

## ANTHROPOLOGY

# Corn Tells America's Story

Litter left by prehistoric man shows that when he learned to grow and improve corn, he also developed culture. Wild corn grew 60,000 years ago.

By MARJORIE VAN DE WATER

► THE FIRST step in changing the "savage" of the ancient past to a civilized man was the discovery of how to grow food.

When man planted a garden, he was no longer dependent upon wild plants of the forest and wild animals for his daily food. He no longer had to go hungry when the catch was poor. He could plan for the future and, during pleasant weather, grow food to feed him when cold, drought or excessive rain made outdoor pursuits uncomfortable.

And when the ancient American set up a partnership with the corn plant, the result for man was greater security as well as more leisure for cultural occupations. It also soon meant an improvement for the corn plant.

Scientists are now trying to trace back the story of corn to its beginnings in a primitive plant that grew wild. Students of man, of plants and of the earth itself are joining in the search for the early chapters of this important story.

So far it has been traced back to the time 5,500 years ago in New Mexico when a corn cob was a tiny object about the size and general appearance of a blackberry. Fossil pollen grains show that corn grew in Mexico more than 60,000 years ago. These fossil grains were found by Dr. Paul Sears of Yale University and Mrs. Kathryn Clisby of Oberlin College in cores taken from the earth some 200 feet beneath Mexico City.

Photomicrographs of the corn pollen show that it was true corn and not so very different botanically from the pollen of our modern improved hybrid corn.

## Beginnings Being Sought

In order to search out the beginnings of man's cultivation of corn, an archaeological expedition from Canada has been searching through some 100 caves in southern Tamaulipas, Mexico, for traces of the food, tools, weapons and other belongings of men of the past. The expedition is under the direction of Dr. Richard S. MacNeish of the National Museum, Ottawa.

The earliest human remains found may be more than 11,000 years old.

This area was selected by Dr. MacNeish for his search for three reasons. Most important is that previous archaeological diggings in Tamaulipas had disclosed a long sequence of cultures which culminated in the great civilization of the Mayas.

The area is far enough north in Middle

America to be in a dry semi-desert area where the climate favors the preservation of archaeological material.

It is made up of limestone mountains where there are a large number of dry caves. In such a dry cave, ancient man might have taken shelter and possibly made himself a more or less permanent home. Since these early people often let their trash accumulate on the floor or in a corner, an archaeologist might hope to find here discarded bones from the family dinner, broken dishes, odd pieces of string, knives and scrapers, and cigarette butts, bits and scraps of squash seeds, beans, and, yes, fragments of corn and corn cobs. Sometimes members of the family were themselves buried in a shallow grave in the cave home.

The archaeologists painstakingly dug with a trowel and put every particle of dirt through a sieve to screen out even the tiniest object for counting, cataloging and study. In the first cave studied in the Sierra Madre, the scientists toiled from January until the second week of April.

Here is Dr. MacNeish's meticulous list of what they found:

