CLIMATOLOGY

Drought Cycle Near End; Next One Due in 1975

DROUGHT years are nearly at an end for the United States. They will not return until 1975.

Such is the forecast of Dr. Charles G. Abbot, secretary of the Smithsonian Institution, made before the meeting of the American Geophysical Union. He said:

"We seem justified in expecting a recovery from drought conditions in the Northwest within a year or two, but a severe recurrence of them following the year 1975."

This is based on the 23-year cycle in solar activities and weather on earth, long a subject of special study by Dr. Abbot. A double period, a cycle of 46 years, "appears to be particularly important in precipitation," the Smithsonian head declared. It seems to have recurred regularly, affecting tree-ring widths . . . for four centuries. Its recurrence is in nearly the same phase as the variations of level of the Great Lakes for the past century.

The 23- and 46-year cycles have also appeared in temperature departures from normal in such widely separated regions as western Europe, South Africa and Australia.

Science News Letter, May 8, 1937

PUBLIC HEALTH

Silent Alarm Bell Tells Of Diphtheria Conquest

AT THE Sydenham Hospital of the Baltimore City Health Department, which takes care of communicable diseases only, the largest ward is equipped with an alarm bell. When the button is pressed, the alarm rings all over the hospital, in every corridor, in the administration building, the internes' quarters, and the nurses' home.

Ten years ago that ward was filled with diphtheria patients. A nurse was in constant attendance, every minute of the day and night, watching the patients. For most of them life depended on a tube stuck through an opening from the outside of the throat to the trachea or windpipe. The thick membrane of diphtheria closed the air passages from nose and throat, and all the air the patient got came through the tube. If the tube became clogged, suffocating death followed in a few minutes. That was the emergency for which the nurse watched constantly. When it came, she rang the alarm. Doctors dropped everything else, came at a run to the diphtheria ward. Whoever got there first set to work at once inserting a new tube.

The alarm bell is silent now. Small two-bed or single wards take care of all the diphtheria patients brought to the hospital. The large ward is occupied by patients suffering from other communicable diseases. The reason: Toxin-antitoxin or toxoid given to a child long before he starts to school protects him against diphtheria. In recent years, since the discovery of this means of preventing diphtheria has led to active control work, the deathrate from this disease in Baltimore has dropped sharply. While in 1925 there were 44 diphtheria deaths in Baltimore residents, only 2 such fatalities occurred in 1935.

The figures tell the story, and so does the silent alarm bell.

Science News Letter, May 8, 1937

NUTRITION

Ideal Protein Food May Soon Be Made in Laboratory

A MIXTURE of essential chemicals that may be an ideal protein substitute for the nutritional needs of man or other animals may soon be made in chemists' laboratories, it appears from the report by Dr. William C. Rose, University of Illinois biochemist, to the Federation American Societies for Experimental Biology.

What Dr. Rose has done is to analyze one class of foodstuffs, proteins which are eaten as meat, eggs and cheese, and find what chemicals in them are essential. These chemicals, the building blocks of the protein molecule, are called amino acids. The ten that must be present in the diet are: lysine, tryptophane, histidine, phenylalanine, leucine, isoleucine, methionine, valine, threonine and arginine. With the exception of arginine, the absence of any of them from the diet leads to profound nutritive failure with rapid loss of weight.

The minimum quantity of each of these essential substances has also been determined. Dr. Rose reported that for every hundred parts of food there must be 0.6 parts of threonine, 0.5 parts of isoleucine, 0.7 parts of phenylalanine, 0.6 parts of methionine, 0.4 parts of histidine and 1 part of lysine.

The minimum amounts of the others will soon be determined and then scientists can formulate a mixture which will meet the needs of the body for protein food.

Science News Letter, May 8, 1937

IN SCIENC

ASTRONAUTICS

Undergraduates Plan Rocket Study With New Society

ROCKETRY, long considered off the main path of the engineering sciences, is attracting the attention of student engineers at Yale. The recently organized Yale Rocketry Club, consisting of engineering students and devoted to the study of fundamental rocket principles, plans to carry out actual experimentation and research in this field.

Experimentation in rocketry has long passed the phase of sending up rockets for the purpose of gathering pertinent facts about the efficiency of the device. Proving stands built to hold the rocket motor securely to the ground, having delicate gauging mechanisms, furnish data on fuel flow, fuel tank and combustion chamber pressures, and jet reactions. This method the engineers of the Yale Rocket Club plan to use.

The most pressing problems for rocket research are those concerning liquid fuels, used today almost to the exclusion of old-fashioned explosive powder mixtures; and those dealing with constructional metals for the motor and the entire rocket. The Yale engineers point out that while liquid oxygen is now generally used in conjunction with either gasoline or alcohol, there are many drawbacks to this fuel mixture. They believe future development in the field of rocketry awaits the discovery of a more dependable source of power.

The liquid oxygen brings about many of the difficulties. Because of its low boiling point, large increase in volume during transformation from the liquid to gaseous state, effect upon the strength of metals at low temperatures, and its tendency to cause valves to freeze and stick, it is hard to control with certainty.

Astronautics, as this new field of science is called, is expected to yield information of an exploratory nature concerning the stratosphere. It is believed that astronautics will provide hitherto unknown facts for the meteorologist, astrophysicist, biologist, and aeronautical engineer.

