

GENERAL SCIENCE

# Acute Danger of Extinction Of Rare Old Plants Cited

## Gathering at Franklin Institute Commemorates the Founder by Unveiling Statue and Scientific Program

See Front Cover

SCIENCE and mankind are in danger of losing by extinction a large number of rare old plants counted among the most interesting from the point of view of students of the history of life.

Many rare old plants, "fugitive aristocrats," face the same danger of extinction by advancing man and from crowding by hardier, more aggressive plants that wiped out a rare plant of Benjamin Franklin's day, the *Franklinia*. Prof. Merritt L. Fernald, director of the Gray Herbarium at Harvard University, declared, speaking on a science program at the Franklin Institute.

The program was part of dedicatory exercises lasting three days marking unveiling of a great statue of Benjamin Franklin executed by James Earle Fraser. The statue, which can best be compared in its proportions with the Lincoln Memorial in Washington, will honor an early American whose acute observation and general scientific abilities have won him a permanent place in the annals of science. A model of the statue is pictured on the front cover of this week's SCIENCE NEWS LETTER.

Prof. Fernald listed a number of the plants facing extinction and some factors tending to wipe them out.

### Pollution Danger

Rare estuary plants, growing in the slightly brackish tidewater at river mouths, and unique because of their ability to withstand the rapidly changing salt-and-fresh character of the river water, are in danger of extinction by newcomers. Twenty years ago such vegetation was abundant in the mouths of many rivers. But today the vegetation is being crowded out of the banks of the St. Lawrence River from Montreal to Quebec by seeds of hardier plants brought over on transatlantic steamers.

"Instances of the destruction of the last or only living colonies of other rare plants by the blasting away of ledges or the building of dams will occur to every experienced field-botanist; and the

pollution of rivers by strong chemicals from pulp-mills and factories has been as fatal to the native flora of river-gravels as to the salmon, shad and other important fishes of the river-channels."

Many of these plants are biologically old and throw much light on the past history of the earth; that is why, Prof. Fernald explained, their loss is mourned particularly by the scientist.

### "Human Engineering"

Prof. Thomas Hunt Morgan of the California Institute of Technology, Nobel prize winner and discoverer of the gene, who also addressed the gathering, suggested the term "human engineering" for the science of heredity as applied to man.

Such a science, Prof. Morgan indicated, will become increasingly important in the future as a result of further studies of genetics, the science of heredity, detailing more and more clearly the mechanism by which son and daughter resemble and yet do not resemble father and mother.

### Electricity Still a Puzzle

Dr. Willis R. Whitney, vice-president of the General Electric Company in charge of research, and a leading student of electricity for half a century, admits he still doesn't know just what man's most useful servant and one of science's most useful tools is.

Most scientists hold the same opinion, he indicated. And those who think they know what it is have all too often to change their minds as a new experiment turns up additional facts which just do not fit previous theories.

Dr. Whitney added, however, that ignorance of the "essence" of electricity doesn't seem to have had any harmful effect as far as practical and experimental results from its use are concerned.

"The only safe way with electricity is to expect a new picture whenever new tools for better measurement are discovered," he declared.

Addressing his talk to tomorrow's

generations, the scientist said: "I would like to encourage boys to realize the flexibility of electricity. Fortunately it is difficult to draw a perfect picture of any inside mechanism of Nature. Electricity is no exception. Everyone who has tried it has had his picture well painted over by later artists. On the other hand the results of even the simplest experiments remain unaltered, and so constitute the permanent assets."

### Redefine Term "Acid"

Scientists are redefining the term "acid" to fit a host of new experimental facts and in accordance with modern theories of the structure of the atom, Prof. Gilbert N. Lewis, dean of the College of Chemistry of the University of California and one of America's outstanding physical chemists, declared. He said that scientists today are using the term, which describes one fundamental classification of chemical substances, in a much broader sense than before.

It no longer means only a "hydrogen ion, in a single solvent, water." A hydrogen ion is an atom of hydrogen minus the single electron outside the nucleus, and having therefore, a positive charge.

Today chemists and physicists are defining this basic term as describing a molecule which is capable of receiving an electron pair.

The change has been brought about, Prof. Lewis stated, in order to take account of the fact that certain substances show definitely acid behavior when they are dissolved in solvents other than water.

The same broad considerations apply to the other great classification of chemical substances, bases, as well.

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ANTHROPOLOGY

## Rescue of Lost Apaches Would Require Cooperation

RESCUE of the lost Apaches hiding in northern Mexico would call for joint efforts of United States and Mexican officials.

Now that existence of the wild, skin-clad Indians has been made known by Dr. Helge Ingstad, Norwegian ethnologist, friends of the Apache tribe, both in the Indian Service and outside, are concerned for the fate of these castaways.

