SCIENCE NEWS

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A FLORIDA CYPRESS

A GIANT cypress with a trunk over fifteen feet in diameter may be Florida's rival to the big trees of California for the recognition as America's oldest living thing. Professor Herman Kurz, of the Florida State College for Women, has made a study of the gnarled and battered veteran, and estimates that it may be 2,000 years or more old, or even as much as 2,800 years old.

If this does not exceed the age of the great trees that are the pride of California, it is at least a highly respectable antiquity, and Professor Kurz feels that Floridians owe it to themselves to call public attention to the picturesque grandeur of their remaining groves of big cypresses, and at the same time insure their protection against thoughtless vandalism.

Before studying the big tree, Professor Kurz examined the stumps of a number of recently felled seven- and eight-foot specimens. One sample measuring seven feet proved by its ring count to be about 700 years old. It was, therefore, already a veteran when Ponce de Leon discovered Florida, and was a lusty young tree even when Chaucer wrote the Canterbury Tales.

Commenting on the fifteen-foot giant, Professor Kurz said: "The stubby top and relatively short trunk hark back to many and ancient violences. Sometime before Christ, this tree, probably solid and sound, had already attained a diameter of several feet. Then the pecky cypress fungus gnawed into its heartwood; maybe it was when Cicero orated for the cause of Rome. A hollow and weak trunk ensued. Next a violent storm wrenched off a large limb or two, so that the tree became stunted in appearance and growth. Just when the limbs crashed is also a conjecture. It could have happened when Caesar was in Gaul (55 B. C.) or during the time of Constantine, about 300 A. D. During the Norman Conquests or the Crusades it may have suffered the loss of another limb or two."

After surviving all these damages and dangers, the great tree is now in real peril. And ironically enough, its life is threatened by mere penknives. Thoughtless tourists by the hundreds inscribe their initials and more or less silly sentiments in its trunk, and these constant wounds are endangering the life of the tree. Professor Kurz advocates surrounding it with a high fence to protect it from its admirers; and he would also have Floridians undertake a campaign of public education designed to secure both a fuller appreciation of the interest and value of the big cypresses and their preservation for future generations.

THE CONSERVATION OF WHALES

WHALES, threatened with extinction through the tremendous expansion of the modern whaling industry, have found a friend in need in Norway, the nation in which about four fifths of the world's whaling is centered. Recent legislation by the Norwegian parliament represents an impressive example of self-imposed conservation and far-sighted industrial policy, says A. Brazier Howell, of the Johns Hopkins Medical School, a lifetime student of whales and their ways, and executive secretary of the Council for the Conservation of Whales.

Under the new act all Norwegian whalers are wholly forbidden to kill the right whale, one of the most valuable of all the great sea mammals and formerly one of the most persecuted. All whale cows with calves are given a similar blanket protection, and calves must also be let alone. The practice of paying whaling crews according to the number of whales taken must be discontinued, and all parts of the animals containing oil must be utilized. Illegal catches are subject to confiscation.

The law further confers taxing powers on the king, the funds obtained to be used in enforcing the legislation and in promoting research fundamental to the whaling industry. The king is further empowered to forbid all whaling in tropical waters.

"This praiseworthy and timely action by Norway should prove a cause for no little elation among those interested in maintaining a commercial supply of whales," comments Mr. Howell. "It should render much easier the task of securing international regulation of whaling."

CARP IN PONDS

CARP get the better of other fish whose waters they invade, literally by eating them out of house and home. This has been disclosed by the drainage of a small, carp-infested lake in southern Wisconsin, which was studied by Dr. Alvin R. Cahn, of the University of Illinois. His results are reported in the scientific magazine *Ecology*.

As the waters went down in the lake, all the fish were captured and counted. Out of a total of 6,006 fish, 5,891 were carp. More desirable species, like perch, black bass and pike, were notable for their absence or scarcity. By way of contrast, a similar total taken from a lake containing no carp had a good representation of several desirable game and food species.

The most notable difference between the two lakes, Dr. Cahn states, was to be seen in the plant population, which of course forms the ultimate food of all fishes. In the carpless lake there was an abundant growth of many kinds of plant life; in the carp-filled water there wasn't a weed. The restless, avid, all-eating mouths of the carp had destroyed every green thing.

The muddy bottom of the lake was entirely covered with little semi-round depressions about a quarter of an inch deep. These had been made by the carp, "mouthing" the mud to get the last traces of anything fit even for a carp to eat. Incidentally, of course, this constant stirring of the bottom effectually prevented the germination of any seed of a water plant that might have fallen into the lake, and also kept the water constantly roiled and muddy.

BREWING IN ANCIENT EGYPT

WITH nothing more before him than an Egyptian bottle that has been empty since 3300 B. C., Professor Dr. Johannes Gruess, of Berlin, can tell whether the departed Pharaoh in whose tomb it was found liked his beer light or dark, whether he favored a brew made of barley or emmer, or whether his taste ran more daintily to wine. Fortunately for themselves and their subjects as well, distilled liquors were unknown to the kings of ancient Egypt.

