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Biological Effects of Radiation
Mechanisms and Measurement of Radiation, Applications in Biology, Photochemical Reactions, Effects of Radiant Energy on Organisms and Organic Products
Edited by BENJAMIN M. DUGGAR, University of Wisconsin. Prepared by staff of specialists under the auspices of the Committee on Radiation, Division of Biology and Agriculture, National Research Council. Two volumes (not sold separately), 1342 pages. Special introductory price, $10.00. Price after publication, $12.00

Presents a fundamental survey of the effects of radiant energy on the processes, development, heredity, and more important products of plants and animals.

Elements of Geography
By V. C. FINCH and GLENN T. TREWARTH, University of Wisconsin. McGraw-Hill Series in Geography. 769 pages, $4.00

The first volume in the McGraw-Hill Series in Geography. The chief merit of the treatment lies in the choice of material, in the structure of its organization, and in the manner of its presentation. The three opening chapters provide a degree of orientation in the field of geography, together with certain basic facts and geographical tools. Then follow discussions of elements of earth, elements of material culture, and the geographic realms. The illustrations are a noteworthy feature.

Evolution
By A. FRANKLIN SHULL, University of Michigan. McGraw-Hill Publications in the Zoological Sciences. 312 pages, $3.00

Here is a readable general treatment of evolution from the viewpoints of the outdoor naturalist who presents phenomena to be explained, and of the laboratory worker who would interpret them. The statement of facts of evolution is reduced to a minimum; the bearing of modern genetics on the process is stressed throughout, and genetic discoveries up to 1935 are dealt with.

NEW EDITIONS

Solutions of Electrolytes. New second edition
With particular application to qualitative analysis
By LOUIS P. HAMMETT, Columbia University. International Chemical Series. 242 pages, $2.25

The new second edition of this successful text offers the only complete presentation to date of the new theories of the ionization of acids and bases and of the mechanisms of hydrolysis which have developed during the past decade. Other recent developments included are activity coefficients, the new theories of inorganic colloidal solutions, and recent advances in the theory of reaction mechanisms.

Citrus Diseases and Their Control
New second edition
By HOWARD S. FAWCETT, University of California. McGraw-Hill Publications in the Agricultural and Botanical Sciences. 645 pages, $6.00

This well-known book, generally regarded as the authority on the subject, has been completely revised, rewritten, and enlarged to include the results of much new research in the subject during the past decade. In the fifteen colored plates about twenty-five diseases or effects are shown. There is a new chapter on diseases due to deficiency and excess of inorganic constituents.

Physical Chemistry for Colleges
New fourth edition
By E. B. MILLARD, Massachusetts Institute of Technology. International Chemical Series. 594 pages, $3.75

A successful standard text that aims to present the more important aspects of physical chemistry, together with accurate modern data which illustrate the applicability of its laws to the phenomena observed in the laboratory. The book has been revised to bring certain topics into line with current progress. The chapters on solids, ionized solutes, chemical equilibrium, kinetics of reaction and atomic structure have been largely rewritten.

Advanced Laboratory Practice in Electricity and Magnetism
New third edition
By the late EARLE M. TERRY; revised by HUGO BERNARD WAHLIN, University of Wisconsin. 322 pages, $3.00

In addition to a general revision, several important major changes have been made in this well-known laboratory textbook. Two new experiments have been added: the determination of the electronic charge and the determination of the thermonic work function of a metal. The chapter on electron tubes has been partially rewritten.

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A reception in the corridors of the Eastman School of Music is to follow the lecture. On Thursday evening the address is by Dr. Carl Snyder, for many years statistician of the Federal Reserve Bank of New York and formerly president of the American Statistical Association, on the subject, “The Rôle of Capitalism in Civilization.”

On Friday morning members will proceed by train or auto to Ithaca to join in celebrating the semi-centennial of Sigma Xi. All those in attendance at the Rochester meeting have been invited by Sigma Xi to participate in the Ithaca program, which will include addresses on Friday afternoon and Saturday morning as well as a complimentary dinner given to delegates and visitors by the Cornell Chapter on Friday evening. This will be followed by the semi-centennial address on “Scientific Research and Social Progress.”