Dr. Ingstad, who reported sighting five adults and one baby, was unable to talk with them because they run like deer and are accustomed to shoot, or be

shot, on sight. It is believed the wild band may number 40 individuals, the survivors or descendants of some fierce Apache Indians who refused to surrender to white men back in the 1880's. The lost band represents one of the strangest chapters in United States history—Indians who have been driven by civilization down into primitive isolation, only one stage higher than wild animal life. These Apaches retreated into the Sierra Madre Mountains of Mexico, 150 miles south from Douglas, Arizona, and there they roam on foot or ride stolen horses, and eat desert plants and wear animal skins.

Rumors which drift up to the Mescalero Apache reservation in New Mexico has said that women lead the pathetic band of castaways, possibly because the men have died hunting or fighting. Dr. Ingstad reported that the

wildest of the adults he saw appeared to be women. It is also rumored that a white man, long ago kidnaped by Indians, is with the band, but this remains unverified.

Indians on Southwestern reservations have expressed concern to the United States Office of Indian Affairs over the plight of the lost band. So far, however, no official representations have been made, and any action of returning the group to the United States would have to be arranged, it is supposed, with cooperation of Mexican authorities.

Dr. Ingstad is anxious to contact the lost band in hope of learning important facts about Apache traits. He holds the theory that Apache Indians parted from Arctic tribes and moved southward, and that their ancient migration may be traced when the old type of Apache culture is better understood.

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#### ANTHROPOLOGY

## Famed Java Ape-Man Lived Past His Time

### Evidence of Cannibalism Raises Question as to Whether Neandertaloids Regarded Ape-Man as Game

JAVA's famed ape-man, *Pithecanthropus erectus*, was a person who was born, not "thirty years too soon" but something like a million years too late. He represented a race that belonged properly to the Pliocene geologic period (the time just before the great Ice Age of the Pleistocene) but that survived in the favoring forests of the East Indies while ice sheets lay for a million years over most of what is now the North Temperate Zone.

This is the opinion of Dr. G. H. R. von Koenigswald, discoverer of the latest-found *Pithecanthropus* remains, as expressed in a letter to Dr. John C. Merriam, president of the Carnegie Institution of Washington. Dr. von Koenigswald's recent researches have received the support of the Carnegie Institution.

The total *Pithecanthropus* population now in the hands of scientists in Java consists of three skulls: the famous original find of Dr. Eugene Dubois, dug up in 1891, the new skull found by Dr. von Koenigswald last summer, and a child's skull discovered in 1936, which went largely unheralded in public notice. The brain-space in the latter is less

than that of a normal modern baby of eighteen months.

Dr. von Koenigswald's recently found adult skull gives a definite date to the Java ape-man. This has been a matter of dispute in the case of Dr. Dubois' find, for the earlier skull was excavated while the Dutch physician was away from the Trinil gravel pit and he never was able to ascertain definitely from his native assistants just where they found it.

However, the new skull was found while Dr. von Koenigswald himself was on the spot, in a gravel bed known by the elephant bones and other tropical fossils it contains to be of mid-Pleistocene date, so it appears fairly certain now that *Pithecanthropus* lived in the middle of the Ice Age—about half a million years ago.

A piece of jaw, massively built and still containing three big molar teeth, found near the braincase by Dr. von Koenigswald, has great significance in connection with the problem of human evolution, if the young German scientist's interpretation of the fragment is correct. He considers it to be definitely *Pithecanthropus*, and further holds that

it is very closely related to the famous Heidelberg or Mauer jaw found many years ago in Germany and now regarded by some anthropologists as belonging to a race ancestral to man. If this chain of opinion is sound, *Pithecanthropus* must be given a limb to roost on, in our own family tree.

An incident that combines the comic and the exasperating occurred when the native workmen dug out the new skull. Although Dr. von Koenigswald was at the site he did not have his eye on this particular group of diggers. So the men promptly broke the skull, which was whole when they found it, into forty pieces, because they thought they would get more "per piece" than they would for one big bone. So the shattered skull had to be laboriously put together again.

Meanwhile, other excavations in Java have been turning up the remains of several skulls of a heavy, primitive type with characters resembling those of the well-known Neandertal skulls of Europe and the Near East. They have the characteristic massive eyebrow ridges of the Neandertal type, and resemble the ancient European skulls also in having a narrower region behind these ridges.

Especially suggestive is the fact that none of these skulls has been found unbroken. They are intact on top, but the facial skeleton is missing and the floor of the brain cavity is broken away. Exactly the same condition is found in skulls left after cannibal feasts by certain still-wild head-hunter tribes of the present day in Borneo, who regard human brains as a special delicacy.

These shattered Neandertaloid skulls are considered by Dr. von Koenigswald as approximately contemporary with the much more primitive *Pithecanthropus*. The Neandertaloids were a more advanced physical type and they had crude but effective stone implements and weapons. Since they apparently had no scruples about killing and eating each other, an interesting speculation is suggested:

Did these Javanese Neandertaloids, perhaps, regard their ape-man neighbors not as fellow human beings but as just another kind of game animals?

Anthropology has no answer to this question as yet. But in the meantime it can add zest to the weary job of river-gravel digging.

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A European physician who has helped organize health centers in six Chinese provinces declares that modern Chinese doctors "are the equal of the medical men in any other part of the world."