



NOW! 7 radiation research in your own lab

GAMMATOR 50...

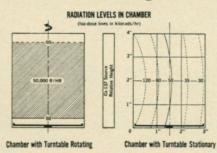
A MAJOR BREAKTHROUGH

IN LOW COST IRRADIATION With Gammator 50, you can perform gamma irradiation experiments quickly and inexpensively...in your own laboratory. Gamma irradiation affects tissues, bacteria, cells, foods, seeds, crystals, plastics, dyes, semiconductor materials, in short, most materials you may wish to investigate.

The new Gammator 50 represents a breakthrough of enormous value to the scientific world. For the first time, a low-cost irradiator that even the smallest lab can afford, is available for unlimited experimentation. Gammator 50, because of its conservative design, is easily licensed by the Atomic Energy Commission for use in unrestricted laboratory areas.

Usually supplied with the Gammator 50 is a cesium-137 source (half-life of 30 years) with a strength of 400 curies, although cobalt-60 may also be specified. Refer to the radiation level chart for field characteristics within the irradiation chamber.

For information on higher intensity units to suit your particular need, send us your specifications.



Write or call today for technical bulletin.



404/science news/vol. 94/26 october 1968

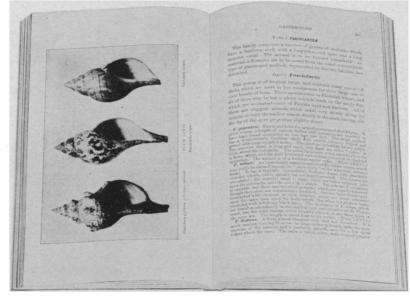
Discover the bizarre world of the seashore in . . .

The Sea-Beach at Ebb-Tide

Augusta Foote Arnold

At first glance the seashore appears to be little more than water and barren sand. But to the careful observer it is actually a microcosmic world teeming with life—with hundreds of plants and animals ranging from multi-colored marine algae and sponges on the borderline bemarine algae and sponges on the borderline between the plant and animal kingdoms to highly organized and intelligent squids. With this classic handbook and a few leisure hours you can discover this fascinating world of the vegetal and lower animal species which crowd the littoral areas of North America.

The Sea-Beach at Ebb-Tide is remarkably broad in coverage. It includes some 175 species of ma-rine algae and over 450 invertebrate animals beach fleas, hermit crabs, horseshoe crabs, bar-nacles, jelly fish, marine worms, clams, star-fish, nacies, jeny nsn, marine worms, ciams, star-nsn, shrimps, corals, and many animals which are less familiar (Bryozoa, Polyzoa, sea squirts, species of nautilus). Individual descriptions of each species cover everything you need to know for accurate identifications—physical features, color, range, habitat, idiosyncratic habits, etc.



You will learn about Laminariaceae, an order of brown seaweeds, some of which form dense submarine forests and act as natural breakwaters to vessels navigating stormy coasts . . . sea-cucumbers which turn themselves inside out, as if from nausea, when confined in water too stale for their uses . . . "red snow" which forms on arctic regions because of a simple one-celled alga which contains red coloring-matter . . . the giant Cyanea, a jellyfish which reaches its full growth of six to eight feet in only six months . . . lobsters and other Crustaceans

which grow by moulting . . . "southpaw" Gastropods (snails, etc.) whose shells wind to the left instead of to the right as is more usual . . . horseshoe or king crabs, the last survivors of an otherwise extinct group of animals.

A 44-page introduction explains the basics of marine biology to readers with no background in the subject, and discusses good collection areas, methods of collecting and preserving finds.

85 plates, over 600 illustrations. xii + 490pp. $5\frac{3}{8}$ x $8\frac{1}{2}$. 21949-6 Paperbd. \$3.50

"VOICES OF HISTORY" Recordings

Dover's new Spoken Word series offers the opportunity to listen to great moments in American history—on-the-spot recordings of important addresses by Presidents and leading statesmen. The following 12" 33-1/3 rpm records, pressed on dust-repellent, low-surfacenoise vinyl, are now available: 29401-3. FRANKLIN DELANO ROOSEVELT. First Inaugural Address. March 4, 1933. Section 1985.

