

efficient way of telling when their hydrographic wire had reached bottom. The method—breaking a glass ball at the end of the wire, then picking up the sound waves it sets up on the ship's hydrophones—promises to become standard for scientific cruises. One time when it did not work, extra cable was paid out and when this was hauled in, there was the rock, covered with manganese dioxide.

Science News Letter, November 3, 1951

PHYSICS

Heating of Lead Used To Measure X-Ray Energy

► A "HOT LEAD" technique can now be used to measure X-ray energy in terms of standard heat measurements of energy instead of by indirect measurements through secondary phenomena.

The method, worked out by University of Illinois physicists in Urbana, Ill., measures the rays' heating effects on a block of lead. The method gives very precise measurements and can be used on X-rays of energies from the 400,000 used in conventional medical X-ray treatments, to the 340,000,000 volts from the University's betatron.

Though the physicists term the new method a "hot lead" technique, the actual temperature rise is no more than one-tenth of a degree. The small temperature increases are measured by a thermistor, a new type of heat-measuring device 10 times as sensitive as older resistance thermometers. It is embedded in the lead.

Physicists at the University of Illinois and at the medical campus in Chicago worked together on the new development. P. D. Edwards in the betatron laboratory worked in the 300,000,000-volt range, and J. S. Laughlin at the College of Medicine at the 25,000,000 and 400,000-volt levels.

Science News Letter, November 3, 1951

ENGINEERING

Find Cure for Dancing Conductors—on Wires

► A CURE for "dancing conductors" was reported in Cleveland. Dancing conductors are not related to band or orchestra leaders. They are transmission lines for electricity, such as those seen along a highway, that have been set in a rhythmic rise-and-fall motion by the wind. This can happen when they are covered with a light glaze of ice. When one wire swings up even with or quite close to another wire, the current jumps across, causing a short circuit.

Dancing conductors can be cured by mechanical dampers and other means, J. E. Sproule and F. L. Code of the Hydro Electric Power Commission of Ontario reported to the American Institute of Electrical Engineers in Cleveland.

Science News Letter, November 3, 1951

DENTISTRY

Fight Tooth Decay

Very few of nation's public water supplies are being treated with the tiny amount of fluorine that could keep youngsters' teeth more free from decay.

► ONLY ABOUT three-quarters of one percent of America's public water supplies are now adding the tiny amount of fluorine that promises to make the coming generation's teeth more nearly free from decay.

But the dentists, water works engineers and public health experts who are urging fluoridation of water we drink are not discouraged by this fact that only 120 out of the more than 15,000 public water supplies of the nation are fluoridated.

The one big hope of preventing dental caries—decayed teeth in simple words—is treating growing teeth with amounts of fluorine so small that they produce no other effect on human health. This is the biggest dental discovery in recent years, in the opinion of many experts. It produces about a two-thirds reduction in the dental decay rate of children. Too much fluorine occurring naturally in drinking water causes unsightly mottled enamel of teeth. Surprisingly, mottled teeth were more free from decay than prettier teeth. It was found that adding the chemical to teeth, in drinking water or by swabbing it on in the dentist's office, protected teeth from decay in later years.

The U. S. Public Health Service and several other investigators developed the methods. Guinea pig cities, one with fluorine added to its water matched with another left alone, proved that children's teeth could be protected. The rush began to add fluorine to water so children could drink away future toothaches.

Wisconsin is the most fluoridated state. Sixty out of the 120 treated water supplies are in that state.

But the fluorine rush for better teeth is on. Almost every state's health department is helping communities prepare for fluoridating their water, much as a number of years ago chlorination was introduced to clean up polluted water supplies that were spreading water-borne diseases.

Civic clubs, women's organizations and newspapers in various localities, as well as dental and health associations, are campaigning for fluoridation of water supplies so that children can literally drink away their future toothaches.

So difficulties arise in the program:

As often happens with new methods, some misinformed individuals are contending that addition of the minute amounts of fluorine to water is dangerous. There is no good evidence to support such ideas.

State and local health departments, and water works, are limited by facilities and personnel in the speed with which the

fluoridation program can be put into operation. One typical state can extend the method to only one city each month. There is also a limit to the amount of the necessary chemicals that can be produced industrially in the forthcoming months. Money is also necessary to operate the program and install the method, although this amounts to only a few cents each year for each person benefited. Federal funds to aid states have been limited severely by Congress.

Not all the population can be reached with the fluorine chemicals in public water supplies. The millions in very small towns and in rural areas, who drink spring and well water, will need to have their children go to dentists to have the chemicals swabbed on their teeth by a process called topical fluoride applications.

There are a few favored areas where there is enough fluorine naturally in the water to protect future teeth, but there are less than 1,500 of these cities with natural fluoridation. Some areas of excess fluorine content in their water may actually have to remove some of it to prevent mottled enamel.

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ASTRONOMY

Our Milky Way Galaxy Is a Giant Starry Universe

► OUR MILKY WAY galaxy of millions of stars is a giant among the starry universes, Dr. Thornton Page of Yerkes Observatory has just reported to the Smithsonian Institution.

The galaxy of which our solar system forms a tiny part weighs about as much as 200 billion suns, Dr. Page estimates. The Andromeda nebula, nearest object in space beyond the Milky Way galaxy, appears to weigh as much as 100 billion suns. But other nebulae sufficiently close to be seen with the world's largest telescopes weigh only as much as one to ten billion suns, the Yerkes astronomer calculates.

About half the weight of each "island universe" is believed due to the gases and cosmic dust between the stars rather than to the stars themselves.

