THE EARTH AND MAN
By D. H. DAVIS

"A fascinating presentation of the subject that is worth the attention of every geography teacher."—Amer. Geographical Society of N. Y. "The best book available in its field."—Annals of the Amer. Academy of Political & Social Science. "A veritable mine of geographical knowledge . . . judiciously selected and painstakingly authenticated. . . . An excellent book in every way."—Economic Geography. Covers both physical and economic geography. For the introductory course in geography on the college level. $4.25

ECOLOGICAL CROP GEOGRAPHY
By KARL H. W. KLAGES

"We heartily recommend this book to entomologists and others who are interested in the phase of plant ecology which has to do with crop plants."—Annals of the Entomological Society of America. "Ecologists will be grateful for the writing and publication of this book."—Ecology. "A decided contribution . . . should prove of inestimable worth to students, teachers, and specialists having to do with long range agricultural policy."—Rural Sociology. For courses in crop production and crop ecology. $4.50

NATURE AND PROPERTIES OF SOILS
By LYON and BUCKMAN

"Valuable, timely, and up-to-date."—Jl. of the Amer. Society of Agronomy. "Valuable from every point of view . . . will continue to fill a much felt want for those in the many diverse fields of agriculture, biology, and geology."—Quarterly Review of Biology. Widely used in agricultural colleges as the regular prerequisite for all courses in crops and plant science. 4th Ed., $3.50

GEOMORPHOLOGY: Systematic and Regional
By O. D. VON ENGELN

"An outstanding contribution to one of the fields of geomorphic investigation of most practical present importance."—Jl. of Geomorphology. "One of the most valuable and timely contributions to the field of 'geoscience' that has come from the American press these many decades. . . . Sure to take first place among the American textbooks on geomorphology, and to hold that place for many years."—Economic Geography. Gives the thorough basic training in geomorphology necessary for all kinds of geologic, survey and map work. $4.50

The Macmillan Company, 60 Fifth Avenue, New York 11
**NEWSPAPERS BY RADIO**

**SCIENCE NEWS**

_News Service, Washington, D. C._

**NEWSPAPERS BY RADIO**

Newsprint in your own home may be a reality in the postwar world if new transmitting and receiving equipment now being offered to newspaper publishers comes into widespread use. Known for many years to engineers as facsimile, the system transmits eight full pages of tabloid-sized newspapers in one hour by radio from the newspaper office to receivers in the home.

Before the war, facsimile receivers cost about $75. Research, engineering and manufacturing studies made during the war should make it possible to offer these receivers, with wartime improvements, at an even lower cost.

At the newspaper office, news, maps, cartoons, advertisements, feature columns and other items that make up a newspaper are mounted on a sheet of paper, so that the end result looks the same as a page from a regular newspaper. This sheet of paper is fed into a machine, where is it scanned, line by line, by a photoelectric eye.

The scanning process does the same thing mechanically that you are doing right now as you read this story. It starts at one line, moving from left to right, then jumps to the next line and repeats the procedure, continuing until all the copy has been scanned.

Everything that the photo-eye sees is converted into electric impulses, then into radio waves by electronic tubes similar to those in a radio set. These tubes break up the picture seen by the electric eye into a series of dots, which are received in your home receiver approximately facsimile in size and at the same speed at which they are transmitted.

The printing is done by a swinging arm that moves back and forth across a roll of special white printing paper in the facsimile receiver, synchronized with the movement of the electric eye in the transmitter. A stylus at the tip of the moving arm sweeps across the paper, and by means of small electrical impulses oxidizes a series of dots in their proper sequence, just as the electric eye transmits them. The coating on the paper turns black on being oxidized, leaving a permanent record of the copy fed into the transmitter at the newspaper office.

The receiver can be turned on at a predetermined time, and after the printing is completed, it will go off, leaving the completed newspaper. All this can be done in the early morning hours while the subscriber sleeps, leaving the morning paper ready to be read at breakfast.