"Rough estimates reveal that we found

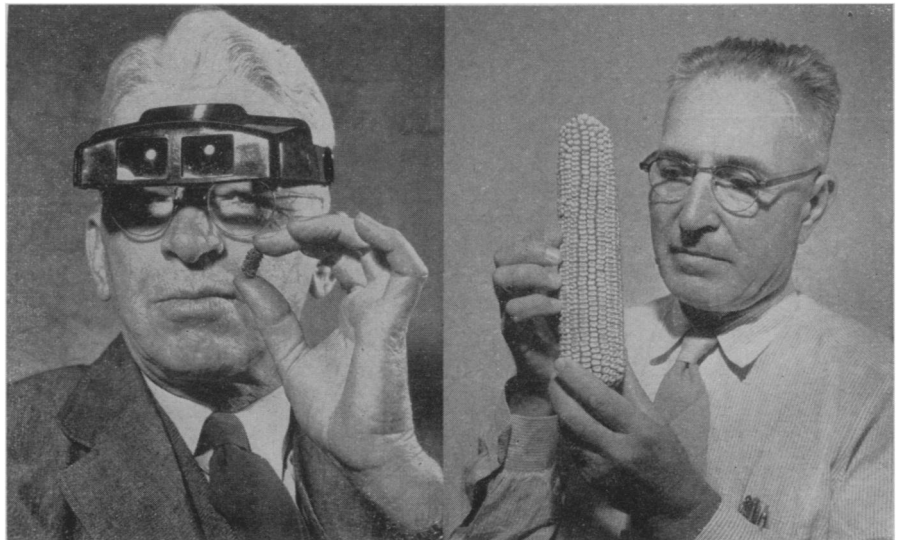
about 2,000 sherds, 1,000 projectile points or fragments thereof, 300 scrapers, 150 blade fragments, 50 choppers, 700 mat fragments, 200 cigarette butts, 25 baskets, 500 pieces of string or rope, 200 wooden tools including arrow shafts, atlatl foreshafts, an atlatl and pounded pegs, 10 bone tools, 400 miscellaneous perishable artifacts, 12 burials, 4,000 corn cobs of various races, 20,000 other fragments of maize, 6,000 fragments of a number of varieties of squash, 7,000 fragments of various kinds of beans, about 100,000 other floral remains, and about 90 bone fragments. (Total about 140,000 plus or minus 10,000.)"

## Cave Very Large

This first cave, called Romero's Cave, is very large, being about 60 feet wide at the mouth and extending back a distance of about 55 feet. Digging down, the scientists uncovered 26 superimposed layers of gravel, cave dust, charcoal, ash and decayed or preserved vegetable matter.

At the bottom, in the back of the cave, were the remains of the earliest people to inhabit the cave home. In this oldest layer, there were some diamond- and leaf-shaped tools. Remains of food consisted of wild foods and animal bones. There were also some woven mats and basket fragments. These earliest people are called by the archaeologists the Infiernillo Complex.

Occupations two through five are called



**CORN OVER THE CENTURIES**—Prof. Paul C. Mangelsdorf of Harvard University (left) shows the earliest known corn on the cob. It is a specimen from Bat Cave, New Mexico, believed to be 5,500 years old. The ancient corn makes a startling contrast to the ear of modern corn that is being examined by Dr. Merle T. Jenkins (right), principal agronomist in charge of corn investigations at the U.S. Department of Agriculture's Plant Industry station, Beltsville, Md.

the Portales Complex. Although these people apparently lived mostly on wild foods, a large number of fragments of various kinds of domesticated squash and beans were also found. This is the time during which agriculture was first introduced.

Following the Portales people was the Guerra Complex of occupations six to eight. The Guerra people had corn.

This first corn was of the same type as the 5,500-year-old corn found in Bat Cave, New Mexico. Corn was added to the diet of squash and beans, but wild foods still made up the largest part of the menu.

### Agriculture Important

It was in occupation nine that agriculture really began to assume importance. Here the cultivated food remains were just about as numerous as the wild plant remains. Plant remains included not only corn of a later variety than that in Guerra level and gourds, beans and squash, but cotton was also found.

Of particular interest to the story of corn was the finding of a few grains of teocinte. Teocinte is a grass. Prof. Paul C. Mangelsdorf, botanist of Harvard University, has found evidence that early Americans crossed teocinte with primitive corn to improve the food capacity of the latter plant. Dr. MacNeish says of his finds in occupation nine:

"I believe we may have here actual evidence of the importation or breeding of this grass for just that purpose."

With the improved corn, there were other important traces of forward steps in civilization. Cotton cloth which may have been woven on a loom was found. There were also nets, string, net bags, baskets and woven water bottles, twilled mats with

or without woven designs. Buried dead were found in this layer, the bodies placed carefully in grass-lined pits and wrapped in mats tied up with rope. Some of the pottery found may have belonged to this period.