The hotel headquarters of the association will be at the Seneca. All hotels will cooperate with the association for the meeting. Members desiring accommodations will communicate directly with the hotels. The following rates will apply:

Seneca: Single, $3-$4.50; double, $3.50-$6; twin-beds, $4-$7. Rooms with running water: Single, $2.50; double, $3.50-$4.

Powers: Single, $2-$4; double, $3-$6; twin-beds, $6-$7. Rooms with running water: Single, $2; double, $3.

Rochester: Single, $2.50-$4; double, $4-$6; twin-beds, $5-$6.

Sagamore: Single, $3.50-$5; double, $5; twin-beds, $6-$7.

Hayward (especially desirable for parties coming "stag"): Single, $2-$3.50; double, $3.50-$6.

In addition to the hotel rooms listed above, there will be available a hundred rooms in the university dormitories on the River Campus for June 16, 17 and 18. These will be reserved for men only at $1.00 per day as long as the supply lasts. Requests for reservations for these dormitory rooms may be made to the General Superintendent of Buildings and Grounds, University of Rochester. To insure accommodations being held in the dormitories, a check for $3.00 (for three nights’ occupancy) should accompany the reservation. This will be returned if notice to cancel is received on or before June 12.

Transportation from the city hotels to the campus is direct and will be easily effected. Railroad rates to Rochester can not be announced as yet, but some provision will be made and published notice given later. The regular preliminary announcement of the meetings with details will appear in SCIENCE early in May.

**RECENT DEATHS AND MEMORIALS**

Dr. Arthur Baldwin Duel, of New York City, aural surgeon, chairman of the Board of Surgeons and vice-president of the Manhattan Eye, Ear and Throat Hospital, died on April 11 at the age of sixty-five years.

Dr. John Uri Lloyd, of the Lloyd Brothers Pharmaceutical Company of Cincinnati, formerly president of the Cincinnati College of Pharmacy, died on April 9. He was eighty-six years old.

F. S. Wilkins, research assistant professor of agronomy at Iowa State College, died on March 31 at the age of forty-six years. Since his appointment to the staff at Iowa State College in 1915 he had been in charge of forage crops investigations. The results of his research have been published in a number of experiment station bulletins and journal articles.

Dr. Robert Bárány, specialist in diseases of the ear and throat, Nobel laureate in medicine in 1914, died in Upsala, on April 8, at the age of sixty years.

Maurice Théodore Hamy, since 1898 astronomer at the Paris Observatory, a member of the Paris Academy of Science, died on April 10. He was seventy-five years old.

A MEMORIAL service has been held in the great choir of the Washington Cathedral in honor of Dr. William H. Wilmer, formerly head of the Wilmer Institute of the Johns Hopkins Hospital.

A MEMORIAL meeting for Ivan Pavlov, the Russian physiologist, was held in the State Office Building, St. Paul, on April 7, under the auspices of labor leaders, Wahlfred Engdall, Carpenters Local Union No. 7, presiding. The speakers were: The Man: Professor Rodney B. Harvey, plant physiology, University Farm, Minnesota. The Biologist: Professor Dwight E. Minnieh, department of zoology, University of Minnesota. The Psychologist: Dr. John G. Rockwell, state commissioner of education. The Physiologist and Russian Medicine: Dr. Elias P. Lyon, dean of the Medical School, University of Minnesota. Biology and Economics: E. H. H. Holman.

**SCIENTIFIC NOTES AND NEWS**

Dr. Rudolph Matas, honorary chief of the surgical service at Touro Infirmary, was presented with a decoration and the title of commander of the National Cuban Order of Carlos Finlay and a diploma of honorary fellowship in the Academy of Medicine of Havana, at the recent annual meeting of the Southeastern Surgical Congress in New Orleans. The presentation was made by Dr. Charles Edward J. Finlay, Havana, Cuba, son of Dr. Carlos Finlay.

At the meeting of the Society of Experimental Psy-
that are difficult to demonstrate by the conventional dissecting methods. Representatives from three phyla were used: (1) a mollusk, *Loligo pealei*; (2) two arthropods, *Libinia emarginata* and *Limulus polyphemus*; and (3) an echinoderm, *Asterias forbesi*. After killing the animal, it was placed in a 30 per cent. solution of nitric acid.