Several industrial companies are now actively engaged in postwar planning for facsimile. One of these concerns, Finch Telecommunications, of Passaic, N. J., has just secured the services of a consultant to advise newspaper publishers interested in the development of facsimile as a part of their activities.

In addition to daily newspapers, weather maps, flash news, pictures, police reports showing descriptions and pictures of criminals, reports to and from planes in the air, data for ships at sea and many other types of material may be transmitted and received by facsimile equipment. Facsimile makes use of the same radio frequencies as FM (frequency modulation) broadcasting. This means that the area over which transmission is practical is more or less confined to the area visible from a transmitter antenna. Therefore, unless networks for facsimile are developed, this service will be limited to local areas.

**ITEMS**

Copies of diffraction gratings, glass or metal with closely spaced parallel lines ruled on it, used in many types of spectrographs, are even better than the original gratings from which they were made, as reported by Dr. R. W. Wood, of the Johns Hopkins University, in the _Journal of the Optical Society of America_. Coarse gratings of 1,000 to 7,000 lines to the inch, which are especially useful for analyzing infra-red light, are first ruled on copper plates which have been polished as well as possible but can not be made as flat as polished glass. The collodion cast or copy of the original grating will reproduce faithfully both the carefully ruled lines and the small irregularities of the surface of the copper plate. But when this replica is pressed into contact with a piece of optically flat plate glass, the imperfections on the surface are 'ironed out,' leaving the replica with better optical properties than the original. Studies of light spectra with these gratings not only extend our knowledge of the behavior of atoms, but also have practical applications such as the identification of impurities in chemicals and metals.

A _HEAT-RESISTANT_ plastic or synthetic rubber can now be made from a new chemical compound developed by the Mathieson Alkali Works. The new resulting material is expected to be of particular importance in electronics and, in general, wherever electrical insulation at high temperatures is required. It is under test in heavy duty tires on motor vehicles. The new compound is known as dichlorostyrene. The Mathieson rubber is made from it and butadiene. Tires made from this rubber are being tested on trucks and buses, and seem to be highly satisfactory. Dichlorostyrene is a chlorinated product. Its monomers are highly active and polymerize readily. The polydichlorostyrene resembles polystyrene in chemical resistance, solubility and general appearance. It differs chiefly by its resistance to heat, and it is more resistant to water. It is stable and shows no tendency to lose hydrochloric acid.

_Anthrax_, for which no completely satisfactory treatment has yet been developed, may yield to penicillin, it appears from a report by Dr. F. R. Heilman and Dr. W. E. Herrell, of the Mayo Clinic at Rochester, Minn. In trials with mice, they found that slightly more than half the animals treated with penicillin could be protected against 10,000 times the lethal dose of anthrax germs even when treatment was not started until 16 hours after the mice had been inoculated with the germs. In other trials, starting treatment within an hour and inoculating fewer germs, all the treated mice survived and all the untreated ones died.
Outstanding McGraw-Hill Books

Soldier to Civilian
By George K. Pratt, M.D., Yale University. With a foreword by George S. Stevenson, M.D., Medical Director, The National Committee for Mental Hygiene. 240 pages, 5½ x 8. $2.50

In this authoritative, readable new book an experienced psychiatrist deals with the problems faced by the returning American soldier in adjusting to the difficult transition from military to civilian life. The book offers sound, concrete advice on how to handle many situations likely to arise in family life, marital relations, community position, and occupational adjustment. Special attention is given to the man returning with a physical or mental handicap.

General Chemistry
By John Arrend Timm, Simmons College. International Chemical Series. 691 pages, $3.75

Presents general chemistry clearly and graphically in a vivid style that will capture and hold the interest of the elementary student. One of the features of the text is the sound modern approach to the fundamental theory. The Lowry-Brönsted acid-base definitions are used consistently, yet the older definitions are carefully pointed out. Recent industrial developments are included.

