

3. Prehistoric maize from a site near Huarney, Peru.

We have recently completed the analysis of remains of prehistoric maize turned up in a site near Huarney on the northern coast of Peru in excavations made by Dr. David Kelley, now of the University of Nebraska, and Dr. Duccio Bonavia of Lima, Peru.

The earliest maize from this site was thought to be preceramic. Radio-carbon determinations made of the cobs at different levels are quite inconsistent and we assume that there has been contamination from organic sources. The earliest specimens are at least as primitive with respect to size and other characteristics as the earliest prehistoric corn from Huaca Prieta.

The collection of prehistoric specimens includes all parts of the maize plant. Brief descriptions of these parts follow.

Roots. Lower internodes of the stalk with roots show both seminal and permanent root systems. One specimen shows the scar of an attached tiller; others show no evidence of tillering.

Stalks. These are more slender than those of most races of modern maize and one specimen shows the stump of a peduncle of an ear arising at the fourth node from the base. The internode pattern is similar to that of the modern Peruvian race, Confite Morocho, described by Grobman et al., 1961.

Leaf Sheaths. All specimens are completely glabrous like those from the early levels in the prehistoric maize from Tehuacán, Mexico.

Leaves. Many specimens of leaves and midribs show them to be similar to those of modern corn. The structure of the lower epidermis is quite similar to that described by Prat for modern maize.

Prophyll. Virtually identical in its characteristics to prophylls of modern maize.

Husks. The venation is more strongly parallel and the anastomosing venation between the ridges less conspicuous than in modern maize. Also the differences between the outer and inner husks are not as marked as in modern maize. Two more or less complete husk systems suggest that the husks are much longer than the ears which they once enclosed. Extending beyond the point of attachment of the uppermost husk is a long internode subtending the ear which probably became exposed at maturity.

Cobs. The variation in the characteristics of the cobs, especially in the shape and hairiness of the cupules, indicates that the earliest corn is not a wild corn. Most of the earlier cobs are similar, including the presence of stumps and staminate tips, to the cobs of the early cultivated maize from the caves in Tehuacán and could be assigned to the Mexican race, Chapalote. Several of the cobs, however, are quite different from any prehistoric specimens found in Mexico and may be derived from a different race of wild maize, probably one of the Peruvian high-land races.

Silks. These are somewhat more flattened in cross section than those of modern maize, are quite hairy, and are not bifurcated at the tips.

Kernels. There are few intact kernels but one well preserved specimen is round with a slight indication of pointing and has a brown pericarp color as does the earliest corn of Bat Cave as well as the corn from the Los Cerillos site on the southern coast of Peru.

Tassels. Well preserved tassel branches and entire tassels show the typical arrangement of paired spikelets, one member sessile and the other pedicelled. The spikelets are smaller than those of modern maize. Tassel diagrams of two almost intact tassels are similar to those of the Peruvian race, Confite Morocho.

Anthers. Several tassel branches contained well preserved anthers filled with pollen.

Pollen. The prehistoric pollen when mounted in lactic acid and iodine assumes the shape of modern pollen but is somewhat smaller in size than the pollen of most modern varieties. Pollen from four different tassels measured 78.1, 80.6, 82.5, and 86.6 microns respectively. This is well within the range of pollen size of some of the modern races regarded as ancient such as Chapalote and Nal-Tel.

Conclusions. The majority of the specimens from this site could be assigned to the Mexican race, Chapalote, but they are also related in some respects to the Peruvian race, Confite Morocho. A few specimens differ in some characteristics from either of these races and are more closely related to the Peruvian highland popcorns. In all of its basic botanical characteristics the earliest maize from Huarmey is identical with modern maize.

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4. Prehistoric maize from Huaca Prieta, Peru.

The specimens from this site excavated some years ago by Dr. Junius Bird consist almost entirely of cobs. These are quite different from those of the Huarmey site. The majority are globular in shape having eight-kernels rows at their butts and tips and 10, 12, or 14 rows in the middle regions. Because of this change in row number most of the cobs do not show distinct rows but many exhibit a spiral arrangement of the spikelets similar to the spiral of a pine cone. Ears of this type rarely have stumps of staminate tips.

These cobs differ also from those of Huarmey and of the early prehistoric cobs from the Tehuacán caves in their cupules. The differences are best illustrated by photographs and drawings to be published soon but may be briefly described here. The cupules of the typical Huarmey maize are similar to flat saucers almost square in outline attached to a four-sided central stem. The typical cupules of the majority of Huaca Prieta specimens are structures similar in shape to the toe halves of pointed shoes inserted into an egg-shaped central stem at an angle with the toe pointing toward the tip. Since we have not encountered cobs of this type in the prehistoric corn from the caves in Mexico or southwestern United States and since they are similar to the cobs of the living races in the Peruvian highlands, especially Confite Puneño, we conclude that they have stemmed from a different wild race than the prehistoric wild maize of Mexico. However, in the Huaca Prieta collection there are a few cobs similar to the majority of those from the Huarmey site in Peru and the Tehuacán caves in Mexico as well as some intermediates which may have resulted from hybridization of these two distinct types.

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