

## GEOLOGY

## Last Ice Age in U. S. Strong 10,000 Years Ago

► THE LAST great ice age was still going strong in America 10,000 years ago when the immense glaciation of northern Europe was in full retreat.

Through radiocarbon dating of debris left by the masses of ice as they scoured the landscape, Dr. H. E. Suess and Meyer Rubin of the U. S. Geological Survey have worked out relationships of the ice ages in America and Europe, finding that events in the New World are later than in the Old World.

Before the development of the method of determining age by the radioactivity of carbon 14 contained in ancient material, the end of the latest or Wisconsin glacial stage in the United States was dated at about 25,000 years ago. Determinations by Dr. Willard F. Libby of the University of Chicago, now an Atomic Energy Commissioner, first showed that the date was about 10,000 years ago. The U. S. Geological Survey scientists have been working out the relationships between the last great ice invasions here and in Europe.

They find that whereas the glacial retreat began in Europe 13,000 to 11,000 years ago, as late as 10,000 years ago the Great Lakes region was covered with ice and there was a rapid retreat on this continent prior to 6,000 years ago. The four substages of glaciation in America are all contemporaneous with the latest or third part of the last European glaciation, designated as Wurm III.

Radiocarbon dating is based on the decreasing of radioactivity with time of the kind of carbon transmuted from nitrogen of the upper air by cosmic ray bombardment. This carbon 14 with its self-contained time-clock is washed down by rain as carbon dioxide and enters into all living things, dating them for the scientists who have learned how to detect and measure their exploding atoms.

Science News Letter, February 19, 1955

## METEOROLOGY

## Lightning Bolts Vary In Speed and Current

► FAST AS lightning! That can mean anything from less than 100 microseconds (1/10,000 of a second) to almost a full second, the American Institute of Electrical Engineers was told in New York.

That is the range of time it takes for the current from different bolts of lightning to build up and fall as they hit an object.

Lightning flashes also vary widely in the amount of current, or amperes, they contain. The median amperage, as found by A. M. Opsahl of Westinghouse Electric Corporation, was about 20,000 at the bolt's peak, but he said he measured one that reached to 200,000 amperes.

The two factors, time and current, determine whether a lightning flash is "hot" or "cold," he said.

"The lower currents of short duration cause insignificant damage. The results of higher energy strokes are very spectacular."

He explained that when lightning strikes the earth, a stroke current flows that is almost entirely unaffected by the object it hits. If the object is not a good conductor, as a tree or a chimney, it can be damaged. But the lightning rod protects such objects by providing an adequate path to the ground.

It is not safe to stand within six feet of a ground rod that is struck, he pointed out, for the electricity may jump. If you stand too close you may become part of the path to the ground with the current going up one leg and down the other.

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## MEDICINE

## Atomic Energy Fights Hard-to-Cure Cancers

► ATOMIC ENERGY is being turned in new ways to fight three of the more difficult to cure cancers, those of brain, lungs and pancreas.

First word of the new approach to cancers of lungs and brain appears in the 17th semi-annual report of the Atomic Energy Commission.

This approach is being made with one of the radioactive cesium isotopes. With the aim of getting the cancer-destroying radiation directly into the lung or brain cancer, plastic envelopes containing cesium will be implanted in chest or brain. This work under the direction of Dr. Paul Harper at the Argonne Cancer Research Hospital, Chicago, is still in the experimental laboratory stage, Dr. Harper told SCIENCE SERVICE. Trials on patients are still in the future.

Already tried on six patients, however, is the new approach to stopping cancer of the pancreas. In this, plastic tubing containing radioactive iodine is threaded through the tumor and surrounding pancreas tissue.

"We don't think we have lengthened anyone's life," Dr. Harper said.

The method did, however, give good palliation, that is, relief of pain.

Dr. Harper and associates hope that in cases of very small tumors of the pancreas, they might by this technique be able to give a big enough dose of radiation to burn out the cancer. Advantage of the method for tumors of the pancreas or other internal organs is that only one operation is needed.

Often the surgeon operates without being sure he will find cancer. Then, if he does and wants to use radium needles, for example, he will have to sew up the wound and re-operate later because radium needles may not have been at hand.