FRANKLIN DELIANO ROUSEVELIT.
First Inaugural Address, March 4, 1933. Second Inaugural Address, January 20, 1937. \$2.95
29402-1. FRANKLIN DELIANO ROOSEVELT.
Third Inaugural Address, January 20, 1941.
FOurth Inaugural Address, January 20, 1945.
HARRY S. TRUMAN. Inaugural Address of
January 20, 1949. \$2.95

29403-X. DWIGHT D. EISENHOWER. First 29403-X. DWIGHT D. EISENHOWER. FIRST Inaugural Address, January 20, 1953. Second Inaugural Address, January 20, 1957. Farewell Broadcast, January 19, 1961. \$2.95 29404-8. JOHN F. KENNEDY. Inaugural Address of January 20, 1961. Three Addresses on the Cuban Missile Crisis, October 22, 1962, November 2, 1962, and November 20, 1962.

\$2.95 29405-6. LYNDON B. JOHNSON. Oath-tak-ing and Statement at Andrews Air Force Base, November 22, 1963. Thanksgiving Day Message, November 28, 1963. Address before a joint session of the Congress, November 27,

29406-4. ADLAI STEVENSON. The Foreign Policy of the United States, informal speech delivered on March 2, 1961. On American Vietnamese Policy, discussion with B.B.C. Correspondent, last interview before Stevenson's

29407-2. THE FIRST KENNEDY - NIXON DEBATE. September 26, 1960. \$2.95 Box K. THE COMPLETE KENNEDY-NIXON DEBATES. September 26, 1960, October 7, 1960, October 13, 1960, October 21, 1960. Four record set, boxed.

21898-8. ROCKY MOUNTAIN TREES, Richard 21898-8. ROCKY MOUNTAIN TREES, RICHARD
J. Preston. Finest field guide to Rocky Mountain tree species, including all native and naturalized trees in the area. Up-to-date distribution and zone maps, extensive keys and list of species by state enable you to find any of 252 species in minutes. 129 full-page plates show identifying features. https://doi.org/10.1007/j. features. lxxx + 285pp. Paperbd. \$2.75 22040-O. BIG FLEAS HAVE LITTLE FLEAS, OR WHO'S WHO AMONG THE PROTOZOA, Robert Hegner. Amusing yet thorough introduc-Robert Hegner. Amusing yet thorough introduction to protozoology. Life histories of amoeba, euglena, volvox, and special attention to protozoa connected with human disease (dysentery, sleeping sickness, malaria, etc.). Subject approached with unusual imagination and wit. 127 drawings. viii + 285pp. Paperbd. \$2.00 21897-X. INTRODUCTION TO PROTOZOOLOGY, Reginald D. Manwell. In a clear, lively style with minimal technical language, Prof. Manwell covers the vast body of protozoological knowledge which has grown up since Leeuwen-Manwell covers the vast body of protozoological knowledge which has grown up since Leeuwenhoek's time. Covers protozoan ecology, morphology, growth and differentiation, reproduction, etc. Concentration on parasitic protozoa and disease-producers. 214 figures. xii + 642pp. 61% x 9½.

Paperbd. \$4.00
21962-3. LAST AND FIRST MEN and STAR MAKER, Olaf Stapledon. Major figure in modern science fiction deals with man and human

intelligence in the present and five billion years intelligence in the present and five billion years in the future. Two classic novels, important for social anthropology and philosophy as well as modern literature. vi + 438pp. Paperbd. \$2.00 21947-X. BODY IMAGE AND PERSONALITY, Seymour Fisher and Sidney E. Cleveland. How does an individual's concept of his own body (body image) affect his behavior? Fisher and Cleveland were the first to explore this question and its relation to neuroses schizophrenia comand its relation to neuroses, schizophrenia, compensation for deformities, etc. Revised edition (1968) covers 125 studies made since 1958. xi 448pp. Paperbd. \$3.00 21775-2. THE NATIVE TRIBES OF CENTRAL AUSTRALIA, Baldwin Spencer and F. J. Gillen. Ground-breaking study of Aborigines before European influence, one of the greatest ethnographic accounts in the literature of anthropology. Thorough examination of fascinating kinship system, customs, rituals. Over 130 remarkable photographs. xviii + 669pp.