For the arthropods an immersion of 24 hours was sufficient to remove the inorganic salts of the exoskeleton completely and macerate the underlying tissues except the nervous tissue. The animal was removed from the acid bath and placed in a dish containing water. By cutting with a fine pair of scissors along the lateral, anterior and posterior margins of the carapace, this much softened structure was easily removed. The underlying tissues were then removed to expose the entire ventral nervous system. A fine camel's hair brush was found to be very useful in removing bits of tissue lying around the ganglia and nerve fibers extending into the appendages. Placing the dish containing the specimen under a gentle stream of water was effective in removing the remaining debris and washing out the acid.

With *Loligo* and *Asterias* a period of 12 hours in the macerating fluid was sufficient to soften the tissues adequately. With *Asterias* one needed only to pick away the tube feet and surrounding tissues with a pair of forceps in order to demonstrate the superficial nervous system. The method is a simple and efficient way of making class demonstrations. Moreover, a permanent preparation may be made by mounting the exposed systems in a suitable glycerine-jelly mass.

Cornwell\(^2\) has suggested the presence of the myelin sheath, with its fatty properties, in the vertebrates as the explanation for the resistance to maceration, as shown by the central and peripheral nervous systems. The disappearance of a greater share of the sympathetic system he attributes to the fact that it is not entirely myelinated. This reasoning can not be used to account for the effects upon the invertebrates, for it is generally agreed that in the invertebrates and even in the cyclostome a myelin sheath is not typically developed and is only characteristic of the adults of higher vertebrates. However, in addition to the nucleated sheath known as the neurilemma investing the nerve fibers of the invertebrates, there is present after treatment with osmic acid a deep staining layer between the outer sheath and the axis cylinder in some forms, e.g., *Palaemon*. Although this does not necessarily indicate the presence of fat, Friedländer\(^2\) suggested that this sheath is similar to the myelin sheath in the vertebrates. On the other hand, the electrical stimulation of molluscan nerve fibers reveals a breakdown in conduction much more rapidly than when using the same stimulation on vertebrate nerve fibers. This perhaps indicates the absence of a myelin sheath.

By applying acetone or 95 per cent. alcohol to isolated nerve fibers of the forms we studied, we did not observe a clear space between the axis cylinder and the neurilemma which, if present, would indicate myelination. Furthermore, when a 2 per cent. solution of acetic acid, of which a few drops are placed at the edge of the cover slip and drawn through by filter paper, the preparation does not show the persistence of fat droplets, although albumin granules disappear optically. In *Loligo*, *Limulus* and *Libinia* the staining of isolated nerve fibers with Sudan III did not reveal the presence of any region of fat-like substance between the neurilemma and axis cylinder. However, in *Asterias* the fibrils have a more or less central position, with a rather densely staining region surrounding them. This region is composed of epithelial cells of mesodermal origin which may possibly serve as a protective covering. Apparently, in the invertebrates there must be some inherent property of the nervous tissue which resists the action of the macerating fluid, since the fibers are generally without a heavy protective sheath.

We are continuing our investigations on a variety of forms, along the following lines: a determination of the time necessary for the maceration process; a cytological study of the nervous elements of these representatives, using some of the more recent techniques; a chemical determination of the nervous tissue components.

N. L. SCHEMICH

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**BOOKS RECEIVED**

**BROWN, PERY.** *American Martyrs to Science through the Eothenian Rays.* Pp. xv+276. 55 figures. Thomas. $3.50.

**Collected Reprints, 1935.** Illustrated. Woods Hole Oceanographic Institution.


**LEMON, HARVEY B.** *Cosmic Rays This Far.* Pp. xviii+128. Illustrated. Norton. $2.00.


**RYLE, JOHN A.** *The Aims and Methods of Medical Science.* Pp. 44. Cambridge University Press, Macmillan. $0.75.
SCHOOL AND SOCIETY
EDITED BY J. McKEEN CATTELL

MARCH 21
A Design for Scholarship: ISAIAH BOWMAN.
The Few and the Many in Education: GEORGE E. VINCENT.