With the new technique, plastic tubing which can be kept ready and sterilized in any operating room can be immediately implanted, with the ends left sticking out of the wound. A few days later, the radioiodine can be put in. Added convenience is that the tubes need not be removed.

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# IN SCIENCE

## ICHTHYOLOGY

## Insomnia Shortens Baby Fishes' Lifetime

► FISH GOTTA swim, but baby fish gotta sleep too.

During a study of baby fish or larvae made at the marine biology station of the University College of North Wales, Bangor, Wales, S. Z. Qasim found that the little fish fared better after a good night's sleep.

Experiments showed that baby fish who were forced to have no sleep did not survive as well as those allowed to have a period of inactivity in the dark. The experiments also showed that baby fish kept in continuous darkness always had empty stomachs.

"The inactivity of the larvae, which is presumably shown every night," Mr. Qasim reported, "recalled previous accounts of sleeping in fishes."

The sleeping habits of the baby fish were reported in *Nature* (Jan. 29). They were discovered during a study of the biology of two shore fishes.

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## ENGINEERING

## Electronic "Brain" Can Solve Traffic Problems

► A MINIATURE highway intersection simulated inside the metallic guts of an electronic computer may soon be used to study traffic flow at proposed highway junctions.

Electrical impulses, each representing a car, are "stopped," make right and left turns, obey "traffic signals" and watch out for "pedestrians" and "other cars" in the maze of circuits.

The design of such a device, called a discrete-variable simulator, was described to a meeting of the Highway Research Board. A suitable computer for traffic study of this sort could be built around the operational-amplifier type integrator, said Drs. J. H. Mathewson, D. L. Trautman and D. L. Gerlough of the Institute of Transportation and Traffic Engineering of the University of California at Los Angeles.

Two other possible traffic simulators, a continuous-variable model in which individual cars are not accounted for but a statistical flow of electricity is maintained, and a digital computer in which traffic and road conditions are represented by digits, were also described.

Such electronic "brains" could help designers find the most efficient pattern for a specific intersection and perhaps show ways to improve traffic conditions at present highway junctions.

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# CE FIELDS

## GEOGRAPHY

### Geographers Help Army Live in Deserts

➤ AMERICAN TROOPS will be better equipped for desert warfare of the future because of an 18-month research project by geographers at the University of California at Los Angeles.

The work was done in the Providence Mountains of the Mojave Desert for the Army Quartermaster Corps which wanted to learn everything possible about the climate, vegetation and topography of a typical desert mountain range.

In charge of the project were two young U.C.L.A. professors, Drs. John F. Gaines and Richard F. Logan.

To gather round-the-clock, round-the-calendar weather data on this area, 14 small weather stations were erected at various elevations. For 10 blistering days last summer, Dr. Logan lived at the summit alone to complete necessary weather observations.

Some surprises received by the researchers included the discovery that desert mountain summits are warmer on winter nights than is the desert floor. Summertime humidity is considerably higher than winter humidity. And dark-colored basaltic rock is 30 degrees hotter in summer than is light-hued granite. Gusty winter winds up to 60 miles per hour wore nerves raw and tempers thin, the two men reported.

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## NUTRITION

### Potato Quality Label To Aid Housewives

➤ SCIENTISTS ARE trying to take the guesswork out of potato buying and put it on a label.

Intensive experiments on the nation's various potato varieties are now being conducted to determine just what makes a particular tuber good for baking, boiling, chipping, frying or mashing. Human nutrition and marketing-research scientists of the U. S. Department of Agriculture have already learned that variety, region, year and storage all make a difference in quality.

"It is easy to see from the findings," a report to *Agricultural Research* (Jan.) stated, "why a shopper cannot tell, just by looking, whether a market lot of potatoes will prove mealy, as potato eaters generally prefer tubers to be for baking or boiling. Mealiness may differ, not only with variety, but in the same variety grown in different locations and in succeeding crop years."

Storage brings changes too, the scientists claim. The longer potatoes were stored, the less mealy and more soggy they became. On

the other hand, storage at a low temperature of about 40 degrees Fahrenheit lessened sloughing in potatoes that had a tendency to come apart when boiled whole.

