GEOLOGY

Changes in Crystal Rocks Linked to Earth's Magnetism

➤ A LINK between the changes that occur in rocks of the earth's crust and puzzling variations in the magnetic field of the earth in some regions is suggested by Dr. John D. Weaver, of Columbia University's department of geology in New York in a communication to the journal SCIENCE (Oct. 26).

A clue to the reason for the mysterious relationship arose from German war experiments in the making of synthetic mica. Growth of large mica sheets was facilitated in these experiments by a weak magnetic field imposed across the crucible in which the mica materials were being melted. Earlier Japanese work suggested a direct relationship between earthquakes, volcanic eruptions and magnetic anomalies.

Changes in the minerals and their orientation in the rocks under the growing process in the earth's crust, which the geologists know as metamorphism, may be linked with unusual magnetic effects.

Dr. Weaver suggests laboratory experiments on the effect of magnetic and electrostatic fields on crystallizing minerals, together with field studies of magnetic phenomena in areas like the West Indies where the crust is geologically active.

Science News Letter, November 3, 1951

GENETICS

Twins Show Genetic Factor in Polio

➤ SEARCH FOR the reasons why one child is more susceptible to polio than another should take into account the factor of inheritance.

This is apparent from a study of twins who had polio. The study, aided by a grant from the National Foundation for Infantile Paralysis, is reported by Drs. C. Nash Herndon and Royal G. Jennings of Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C., in the AMERICAN JOURNAL OF HUMAN GENETICS (March).

Twins, they find, are neither more nor less likely to get polio than single born individuals. But both twins of an identical, or one-egg, pair are more likely to get the disease than both twins that are not identical. Of 14 identical twin groups, paralytic poliomyelitis affecting both twins occurred in five pairs. Of 33 non-identical twin groups, paralytic involvement of both twins occurred in only two instances.

This points to the existence of a measurable genetic, or inherited, influence on susceptibility to paralytic polio. None of the 87 parents of the twins had had polio, so the gene carrying the polio susceptibility trait is probably not a dominant. Persons who carry the gene and can hand it down to their children must be quite numerous, however, since paralytic poliomyelitis is not a rare disease.

Inherited susceptibility is by no means the deciding factor in determining whether a person will get infantile paralysis when exposed to it, the scientists point out. This is shown by their finding that even among identical twins with identical genetic endowment living in the same household, paralysis involving both members of twin groups occurred in only 35.7% of the pairs.

Science News Letter, November 3, 1951

OPTICS

Plane Spotting Aided by Twilight Sky Brightness Study

➤ AID IN spotting airplanes and other objects in the twilight sky will come from experiments by Naval Research Laboratory physicists reported to the Optical Society of America meeting in Chicago.

The scientists used a special photoelectric tube to measure, in a very short time, the brightness of the whole sky during the twilight period. They found that, higher than ten degrees above the horizon, the twilight sky at Sacramento Peak, New Mexico, was only about half as bright as the twilight sky of Maryland.

Combined with knowledge of how the eye works, the figures they reported will aid in estimating how far away an airplane in the sky can be seen. Their research will also help scientists learn how sunlight behaves when it passes through our atmosphere, since the pressure and density of the upper atmosphere can be calculated from the brightness of the twilight sky.

Dr. E. O. Hulburt, Dr. D. M. Packer, M. J. Koomen, C. Lock and R. Scolnik of the Naval Research Laboratory presented the report.

Science News Letter, November 3, 1951

GENERAL SCIENCE

Contraceptive Advice For Unmarried Discussed

➤ AT LEAST one doctor in the country recognizes that unmarried people need contraceptive advice.

Speaking at the New York Academy of Sciences conference on world population problems and birth control, Dr. Alan F. Guttmacher of Sinai Hospital and the Johns Hopkins School of Medicine, Baltimore, said he was "unwilling to accept the ostrich-like moralistic viewpoint that such a problem does not exist."

He said he could not give the proper answer to the question whether the youth of the country should be scientifically advised and instructed in birth control. He thinks the proper answer must depend on more "Kinsey-like studies" but that "knowledge must replace taboo and prejudice."

