

mer, Lilly Laboratory for Clinical Research, Indianapolis, and Drs. J. R. Williams, Jr., T. R. Harrison and Arthur Grollman, Vanderbilt and Johns Hopkins Universities, to the Biology meeting. Not only was blood pressure reduced but the condition of the thickened arteries improved and the sometimes blinding eye disturbance accompanying very high blood pressure was cleared up.

Science News Letter, March 30, 1940

Pocket Oxygen Supply

PILOTS of bombing planes who have to bail out at altitudes of 35,000 feet can be saved from dying of oxygen lack on the way down to the ground by a new device presented by Dr. Walter M. Boothby of the Mayo Clinic to the Biology meeting. The device is a pocket-sized tube containing just enough oxygen to keep the pilot alive until he reaches an altitude low enough to breathe in. A new sponge rubber valve for the oxygen mask, which does not freeze at high altitudes as metal valves sometimes do, gives further protection to pilots of both bombing and other planes flying at high altitudes.

Science News Letter, March 30, 1940

French Digitalis Good

BBETTER treatment for one million potential heart disease patients in the United States will result from experiments with a heart disease remedy announced by Drs. McKeen Cattell and Harry Gold, Cornell University Medical School, at the meeting of the Federation of American Societies for Experimental Biology in New Orleans.

The figure of one million heart disease patients is Dr. Gold's estimate of the number of persons in this country who will require the heart remedy, digitalis, before they die.

A French preparation of this material, which American physicians have thus far hesitated to use, is the best of the preparations of this drug from the foxglove plant, Drs. Cattell and Gold found. The French digitalis is more potent and more uniform than the others. Only three units of the French digitalis are needed to give the same effect on the patient's heart for which thirty units of other preparations are required. This extra strength may explain American physicians' hesitancy to use the French digitalis. Not knowing its strength, they may have used too much of it, with untoward results.

Digitalis preparations vary as much as

300% in strength, the Cornell investigators found. They believe present accepted methods of assaying digitalis strength by animal tests are not satisfactory. The French digitalis is a crystalline preparation and can therefore be assayed by chemical instead of animal tests. This allows the manufacturer to put up digitalis doses of uniform strength which are more useful to the physician who prescribes digitalis for his heart patients.

Science News Letter, March 30, 1940

Morphine Poisoning

PRESENT method of treating patients who try to commit suicide by taking overdoses of morphine are really only

adding insult to injury, Drs. Lloyd W. Hazeltine and Theodore Koppanyi, Georgetown University, Washington, D. C., declared, on the basis of experiments with more than 30 rabbits reported to the Biology meeting. The present treatment is to give medicine like strychnine or caffeine which stimulate respiration, or breathing. The theory of this treatment is that morphine kills by stopping breathing.

Actually, the Georgetown investigators found, morphine poisoning has two effects. First, it slows breathing, but after that period it stimulates breathing, and this effect is augmented by the stimulating drugs. Blood circulation, they found, fails before breathing fails in morphine poisoning.

Science News Letter, March 30, 1940

PUBLIC HEALTH

Exposure to Sun Helps Prevent Cancer Deaths

Recent Studies Indicate Amount of Sunshine May Be Related to Cancer Incidence Though Sun May Cause It

EXPOSURE to sunlight during childhood and adolescence, though it may result in cancer of the skin or lips, helps to prevent death from cancer. This theory, developed by Dr. Sigismund Peller, Johns Hopkins School of Hygiene, is supported by U. S. Army figures in a report by Dr. Peller and Col. Charles G. Souder, M.C., U. S. Army. (*Army Medical Bulletin*.)

According to Dr. Peller's theory, development of the easily curable skin or lip cancers protects against development of cancer in parts of the body that are less accessible for treatment and which therefore are more likely to be fatal.

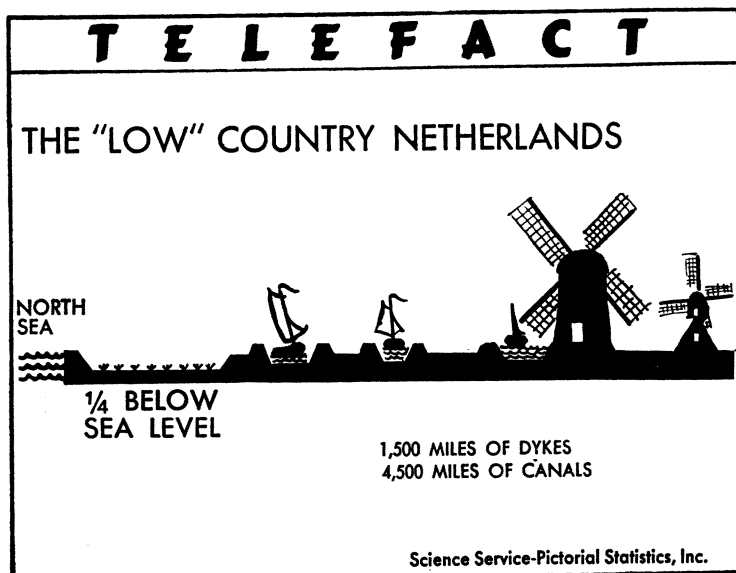
Of 242 white patients in the Army who were born in the southern tier of the States (south of the 40° of latitude), 110 or 45% had cancer of the skin or lip, while of 300 white cancer sufferers born in northern parts of the U. S. only 20% had skin or lip cancer, the Army records show. During the time of service, both northerners and southerners are under identical medical care and living conditions. The difference is about the same in officers as in enlisted men, and it is especially high during the first 10 to 15 years of active service. Later on this difference between the northern- and the southern-born di- (*Turn to page 207*)