Science News Letter, May 8, 1937

E FIELDS

GENERAL SCIENCE

Scandinavia and U. S. To Exchange Scholars

EXCHANGES of scholars between the Scandinavian countries and the United States will be made in the coming months.

Dr. Robert A. Millikan, Nobel physicist of the California Institute of Technology, will lecture at the Universities of Stockholm, Upsala, Oslo, Lund and Copenhagen during May at the invitation of the American-Scandinavian Foundation.

Next academic year about 30 Swedish scientists will come to America to lecture as a part of the celebration of the 300th anniversary of the founding of the New Sweden colony on the shores of the Delaware River in 1638. Among them are Prof. The Svedberg, and Prof. Manne Siegbahn, both of the University of Upsala and both Nobelists.

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ENGINEERING

Toothpaste Cocktail Coming As Addition to Package Age

THIS is a package age. Often we buy things because we like their containers, whether we need the things themselves or not.

Beer cans, after a spectacular entrance into an old field, have become almost commonplace. And paper cups, glass containers for food that we are proud to use as dinner ware, motor oil in non-refillable cans, have made a place for themselves.

Now an even larger use of single-use containers is predicted. Arthur D. Little laboratories foresee what they call the "toothpaste cocktail," which will do away with losing the top off the toothpaste tube because you will use it once and throw it away. Hermetically sealed containers are soon to come into use for the dispensing of hair tonics, flavoring extracts and even alcoholic beverages in "one-dose" quantities.

It is predicted that there will be made this year some 25,000,000 single-use tubes for holding the makings of as many cups of soluble coffee. A paint manufacturer has greatly simplified his problem of providing a bright spectrum of many colors of paint. Uncolored or white paint only is sold in the familiar cans. But single-use tubes of colored pigments in oil are squeezed into the can by the user to make any color desired. The dealers reduce the cans on their shelves to a seventh of the usual inventory.

Envelopes are made not only of paper these days, but also of tin and other metals as well as transparent cellulose sheeting. The metal envelopes are used for holding materials that would leak or damage ordinary paper.

There are two motives in making smaller packages. One is convenience, which is the reason for the present American boom in small packages. The other is the fact that many people of low purchasing power must buy in small quantities even though that may be the most uneconomical way in the long run.

This finds an extreme in China. The American Trade Commissioner at Shanghai, in urging more suitable packaging of American goods, tells how an American raisin company recognized that its product must be brought into the buying range of the masses. It was content to package as few as five raisins in a stamp-sized envelope to be sold for the lowest unit of Chinese copper currency.

Science News Letter, May 8, 1937

PALEOBOTANY

"Gentle-Face" Skeleton Shown in Field Museum

NOT all extinct beasts were huge, ferocious-looking monsters. The Field Museum of Natural History now boasts the skeleton of a ten-million-years-dead animal of such harmless mien that it has been given a scientific name meaning "gentle-face"—*Hapalops*.

Hapalops's bones were found in crumbling sandstone cliffs on the coast of Argentina. The animal was a small relative of the great ground sloths that inhabited North America; he was only about four feet over all.

His forelimbs, longer than his hind legs, enabled him to climb trees and feed on leaves and fruits. At the same time, the formidable claws on his forefeet enabled him to dig for roots and bulbs.

Science News Letter, May 8, 1937

PSYCHOLOGY-PHYSIOLOGY

Hairy Chest is Not a Sign Of the Masculine He-Man

IF YOU were to describe your own idea of the real "he-man"—the extreme of masculinity, the chances are that you would mention broad, athletic shoulders, heavily bearded face, hairy chest, narrow lithe hips, deep booming voice, crude or rough personality.

The womanly woman is thought of as having high pitched voice, smooth, hairless skin on face and breast, broad curving hips, narrow sloping shoulders—a creature of refinement, delicacy and charm.

Yet despite the long tradition supporting these conceptions of manhood and womanhood, and despite the fact that most people have no doubt in their mind but that such differences are due to sex, scientific evidence has been lacking in this field.

Gradually, as they are attacked by scientific study, many so-called sex differences are melting away. It was a shock to many persons when the development of standardized intelligence tests revealed that men are not superior mentally to their womenfolk. Is it possible that hairy chest and "gorilla shoulders" will suffer a similar fate as criteria of masculinity?

Dr. Howard Gilkinson, University of Minnesota psychologist, raises the question and provides a surprising partial answer.

If sex is a biological entity—a force which man or woman can be thought of as having in greater or less degree—and if this force finds outward expression in such items as beards or pitch of voice, then you might expect the heavily-bearded man to have also a deep masculine voice and broad shoulders, points out Dr. Gilkinson. Yet examination of more than 200 college men showed these "secondary sex characteristics" to exist quite independently of each other.

And only one of the physical measures, voice pitch, was found to have any significant relation to masculinity as revealed by test or by ratings of associates. Hair abundance and hip-shoulder measurements do not correlate with the masculinity test or with voice pitch. Hip measures do correlate positively with shoulder measures showing, perhaps, that the man with the gorilla shoulders might be expected to have "feminine" hips.

Dr. Gilkinson's results raise the question, already suggested by another investigator, "Is there any such thing as sex, or only sexes?"

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