

VOLCANOLOGY

Violent Earth Tremors Near Erupting Volcano

► **VIOLENT EARTH TREMORS** near erupting Mount Ngauruhoe, New Zealand, may herald the volcano's biggest eruption in years.

At one time, 25 minor quakes rumbled within 90 minutes.

Mt. Ngauruhoe, 7,515 feet high, is New Zealand's most active volcano, located in a national park near the center of North Island.

A party of three attempted to climb to the main crater, but showers of red hot stones, some as big as a man's head, forced them back. All three had slight burns when they returned to camp.

Mt. Ngauruhoe erupted in 1954 and 1955, but caused no damage.

Frank Studt, chief geophysicist of the N. Z. Department of Scientific and Industrial Research, said there was little chance of the eruptions becoming dangerous.

"It could build up to something big, so we are keeping a close watch on the mountain," he added.

Science News Letter, March 3, 1956

GENERAL SCIENCE

Industry Should Supply Science Teachers

► **INDUSTRIES** should release to schools qualified teachers in their ranks to supply the present emergency shortages of science teachers, particularly in high schools, and give them at least a year's pay to boot.

This suggestion, made by Brig. Gen. David Sarnoff, board chairman of the Radio Corporation of America, to the National Security Industrial Association meeting in Washington, is meeting with a mixed reception by educators and scientists.

The proposed "National Educational Reserve" is visualized by Gen. Sarnoff as a five-year interim program on a national Congress-authorized basis, with an organization similar to various military reserves.

In addition to those assigned to teaching from industry, the Reserve would mobilize retired scientists and engineers "whose knowledge and experience would make them inspiring teachers." Others would teach in night schools without giving up their industry jobs.

The proposed plan "would amount to the restitution by business of personnel it has siphoned off from the school system."

Other plans for cooperation between schools and industry in augmenting science teaching have been proposed. One experimental program underway in Ohio provides for an alternation between schools and industry for scientists and teachers.

Other proposals contemplate the part-time assignment of experts in subject matter to aid and enrich courses taught by individuals trained to teach but untrained in what they are trying to teach.

Educationalists have criticized the introduction into teaching of those who do not qualify as science teachers. In most states, teachers must have certificates obtainable only through study of education courses at teachers colleges.

On the other hand, scientists insist teachers cannot teach unless they know what they are teaching, that is, they must know science. Most of them believe a good scientist should be able to teach science even if he has had no formal "education" or teaching training.

Such conflicts will slow down use of any suggested reserve program.

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DENTISTRY

Nation's Teeth Are Orphans in Research

► **CONGRESS** is being asked to put teeth into the fight to save America's teeth by appropriating more funds for:

1. Dental research by government and by dental schools and other dental research centers.

2. A home for federal dental research in the shape of a building for the National Institute of Dental Research at Bethesda, Md.

So far as research goes, our teeth are orphans. The 1957 budget proposals for the National Institutes of Health allots to the Institute of Dental Research less than \$3,000,000 of the \$126,525,000 proposed for all the Institutes.

Dental diseases, however, afflict 98% of all persons during their lifetime, the American Dental Association points out.

The Dental Association itself is currently paying the salary and supporting the research of nine scientists at the Bureau of Standards and four scientists at the National Institutes of Health.

The study on mottled enamel that led to discovery of the decay-preventing effect of small quantities of fluoride in drinking water was supported by a 1916 grant from the American Dental Association to Dr. Frederick S. McKay of Colorado Springs, Colo.

Discovery that the controlled addition of a tiny amount of fluoride ions, about one part per million, to domestic water supplies would reduce the incidence of dental decay by about two-thirds is one of the most significant contributions of research of the generation, the association points out.

Reducing dental decay, important as that is, makes up only part of the problem of keeping healthy teeth in our mouths. Diseases of the gums, such as pyorrhea, are taking an increasing toll of teeth at older ages. With more funds for research, a preventive for this might also be found.

The day might even come when dental disease could be reduced so that we could get dental insurance along with Blue Cross and Blue Shield insurance to pay the hospital and surgical bills.

