

GEOGRAPHY

Russians Lead U. S. In Arctic Knowledge

► THE RUSSIANS established a lead in knowledge of many Arctic conditions more than 13 years ago and they have maintained it up to today.

This is the opinion of Dr. H. E. Landsberg of the Research and Development Board expressed at the Alaskan Science Conference in Washington.

He asked the scientists present for much more research into Alaskan weather, ice, permafrost and terrain conditions and medicine.

"Frozen ground, ice cover, and snow," he pointed out, "have a large influence on military construction and mobility in the Arctic."

Knowledge of atmospheric and weather conditions, Dr. Landsberg said, would be helpful in such problems as radar screening, Loran navigation and long distance communications. Much better and more detailed maps are needed if troops are to be expected to operate over the vast, sparsely populated territory of Alaska.

Dr. Landsberg pointed to experiments on animals with the thyroid compound endo-thryn which increased their survival time in cold conditions by 54%. More work needs to be done with this compound, he said, before it can safely be used by man.

Research into ways and means of producing as much of the food and other necessities of troops in Alaska as possible, Dr. Landsberg said, would greatly ease the logistics problem.

Dr. Landsberg concluded by pointing out that most of the research projects that Armed Forces would like to see undertaken in relation to Alaska also would be beneficial in peacetime.

Science News Letter, November 18, 1950

PALEONTOLOGY

Alaska Yields Fossil Treasures

See Front Cover

► WHERE men once stampeded for gold, fossil-hunters have gone beyond and found another treasure.

Alaska's vast Brooks Range, mountain headwall of the Yukon and one of the least explored areas in the world, is a "majestic graveyard" of sea bottom animals that lived 300,000,000 years ago, Smithsonian Institution scientists revealed.

The discovery was made by a party of U. S. government geologists led by Dr. Arthur L. Bowsher Sr., a Smithsonian fossil expert. During the past summer the expedition pushed far into the Brooks Range, finding great glacial valleys whose only inhabitants were a few Eskimos.

The barren mountains which towered all around, the scientists found, were once

the bottom of ancient shallow seas. This was during the Mississippian era, when the most abundant life on earth were plant-like animals attached by stems to the ocean floors.

These were the crinoids. When they died, their skeletons became part of the muck at the bottom, and then fossils in solid rock. In later upheavals, Alaska rose from the seas, and the mountains which the scientists explored this summer buckled up from the land.

The crinoids found by the expedition were largely new types, not before known to science.

The party was flown to the Brooks foothills by Alaskan bush pilots, jumping country which earlier expeditions had to cross by dogsled, going up the Yukon and through the river divides of its tributaries with great hardship.

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MEDICINE

St. Louis Strip Reveals Diabetes

► THOUSANDS of Americans saw the "St. Louis Strip" this week (Nov. 12-18).

Unlike the burlesque show its name suggests, this strip act is one for the family. It may prevent untimely deaths from diabetes.

It carries the endorsement of medical authorities, because it is intended for quick, inexpensive detection of unsuspected diabetes. With its aid, the American Diabetes Association hopes to find many of the 1,000,000 Americans who have the disease and do not know it. Those who are found can through proper treatment be saved from diabetes death.

The strip consists of a strip of paper, roughly four by one inches. Most of its length is for name, age and sex of the person to be tested. Attached by a strip of plastic is a small piece of specially treated coarse filter paper. To use it, the filter paper end is dipped into the urine an hour or so after a heavy meal, preferably the evening meal. Then it is set aside to dry. Next morning it is mailed to the testing center.

At the center, it is dipped in a testing fluid. If the strip turns blue, there was no more than the normal amount of sugar in the urine and the individual does not have diabetes, or at least does not have untreated diabetes. If the strip turns green, yellow or red, it means sugar in the urine and the person needs to see a doctor for further examination and treatment. About 60 strips a minute can be tested.

Development of the strip is based on the finding by Dr. Norman Drey of St. Louis that urine can be dried and the sugar it contains preserved.

St. Louis, where the strip originated, and Seattle, Wash., are where it is getting its biggest use.