Science News Letter, November 3, 1951

IN SCIEN

BIOPHYSICS

Dentist's Drill Makes Radio Music Sound Sour

➤ IF RADIO music in your dentist's office sounds sour when he is drilling a tooth, nothing is wrong with your hearing.

It should sound different. The reason: You are hearing the dentist's drill at the same time. Changes in pitch occur in some pure tones when other tones or noises simultaneously reach the ear, T. V. Frazier of the University of Nevada, Reno, told the Acoustical Society of America meeting in Chicago.

"When a dentist drills on your teeth, the sound of the drilling reaches your ears chiefly by bone conduction," Mr. Frazier said. "The radio sounds, heard by air conduction, are slightly altered every time he turns on his drill."

Experiments carried out in the nearly sound-proof laboratory of the University of California at Los Angeles, where Mr. Frazier did some of his work, show that the effect would be the same if the radio music were heard by bone conduction when the dentist drilled.

Science News Letter, November 3, 1951

PSYCHOLOGY

Mice Trained for Peace Give Hope for Mankind

➤ HOPE THAT some day humans may be able to live at peace with each other comes from studies showing that mice can be trained "to fight, run away or be peaceful."

The studies were conducted by Drs. J. P. Scott and Emil Fredericson of the Jackson Memorial Laboratory in Bar Harbor, Me.

The scientists point out that men are not mice and what applies to the mice and rats may not apply to humans. But for the mice and rats, training "includes by far the most important group of factors" affecting the consistency with which these animals will fight for gain.

The same laws of learning and habit formation apply to all animals with a backbone, so the scientists hope that other species besides mice could be trained for peace.

Against this hope is the fact that mice, unlike dogs, baboons and people, never "gang up" on one individual. This is apparently a hereditary difference.

Details of the studies are reported to fellow scientists in PHYSIOLOGICAL ZOOLOGY (Oct.).

Science News Letter, November 3, 1951

CE FIELDS

MEDICINE

Blood Chemical Promises New Heart Stimulant

➤ A BLOOD chemical that may turn out to be a heart stimulant has been discovered more or less accidentally by Dr. K. Laki, visiting scientist at the U. S. National Institute of Arthritis and Metabolic Diseases in Washington.

The accidental part of the discovery is that it was made in researches on the clotting mechanism of the blood. Previous research had suggested that when thrombin in the blood acts on another blood chemical, fibrinogen, to make it clot, the thrombin action may split a chemical bond in the fibrinogen molecule and free a small chemical molecule from the fibrinogen. This would leave a slightly altered fibrinogen molecule, presumably the one that becomes a gel and makes the blood clot when shed.

Proof of such a mechanism would rest on finding the small molecule split from the fibrinogen. By a method reported in the journal SCIENCE (Oct. 26), Dr. Laki has obtained this small molecule. Tests with it showed it could stimulate a frog heart.

Further studies to determine its chemical nature and to learn whether this blood chemical is a heart stimulant that could be used medically are now in progress.

Science News Letter, November 3, 1951

METEOROLOGY

Change Tropical Weather by Salt-Seeding Trade Winds

➤ PROFOUND CHANGES in the weather in tropical island areas could be brought about by seeding trade winds with salt crystals, Nobel prize winner Dr. Irving Langmuir claimed.

He made the claim at a meeting of the New York Academy of Sciences during which he engaged in debate on rainmaking with Ferguson Hall of the U. S. Weather Bureau. Dr. Langmuir, father of rainmaking, said that near the islands of Hawaii and Puerto Rico, it should frequently be possible to introduce into the trade winds crystals of silver iodide at the rate of one ton per hour.

If heavy rain is induced, he said, the heat generated in the process should cause profound changes in the airflow and the climatic conditions in neighboring areas.

Dr. Langmuir devoted most of his speech to supporting a claim previously made that seeding with silver iodide particles every seven days in New Mexico produced heavier rains and other weather changes every seven days over almost half the U. S.

