H. A. Penna and A. Bittencourt ... 447

Scientific Apparatus and Laboratory Methods:
- *New Method of Determination of the Choline-Esterase Activity:* Dr. A. Sack and E. A. Zeller. *Chemical Studies on Crystalline Barium Acid Heparinate:* Dr. M. L. Wolfrom and Others ... 449

Science News ... 10

SCIENCE: A Weekly Journal devoted to the Advancement of Science, edited by J. McKeen Cattell and published every Friday by

THE SCIENCE PRESS
Lancaster, Pennsylvania

Annual Subscription, $6.00 Single Copies, 15 Cts.

SCIENCE is the official organ of the American Association for the Advancement of Science. Information regarding membership in the Association may be secured from the office of the permanent secretary in the Smithsonian Institution Building, Washington, D. C.

MEDALS OF THE NATIONAL ACADEMY OF SCIENCES[1,2]

MEDAL PRESENTATIONS: REMARKS BY THE PRESIDENT

Annually at this time presentation of medals and awards is made by the academy. These are bestowed by formal vote of the academy acting on the recommendations of special committees charged with the responsibility of administering the several trust funds.

Normally the occasion of the bestowal is at a dinner to which the academy invites a number of distinguished men and women to be guests. This year, because of the exigencies of war, the dinner is necessarily confined to the members and the medalists. Although, therefore, the setting for the presentations this evening lacks the brilliance of former occasions, I can assure our medalists that it lacks nothing in the esteem in which the academy holds them and their work.

To-night we have five medals to bestow. Two of them are governed by the same trust fund and under its terms are in recognition of distinguished work published in specific years. With some of the medals go monetary awards and diplomas. The medalists will be presented by the chairman or a representative of the trust fund committee which made the nomination to the academy.

The medals will be awarded in the order of establishment of the trust funds.

The first award is that of the Henry Draper Gold Medal to Ira Sprague Bowen, and the citation is: "in recognition of his contributions to astronomical physics; more especially his researches on the spectra and chemical composition of the gaseous nebulae." Dr. S. A. Mitchell will present the medalist.

The Draper Fund was established on April 13, 1883, by deed of gift from Mary Anna Palmer Draper ($10,000 and die), and the deed of establishment provides interest and income to be used for the medal to

---

[1] Meeting at Washington, D. C., April 26 and 27.

[2] The presentation of medals was made at the annual dinner, April 26.

	cmm CO_2 liberated in 1 hour
Serum + Ringer solution + Acetylcholine	250
Serum + $NaHCO_3$ + Acetylcholine	325
Serum + Ringer solution + Acetylcholine + $CaCl_2$ (1/500 molar)	146
Serum + $NaHCO_3$ + Acetylcholine + $CaCl_2$ (1/500 molar)	234

It appears that the addition of calcium chloride prevents some of the carbon dioxide from leaving the solution. To prove, that the smaller amount of CO_2 found in the presence of calcium chloride was not due to an inhibitory effect of calcium chloride upon the choline-esterase, but to a methodical error, the acetylcholine was replaced by acetic acid in some determinations:

	cmm CO_2 liberated in 15 minutes
Serum + $NaHCO_3$ + N/100 acetic acid	129
Serum + $NaHCO_3$ + N/100 acetic acid + 0,1 cc $CaCl_2$ molar	120
Serum + $NaHCO_3$ + N/100 acetic acid + 0,2 cc $CaCl_2$ molar	95
Serum + $NaHCO_3$ + N/100 acetic acid + 0,2 cc $CaCl_2$ 1/100 molar	127
Serum + $NaHCO_3$ + N/100 acetic acid + 0,2 cc $CaCl_2$ 1/1000 molar	125

It follows from the above experiments that the titration procedure gives more reliable results, but it has the disadvantage that it can only be used in clear and almost colorless solutions.

Since the manometric method requires a Warburg apparatus we attempted to develop a more rapid procedure for the determination of the activity of choline-esterase in colored solutions. The following was found to be satisfactory: The serum, a $NaHCO_3$ solution and the acetylcholine solution were placed in the outer chamber of a Conway-jar[3] and a N/10 $Ba(OH)_2$-solution in the inner part. The total $Ba(OH)_2$ solution, or 0,5 cc was taken out 40 minutes after the Conway-jar was covered with the glass lid, and the quantity of unreacted $Ba(OH)_2$ was titrated with N/100 acetic acid. The values were satisfactory and in agreement with the results obtained by the titrimetric method mentioned above.

