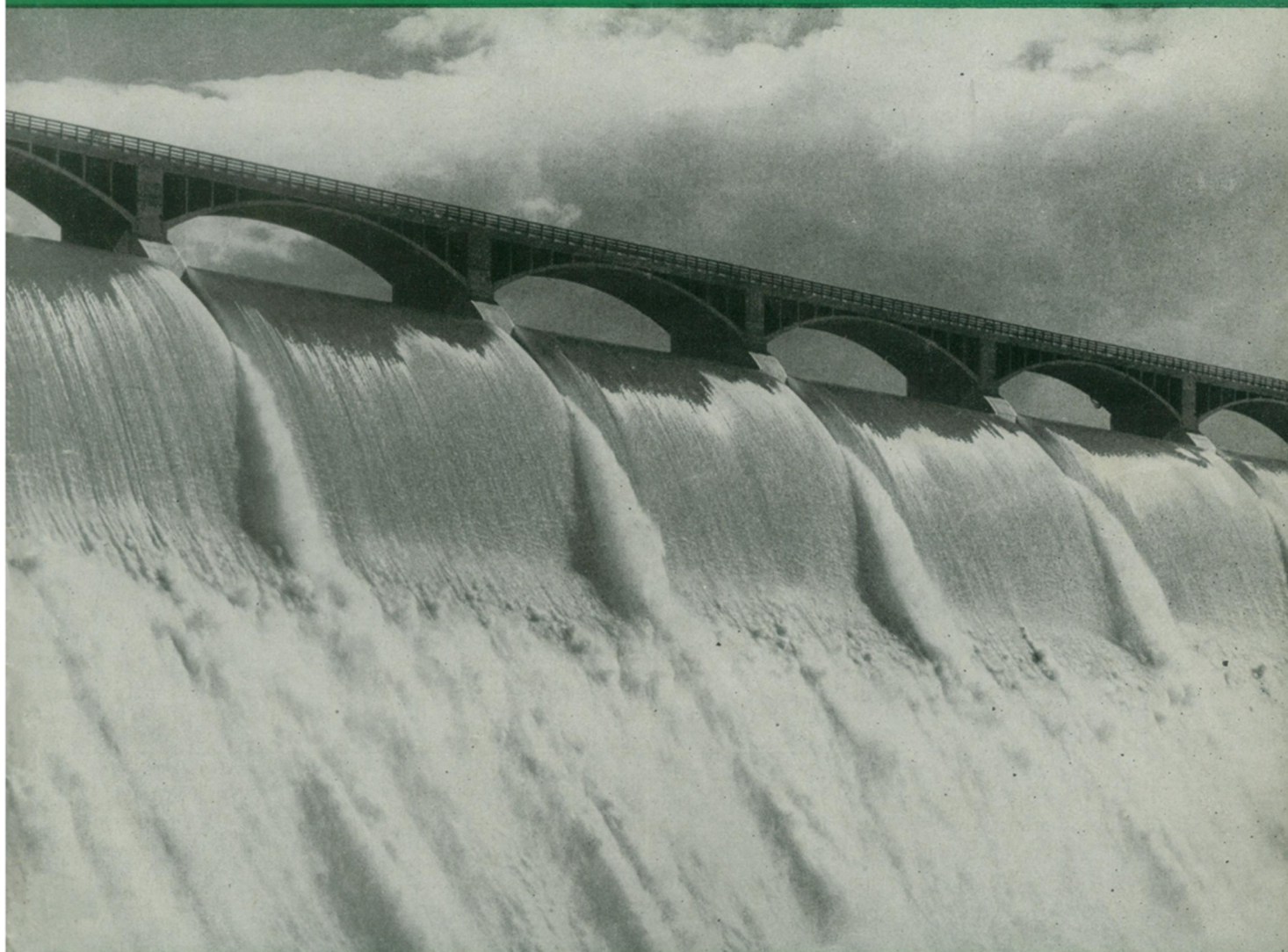


15¢



SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE • SEPTEMBER 11, 1943



Mightiest Weapon

See Page 166

A SCIENCE SERVICE PUBLICATION

Do You Know?

Opium grown in Yugoslavia and Turkey has particularly high *morphine* content.