PREVENTING cancer by sunlight may be possible if scientists can learn more about how the sun's rays affect the body. Evidence that exposure to sunlight does produce cancer immunity in some cases, was presented by Dr. Frank L. Apperly, Medical College of Virginia, to the American Association of Pathologists and Bacteriologists meeting in Pittsburgh.

Cancer mortality in the United States and Canada grows less, Dr. Apperly finds, as the amount of sunlight increases across the continent and as more people are exposed to sunshine, for example, where more of the population is engaged in farming or other outdoor occupation.

Differing from some other scientists who believe sunlight holds the key to cancer prevention, Dr. Apperly does not believe it is necessary to have skin cancer in order to become immune to other forms of cancer. Those who hold this view believe cancer deaths might be reduced by enough sunlight to cause skin cancer, which is easily cured, and which might leave the individual with immunity to other forms of cancer.

Sun rays, or something closely associated with them, Dr. Apperly declared, have two separate effects: 1. they produce some sort of relative immunity to



cancer in general and, in those localities where the mean temperature is less than about 42 degrees Fahrenheit, even to skin cancer; 2. at mean temperatures above 42 degrees Fahrenheit, sun rays produce more cancer on those parts of the skin exposed to them, in spite of a generally raised immunity.

Besides the statistics of cancer deaths in various climates, Dr. Apperly cited animal studies by other scientists which, though not completely applicable to humans, have a bearing on the question. When mice were given a large dose of X-rays before application of a cancer-causing coal tar chemical, methylcholanthrene, they died at almost three times the rate of animals not previously X-

rayed. Small doses of X-rays before the chemical treatment, however, protected the mice against the cancerous effect of the chemical to such an extent that the cancer mortality was only one-third that of the non-X-rayed group.

"We may be able to reduce our cancer deaths," Dr. Apperly concluded, "by inducing a partial or complete immunity by exposure of suitable skin areas to sunlight or the proper artificial light rays of intensity and duration insufficient to produce an actual skin cancer.

"The study of the effects of sunlight on the living organism, and of those conditions in the skin which modify its action, may produce results of inestimable value."

Science News Letter, March 30, 1940

MEDICINE

Reports New Optical Test For Presence of Cancer

Measurement With Interferometer of Blood Serum Mixed With Human Cancer Cells Reveals Disease

A NEW optical test that tells whether a person has cancer and whether after operation that cancer has been successfully treated is claimed by Dr. M. W. Mettenleiter, New York surgeon, connected with St. Clare's Hospital.

In a preliminary series of 325 cancer cases, the test is reported to have proved 96% correct.

Developed from German studies reported over the last 30 years, the Met-

tenleiter test involves the measurement of the densities of a number of samples of the person's blood serum by use of an interferometer. The blood serum from the patient is mixed with an extract of human cancer cells from a patient known to have carcinoma of the breast.

Varying amounts of the suspected patient's blood serum are placed in four test tubes containing equal amounts of the cancer extract. After incubation and

settling, the densities of the four dilutions are obtained, and plotted out graphically. The curves are reported to show a characteristic difference between cancerous and the non-cancerous blood serum.

Dr. Mettenleiter believes that the test will prove of assistance in the early diagnosis of cancer and in determining the course of a case. He finds that a curve indicating cancer slowly changes to a normal curve after a successful operation. He reports that it changes again from a normal to a cancer curve in the earliest stages of recurrence. A cancer curve, it was found, does not change postoperatively if metastases or spreading of the cancer have already occurred or are about to take place elsewhere in the body.

The test reaction failed to appear when serum of a pregnant woman or of a person with tuberculosis, syphilis or numerous other diseases was used, it was reported. However, as was to be expected, fever and intensive X-ray treatments influenced the serum so as to make the test uncertain. Extract of normal organs, for example, fibroid tissue, failed to show any reaction.

Dr. Mettenleiter made known his researches through a communication to the British science journal, *Nature*. He is a fellow of the American Medical Association and of the American College of Surgeons. Born and educated in Germany, he has practised in New York since 1927.

A successful, practical test for cancer has been sought by many experimenters. About a score of such tests have been announced from time to time. The Mettenleiter test will undoubtedly be received with interest. Others working on cancer will try it and they must report success before it can be expected to come into use.