LOGIC MACHINES, DIAGRAMS AND BOOLEAN ALGEBRA, Martin Gardner. The curious history of electrical and mechanical machines and geometrical methods of solving logic problems, written with non-technical readers in mind. Provides a variety of logico-scientific di-versions plus a background in Boolean algebra. 94 illustrations. xii + 157pp. Paperbd. \$2.00 21886-4. GREAT IDEAS OF OPERATIONS RESEARCH, Jagjit Singh. U. N. Kalinga Prize winner explains the means and ends of opera-tions research: what mathematical techniques can be applied where. Goal is better understand-ing between mathematicians and business managers. 41 figures. x + 228pp. Paperbd. \$2.25

Dept. 619. Dover Publications. Inc. 180 Varick St., N.Y., N.Y. 10014. Please send me:

I have enclosed \$\frac{\text{in full must accompany along}}{\text{cept those from public institutions.}} 20c per book on orders of \$6 or lepostage and handling. New York Ciplease add 5% sales tax; New York dents, 2%.	ll orders ex- Please add ess, to cover ty residents,
Name	
Address	
City & State	aranteed re-

All books 5% x 81/2 unless otherwise specified.

SCIENCE NEWS®

OF THE WEEK

409 Apollo: success written all over

410 Chromosomes in court

411 Nobelists: Nirenberg, Holley, Khorana Sex education: problem teachers

412 Academy committee selects Handler

413 Medical Sciences: Mononucleosis occurs in children; Hong Kong flu spreading; Aspirin habit can cause ulcers; British doctors disagree on computer medicine; Resistant gonorrhea increases

414 Physical Sciences: Star formation; Gravitationally induced electric forces; High energies and the primeval blackbody; No mystery particles at sea level; The hot moon again

421 Analytical Chemistry: Speedier film-emulsion analysis; Comparing soil samples; Assay of aquatic and terrestrial trace substances; Trace elements in meteorites; Murder suspect freed

422 Behavioral Sciences: Croesus' gold factory found; Tranquilized women; Aborigines lack neurosis; Standard aphasia test in the making; Electrosleep helps insomniacs



430 Letter from Rome: Color gets attention

IN SCIENCE FIELDS

423 Ecology: Invaders tilting the scales
426 Astronomy: Venus becomes prominent

428 Artificial Sweeteners: Safety challenged

406 Films of the Week

Books of the Week

431



The ambulatory catfish is the latest addition to the ecology of Florida, already threatened by bird, plant and toad p. 423 (Photo: Miami Seaquarium).

> A Science Service Publication Vol. 94/October 26, 1968/No. 17 Science News Letter ®

Watson Davis, 1896-1967 Publisher: E. G. Sherburne Jr.

Editor: Warren Kornberg Managing Editor: Frank Sartwell Ass't. Managing Editor: Carl Behrens

DEPARTMENT EDITORS
Aerospace: Jonathan Eberhart

Behavioral Sciences: Patricia McBroom **Engineering Sciences:** John Van Deventer

Life Sciences: Barbara J. Culliton, Christopher Weathersbee

Medicine: Faye Marley

Physical Sciences and Astronomy: Ann Ewing, Dietrick E. Thomsen

Production: Marilyn Raleigh

Production Assistant: Marilyn Binn

New Ideas: Ruby Yoshioka Books: Margit Friedrich Assistant to the Editor: Nadine Clement

Editorial Assistant: Marjory Scarlet

Advertising Director: Louis D. Young **Circulation Manager:** Marcia Nelson

SCIENCE SERVICE

Institution for the Popularization of Science founded 1921; a non-profit corporation

Board of Trustees—Nominated by the American Association for the Advancement of Science: Athelstan F. Spilhaus, Franklin Institute; Wallace R. Brode (Treasurer), Washington, D. C.; Bowen C. Dees, University of Arizona. Nominated by the National Academy of Sciences: Henry Allen Moe, The Clark Foundation; Harlow Shapley, Harvard College Observatory; Allen V. Astin, National Bureau of Standards. Nominated by the National Research Council: Glenn T. Seaborg (President), U.S. Atomic Energy Commission; Leonard Carmichael, National Geographic Society; John R. Whinnery, University of California, Berkeley. Nominated by the Journalistic Profession: O. W. Riegel (Secretary), Washington and Lee University; Gordon B. Fister, Call-Chronicle Newspapers; Eugene Patterson, Atlanta Constitution. Nominated by the Edward W. Scripps Trust; John Troan, Pittsburgh Press; Ludwell Denny, Scripps-Howard Newspapers; Edward W. Scripps II (Vice President), Edward W. Scripps Trust.

Director: E. G. Sherburne Jr.; Assistant Director: Dorothy Schriver; Staff: Youth Division: Howard Weisbrod; Photography: Fremont Davis.