Adsorption
By C. L. Mantell, Consulting Chemical Engineer. Chemical Engineering Series. 381 pages, 5½ x 8¼, 149 illustrations. $4.50

Practice, rather than theory, is the keynote of this new approach to the subject of adsorption written from the viewpoint of industrial procedure, the designing engineer, and the operator of equipment. Emphasizing its unit operation aspects, the book covers adsorption in industry, and discusses such varied fields as refining operations, air conditioning, elimination of toxic materials, etc.

The Elements of Astronomy. New fourth edition
By Edward Arthur Fath, Carleton College. McGraw-Hill Astronomical Series. 382 pages, 6 x 9, 253 illustrations. $3.00

Widely used in colleges and universities for the past 18 years, this successful standard text has been revised to include new material accumulated since the publication of the third edition. The chapter on Other Galaxies has been entirely rewritten; a new chapter on the structure of the galactic system has been added. As before, the treatment is largely nonmathematical.

English-Spanish Comprehensive Technical Dictionary
By Lewis L. Sell. 1478 pages, 7¼ x 11¼. $30.00

Exceptionally complete and rigidly accurate, this monumental work translates over 525,000 technical terms of the United States and Great Britain into Spanish. In arrangement and treatment the dictionary offers special features designed to eliminate misconceptions and circumlocutions, making possible the correct translation of commercial and industrial technical literature. Variations of terminology in the most important branches of the "Spanish" languages are given.

Send for copies on approval

McGRAW-HILL BOOK COMPANY, INC.
HILL and KELLEY—Organic Chemistry

Keeping in mind the varied interests of students of organic chemistry, the authors have developed a balanced presentation of the theoretical aspects, the properties, methods of preparation, reactions, the I.U.C. system of nomenclature, and of the physiological effects and uses of organic substances. The text offers material for a rigorous full year's college course. Questions and problems are provided at the end of chapters. The book is highly praised by teachers for its clarity of expression and logical arrangement. By G. ALBERT HILL, Wesleyan University, and LOUISE KELLEY, Goucher College.

WERTHEIM—Introductory Organic Chemistry

The purpose of this text is to teach the fundamentals of organic chemistry, leaving the applications to the instructors themselves. It provides material for a short course suited to the needs of a diversity of interests. This is shown in the illustrations, in the discussions of uses of compounds, and in the selection of material. Domestic science teachers will be interested in the ample coverage of such topics as fats, oils, soaps, sugars, proteins, vitamins, hormones, digestion, metabolism, foods and dietary necessities. The chapter on removal of stains is of practical value to many students. By E. WERTHEIM, University of Arkansas.

DAVIES—The Fundamentals of Physical Chemistry 2nd Edition

This is a text for beginners, especially those students who value physical chemistry for its cultural appeal. It will admirably suit the needs of pre-medical physical chemistry. A minimum of mathematics is used. Excellent sections on proteins, enzymes, isotopic applications and artificial radioactivity are included in this edition. The treatment of colloids, pH, osmosis, catalysis, hydrolysis, glass electrode technic are discussed with considerable detail. Text-interspersed experiments are supplemented by an appendix of additional laboratory experiments. Review and discussion questions and ample problems are provided. There are many references and helpful tables in the book. By E. C. H. DAVIES, West Virginia University.

Please send for examination, the following book. Book desired

Name ................................................................. School and Position ......................................................

Address .................................................................................................................. Sc.12

A Popular Combination

ELEMENTS OF BIOLOGY
By P. D. STRAUSBAUGH, Professor of Botany, West Virginia University, and B. R. WEIMER, Dean of the Faculty and Professor of Biology, Bethany College, West Virginia

Published in April, 1944, Strausbaugh and Weimer's ELEMENTS OF BIOLOGY is destined to become one of the leading college textbooks in the subject. Already adopted in 26 schools, the book has been praised for its broad perspective of biology, carefully condensed to a form suitable for one-semester courses.