Science News Letter, March 30, 1940

To make *radios* dependable, one company tests sets in weather rooms which duplicate steamy jungle heat, sub-zero cold, and desert dryness.

● RADIO

Dr. Otto Struve, director of Yerkes Observatory and McDonald Observatory, will give information on the annular eclipse of the sun to occur on April 7, as guest scientist on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Thursday, April 4, 4:15 p.m., EST, 3:15 CST, 2:15 MST, 1:15 PST.

Listen in on your local station. Listen in each Thursday.

Annular eclipse of sun; 3:18 p. m., New moon. **Monday, April 8**, 4:02 a. m., Algol at minimum; 9:09 p. m., Moon passes Saturn. **Wednesday, April 10**, 7:00 p. m., Venus passes Mars. **Thursday, April 11**, 12:51 a. m., Algol at minimum; 1:38 p. m., Moon passes Mars; 2:14 p. m., Moon passes Venus; 5:00 p. m., Jupiter in line with sun. **Friday, April 12**, 4:00 a. m., Mercury farthest west of sun. **Saturday, April 13**, 9:40 p. m., Algol at minimum. **Monday, April 15**, 8:46 a. m., Moon at first quarter. **Tuesday, April 16**, 6:29 p. m., Algol at minimum. **Wednesday, April 17**, 7:00 a. m., Venus farthest east of sun. **Saturday, April 20**, 2:00 p. m., Moon nearest, 223,700 miles away. **Sunday, April 21**, 11:37 p. m., Full moon. **Wednesday, April 24**, 1:00 p. m., Saturn in line with sun. **Monday, April 29**, 2:49 a. m., Moon in last quarter.

Eastern Standard Time throughout.

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minishes, as the exposure to open-air life during active service supersedes the childhood influences. And this exposure is of course identical for northerners and southerners.

The average case fatality rate of cancer for white persons born in the south is substantially lower than for northerners. Army officers have a cancer mortality 48.5% lower than the civil population of New York City or of other big cities.

Under the same environmental conditions, the skin of colored persons is less likely to develop cancer than the skin of white persons, Dr. Peller and Col. Souder report.

Of 100 white cancer patients in the U. S. Army, 35% suffer from lip or skin cancer, of 100 colored patients only 6.5%. The higher resistance of the colored skin to the sun rays is, however, of no avail to the colored people. On the contrary, due to their higher percentage of the much more malignant internal tumors, the average case fatality rate is much higher for colored than for white cancer patients.

Science News Letter, March 30, 1940

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Desert Night Life

DESERTS are not so devoid of animal life as they seem to the motorist driving rapidly through them, or even to the casual observer who gets out for a stroll through the cactus and mesquite, Prof. Charles T. Vorhies of the University of Arizona pointed out.

The animals are there, but mostly invisible. Some of the rodents burrow deep, to find coolness and conserve their body moisture. Other animals—rodents, birds, reptiles and insects alike—rest in the shade of the tough desert plants or hide in cracks in the rocks. Very few of them brave the sun: "There are no 'cactus animals'," said Prof. Vorhies. At dawn and dusk, and during the dark hours of night, is when the desert is really alive.

Another point developed by Prof. Vorhies is a reversal of the commonly held belief that rabbits and smaller rodents hasten the disappearance of good range grasses from overgrazed land and encourage the appearance of economically worthless weeds. Recent evidence seems to indicate that the coming of huge rodent populations to harmed rangelands is a consequence, not a cause, of their ruin. They are themselves "weed animals".

Science News Letter, March 30, 1940

PHYSICS

Communication Disruption Blamed on Sun Disturbance

A TERRIFIC disturbance on the sun was the cause of the worst magnetic disturbance since 1921 which blacked-out telegraph lines, disturbed radio communication, and interfered with long distance telephony on Easter.

Unusual radiation from the sun swept down upon the earth, setting up vast currents of electricity in the upper atmospheric layers, 60 to 90 miles above

the earth, and shooting electrical currents through the earth to mix up or make inoperable communication lines, especially those that use the earth as one side of the circuit.

Preliminary indications are that the storm was even more severe, especially on communication by wire, than the famous Easter storm of 1938, which occurred on Easter Saturday, April 16. In that storm a telegraph station in Oslo was set on fire by the current created and telephone bells rang without anyone calling.

In this Easter's storm, earth currents on communication wires as high as 250 volts were reported and it is believed likely that as much as several million amperes of current was generated in the ionosphere high above the earth.

The horizontal intensity of the earth's magnetic force had a range of over 1,000 gammas, compared with a range of 50 for an ordinary day. A range of 200 gammas is considered a magnetic storm. Gamma is a unit of magnetic intensity.

A large sunspot group visible to the naked eye properly protected by smoked glass, was in its best observing position on Sunday, but three previous appearances of the same group had brought no such extreme magnetic effects. Evidently the solar disturbance was a gigantic flare-up rather than just a sunspot.

Science News Letter, March 30, 1940

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