It all turns on Professor Gruess' expert knowledge of yeasts. There are many different species of these active microscopic plants that put the kick in home-brew and raise the dough when the baker makes bread, and only a botanist specially trained in microscopic technique can tell them apart.

Professor Gruess had a lot of ancient bottles and jugs which had been sent to him by Dr. H. E. Winlock, of the Metropolitan Museum of Art in New York. They had been found in various ancient tombs, some of them dating back 1700 years beyond King Tut. They had been full of various fermented liquids, but these of course had evaporated, leaving a deposit of dried yeast cells and other detritus on their sides and bottoms.

By microscopic examination of this material, Professor Gruess was able to tell what the Pharaoh's brewer had used. The special kind of beer could be determined from starch grains mixed with the yeast deposit, and wines were betrayed by the presence of characteristic acid crystals. That one batch of beer had gone sour was indicated by the finding of the skins of a number of "vinegar eels."

Early Egyptian brewers and winemakers were not at all fussy. Apparently they didn't even take the trouble to strain the water they used; for Professor Gruess has found, mixed with his yeast cells, such things as tiny twigs and leaf fragments, bits of water weeds from the Nile, and wings, legs and heads of insects of various kinds, to say nothing of appreciable amounts of desert dust.

About one thing, however, they were particular. They always used the same kind of yeast, and they apparently kept their cultures pure for over 2,000 years. The elaborate ceremonies of the Hebrew purging and renewal of the leaven at Pesach give a hint of how yeast may have been cared for in old Egypt.

Professor Gruess identifies the old Egyptian yeast as a wild species that lives on certain fruits, though he regards it as more likely that it went into the Egyptian "makings" with honey that was added to the batch as sugar is added by present-day home-brewers. He regards it as a new species of *Saccharomyces*, the genus to which all yeasts belong, and in honor of the American who supplied him with his ancient bottles he has named the yeast *Saccharomyces Winlocki*.

THE NAVY'S NEW AIRSHIP

THE construction of the world's largest airship, the U. S. Navy's *ZRS–4*, began at Akron, Ohio, on Thursday, October 31, when a gold rivet was driven in the first great ring of its duralumin skeleton. The ring-laying ceremony of the new giant among lighter-than-air craft was comparable to the keel-laying of a battleship or an ocean liner.

Although the great hangar in which the airship will be built is not yet completed, there was room for 40,000 people to gather in the completed half of the building to watch the ceremonies. Six-hundred-ton doors, orange peel in shape, swung open from three-ton cotter pins at the top of the hangar as the first step in the ceremony.

When the *ZRS–4* takes the air about July, 1931, it will need 6,500,000 cubic feet of helium gas and will lift 180 tons. It will be longer, wider and more powerful than any airship the world has yet seen. A sister ship, the *ZRS–5*, will be built in the same hangar just as soon as the first large airship takes flight.

The airship frame contains a series of large rings that give the ship its cylindrical form. In the first of these rings, constructed flat on the floor of the hangar, was driven the gold rivet which will mark the highest part of the airship when it is constructed.

THE MEXICO CITY–LAREDO ROAD

LESS than 120 miles of roadway is all that will remain unopened at the end of 1929, of the new Pan-American highway between Laredo, Texas, and Mexico City, it is reported by the National Highway Commission.

It is now possible to go from Laredo, *via* Monterey, to Ciudad Victoria, capital of Tamaulipas, and by the end of the year, the road will be open to traffic, though not completed, as far as Valles, in the state of San Luis Potosi. Working north from Mexico City, the road is now open to Zimapan, state of Hidalgo, and by the end of the year, automobiles will be able to go as far as Jacala, a point farther north.

The portion between Valles and Jacala is being saved for 1930, as it is the most difficult part of the road of a very mountainous region, which will require much engineering to bring through.

South of Mexico City, the Pan-American highway goes through Puebla, a sector that is already complete, but from there on no official work has as yet been carried on. Work, however, will be begun on this southern sector in 1930. The road will lead from Puebla south to Huajuapan, and from there to the city of Oaxaca, an inaccessible region much broken up by mountains.

From Oaxaca, the road leads to Tehuantepec on the isthmus of that name, and from there to Tuxtla Gutierrez, capital of Chiapas. Then it goes to Tapachula, on the Mexican side of the Guatemala border, through a region of Chiapas but little known.

Road construction was first begun seriously in Mexico in 1925, when four state capitals, Cuernavaca, Toluca, Pachuca and Puebla, were connected with Mexico City. Because the traffic on these roads is heavy, they are largely macadamized, but it is the policy of the road commission to produce long mileage at low cost until traffic is denser.