### Cigarette Butts Found

In occupation 10, still further advances were found. Projectile points had saw-tooth edges. Manos and metates were discovered, as were fragments of clay pipes. One of the most distinctive features of this layer was cigarette butts. The cigarettes of that day were made of cane filled with tobacco. Then there were cotton cloths with colored designs, large containers made with wooden rims and net bottoms, wooden pegs and evidence that the dead were buried with gifts including pottery.

The Romero Cave resident of that day got most of his food from agriculture. At that time, the farmer raised not only corn, beans, squash and gourds, but also tobacco, chili and cotton. Corn now was of a number of races, most of which had been bred from teocinte.

Pottery of that day was polished and had engraved decorations.

Other later occupations brought the story of man in Central America and his corn up to historic times.

Dr. MacNeish has by no means finished the story as found in these Mexican caves. He will be back there this year to piece together the material for new chapters. By that time he will perhaps have a carbon dating for the introduction and early improvement of corn as well as the comparative dates provided by the strata in which they were found.

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### DENTISTRY

## Correcting "Buck Teeth"

➤ CORRECTION OF crooked teeth, "buck teeth," and jaw malformations should be started before a child reaches his teens, advises Dr. Alton W. Moore of the University of Washington School of Dentistry, Seattle.

Girls should have necessary corrective treatment even earlier than boys, because a girl matures more rapidly. By the time a girl is 13 years old, her facial pattern is set. In a boy, the process is not completed until several years later.

Speaking at a meeting of a dental society, the Society for the Advancement of Orthodontic Practice and Research, Dr. Moore said:

"Corrective treatment for protruding teeth can be started in most cases before a child is 10 years old. Too often, treatment is delayed until he had reached the end of his growing cycle, on the theory that the results of earlier treatment would be nullified by subsequent growth.

"Our studies have shown that the growth and development of the facial pattern can be favorably influenced and modified by treat-

ment during the child's period of rapid growth. In many cases, early treatment has made it unnecessary to use more drastic methods later."

Dr. Moore listed four factors for the successful treatment of protruding teeth. These involve inhibiting the forward growth of the upper dental arch, promoting the forward growth of the lower arch, maintaining the proper occlusion of the teeth, and creating necessary space by selective extractions.

"One important advantage of early treatment is that by controlling the growth of the facial pattern, fewer extractions of good teeth are necessary," Dr. Moore said.

The research was conducted on more than 50 patients at the Children's Dental Clinic at the University over a period of several years.

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Specimens of the *leatherback*, a marine turtle considered the largest modern reptile, have weighed almost 1,500 pounds and measured eight feet in length.

### INVENTION

## Patent Awarded for Shrimp Cleaning Machine

➤ A "UNIQUE and valuable" machine in which shrimp are loaded and cleaned, without the meat ever again being touched by human hand, has been awarded patent number 2,685,705.

The device will make shrimp processing at least ten times faster than the present average of 70 to 90 pounds per day now cleaned by a single operator, the inventors claim. They are Philip A. Streich, Philadelphia, and Emmitt P. Tait, Atlanta, and Virgil R. Clark, Decatur, Ga.

They assigned patent rights to the Tait-Clark-Streich Machinery Corp. of Decatur, Ga. The recent rapid rise of the frozen food industry inspired development of the shrimp cleaning machine.

It consists of a pair of conveyor chains, the shrimp being loaded onto one of the chains, then passed between a saw and stripping brush for stripping and deveining, and finally deposited on a disposal chain which carries the shrimp away from the machine for washing and packing. The last operation can take place in another room, if necessary.

The machine may be constructed in "batteries" or banks in which a single power source can be used to rotate all the shafts simultaneously.

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## HOW TO RETIRE SOONER by earning a small income

Government figures prove you need much less money if you retire to the country, and now a new book shows over and over again how to make the money you do need, whether you retire with or without a lot of money in the bank.

Fred Tyler's HOW TO MAKE A LIVING IN THE COUNTRY is "virtually a blue print for the retired man or woman wanting to make their own way," says the Chicago Daily News.

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