

GEOLOGY

Helium Production To Be Greatly Increased

HELIUM, only non-inflammable gas suitable for balloons, will be produced in greatly increased quantities to keep aloft more blimps for coastal submarine patrol, to inflate barrage balloons, for deep-sea diving and for medical and scientific uses, states Dr. R. R. Sayers, director of the U. S. Bureau of Mines. Congress has appropriated \$4,000,000 for this purpose which will be made available from Navy Department funds. Production will be stepped up to several times last year's figures.

Helium, element first found in the sun, is now obtained from Texas natural gas. For some years past, the Bureau of Mines plant at Amarillo has been the only helium plant in the world and has given the United States a world monopoly of the valuable gas. Now a new plant will be erected at an undisclosed location, and Bureau geologists are searching for other helium-producing fields.

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DENTISTRY

Synthetic Vitamin K May Be Tooth Decay Preventive

SYNTHETIC vitamin K, taken in sugar candy or chewing gum, may be the means of preventing tooth decay, Dr. L. S. Fosdick, Dr. O. E. Fancher and Dr. J. C. Calandra, of Northwestern University Dental School suggest (*Science*, July 10).

Vitamin K, in both synthetic and natural forms, is known as the anti-bleeding vitamin and has in the few years since its discovery saved many lives threatened by hemorrhage.

Its anti-tooth-decay action depends on the fact that it prevents the formation of acid believed responsible for tooth decay.

In test-tube experiments a tiny amount (one milligram) of synthetic vitamin K in about three ounces of saliva and 10% sugar prevented acid formation for four hours. Measurements of the acidity of decayed spots on teeth in human mouths showed that the same concentration of synthetic vitamin K prevented acid formation, although, without the vitamin, the acidity of the decayed spots increased greatly in as little as three minutes.

The anti-carious action of the vitamin is not an antiseptic one, since synthetic vitamin K in the concentrations used in

these experiments will not stop the growth of bacteria. It acts by preventing formation of phosphoglyceric acid from the hexose phosphates and thus indirectly by preventing lactic acid formation.

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BOTANY

Stem Galls Provoked by "Bug Juice" Injection

STEM GALLS, tumor-like growths resulting from over-rapid multiplication of certain tissue cells, have been provoked in sugar-cane by injection with extracts of two kinds of insects, a leaf-hopper and a mealybug, J. P. Martin, pathologist of the Hawaiian Sugar Planters' Association, reports (*Science*, July 10). This is the first time that results of this kind have been obtained.

Mr. Martin made his extracts by mashing insects up in a mortar with a little distilled water. Small amounts of this "bug juice" were injected into the sugar-cane stalks with a hypodermic needle. The growths appeared first as blister-like excrescences, which rapidly became larger.

The injections also had the effect of causing more rapid growth of buds, and of branches springing from them. In some cases the chromosome numbers in the cells seemed to be increased. Further experiments on this point are now in progress. Mr. Martin suggests that insects may play an important part in the natural origin of plant varieties having multiple numbers of chromosomes.

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MEDICINE

Warn Against Cancer From Use of Sex Hormones

DANGER of breast cancer developing in women in middle life who are treated with female sex hormone preparations that are extremely powerful and have a prolonged effect is pointed out in an editorial in the *Journal, American Medical Association* (July 11).

The warning is based on experiments of Dr. Charles F. Geschickter and Dr. Elizabeth W. Byrnes, of Baltimore, which the editorial summarizes. These scientists report the occurrence of breast cancer in 202 of 555 white rats after female sex hormone treatment. The rats were members of a colony of more than 5,000 animals in which cancer had never before been observed.

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IN SCIENCE

DENTISTRY

Meeting of Dentists Postponed for Duration

THE 84th annual meeting of the American Dental Association, scheduled for August 24-28 in Boston, has been "postponed for the duration," Dr. Oren A. Oliver, of Nashville, Tenn., president of the association, announced.

The postponement was voted by the Association's board of trustees to avoid placing further burden on the nation's transportation facilities needed for the war effort. Some 10,000 dentists, many doubtless accompanied by wives and families, had been expected to attend the meeting. Boston hotels and business firms will lose an estimated \$1,000,000 from the postponement.

The house of delegates, standing committees and board of trustees will meet on the August dates in St. Louis to transact essential business of the association.

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BIOLOGY

Atlantic Seaweed Replaces Jap Agar

WAR has given new value to two kinds of seaweed that grow along American coasts.

One is a giant kelp, from which products are derived that will at least partly replace the lost Japanese import source of agar. Agar is a kind of vegetable gelatin, used in bacteriological laboratory work, in medicine, and in certain industries. Research work of the U. S. Fish and Wildlife Service is still on an experimental basis.

The other seaweed use has long been a going affair. It is the collection of Irish moss or carrageen, a kind of red seaweed, used for purposes ranging from ice cream to medicine and shoepolish. It is collected mainly along the Massachusetts coast, especially in the neighborhood of Scituate. In 1939, all the Irish moss collected had a value of only \$24,000. Last year the crop was estimated as worth \$100,000.

