

PHYSICS

Films Detect Radiation

Photographic film badge, when developed, shows amount of radiation dosage. Another film dosimeter can be processed in one minute.

➤ A SIMPLE photographic film badge, pinned to the shirt of a worker in a area where he may be exposed to high-energy X-rays, has applications ranging from activities in the television industry to rescue work in regions damaged by an atomic bomb.

Details of this photographic film dosimeter, as it is called, are revealed by the National Bureau of Standards where it was developed under the direction of Margarete Ehrlich. At regular intervals this NBS film worn by the worker is developed and the amount of radiation dosage for a given period of time is determined.

Tests on a somewhat similar dosimeter, just completed, are reported from Randolph Field, Texas, by the U. S. Air Force. The device tested is called by the Air Force a self-developing film badge which was submitted to it for evaluation.

Essentially the badge is a miniature film pack, the Air Force states. The pack may be pinned on a shirt or attached to the dog tag around the airman's neck. It contains a chemical pod that develops and fixes the film automatically when it is withdrawn from the pack.

The developing process takes only one minute, and gives an immediate record of the amount of radiation absorbed while the pack was worn. The film used is described by Randolph Field officials as "those self-developing types that camera addicts wield at picnics and on fishing trips."

These film dosimeters are designed as inexpensive devices to detect dangerous radiation and supplement the standard instruments known as Geiger counters and

similar radiation meters. The effectiveness of the film type depends upon the emulsion employed.

In the work of the Bureau of Standards the first major problem encountered was to select film emulsions that would detect dosages within the required ranges. A total of 16 were tested, and four were selected as satisfactory. A second problem was to devise means that would make the response of the emulsions independent of the extraneous electron flux and of the radiation energy. The NBS film badge uses an absorber made of extremely thin tin and lead placed over a container made of thin Bakelite, the latter protecting the film from secondary electrons.

Science News Letter, July 28, 1951

PHYSICS

Radioisotopes Increased For Export from U. S.

➤ TO ASSIST in extending the scope of international cooperation in science, the U. S. Atomic Energy Commission has enlarged its radioisotope export program to include all radioactive materials now sold in this country on an unrestricted basis. For the first time it has made U. S.-produced radioisotopes available to foreign users for industrial research.

The number of U. S.-produced isotopes available to buyers in foreign countries has been increased from 26 to 99. Among the more useful of the newly-available isotopes are cesium 137, yttrium 91, selenium 75

and tantalum 182, which all have valuable applications in industrial research; chromium 51, nickel 59 and 63, and tungsten 185, which are useful in metallurgical research, and rubidium 86, which is a valuable substitute for the shorter-lived sodium 24 and potassium 42 in agricultural research.

American manufacturers can now export radioactive thickness gages, which are finding increasing application in a number of different industrial processes.

Science News Letter, July 28, 1951

SCIENCE NEWS LETTER

VOL. 60 JULY 28, 1951 No. 4

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.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Copyright, 1951, 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. Science Service also publishes CHEMISTRY (monthly) and THINGS of Science (monthly).

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C. under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 34.40, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 283), authorized February 28, 1950. 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 the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., Pennsylvania 6-5566 and 360 N. Michigan Ave., Chicago. STAtE 2-4822.

SCIENCE SERVICE

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: Edwin G. Conklin, Princeton University; Karl Lark-Horvitz, Purdue University; Kirtley F. Mather, Harvard University. Nominated by the National Academy of Science: Harlow Shapley, Harvard College Observatory; R. A. Millikan, California Institute of Technology; L. A. Maynard, Cornell University. Nominated by the National Research Council: Ross G. Harrison, Yale University; Alexander Wetmore, Secretary, Smithsonian Institution; Rene J. Dubos, Rockefeller Institute for Medical Research. Nominated by the Journalistic Profession: A. H. Kirchofer, Buffalo Evening News; Neil H. Swanson, Baltimore Sun Papers; O. W. Riegel, Washington and Lee School of Journalism. Nominated by the E. W. Scripps Estate: Frank R. Ford, Evansville Press; John T. O'Rourke, Washington Daily News.

Officers—President: Harlow Shapley; Vice President and chairman of Executive Committee: Alexander Wetmore; Treasurer: O. W. Riegel; Secretary: Watson Davis.

Staff—Director: Watson Davis. Writers: Jane Stafford, A. C. Monahan, Marjorie Van de Water, Martha G. Morrow, Ann Ewing, Wadsworth Likely. Science Clubs of America: Joseph H. Kraus, Margaret E. Patterson. Photography: Fremont Davis. Sales and Advertising: Hallie Jenkins. Production: Priscilla Howe. In London: J. G. Feinberg.

Question Box

ASTRONOMY

From what part of the U. S. will the sun's next eclipse be visible? p. 58.

ARCHAEOLOGY

How did a baby's birth record help to date a house in Dura? p. 54.

BIOPHYSICS

Why should you not lie down to match colors? p. 54.

BOTANY

Where might marijuana be found around the home? p. 60.

Photographs: Cover, pp. 54 and 55, National Gallery of Art; p. 51, A. R. Thiel Co.; p. 53, General Electric Company.

GENERAL SCIENCE

What weather conditions were responsible for the rains that produced the disastrous Kansas-Missouri floods? p. 50.

What disease could strike in the flood area? p. 50.

MEDICINE

Against what venereal disease is terramycin effective? p. 55.

PUBLIC HEALTH

What is the best way to beat chiggers? p. 62.