Armed forces have ordered 24,000,000 burrs (dental drills) to care for cavities in the teeth of military personnel; 17,000,000 are left for civilians.

The American *lamb* crop for 1943 is approximately 31,000,000 head, a decrease of 1,500,000 from 1942 due to fewer breeding ewes and a smaller percentage of survival of lambs dropped.

Despite war difficulties, Alaska's Bristol bay, the greatest red salmon producing section of the world, by July 10 of this year produced 5.5 times as much *canned salmon* as for the same period last year.

Over 2,000,000,000 *cartridges* for machine guns and rifles have been made in 2½ years by a single St. Louis ordnance plant; if placed end to end along the equator they would encircle the earth nine times.

Sulfite liquor, a discarded byproduct of woodpulp mills, may be salvaged and made into alcohol; chemists state enough is now wasted from mills in Canada and the United States to make annually 86,000,000 gallons of alcohol.

Women have replaced men as government *fish counters* at the Bonneville Dam in Oregon; they check off on mechanical counters the number of fish of each species using the fish ladders in going up the river to spawn.

Question Box

Page numbers of Questions discussed in this issue:

AERONAUTICS

How far can the promised super-bombers of the near future fly without refueling? p. 163.

ASTRONOMY

In what gas are some red stars imbedded? p. 169.

Which comet, recently reported, may really be an asteroid? p. 168.

BIOCHEMISTRY

What fresh evidence has been obtained to prove that virus disease particles are actually giant protein molecules? p. 165.

CHEMISTRY

What new cleansers has the Army developed for use all over the world? p. 170.

What new processes in tinsplating save much tin and speed production? p. 169.

EDUCATION

Why is it considered important to retain student-operated laboratory periods in teaching chemistry in high school? p. 169.

ENGINEERING

How is electronics employed to control direct-current motors? p. 168.

On what heating and cooling principles does a recently developed air-conditioner for post-war homes operate? p. 168.

GENERAL SCIENCE

How can the blind be taught science? p. 174.

INVENTION

Why did a Roman invent a bomb which is not intended to kill? p. 167.

MEDICINE

How are laundry marks hampering the progress of the war in the East? p. 166.

How does donation of a pint of blood affect the production efficiency of war workers? p. 165.

Most articles which appear in SCIENCE NEWS LETTER are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

How may Poland become the health frontier for post-war Europe? p. 169.

What measures are recommended to avoid "dural poisoning"? p. 164.

What treatment of inoculation serum may prevent subsequent cases of jaundice? p. 167.

METALLURGY

What natural abrasive formerly obtained from South Africa is now being mined in South Carolina? p. 169.

MILITARY SCIENCE

Through what means can any fencepost or tree stump become valuable to a machine-gunner? p. 168.

What pattern for invasion would reduce casualties to a minimum, according to an Air Forces officer? p. 174.

MILITARY SCIENCE—PSYCHOLOGY

How has infantry's reassuming a place of prime importance been a psychological as well as a military victory? p. 163.

PUBLIC HEALTH

How has Henry Kaiser contributed a valuable example to the medical profession? p. 164.

RADIO

How can noise on radio installations of all-metal aircraft be averted by proper engineering methods? p. 167.

RESOURCES

What product extracted from the divi-divi pod of the divi-divi tree is used in America? p. 168.

WILDLIFE

What device is a lifesaver for fish? p. 166.

What methods are recommended for observing wild mammals of the countryside? p. 173.

There are no wild land *beasts* in the Solomon Islands.

Ragweed, whose pollen is active in causing hayfever, is not found in Alaska, the British Isles, Scandinavia, Holland and most of Germany; it is not plentiful in Spain, Italy and France.

Fifty-three carloads of *paper* went into Ration Book No. 3.

Ecuador is experimenting with a variety of the *Sansevieria* plant as a new source of fiber for rope-making; the product is a type of African bowstring hemp.

SCIENCE NEWS LETTER

Vol. 44 SEPTEMBER 11, 1943 No. 11

The weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington 6, D. C. North 2255. Edited by WATSON DAVIS.

Subscriptions—\$5.00 a year; two years, \$8.00; 15 cents a copy. Back numbers more than six months old, if still available, 25 cents.