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IN SCIENCE

BIOCHEMISTRY

Extract Cancer Growth Factor From Liver

► A **SUBSTANCE** that speeds the growth of cancers has been extracted from the liver, the American Cancer Society announced.

The extracts so far are crude ones. When the cancer-stimulating substance can be obtained in pure form, it is hoped a chemical can be found to block its action and slow down the cancer.

The research was done by Drs. Karl E. Paschkis, A. Cantarow and Joseph Stasney at Jefferson Medical School, Philadelphia.

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EDUCATION

Poor Teachers Belittle Students in Classes

► A **TEACHER** who belittles the students is not only disliked, but ineffective.

This was shown by a study made at the University of Washington, Seattle, by Virginia W. Voeks of San Diego State College, San Diego, Calif.

Belittling or the use of sarcasm or overt ridicule was cited as the primary cause for listing a teacher as poor by 1,503 students who were surveyed.

Excellent teachers, on the other hand, almost never belittle the students or dwell on the obvious. These "effective" teachers were also rated by the students as being very clear in their presentation.

Belittling tactics, Miss Voeks states, "may have more lamentable repercussions" than just causing a student to dislike a teacher. They may seriously impair the student's ability to understand the lecture material and they may kill a student's interest in pursuing the work further.

Miss Voeks explains that a teacher may belittle because he or she may sense that explanations are not clear and lectures are not stimulating. As a consequence, the teacher turns to ridicule. This she terms "a rather desperate resort."

Concern was also expressed over teachers' voices. A quarter of those teachers judged by the students as poor were described as talking too softly, mumbling or having other speech difficulties. The poor teachers were also said to come to class unprepared, do poor work at the blackboard, use poor texts and/or make unclear assignments. Effective or excellent teachers were rated with shortcomings too. They talk too rapidly and often assume class knows more than it really does.

Results of the study are reported in the *American Journal of Physics* (Feb.).

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CE FIELDS

NUTRITION

Mix Fruit Juice and Milk Into Drink

► A MILK-FRUIT JUICE drink has been perfected by Dutch scientists, the U. S. Department of Agriculture reported.

The new drink combines acid fruit juices with milk to make a colorful pasteurized food that will keep for several days or, if sterilized, for months.

Secret to the success of the combination lies in a substance that in itself can curdle milk, the scientists state. It is pectin, familiar to the housewife who puts up jelly or jam.

The Dutch discovered that by using a very high grade of pectin with milk and sugar and letting it stand, acid fruit juice can be added without coagulating. The pectin throws a protective coat over the homogenized milk molecules.

One recipe for the new drink called for 20 pounds of sugar dissolved in 46½ quarts of fresh milk. After this, 23 quarts of a solution containing two and one-half percent pectin preparation is added and mixed. After standing for a few minutes, 19 quarts of black currant juice is added. The milk mixture is left to stand for ten minutes and then pasteurized.

Other fruit juices, such as lemon and orange, can also be mixed to make the milk-fruit beverage.

The drink "has been favorably received in Holland," USDA reports. Additional experimental work is being carried on at the Institute of Research on Storage and Processing of Horticultural Produce at Wageningen University.

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SURGERY

Dressings Off Wounds Day After Operation

► PATIENTS not only get out of bed the day after a surgical operation. Most of them now can safely have the dressings over their wounds removed within 24 hours.

Good results with this new procedure are reported by Drs. Louis T. Palumbo, Philip J. Monnig and Dudley E. Wilkinson of the Veterans Administration Hospital, Des Moines, Iowa, in the *Journal of the American Medical Association* (Feb. 18).

The uncovered clean surgical wounds seemed to heal faster and with less inflammation than similar operation wounds kept covered with sterile dressings up to the eighth day, as is customary.

Patients enjoyed watching their wounds heal and did not suffer any irritation of the wounds by bed covers or pajamas. The

only cases in which wounds broke down and opened were in patients who had sterile dressings on the wounds for the usual eight days.