He produced figures which he said showed that this seven-day periodicity was statistically significant. These periodicities in rainfall are evident, he said, at almost any set of stations in the northeastern U. S.

Mr. Hall reported on a Weather Bureau project which is investigating the periodicities Dr. Langmuir claims have existed. The investigation, still going on, showed, he said, that similar periodicities existed in the weather at various times during the past 40 years, sometimes long before cloud-seeding was initiated.

The Weather Bureau scientist showed charts which, he said, indicated that a seven-day periodicity existed both before and after the time during which seeding at seven-day intervals was done and that it existed, sometimes to a greater degree, in other parts of the northern hemisphere.

Mr. Hall concluded that the Weather Bureau believes that the effects of cloud-seeding must be quite modest, since it is so difficult to detect them. Asking for further study of natural rain processes, he said that whether cloud-seeding can be of economic value depends on such study.

Science News Letter, November 3, 1951

ACOUSTICS

Jet Engines Quieted By Box of Turns

➤ THE EAR-SHATTERING noise coming from airplane jet engines under test can be made quieter, Dr. Howard C. Hardy, of the Armour Research Foundation of Chicago, reported to the Acoustical Society of America at Chicago.

Instead of permitting the sound from jet engines to "run wild," a special structure channels it through a series of 180-degree turns. Each turn actually "kills" at least 15 decibels of the noise.

"The magnitude of the problem is much larger than in the past war," he declared, "chiefly because the noise of the jet engine is about 10 times as loud and can be heard about 30 times as far as the noise coming from conventional reciprocating gasoline engines."

Science News Letter, November 3, 1951

NUTRITION

How to Freeze Food Told in Government Bulletin

➤ HANDY GUIDE for homemakers who want to freeze their own fruits and vegetables is the new bulletin just issued by the U. S. Department of Agriculture.

Preparation methods given in the pamphlet are based on up-to-date research data. Instructions for packaging a large assortment of foods, from apples to watermelons, are included in "Home Freezing of Fruits and Vegetables." (See p. 286.)

Science News Letter, November 3, 1951

ICHTHYOLOGY

First Silver Salmon Return To Artificial Spawning Spot

➤ THE FIRST silver salmon ever to return to artificial spawning grounds have started coming back to the University of Washington fish pond.

The silver salmon's strong homing instinct leads the adult—either by scent or by other means—back to its hatching pond to spawn. Now that homing instinct is being used to get the fish back to a desired location.

In the spring of 1950 about 26,000 silver salmon fingerlings, then 18 months old, were released from concrete tanks on the university campus in Seattle. These fish climbed down the fish ladder to Lake Union, through government locks to Puget Sound and then to the Pacific Ocean. Now some of them, identified by a clipped ventral fin, are returning via the same route, reversed.

The success of this experiment, originated and supervised by Dr. Lauren R. Donaldson, director of the university's Applied Fisheries Laboratory, opens up new fields in practical hatchery management and controlled fish research. A fish farm, for instance, could be established close to salt water in order to eliminate hazardous runs to and from the upper reaches of spawning streams.

Science News Letter, November 3, 1951

ENGINEERING

Young Engineers Urged To Continue Preparation

➤ "POST-COLLEGE SLUMP" in the development of just-graduated young engineers is being combatted by a six-point program designed by the Engineers' Council for Professional Development, a conference of seven engineering societies representing 130,000 engineers.

The program calls for guidance to the young engineer for an adequate development plan for in-service training, continued college education, community service, professional registration, self-appraisal and selected reading.

Chairman Harry S. Rogers, president of Polytechnic Institute of Brooklyn, said the council's program was a service program to the juniors of the engineering profession. In this respect it must command a self-sacrificing interest from mature professional people.

The "post-college slump," Dean Emeritus H. P. Hammond of Pennsylvania State College said, is the period when the young graduate in his first job no longer has the compulsion toward mental development because of the difficulty of making adjustments to conditions of employment. He advocated part-time postgraduate study and development of professional consciousness.

Science News Letter, November 3, 1951