Educational Events:
The British Government Education Bill and the Church of England; Grants to Harvard University for Research and Publication in the Humanities; The New Curricular Program at the University of Pittsburgh; Report of the Oregon High School Contacts Committee; The Fourth Congress on Business Education; School Executives Conference at Denver.

Educational Notes and News.
Discussion:
Why not Try Education?: JOHN D. McGANN.
Special Correspondence:
Modern Trends in French Education: ADOLPHE J. DICKMAN. Teaching College Freshmen to Make a Bibliography: A. BEatrice Young.

Quotations:
The Heidelberg Invitation.

Educational Research and Statistics:
The Status of Geology in Junior Colleges: EDWARD J. ZIEHLBAUER.

MARCH 28
Educational Books of 1935: JOSEPH L. WHEELER.

Educational Events:
Grants to Teachers of Languages in London; Gifts to New York University; Education for Peace; Federal Funds for the Care of Children; The Milbank Memorial Fund; The Discontinuance of Seth Low College at Brooklyn; Public Forums of the Federal Office of Education; The Walter Williams Memorial Campaign at the University of Missouri; Appointments and Promotions at Teachers College, Columbia University.

Educational Notes and News.
Discussion:
The Present Situation in Regard to the Child Labor Amendment: GERTRUDE ROBINSON. De Germanis: ERNST KOCH. A Prophecy Come True: MARY ROGERS MILLER.

Special Correspondence:
The American Museum of Natural History as a Laboratory School for Student Teachers: GRACE FISHER RAMSEY. The Two-units Plan at Mount Holyoke College: ROGER W. HOLMES.

Reports:
Recommendations of the Presidents of Land Grant Colleges for Negroes.

Educational Research and Statistics:
The Ordinary Objective Test as a Possible Criterion of Certain Personality Traits: LLEWELLYN N. WILKE and OTIS C. TRIMBLE.

APRIL 4
Harvard, Present and Future: JAMES BRANT CONANT.

Educational Events:
The Workers' University of Mexico; Awards of Advanced Fellowships for Study in Belgium; Public School Library Statistics; Cooperative Courses of the Boston Museum of Fine Arts and Radcliffe College; Expansion Program at Nassau College, New York University; The Summer Institute for Social Progress at Wellesley College; The Summer Session of Columbia University; Conference on Low-Cost Housing; A Memorial in Honor of Charles De Garmo; The New President of Iowa State College.

Educational Notes and News.
Discussion:
The Plight of American Youth: M. B. SCHNAPPER.
Higher I. Q. and Lower A. Q.: CHARLES W. PALMER.

Special Correspondence:
Self-government in a Correctional School: SARAH E. D. STURGES.

Quotations:
The Princeton Travesty on Bonus Hunters.

EDUCATIONAL REVIEW
Edited by WILLIAM McANDREW
Comments on Things Educational:
A Great Convention.

Monthly Survey of Educational Books:
Social Studies; History Courses; Saint Just, Terrorist; The Lincoln Legend; More Zest for Life; Slow Learners; Educational Theory and Practice; Kindergarten; Work and Play with Words; Beloved Latin School; The Teen Years; Counselling; Examination and Grading in Universities; Adult Education; English and Literature; Library; Science and Mathematics; Manners; Printing.

APRIL 11
Some Possible Consequences of Advancing Standards in Schools and Colleges: Dr. JAMES R. ANGELL.

Educational Events:
School Medical Service in Great Britain; The Walter Hines Page Traveling Scholarships; The Establishment in New York City of a Bureau of Children's Adjustment; The "Teachers College News" of Columbia University; Conferences of the Public Education Association; Testimonial Luncheon to Dr. Henry R. Linville.

Educational Notes and News.
Discussion:
On the Frontier in Citizenship Education: C. E. HAGIE.

Case Histories for All Pupils: W. W. LUDERMAN.

Special Correspondence:
A Fifth Year for Secondary School Teachers at Mount Holyoke College: STUART M. STOKOE.

Quotations:
Heidelberg, Spinoza and Academic Freedom; The Little Red Rider.

Reports:
John Simon Guggenheim Memorial Fellowships.

Societies and Meetings:
The Portland Convention.

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