Cooking methods did not affect the mealiness or the dryness of the potato, Mary E. Kirkpatrick, food specialist, reported.

"A potato that was dry and mealy when boiled, was dry and mealy when mashed or baked," Miss Kirkpatrick said.

Dry matter, alcohol insoluble solids and starch are all good indicators of the qualities potato eaters prize, Dr. Peter H. Heinze, a plant physiologist, said. But a simple test of whether a potato sinks or swims in salt water is still a good predictor of its boiling and baking qualities. Sinkers are likely to have a high quality when baked, boiled or chipped, while floaters are likely to have a low quality.

The scientists hope that potatoes of the future will come to the market, labeled to help buyers select the bakers from the boilers, the boilers from the mashers, the mashers from the fryers, and so on, just like chickens.

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## AGRICULTURE

### Rice Disease Traced To Excess of Iron

➤ ALTHOUGH NEW York is not a rice-growing state, three scientists at Cornell's College of Agriculture in Ithaca, N. Y., have discovered what appears to be the cause of a widespread rice disease, known in Java, Malaya, Ceylon, India and Burma.

Browning of rice leaves and roots was observed in greenhouse tests of rice grown in submerged soil and traced to too much ferrous iron. No disease organisms were found to account for the effect. The symptoms were somewhat like those of potassium deficiency.

The Cornell agronomists, who published their report in *Nature* (Feb. 5), are F. N. Ponnampuruma, R. Bradfield and M. Peech.

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## ZOOLOGY

### Pair of Tapirs in Zoo From Siam Capital

➤ A PAIR of new arrivals in the United States, half-grown Malayan saddleback tapirs, have taken up residence in the Washington Zoo. They came from Siam.

Dr. William M. Mann, director of the National Zoological Park, reported that this kind of tapir has not been represented in the national collection for years. The only such animal listed in the United States in recent years is an old male in the San Francisco zoo.

Tapirs are the nearest living relative of horses and rhinoceroses, and the Malayan sort is the only representative of this family not living in Central or South America.

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## PUBLIC HEALTH

### Rubbish to Follow Garbage Down Drain

➤ RUBBISH AND refuse of all sorts, not just garbage, will literally be flushed down the drain.

This is the expectation of Albert Bush of the engineering department of the University of California at Los Angeles after a study of refuse disposal problems.

"Garbage grinders have made considerable inroads into the garbage disposal problem," he declared. "With further developments in the use of water transport we may be able to get rid of other household rubbish in a similar manner."

Disposal of all refuse right in the home appears to be the best solution to both air pollution and economic aspects of the problem if such methods can be developed, Mr. Bush believes. He finds that municipal incinerators apparently do not solve air pollution problems. Collection is expensive and merely transfers the problem to another site.

A comparative study of municipal and home incinerators by Mr. Bush, Stewart Mulford and Edwin Bowler of the U.C.L.A. engineering staff has suggested that the big incinerators contribute as much to air pollution as the home variety.

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## MEDICINE

### Could Synthesize Drug For Radiation Anemia

➤ BATYL ALCOHOL promises to become a prized material for possible protection against atomic radiation. Liver oil from ratfish is the richest source of batyl alcohol, which reports from Stockholm show is a promising chemical for treatment of white blood cell anemia caused by radiation. If used for atomic defense, it would need to be synthesized. (See SNL Jan. 25, 1954, p. 412.)

In 1941 Prof. Harry N. Holmes of Oberlin College in Oberlin, Ohio, was the first to isolate batyl alcohol from land animals. He found in the yellow bone marrow a substance that might increase the white blood cells, or phagocytes, in the blood of people needing such stimulation. Now Prof. Holmes suggests that this batyl alcohol and related substances should be used to save lives of people exposed to radioactive dust from a hydrogen bomb explosion.

Since ratfish are not commercial and bone marrow is obtainable only in very limited quantities, our radiation defense must look to synthetic batyl alcohol for help.

Sir Ian Heilbron and associates in England in 1930 devised a synthesis which was later improved by Prof. Holmes and Dr. Nathan Kornblum in 1942.

Selachyl alcohol, a liquid readily hydrogenated to yield batyl, was also separated from ratfish liver oil in the Oberlin laboratories.

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