

BOTANY

Similar Plants Found At Opposite Ends of Earth

MANY PLANTS that grow in the lands farthest south on the earth are identical with or quite closely related to plants that grow in lands around the North Pole. In between lie the tropics, where these cold-tolerating plants cannot live. How did these far southern plants get across the deadly tropics to settle where they are today?

This was the question raised before the British Association for the Advancement of Science at its meeting in York, by Dr. G. E. Du Rietz of the University of Uppsala, Sweden. Formerly it was considered that the migrant plants moved southward across the tropics during the Ice Age, when the tropics were much narrower than they are now, and quite possibly not so hot. But, Dr. Du Rietz pointed out, many of the plants got south before the Ice Age, when the tropics were at least as wide as they are today; so that answer will not do for all of them.

However, the speaker continued, there were lofty north-and-south mountain chains in both hemispheres in pre-glacial times, much higher than the present mountains of Panama and the East Indian region, and it is quite probable that their cool, lofty summits offered causeways through the hot regions along which temperate-zone and arctic plants could move southward in safety.

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MEDICINE

Chemical Units of Germs Studied for T B Cure

HOPe of discovering a way to cure tuberculosis and to give resistance to it lies in learning how definite chemical units of the tuberculosis germ change the normal chemical reactions of the body's cells and what the symptoms of these altered reactions are, in the opinion of Dr. William Charles White of the U. S. National Institute of Health, who addressed the conference of the International Union Against Tuberculosis at The Hague. Dr. White has been appointed delegate to the conference on the part of the United States, and is chairman of delegates.

Studies to disclose these secrets of the tuberculosis germs and the body's cells are already in progress. Dr. White described the work in American labora-

tories along these lines. The different strains of bacilli have been grown and then analyzed by the chemists to find what they are made of. The units separated by the chemists have been investigated by biologists, to discover what effects each would have alone on living cells. These studies have already revealed the presence in the tuberculosis germ of the only poisonous sugar known. A protein substance has been isolated in pure form which produces an inflammatory skin reaction useful for testing susceptibility to tuberculosis. Typical cell changes and tubercle formation are caused by still another chemical unit separated from the tubercle bacillus. From this last unit an acid, called phthioic acid, has been obtained.

By pursuing investigations such as these Dr. White believes the final conquest of tuberculosis will be made.

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ETHNOLOGY

Indian Banshees Were Ikkxareyavs and Kitaxrihars

THE ikkxareyavs'll git you ef you don't watch out! And it will go especially hard with you if they happen to be kitaxrihars. A snark is bad enough, you know; but if he is also a boojum — —

All of which goes to show how a touch of superstition makes the whole world kin. For the ikkxareyavs, which are sometimes malevolent kitaxrihars, are the hobgoblins, the banshees, the "little people" of the Karuk Indian mythology. The Karuks are a California tribe, whose customs and beliefs are the subject of a newly issued publication of the Smithsonian Institution, written by John P. Harrington.

The ikkxareyavs, these Indians told Mr. Harrington, "were the old-time people who were in America before the Indians came and who turned into animals, plants, rocks, mountains, plots of ground, parts of houses, dances and abstractions when the Karuks came, remaining with them only long enough to state and start all customs." They disappeared, the Karuks believe, only a few generations ago.

The wicked kitaxrihars, who sometimes cause strangers to be hurt and must be exorcised by a special "medicine," were petrified into particular rocks. There is a group of such evil-doing rocks in the Karuk territory.

Ikkxareyavs are of especial importance at the time of the Karuk New Year, which comes late in August.

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IN SCIENCE

PHYSIOLOGY

Iodine Compounds Control Sleep and Hibernation

EXPERIMENTS showing that iodine-containing compounds probably control sleep in man and hibernation in other animals were reported by Dr. G. S. Carter to the British Association for the Advancement of Science.

Dr. Carter experimented with hearts taken from frogs in winter and in summer. He found that thyroxin, which is the iodine-containing secretion of the thyroid gland, produced in the heart of the winter frog a curve of temperature and pulse rate typical of the heart of the summer frog. Other glandular substances did not have this effect. He concluded that the amount of thyroxin in the circulating blood controlled the hibernation of frogs and similar animals. Other experiments suggested that a similar rhythm in the amount or activity of iodine compounds in the circulation plays a part in the production of man's daily sleep.

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BOTANY

Wounded Leaves Protect Breaks With Dead Tissues

HOW WOUNDED leaves protect the edges of the break or cut until a permanent healing can take place has been made the subject of a special study by Prof. Robert B. Wylie of the University of Iowa. Some time ago he reported on the healing process in ordinary thin leaves; now he has reported on the process in the thicker, tougher leaves of the broad-leaved evergreens.

In both types of foliage the process is essentially similar, though it takes place more slowly in the broad-leaved evergreens. At first the cells along the break die and collapse, forming a mass of dead material that protects the living tissues behind it temporarily, keeping out fungus spores and bacteria. This Prof. Wylie calls the "pseudocicatrice." Behind its protection is a true cicatrice of corky material, which forms the permanent protection.