Teachers praise the book’s adaptability, and the fact that it stresses the basic principles of biology and develops factual material along functional lines. The illustrations, too, have been much commended as being clear and understandable.

Typical of the comments that have come to us from teachers of biology is one from Horace W. Stunkard, Professor of Biology, New York University:

"The book is well-organized, well-illustrated and, in my judgment, well-adapted for a one-semester course in general biology."

461 pages 5½ by 8¾  $3.25
208 illus.

A NEW MANUAL FOR THE BIOLOGY LABORATORY
By BERNAL R. WEIMER, Professor of Biology, Bethany College, and EARL L. CORE, Professor of Botany, West Virginia University

Teachers using the Weimer-Core laboratory manual, along with the Strausbaugh-Weimer textbook, find they have a combination that meets all their main requirements. The manual is not, however, dependent upon the textbook, and is used in several schools in connection with Strausbaugh and Weimer’s GENERAL BIOLOGY, or with other general biology textbooks. Twenty colleges have adopted the manual since its publication in June, 1944.

The carefully selected, clear-cut exercises illustrating the general principles of biology have favorably impressed teachers who have used the manual in their classes. The special care used in selecting specimens for study, the thought-provoking questions throughout, and the flexibility of the manual all contribute to make “Weimer-Core” an answer to the biology teacher’s search for a good, workable laboratory manual.

213 pages 8½ by 11  $2.00
156 illus.

JOHN WILEY & SONS, Inc., 440-4th Ave., New York 16, N. Y.
NEW!

"I deliberately smeared 10 minims of machine oil on a condenser lens and removed every vestige of it with two sheets of dry tissue"—John Adam Knight, N. Y. Post, 1/14/43 in his column "Photography."

ROSS-ADAMS Lens Tissues represent a radical departure from the usual Japanese style lens tissues. They are smooth, dense and thin as compared with the soft, porous Japanese style lens tissues. Some of the features are given below:

FEATURES . . .

ROSS-ADAMS Lens Tissues are specially processed, dense, and have considerable tensile strength. They will not disintegrate with manipulation. The surface of the tissue is smooth, thereby tending to prevent abrasive dust particles from becoming embedded in the paper. They have an unusual grease-absorbing quality, easily removing fingermarks and other oils and greases from lenses. Unlike soft and porous lens tissues, ROSS-ADAMS tissues will not permit body oils from the fingers to smear the surface being cleaned. This property can be readily tested by wiping eyeglasses. A single sheet will effectively clean a much greater area than will soft tissues which usually require several thicknesses. The tissues are free of vegetable or mineral filler and completely non-abrasive. The density and great strength of these tissues eliminate the breakdown of the fibres— or linting.

ROSS-ADAMS Lens Tissues are now widely used by our armed forces and by manufacturers of precision optics, and have been tested and approved by independent laboratories, various U. S. government agencies, and leading lens manufacturers.

Left: Photomicrograph 60X showing loose construction of regular lens tissue. Right: Photomicrograph 60X showing dense smooth structure of ROSS-ADAMS Lens Tissue.

A-1560 ROSS-ADAMS Lens Tissue, standard size, 100 3 x 5" sheets in a handy dispensing cardboard carton Each 35¢
A-1562 ROSS-ADAMS Lens Tissue, economy size, 300 4¼ x 5" sheets in a handy dispensing cardboard carton Each $1.00
A-1564 ROSS-ADAMS Lens Tissue, laboratory size, 1000 4¾ x 5" sheets in a cardboard box .Per box $3.00
A-1566 ROSS-ADAMS Lens Tissue, technical size, 300 8½ x 14" sheets in a cardboard box .Per box $4.50

QUANTITY DISCOUNTS:

Orders for $10.00 or more less 10%
Orders for $50.00 or more less 20%

Prices for other sizes on request.