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E FIELDS

FORESTRY

One Japanese Immigrant Is Praised by Forester

A DESIRABLE Japanese immigrant has received a highly laudatory writeup by E. W. Littlefield of the New York State Conservation Department (*Journal of Forestry*, July).

Said immigrant is a tree species, the black Japanese pine, known to foresters and botanists as *Pinus Thunbergii*. It is hardy and a sturdy grower, but its greatest virtue is its ability to withstand constant dampening with salt spray from the sea, which is highly discouraging or even fatal to all other pine species that have been tried along the Long Island coast. It will even stand occasional floodings from high storm tides. It is also resistant to several destructive insect pests.

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POPULATION

Men of Draft Age in America Have High Education Level

AMERICA'S draft Army is being selected from a population whose educational training is excellent. The number of American men between the ages of 18 and 25 who have completed less than four years' schooling is under 4%, according to recent Census figures. Of the white male population under 25, only about 2% fall in this lowest educational bracket; in northern and western sections of the country the figure is 1%.

Because the American people have misunderstood certain statistics, they have been led to believe that young men of draft age are "dumber" than they really are. Army deferments because of "literacy" requirements have given many people the false idea that there are millions of illiterate Americans of draft age, that is Americans unable to read and write, statisticians of the Metropolitan Life Insurance Company point out.

The Army has set its educational standards much higher than in the last war. Use of very complicated machinery and other equipment, on a large scale,

has made this more severe standard necessary. So far, 430,000 men have been deferred for Army service because of inability to meet the Army's educational requirements.

This basis for deferment has nothing to do with the 1940 Census classification of persons over age 25, with less than five years of schooling. There are 10,000,000 people in this classification. But a vast majority of these are in three special groups: immigrants who came into the United States before 1914, Negroes, and white persons from certain sections of the rural South.

Where complete illiteracy does exist, it is being wiped out rapidly. People over 25 who were frankly illiterate in 1940 comprise 3.7% of the population. In 1930 they represented 5.6%. Among Negroes the improvement is particularly conspicuous: 10.0% in 1940 as against 21.3% in 1930.

But even these figures do not represent the level of schooling of children today. They reflect, rather, the educational systems of a generation ago. The 1940 Census figures show that, of children at ages 10 to 13, 95.5% are in school. In most places in the United States the figure is as close to 100% as it can be. Children not in school today are often, for physical or mental reasons, uneducable.

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GENERAL SCIENCE

Need of Scientists Brings Let-Down in Requirements

THE Government's urgent need for scientifically trained men and women, particularly for physicists, metallurgists and chemists, has brought about a let-down in the requirements, the Civil Service Commission has announced.

College teaching, and in the case of physics, high school, preparatory school and trade school teaching, may now be offered as professional experience. There is no maximum age limit, no "recency" clause with respect to education or experience, no deadline set for applying for the positions. However, persons qualified are urged to apply at once. There is excellent opportunity for women physicists and chemists, the announcement stated.

The requirements now are, for the \$2,600 grade, a four-year college course leading to a bachelor's degree, plus two years of professional experience. Additional experience is required for the higher grades.

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SEISMOLOGY

July Began with Family of Nine Quakes

A WHOLE "family" of earthquakes, nine all told, were recorded as occurring near the coast of Ecuador during the first four days of July, U. S. Coast and Geodetic Survey seismologists stated after a study of records collected telegraphically by Science Service. There were two shocks on July 1, two on the second, three on the third, and two on the fourth.

The epicenter was located almost on the equator, in latitude one degree south, longitude 81 degrees west. Time of origin of the strongest shock was 8:53 p.m., EWT, on Friday, July 3.

Stations reporting were those of the Jesuit Seismological Association at Fordham University and St. Louis University, and of the U. S. Coast and Geodetic Survey at Tucson, Ariz., and San Juan, P. R.

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ZOOLOGY

Heat Called Cause of Wavy Fur in Muskrats

HEAT seems to be the secret of "permanent waves" in muskrat fur, as it is in the hair of the females of the human species. At least, this is the suggestion of E. A. McIlhenny, manufacturer and enthusiastic naturalist.

A short time ago notices appeared of the discovery of two muskrats in Maryland marshes, with their fur in beautiful undulations like permanent waves (*SNL*, March 7, p. 147). At the time, it was conjectured that the condition might be hereditary, and it was taken as a great rarity.

However, Mr. McIlhenny writes that "in the many thousands of muskrats produced on my muskrat farm, I annually get a number of animals that show the fur permanently waved. . . . Trappers and I consider this rippled fur due to rats having been scorched by fire. A number of the skins having wavy fur, which I have examined, showed some scorching of the ears and tail.

"It is customary to burn the marshes off before trapping begins, or during trapping. Animals over which the fire may pass in dry seasons frequently get the fur burned off their backs, and when it re-grows it is always patterned or waved, often interspersed with tufts of white."

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