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E FIELDS

ZOOLOGY

Cattle Came From Asia With Neolithic Immigrants

ROAST BEEF, England's standby, has smoked on English tables for ten thousand years. And nobody knows whence came the sturdy cattle that make the roast beef possible.

Domestic cattle have been in Europe since the middle of the New Stone Age, yet no one knows what their wild ancestors looked like or where they lived. So said C. Bryner Jones, C.B.E., Minister of Agriculture in Wales, in an address before the British Association for the Advancement of Science.

Neolithic settlements in England as well as elsewhere in Europe contain bones of a short-horned species of wild cattle, Mr. Jones stated. These bones have never been found apart from human settlements, hence the cattle must have been domesticated when the race who owned them migrated into Europe, presumably from Asia.

From these earliest domestic cattle, the speaker said, all the varied breeds of Britain have descended. Mr. Jones expressed the opinion that in themselves these Stone Age cattle possessed sufficient potentialities of variation to account for the rise of modern breeds, without invoking the hypothesis of cattle imported in later times by Romans, Teutons or other invaders of the islands.

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EVOLUTION

Unborn Colt Like Little Eohippus

THE HEAD of an unborn colt in the fifth month of its prenatal life resembles the head of the little Eohippus, the five-toed cat-size earliest ancestor of all horses. During further stages of development it passes through resemblances to heads of later horses.

These resemblances express themselves most strikingly in the ratio of the length of the face to total length of skull. In the full-grown modern horse, and even in the newborn colt, the face is exceedingly long. In the adult Percheron horse, for example, the face is 1.7 times as long as the brain-case, whereas in the little Eohippus the face was actually shorter—only 85 per cent. of the brain case length, or relatively about half as long as the modern horse's face. The new-born colt has a face one and one-half times as long as his brain-case, which is the ratio presented by fossil skulls of Pliohippus. The yearling's skull has increased to a 1.6 ratio, which is that of a recently-extinct species of wild horses. Thus the individual horse recapitulates the whole story of his race.

These facts have been brought out by R. Cumming Robb of Syracuse, N. Y.

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ECONOMICS

Colony Run By Scientists Proposed to End Ills

THAT THE BRITISH government should found an experimental colony to be run by engineers, scientists and economists was the unusual proposal made at the meeting of the British Association for the Advancement of Science by Prof. Miles Walker, of the University of Manchester.

"The object in view would be to ascertain how far it is possible with our present knowledge and the best methods of manufacture and distribution for a group of say 100,000 persons to maintain themselves and continually to increase their wealth when freed from the restraints and social errors of modern civilization," he said.

A community in which engineers and scientists were the leaders in place of our present-day rulers would be free of many of the defects of our civilization, Prof. Walker indicated.

"All through our 'civilization' vested interests block the way to improvement. Long after science has shown the way to make things better for the people, unintelligent control and stupid prejudice preserve the old evils and refuse to be convinced.

"There are many things to be ashamed of in our great cities. Not the least of these is the waste that goes on. There is waste of heat in domestic fires; waste of by-products in the consumption of coal, thereby producing dirt; waste of fresh air by pollution; waste of sunshine; and, above all, the waste of labor that might be applied in stopping all the other desolation and loss; waste of money by paying dole while there are obvious jobs for everybody."

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GEOLOGY

Decay of Stone Is Caused by Bacteria

STONES, no less than men, animals, and plants, are attacked by germs. And these bacterial onsets can cause serious damage to building materials.

So stated Prof. S. G. Paine of the Imperial College of Science and Technology, London, before the British Association for the Advancement of Science. Reviewing the work of other botanists as well as his own researches, Prof. Paine pointed out that primarily this bacterial disintegration of stone is beneficial, for it is one of the things that breaks down solid rock into soil fit for farms and forests. But on the works of man the bacteria, some of them the identical ones that are helpful in the soil, often work havoc.

A new type of bacterium has been discovered during the researches under the direction of Prof. Paine. This species is able to live on certain sulfur compounds that naturally occur in some kinds of stone, leaving sulfur deposits on the surface. It is considered probable that many of the sulfur deposits hitherto blamed on sulfur dioxide gas in the air are really traceable to these bacteria.

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GENETICS

Hereditary Factor Makes Mice Earless

IF YOU find an earless mouse in your trap some morning, don't credit it to some fierce gang war in mousedom. Your earless "Mickey" was probably born that way. A hereditary factor that makes mice earless when it has the opportunity to operate has been discovered by Dr. Horace W. Feldman of the University of Michigan.

Though hereditary, this tendency toward earlessness in mice does not express itself uniformly, Dr. Feldman said. In some specimens, it merely makes the ears a trifle smaller than normal. In extreme cases, however, the damage is extensive and may involve other parts of the head.

Earless mice might be more frequent than they are, but for the fact that the defect is accompanied by tendencies toward shorter life, smaller litters of young, and a higher deathrate among the females, all of which factors operate to keep down their numbers.

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