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IN SCIENCE

MEDICINE

Find Treatment for Major Tropical Disease

► THE FIRST successful treatment of "Oncho," a major tropical disease affecting some 20 million persons in Central and South America and Africa, was reported by Drs. Thomas A. Burch and L. L. Ashburn of the U. S. National Institutes of Health and the Pan-American Sanitary Bureau at the meeting in Savannah, Ga., of the American Society of Tropical Medicine. "Oncho," short for onchocerciasis, is caused by tiny, worm-like organisms which are spread by a black fly called simulium or buffalo gnat. From a third to half the disease's victims have eye complications and one or two of every 100 patients are blinded.

The treatment reported uses two drugs. One, Hetrazan, was reported "spectacularly effective" in causing rapid disappearance of the microfilariae that cause the disease. But its effect was only temporary. Sumarin, also known as Bayer 205 or Germanin, was more effective over longer periods because it destroyed both the micro, or baby, and the adult worms of the disease. Using both together combines the speed and the lasting action.

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MEDICINE

Artery Hardening Induced By Cortisone and ACTH?

► A HINT that one kind of artery hardening, called atherosclerosis, might be brought on prematurely by prolonged treatment with the anti-rheumatism drugs, cortisone and ACTH, appears in a report to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Nov. 11).

The report is by Drs. David Adlersberg, Louis Schaefer and Stanley R. Drachman of Mount Sinai Hospital, New York.

The "possible development of premature atherosclerosis" is suggested by two findings:

1. Some patients getting cortisone or ACTH for long periods develop an excess of cholesterol in their blood. The New York doctors observed this in 77% of courses of treatment. Excess in the blood of this fatty substance is believed linked to development of the artery hardening condition.

2. Premature atherosclerosis has been seen in patients with Cushing's syndrome, and many of the other signs and symptoms of this condition, such as "moon face" and a form of diabetes, have occurred in some patients getting prolonged ACTH or cortisone treatment.

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CE FIELDS

GEOLOGY

Alaskan Volcanic Ash Shows How Soil Forms

► FERTILE soil is the foundation of human life. On Mt. Katmai in the Alaskan Peninsula is the one place in the world where men can study, at first hand, the steps by which soil is built, Prof. Robert F. Griggs of the University of Pittsburgh told U. S. and Canadian scientists at an Alaskan Science Conference in Washington.

Katmai volcano blew up in 1912, one of the two great eruptions in the past century. The other was at Krakatao in the East Indies in 1883. Around both were laid down thick layers of pure, sterile volcanic ash.

These have been the only explosions, within the era of modern science, large enough to afford an opportunity for studies of how soil starts, Dr. Griggs said.

So far, he said, no one has ever witnessed the formation of a mature soil from dead minerals. Studies were conducted at Katmai up until 1930; even then, ash lying as it fell was entirely inhospitable to ordinary plants, Dr. Griggs said.

Now, he reported, revegetation has begun. Plants have come in on the ash.

Dr. Griggs recommended a thorough survey of the area, with all present knowledge of soil micro-organisms and chemistry brought to bear. Katmai offers an opportunity for research not to be duplicated elsewhere on the globe, he said. But the opportunity is in danger of being missed.

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MEDICINE

Diet May Prevent Amebic Dysentery

► AMEBIC dysentery, or amebiasis, which plagues a million people in the United States and millions more in the tropics, may some day be prevented by diet.

Hope for this appears in a discovery reported by Miss Jane Taylor and Drs. Joseph Greenberg and Edward Josephson of the U. S. Public Health Service's National Institutes of Health at the meeting in Savannah, Ga., of the American Society of Tropical Medicine.

So far, their findings apply only to guinea pigs. The exact type of diet that might be recommended to humans has not been worked out.

The discovery itself was made accidentally. Miss Taylor and associates were trying to infect guinea pigs with the amebas that cause the disease, so as to have a laboratory animal instead of humans to test new treatments and the like. Emetine, the drug now

used, is slow, disagreeable and frequently not successful. Aureomycin, one of the so-called mold drugs, is more promising.