The report covers results on two groups totaling 211 patients. In one group dressings were changed as needed, and removed and left off completely in 90% by the eighth day. In the other group, dressings were removed completely and left off in 98% within 24 hours after the operation. In 27 patients, the dressings were removed within the first six hours after the operation.

The wounds were on chest and abdomen. The operations included removal of appendix, removal of gallbladder, repair of inguinal hernias, partial removal of the stomach, and operations on the heart, intestines, nerves and veins.

Besides the good healing of the wounds, the surgeons point out that the new system saves surgical dressing costs, time of professional personnel in wound care, eliminates cumbersome dressings and avoids the irritation of adhesive tape.

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ENGINEERING

Plastic Piping Found To Be Safe and Useful

► PLASTIC PIPING for water is coming.

Pipe made from plastics has been found to be both safe and weatherproof, Walter Tiedeman of the National Sanitation Foundation, Ann Arbor, Mich., told the American Society of Civil Engineers meeting in Dallas, Texas.

A three-year test with various plastic piping has shown that, when properly installed for water supply, the plastic pipe in no way affects the color, odor or flavor of the water. In addition, it was found that there are no toxic substances introduced and it does not interfere with chemicals added to the water.

Rats will eat through the pipe when it stands in the way of their food, Mr. Tiedeman said, but they showed no preference for the plastic over other substances.

Mr. Tiedeman reported the Foundation is developing a hallmark to be stamped on the plastic piping found to be safe for drinking water.

Plastics will also command a much larger share of building materials in the future, Prof. Albert G. H. Dietz of the Massachusetts Institute of Technology, Cambridge, Mass., told the Society.

Up until now, he said, plastics have been used in the role of non-structural materials. However, use of reinforced plastic dome-shaped buildings for the military shows that plastics can be used as semi-structural and structural materials, for both military and civilian construction.

Because most plastics are too weak or brittle, they will be used in building as composites in which high-strength fibers are embedded in resin binders, Prof. Dietz said.

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MILITARY TACTICS

Intercontinental Missiles Subject of Discussion

See Front Cover

► INTERCONTINENTAL MISSILES have recently become the subject of considerable discussion in the nation's capital, particularly in Congress.

As the House Armed Services Committee approved five projects aimed at stepping up United States efforts to develop the intercontinental ballistics missile, the Senate counterpart was warned that Soviet research may put the Russians ahead in the race for what has been called the "ultimate weapon," since the ICBM could carry a hydrogen bomb as warhead.

Trevor Gardner recently resigned as Assistant Air Force Secretary because he believed the missile program was not given sufficient priority. He believes Russia is already well ahead of the U. S. in developing an ocean-spanning missile.

In the photograph on the cover of this week's SCIENCE NEWS LETTER is the Air Force's Snark SM-62, the first U. S. intercontinental guided missile. It is shown on a cleared pad at Patrick Air Force Base, Fla., where it is undergoing tests.

Included in the five projects was construction of an "atmosphere-entry simulator" at the Ames Aeronautical Laboratory of the National Advisory Committee for Aeronautics, part of a \$15,400,000 expansion authorized for the Government's top aviation research agency.

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HORTICULTURE

Find Clue to Avocado Losses

► SUMMER HEAT causes improper ripening and discoloration to avocados, a condition that involves considerable economic loss to the avocado industry.

Dr. Jacob Biale and Roy Young of the department of subtropical horticulture at the University of California at Los Angeles have found that temperatures as low as 77 degrees Fahrenheit may cause "heat damage" in the fruit after picking.

Relatively short exposures to temperatures above 86 degrees after picking will prevent the fruit from softening normally and cause it to turn black. Ethylene gas, sometimes used to promote ripening, accentuates the condition.

Storage temperatures of from 59 to 68 degrees seem to be ideal for ripening, the scientists reported.

As long as the avocado is on the tree, heat does not bother it, the scientists said. In spite of the fact the avocado is a subtropical fruit, it seems to have a low heat tolerance once it is picked.

It is recommended that avocados be rushed to a cool storage area immediately after picking.

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