CLAY-ADAMS CO. INC.
44 EAST 23rd STREET, NEW YORK 10, N. Y.
MALARIAL PARASITE X 18,350

From the Salivary Gland of the Anopheles Mosquito

As seen with the RCA Electron Microscope this specimen looks as large as a string bean. In actual size the malarial parasite measures close to 1/3000th of an inch long. The remarkable resolving power and great depth of focus which are characteristic of the RCA Electron Microscope are evident in the detail and differentiation in structural density disclosed.

With the RCA Electron Microscope direct magnifications up to 20,000 diameters are readily obtained. Still higher magnifications up to 100,000 diameters can be effected to good advantage by photographic enlargement of micrographs made with this instrument. Write for booklet illustrating and describing new floor type and console models.

BUY MORE WAR BONDS

RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION • CAMDEN, N. J.

In Canada, RCA VICTOR COMPANY Limited, Montreal
CATHODE-RAY OSCILLOSCOPE

The new Cenco Oscilloscope No. 71551 is now in stock in limited quantity and is available to laboratories without filing applications under W.P.B. Order M-293. This oscilloscope is of improved design and excellent manufacture. The sweep circuit has greatly improved linearity over the entire range of frequencies. Direct connections may be made to the deflecting plates by means of binding posts placed on the back of the instrument. Also, terminals are provided on the front panel for a current output of about ½ ampere at 6 volts for external use. The 3-inch screen is covered by a plastic graph which may be easily removed or adjusted to the position of the cathode-ray tube.

No. 71551 Cenco Cathode-Ray Oscilloscope, for operation on 110-120 volt, 50-60 cycle alternating current. Each, $78.00.

CENTRAL SCIENTIFIC COMPANY
Scientific Instruments & Laboratory Apparatus

CHICAGO 13
1700 Irving Park Rd.

BOSTON
Cambridge 42
79 Amherst St.

You Can Have the Best Equipped LABORATORIES at no Extra Cost by Using KEWAUNEE’S “Cut-Cost Plan”

• Kewaunee has applied to the production of Laboratory Furniture the same efficient designing and manufacturing principles which so greatly reduced the cost of fine Motor Cars. We call it the “Cut-Cost Plan of Unit Assembly.” Investigate the advantages it offers whether your Laboratory requires a few pieces or carloads. In addition to outstanding values, you will be equally pleased with the smart streamlined appearance so noticeable in Kewaunee Equipped Laboratories. Write—

CENTRAL SCIENTIFIC COMPANY
Scientific Instruments & Laboratory Apparatus

CHICAGO 13
1700 Irving Park Rd.

BOSTON
Cambridge 42
79 Amherst St.

FS Haemacytometer Cover Glasses

The result of modern technique applied to the grinding and polishing of optical surfaces

Rectangular shape, 20 x 26mm, 0.4-0.6mm thick. Within National Bureau of Standard's specification (±.001mm).

Each cover heat-sealed in cellophane, 12 to a box.

50¢ each; 1 box (12 covers) $6.00 less 25% Larger discounts for larger quantities.

FS Micro Culture

Hanging Drop Slides

Used for living specimens

25 x 75mm x 5mm thick; well has 16mm opening, 3mm deep. Top surface matte; bottom surface optically ground and polished flat to eliminate swaying of slide on stage of microscope.

Price 50¢ each, f.o.b. factory

FISH-SCHURMAN CORPORATION
230 East 45th Street, New York 17, N. Y.
**Changing plates**

**Almost a white collar job.**

Sparkler filter plates are interchangeable, which means that the separate plates of one nest may be cleaned and prepared while another nest is being used in production. Eliminates the mess of cleaning half a dozen machines that are too small.

Sparkler Filters clarify or purify any fluid in any quantity, using any filter aid that produces the finest results at greatest speed.