In requesting change of address, please give your old address as well as the new one, at least two weeks before change is to become effective.

Copyright, 1943, by Science Service, Inc. Reproduction of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service.

Cable address: Scienserve, Washington.
New York office: 310 Fifth Avenue, CHickering 4-4565.

Entered as second class matter at the post-office at Washington, D. C., under the Act of March 3, 1879. Established in mimeographed

form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and in the Engineering Index.

The Science Observer, established by the American Institute of the City of New York, is now included in the SCIENCE NEWS LETTER.

The New York Museum of Science and Industry has elected SCIENCE NEWS LETTER as its official publication to be received by its members.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., PEEnsylvania 6-5566; and 360 N. Michigan Ave., Chicago, STate 4439.

SCIENCE SERVICE is the Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science: Henry B. Ward, University of Illinois; Edwin G. Conklin, American Philosophical Society; J. McKeen Cattell, Editor, Science. **Nominated by the National Academy of Sciences:** R. A. Millikan, California Institute of Technology; Harlow Shapley, Harvard College Observatory; W. H.

Lewis, Wistar Institute. **Nominated by the National Research Council:** Ross G. Harrison, Yale University; C. G. Abbot, Secretary, Smithsonian Institution; Hugh S. Taylor, Princeton University. **Nominated by the Journalistic Profession:** O. W. Riegel, Washington and Lee School of Journalism; A. H. Kirchhofer, Buffalo Evening News; Neil H. Swanson, Executive Editor, Sun Papers. **Nominated by the E. W. Scripps Estate:** Frank R. Ford, Evansville Press; Warren S. Thompson, Miami University, Oxford, Ohio; Harry L. Smithton, Cincinnati, Ohio.

Officers—Honorary President: William E. Ritter. **President:** Edwin G. Conklin. **Vice-President and Chairman of Executive Committee:** Harlow Shapley. **Treasurer:** O. W. Riegel. **Secretary:** Watson Davis.

Staff—Director: Watson Davis. **Writers:** Frank Thone, Jane Stafford, Marjorie Van de Water, Morton Mott-Smith, Glenn Sonnedecker, A. C. Monahan. **Science Clubs of America:** Joseph H. Kraus, Margaret E. Patterson. **Photography:** Fremont Davis. **Sales and Advertising:** Hallie Jenkins. **Business Manager:** Columbus S. Barber. Correspondents in principal cities and centers of research.

Window on New Worlds

UNTIL recently there were a lot of very small things that scientists knew existed, but that even the best microscopes couldn't show—things even smaller than the light waves that would make them visible.

That was a fundamental limitation. It was like trying to use a yardstick with no feet or inches marked on it. You could measure big things, like a house. But when you tried to use it to measure small things, like a pin, you'd be stumped.

Then it was discovered that electrons—tiny particles of electricity—behave like light waves, although they are much shorter than the light waves

we see by. Magnets and electric fields act on these electrons very much as a lens acts on light. So *electron* microscopes were developed. And, sure enough, they opened up to view a whole world that had previously been invisible!

It's too early yet to predict all that this new world contains. But what it promises! Just imagine what it would mean to doctors to see—not just in vague outline, but with details of structure—the mysterious somethings that cause influenza, infantile paralysis, and the common cold! Or for chemists to study the complex molecules of synthetic plastics, or the crystals that give alloys

their unusual properties. From here on—it's anybody's guess!

Like every other tool of science, right now the electron microscope is being aimed at things that will help win the war. But when we say that the world after the war is going to be better, it's because the electron microscope and the other new tools developed in the research laboratories of American industry will help to make it so. *General Electric Company, Schenectady, N. Y.*

★ ★ ★

Hear the General Electric radio programs: *The "Hour of Charm"* Sunday 10 p.m. EWT, NBC—*"The World Today"* news, every weekday 6:45 p.m. EWT, CBS.



The G-E electron microscope discloses two of the six cutting tools with which a mosquito pierces the skin. The length of the inner barbs is about eight millionths of an inch.

The best investment in the world is in this country's future—BUY WAR BONDS

GENERAL  ELECTRIC

952-486C2-211