More than 1,200 miles of highway have been opened to motor traffic in Mexico since 1925, and over 21,000,000 dollars have been spent. Gasoline consumption in 1928 was about 212 million liters. Although Mexico is one of the world's leading oil-producing countries, gasoline prices are several times higher than in the United States.

A motor trip to Mexico will be of geographical and ethnographic value to the tourist. He will pass through deserts, rich tropical villages, semi-tropical towns at a medium elevation, and then as he approaches the central state of Hidalgo, he will go higher than 10,000 feet, where it is always cold and scrub pine and oak are the only trees.

He will pass through the Huasteca region of Indians that are the puzzle of anthropologists, because they are apparently related to the Maya Indians much farther south. Then in the state of Hidalgo are the Otomies, and, around the region of the valley in which Mexico City lies, are the Aztecs. After Puebla comes Huajuapan, where Mixtec is spoken, and farther south near Oaxaca City there are Zapotec towns, while in the state of Chiapas are Indian groups related to the Mayas. Each of these Indian groups has largely retained its own language, though frequently in addition to the national Spanish; and the costume, too, varies as one passes from region to region.

ITEMS

Two new vitamins have recently been discovered by English scientists. Katherine Hope Coward and her colleagues at the laboratory of the Pharmaceutical Society, London, have published a paper describing a new vitamin which has somehow escaped notice before. Scientists do not yet know whether this new factor is necessary for the human race, but Miss Coward's experiments have proved that it is necessary for the growth of the experimental rat. No name has yet been given to this vitamin. It has been found in fresh milk, lettuce, grass, ox muscle, liver and wheat embryo. The other new vitamin has recently been described by Vera Reader, of the biochemical department, Oxford University. The original Vitamin B was said to prevent beriberi. Scientists found later that Vitamin B really consisted of at least two separate factors, and they decided to call them B1 and B2. Miss Reader now has found that in the Vitamin B of yeast there is a third growth factor which is chemically distinct from either of the other two. She suggested the name B3 for this new factor. Like B2, it can be destroyed by heat. The pellagra-preventing factor in foodstuffs, known as P–P, was also once thought to be part of Vitamin B.

A CASE of living tissue being grown outside the animal body is the growth of embryo gristle or cartilage into bone. This transformation has been accomplished by Miss Honor B. Fell, working at the Strangeways Research Laboratory in Cambridge, England. When the proper conditions of nourishment and temperature are maintained, isolated cells from animal embryos have been seen to grow and develop in the test-tube just as if they were still in the animal body. Miss Fell, using a technic similar to one devised by the late Mr. Strangeways, has thus cultivated tiny pieces of gristle from six-day-old embryos of fowl. During cultivation, they increased to more than three times their original length and developed along practically normal lines. Besides growing, these test-tube cultivations have actually manufactured a substance called phosphatase, an enzyme, which is of interest to biochemists, Miss Fell and R. Robison, of the Lister Institute, London, have reported. When the tiny pieces of gristle were taken from the embryo, they contained no phosphatase.

EPILEPTIC attacks may, to a certain extent, be controlled by a diet rich in fats such as cream, butter, mayonnaise, bacon and oil combined with a reduced quantity of sugars and starchy foods. Reporting on experiments carried on at the Chicago State Hospital, Dr. A. M. P. Saunders stated that of a group of eighty women epileptics thirty-two were much benefited by the diet. The rest of the patients were those who had some other physical disease or were mental defectives and did not respond. With this diet the fat is only incompletely broken up in the absence of carbohydrates and a large amount of acid is formed during the digestion. The diet must be estimated and adjusted for each individual case and must be under medical supervision during the treatment, since some patients require only a slight change from the normal diet, and others a much more restricted diet.

WE think of the Indian as sharp of vision, keen of hearing and swift of foot, yet many of America's aborigines were blind and stone deaf. The subject is being investigated for the American Medical Association, and preliminary results show that the growth of small, hard, ivory-like tumors in the outer ear passages prevent the entrance of sound waves. Such tumors, called osteomata, have been seen in the ear passages of Indians from Arkansas, New Mexico, the San Nicholas Island off the California coast and abundantly in Peru. Only a surgical operation could secure relief, and while some of the aborigines, especially the ancient Peruvians, were expert head surgeons, none attempted the removal of the tumors and the restoration of hearing. Tumors of this kind to-day are very rare, some ear specialists never having seen one. The cause of the growth of the ancient tumors is being investigated.

PROOF that prehistoric Indians of the Mimbres Valley, New Mexico, sometimes cremated their dead has been found beneath the floors of ancient Indian dwellings, according to a report by Dr. A. E. Jenks, who directed the Mimbres Expedition of the University of Minnesota and the Minneapolis Institute of Fine Arts, this season. The ways of these departed Indians are of exceptional interest because their pottery was the most beautiful and unusual of any made in the southwest, and yet other objects found in Mimbres ruins show no signs of extraordinary artistry or high culture. One burial found under the floor of an ancient dwelling revealed that the bones of the Indian had been broken into small fragments and burned.