When Miss Taylor was trying to infect guinea pigs, the regular guinea pig diet was not immediately available. So the animals were fed a diet of rat pellets and kale. To her surprise, eight out of 10 guinea pigs injected with amebas came down with the disease. Previous efforts to give it to these animals had met with little success.

She repeated the experiment, in the careful way of scientists, but this time the guinea pigs were on their regular diet. And there were no cases of amebiasis.

Since the only difference was the diet, they proceeded to test this further. With one kind of diet, 96% of the animals became infected. With another diet, 85% got infected. With normal guinea pig diet, only 37% were infected.

What basic nutritional factor makes guinea pigs more susceptible to the amebic infection is not known yet. Scientists have long known that some humans got the disease when exposed to it, while others similarly exposed did not. The findings reported open the possibility that diet is what makes the difference.

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METALLURGY

Better Beryllium by Powder Metallurgy

► BETTER beryllium metal parts in the nuclear reactors used in atomic energy work is promised as a result of investigations in powder metallurgy which indicate that a more ductile beryllium can be formed by this process.

The importance of beryllium in atomic energy work is due to its mechanical, chemical and other properties, particularly its low neutron capture properties. Beryllium metal has low density, good resistance to corrosion and high relative strength.

Investigations of beryllium articles made by the powdered metallurgy method was described in Chicago to the American Society for Metals by Dr. H. H. Hausner and N. P. Pinto, both of Sylvania Electric Products, Inc., Bayside, Long Island, N. Y.

Beryllium pieces produced by usual casting and extrusion methods appear to lack ductility at room-temperatures. Beryllium powders can be compacted into solid pieces at room temperature without difficulty, these scientists found. No binder is needed.

In order to obtain a material of fairly high density, the beryllium compacts may be heat-treated, or sintered, in a high vacuum or in a protective atmosphere such as argon. The process is carried out at temperatures below the melting point of the metal.

Vacuum-sintered beryllium has measurable ductility. Argon-sintered beryllium compacts are brittle. Vacuum-sintered beryllium can be reduced 9% in thickness by cold-rolling, followed by annealing, which gives an improved product.

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ENGINEERING

Remove Dust from Films For Clearer Pictures

► LESS dust on motion picture films, with resulting better pictures, is promised in Rochester, N. Y., by scientists of the Eastman Kodak Company.

They have developed a new way of determining the electrostatic charge on the film. It is this charge that attracts the dust particles.

Motion picture film, or any photographic film, becomes electrified when rubbed or passed over rollers. When electrified the films attract dust. Certain combs do the same thing after being stroked through the hair. Measuring accurately the electrostatic charge on motion picture films is the first step in eliminating the trouble.

The new charge-measuring device shows that films receive varying charges from different materials. Dry velvet, for example, does not appreciably change the charge on certain films when rubbed on either the emulsion or support side. Velvet wetted with carbon tetrachloride will hold the film at a constant charge when rubbed on the emulsion side. But when it is rubbed on the support side, the film is almost completely discharged, and thus less likely to attract dust.

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PHYSICS

Pickup Devised for Underwater Sound

► A TOTALLY different way of picking up sounds in a liquid, with possible application to submarine detection, was reported to the Acoustical Society of America meeting in Boston.

Ultrasonic waves, much higher than humans can hear, hit a wire covered with a porous coating that is under water. The ultrasonic waves set up in the wire an alternating potential of the same frequency as the sound waves. This effect occurs regardless of the kind of metal used in the wire, Drs. John Bugosh, Ernest Yeager, Frank Hovorka and Harry Dietrick, of Western Reserve University, Cleveland, told the meeting.

They found that the effect appeared to depend on the type of porous covering and the solution with which the wire is covered. The voltage occurs either when the wire is in water or in a dilute electrolyte, a solution that will support an electric current. While the voltage produced is small, it can be stepped up, or amplified, to give the necessary signal.

This discovery is expected to be used extensively in the laboratory where scientists studying sound effects can now use a small wire to pick up sound. Heretofore they have had to depend on much larger hydrophones, ones that might have some effect on the sound being studied.

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