**SPARKLER MFG. CO.**
243 Lake Street
MUNDELEIN ILLINOIS

---

**EXPERIMENTAL ANIMALS**

**DEPENDABLE UNIFORMITY**

Beware the biological slowdown in experimental animal production during December and January. Make your research plans according to this chart.*

<table>
<thead>
<tr>
<th>JUNE</th>
<th>JJuly</th>
<th>AUG.</th>
<th>SEPT.</th>
<th>OCT.</th>
<th>NOV.</th>
<th>DEC.</th>
<th>JAN.</th>
<th>FEB.</th>
<th>MAR.</th>
<th>APR.</th>
<th>MAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*B EACH FIGURE REPRESENTS 15,000 MICE.

**PHOTOVOLT**

Optical

Fluorescence Comparator

For quantitative analysis of fluorescent solutions by means of fluorescent standards; for vitamins, quinine, atabrine, drugs, oils, organic and inorganic compounds.

High sensitivity

Suitable for use under any power line and atmospheric conditions including tropics.

Write for literature

PHOTOVOLT CORP.
95 Madison Ave.
New York 16, N. Y.
Announcing a New Feed!

PURINA LABORATORY CHOW
MADE EXPRESSLY FOR LABORATORY ANIMALS

1. NUTRITIONALLY ADEQUATE
   It's a complete ration for rats, mice, hamsters and dogs. Easily supplemented for cats and monkeys. Built for reproduction and growth.

2. CONSTANT NUTRITIONAL VALUE
   As near as is practical, the composition of Purina Laboratory Chow will be maintained constant. This is important in tests requiring a uniform diet for several generations.

3. SELECTED INGREDIENTS
   To assure you a quality product, we check the chemical, mineral and vitamin content of ingredients used in making Laboratory Chow.

4. FRESH AND PALATABLE
   A special method of handling has been set up to bring this feed to you fresh and palatable. In most cases it will be shipped direct.

5. CHECKER FORM
   No muss or fuss with Purina Laboratory Chow. It comes in convenient, clean, checker form. Easy to feed, easy to handle; very little waste.

MAIL this COUPON FOR FREE SAMPLE and FREE LABORATORY BOOK

PURINA MILLS,
1704 Checkerboard Square, St. Louis 2, Mo.
Please send me a copy of the new 28-page book, "The Care and Feeding of Laboratory Animals," SP 4629, and sample of Purina Laboratory Chow.

Name: ........................................
Street: ......................................
City: ......................................State: ........
COLOR PHOTOGRAPHY
for Scientific and Technical Purposes

Color photography has many applications in scientific and technical fields. It has been used with success in the following:

- Aerial photography
- Archaeology
- Botany
- Documentary photography
- Engineering
- Field studies of all kinds
- Forestry; Geology
- Medicine; Dentistry
- Metallography
- Meteorology
- Mineralogy; Petrography
- Photomicrography
- Reproduction of works of art
- and museum pieces

The Eastman Kodak Company will be pleased to advise about the applications to specific problems of any of the following direct-color processes:

- Kodachrome transparencies, and 16-mm. and 8-mm. motion pictures.
- Kotavachrome Professional Prints—sizes 8x10 inches and 11x14 inches, from Kodachrome transparencies made on sheet Kodachrome Film.
- Kodak Minicolor Prints—sizes to 11x14 inches, from miniature (24x36-mm. and 28x40-mm.) Kodachrome transparencies.
- Kodacolor Film for roll-film cameras—provides color negatives from which color prints are made.

EASTMAN KODAK COMPANY, Rochester 4, N. Y.
Off to War...

These tiny but essential tools of war are Spencer Triple Aplanats, hand magnifiers, designed to give a large flat brilliantly defined field. Three precision lens elements cemented together correct spherical and chromatic aberrations.

Like Spencer Microscopes and other scientific instruments, Triple Aplanats are serving a wide range of uses including mosquito control, instrument examination and repair, clinical use in first aid stations and in base hospitals—wherever, in fact, the eye needs simple aid in examining details magnified from 6X to 15X.

Spencer LENs COMpany
BUFFALO, NEW YORK
SCIENTIFIC INSTRUMENT DIVISION OF AMERICAN OPTICAL COMPANY