Latest sampling counts indicate that about 2,000 such starry universes of different shapes and sizes are near enough to our solar system for their light, traveling 186,000 miles a second, to reach us within 13,000,000 years. There are approximately 9,000,000 such stellar universes near enough

for their light to have started on its way to us not more than 200,000,000 years ago. As many as 70,000,000 starry universes exist within 450,000,000 light years of us.

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METEOROLOGY

Forecast Severe Winter with Prompt Spring Following

► A RATHER severe winter will be followed by a fairly prompt spring about mid-March for the eastern half of the nation. With this pattern, it usually works out that the Southwest has an "open" winter and the Pacific Northwest an average winter.

This is the prediction for the 1951-1952 winter by Dr. H. C. Willett, professor of meteorology at the Massachusetts Institute of Technology, Cambridge, Mass.

Dr. Willett told SCIENCE SERVICE that the cold in the Northeast will be severe from mid-November through December. January will be relatively mild, while February will be cold again. Along about mid-March, he said, there will be a definite change in the weather and spring will be upon us.

Through the mid-Atlantic states and the Southeast, the pattern will be the same, although, of course, not quite as cold.

Snow will follow the weather. Heavy snows, Dr. Willett predicts, will hit the Northeast soon after mid-November, the middle Atlantic states a little bit later, and continue to the end of December. January will be relatively free of snow, but it will be back for February. Snow will be heavier in the mid-Atlantic states than farther north, Dr. Willett said.

Dr. Willett, known for his work in extended forecasting, has more courage than the Weather Bureau's Extended Forecast Section. Jerome Namias, head of that section, refuses to predict the weather for any period longer than a month ahead.

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TECHNOLOGY

Combat Footwear Keeps Toes Warm at 45 Below

► U. S. MARINES and Army troops in Korea this winter will be wearing new insulated rubber boots that operate on the Thermos bottle principle and protect against frostbite even at 45 below zero.

Developed by the Hood Rubber Company, Watertown, Mass., and the Naval Clothing Depot, Brooklyn, N. Y., they will replace the shoe-pac in time to prevent a repetition of last winter's cases of frostbite.

The new boot consists of two layers of rubber with two plies of knitted wool insulation between them. It is designed to be worn with just one pair of socks. The innermost layer of rubber is faced with nylon film to help prevent friction on the inside of the boot.

Science News Letter, November 3, 1951

MEDICINE

Adverse Krebiozen Report

► AN AMERICAN Medical Association committee has reported that trial of Krebiozen, announced last March as a promising remedy for cancer, "fails to confirm the beneficial effects" claimed for it. (J.A.M.A., Oct. 27.)

Of 100 patients given this drug, 44 have died. Only two showed temporary signs of improvement. In one of these it is considered that a period of temporary improvement, such as the patient had been having off and on, happened to come at the time Krebiozen was being given. The patient has since died. In the other patient, now near death, the main cancers continued to grow rapidly, though some small ones showed regression.

Krebiozen is described as a white powder which dissolves in water. It is said to be extracted from the blood serum of a horse after the horse has been inoculated with a substance said to stimulate its reticuloendothelial system, which includes the spleen and lymph glands and certain cells of the bone marrow and liver.

The drug was allegedly discovered by Dr. Stevan Durovic, former Yugoslavian

physician now living in a Chicago suburb with his brother, Marko. Dr. Durovic came to this country from Argentina. A preliminary announcement of trials of the drug was made to a group of doctors and researchers in Chicago last March by Dr. A. C. Ivy, vice-president in charge of the professional schools of the University of Illinois.

The A. M. A. committee still classes Krebiozen as a "secret remedy," because not enough details of its composition and preparation have been given. Investigation of the drug was made as a public service to physicians and the public.

The 100 patients whose clinical histories were reviewed had been given the drug by physicians who had been invited to evaluate the drug by Dr. Ivy and his associates of the Krebiozen Research Foundation. Reports on these 100 patients came from seven sources in four widely separated parts of the country, including the tumor clinic, department of surgery, University of Illinois.

"The public may wonder," the committee points out, "at the wide divergence of opinion between the original report and these published results (in the 100 patients)."

The cancer specialist, it is explained, knows that certain types of cancer often run a long course with marked changes in the patient's condition. The public, not knowing this, may be surprised by unexpected improvement in the patient and if it coincides with some new treatment, thinks the treatment is proving the hoped-for cure.

Relief of pain, improvement in appetite, ability to be up out of bed and speech are all affected by the patient's feeling about the new treatment, but are "notoriously unreliable" as signs of improvement due to treatment.

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"THERMOS" BOOTS — *Two Korean veterans, 1st Lt. Joseph R. Owen, USMC, of Syracuse, N. Y., and S/Sgt. Thomas Davies, Jr., of Dover, N. J., inspect a new insulated rubber boot now being issued in Korea. The boot operates on the same principle as a Thermos bottle and will protect feet against frostbite even at 45 below zero Fahrenheit.*

BIOCHEMISTRY

Mold Chemical Treats Disfiguring Tropical Ills

► FOR THE war against yaws and tropical ulcer, two of man's oldest and most disfiguring diseases, doctors now have a new weapon in the mold chemical, chloromycetin.

Good results with this chemical, which is also made synthetically, were obtained in trials in Haiti by Dr. Eugene H. Payne of Parke, Davis and Company, Detroit, which supplied the drug. Cooperating with Dr. Payne in the trials in Haiti were Dr. Athemas Bellerive of the Haiti Department of Health and Dr. LaFont Jean of Fort Liberty, Haiti.

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