A. SACK
E. A. ZELLER

BÜRGERSPITAL, BASEL,
SWITZERLAND

CHEMICAL STUDIES ON CRYSTALLINE BARIUM ACID HEPARINATE

WE have obtained analytical data for the crystalline barium acid salt of heparin (barium acid heparinate) in comparison with those obtained for the neutral and acid salts of mucoitinsulfuric acid and chondroitinsulfuric acid. The following molar ratio was found for barium acid heparinate. Anhydrohexosamine : anhydrohexuronic acid : SO_3 : Ba = 2.0 : 1.9 : 6.0 : 3.0. Further, N : S : Ba = 2 : 6 : 3. Thus all barium is attached to ester sulfate and the carboxyl group of the uronic acid component is free. Summation (89 per cent.) of the above data, in comparison with the high summation (96 per cent.) obtained for the neutral sodium salt of chondroitinsulfuric acid, does not exclude the possible presence of another constituent. *d*-Glucosamine was identified (as *d*-glucosamine hydrochloride) in the hydrolyzate of the crystalline barium acid heparinate. Sodium heparinate (purified through the crystalline barium acid salt) consumes one mole (per 1,200 equivalent weight) of periodic acid.

The amino group of the *d*-glucosamine component of barium acid heparinate is not acetylated and is not free. Barium acid heparinate loses its anticoagulant potency on repeated crystallization from warm, dilute acetic acid. This change is accompanied by the appearance of a free amino group in the molecule, no sulfate is lost and the material is still stained with toluidine blue. Thus neither sulfate content nor toluidine blue staining power are true criteria of heparin activity.

Crystalline barium acid heparinate is also biologically inactivated by prolonged drying at elevated temperatures and by treatment ("Roche heparin" used in this experiment) with weakly ammoniacal hydrogen peroxide, the latter reaction resulting in appreciable sulfate loss.

Full details will be communicated at a later date.

M. L. WOLFROM
D. I. WEISBLAT[1]
R. J. MORRIS
C. D. DEWALT
J. V. KARABINOS
JAY MCLEAN

DEPARTMENT OF CHEMISTRY,
THE OHIO STATE UNIVERSITY

[1] Hoffmann-La Roche post-doctoral fellow of The Ohio State University Research Foundation.

BOOKS RECEIVED

BLATT, A. H. *Organic Syntheses.* Collective Volume II. Illustrated. Pp. ix + 654. John Wiley and Sons. $6.50.

HILL, GERALD F. *Termites (Isoptera) from the Australian Region.* Illustrated. Pp. 479. Commonwealth of Australia.

MACHOVER, SOLOMON. *Cultural and Racial Variations in Patterns of Intellect.* Pp. 91. Bureau of Publications, Teachers College, Columbia University. $1.60.

REYNIERS, JAMES A. *Micrurgical and Germ-Free Methods, Their Application to Experimental Biology and Medicine.* Illustrated. Pp. xiv + 274. Charles C Thomas. $5.00.

---

[3] E. J. Conway, "Micro-Diffusion Analysis and Volumetric Error."

Suggested for Use in the Premedical Corps Candidate Curriculum in the Navy College Training Program V-12

MACDOUGALL and HEGNER'S

BIOLOGY

The Science of Life

By MARY STUART MACDOUGALL
Professor and Head of the Department of Biology, Agnes Scott College
In Collaboration with
ROBERT HEGNER
Late Professor of Protozoology in the School of Hygiene
and Public Health, The Johns Hopkins University

963 pages, 6 x 9, 555 illustrations. $4.00

A well-known biology teacher writes:

> "I have been looking over the synopsis of the biology courses for premedical students in the Naval Training Program scheduled to start here July 1. I believe that they have built the Biology 1 and Biology 2 courses around the new text, MacDougall and Hegner's *Biology*. I congratulate you, the recognition is deserved, for it is an excellent text."

Of course, the assumption that the Navy course was built around the MacDougall and Hegner text is incorrect. The course is not based on any particular text, and no text is recommended or suggested by Navy officials in charge of the V-12 program.

But it is an interesting coincidence that the content of the Navy course parallels so closely the content of MacDougall and Hegner's *Biology*. This parallel is, of course, purely coincidental. Nevertheless, it justifies your close study of this outstanding new text if you are planning a biology course for premedical students in the Navy V-12 program.

In this book the authors have made a notable addition to those few elementary biology texts that truly deserve to be called distinctive. Keeping in mind the needs of beginning students and the preferences of instructors, Professors MacDougall and Hegner present an adroit combination of the principles and the types course, in an arrangement that allows an unusual degree of flexibility. To tell the story of biology, simply, yet scientifically, has been the aim throughout. The book is divided into seven parts: The Foundations of Biology; Plant Biology; Animal Biology; General Biology: Organs, Systems, and Their Functions, the Biology of Man; Some Biological Principles and Theories; Applied Biology, Biology and Human Welfare, Conservation; The History of Biology.

Send for a copy on approval

McGRAW-HILL BOOK COMPANY, INC.

330 West 42nd Street, New York, N. Y. Aldwych House, London, W.C.2

A text particularly well adapted for the general biology courses given to Army and Navy Trainees. Already being widely used in these courses.

GENERAL BIOLOGY

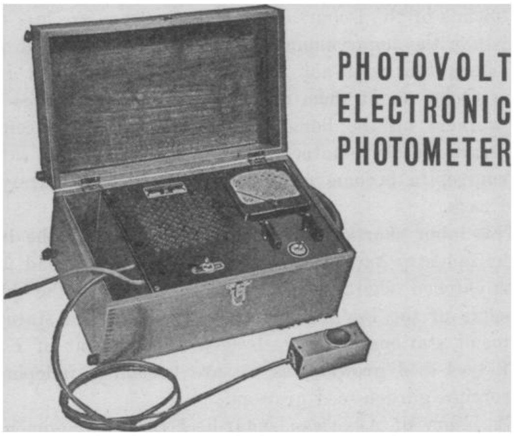
By

James W. Mavor

The revised edition of this widely popular text contains material for a full year's course, divided into five major sections. The first approaches the subject from the points of view of ecology and cellular physiology; the second is devoted to a systematic account of the plant kingdom; and the third to a similar consideration of the animal kingdom. The fourth section deals with the anatomy and physiology of the frog and man. The fifth part deals with the principles of development, heredity and evolution.

897 pages Illustrated $4.00

The Macmillan Company
60 Fifth Avenue New York



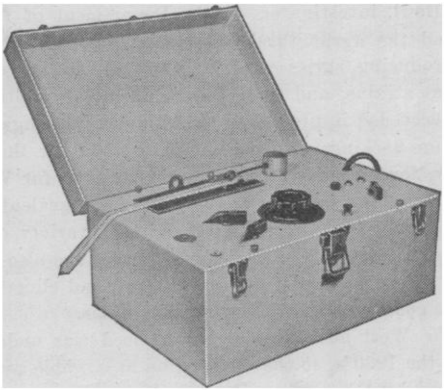
A highly sensitive light meter with phototube and DC amplifier

- Obtainable with phototubes having main response in the ultraviolet, visible, infrared.
- For measuring low light values, ultraviolet emission and absorption, infrared reflection, goniophotometry, micro-colorimetry, fluorescence, luminescence of paints.
- Suited for spectrophotometry, densitometry of spectrographs, exposure determination by focal plane readings in photomicrography.

95 Madison Ave. **PHOTOVOLT CORP.** New York City

GARCEAU ELECTROENCEPHALOGRAPHS

A.C. Operated	**No Batteries**
Inkless Writing	**Require no Shielding**
Shipped Ready to Run	**Prompt Delivery**



THE JUNIOR GARCEAU ELECTROENCEPHALOGRAPH

A simplified inexpensive instrument for recording electrical potentials of the brain. Built-in interference eliminators permit use anywhere. Inkless records—no photography or film-development required. Instantaneous localization with any 2 of the 10 provided leads.

All Garceau Electroencephalographs operate entirely from the 115 volts, 50 or 60 cycle power lines.

ELECTRO-MEDICAL LABORATORY, INC.
HOLLISTON, MASSACHUSETTS, U. S. A.