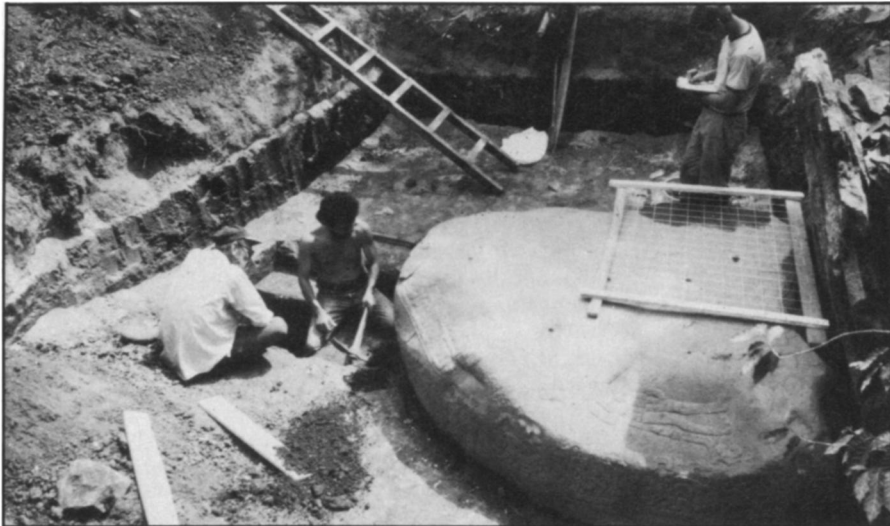


## Mayan origins: Predating and reassessing



Excavation of a sacrificial altar used by the Mayas at Abaj Takalik in Guatemala.

The rise and fall of the Mayan civilization is still a mystery. With their art, architecture, astronomy and highly accurate calendar, the Mayas flourished in the Yucatan Peninsula and the adjacent highlands of the Pacific slope from about A.D. 250 to 900 and then gradually faded away. An accepted explanation for the decline is still needed, but two recent expeditions offer clues to the early origins and later development of Mayan civilization. One indicates occupation of the Yucatan Peninsula 1,700 years earlier than previous evidence had suggested. The other expedition has investigated a Mayan monument that has on it what may be the oldest recorded date yet found in the New World. This may push back the date for the beginning of the Classic Maya period by several hundred years.

The Corozal Project, a joint venture of the British Museum and Cambridge University, has been excavating a number of Maya ceremonial centers since 1973. Last year at a site in Cuello, Belize, a deep stratigraphic sequence was revealed. Midden or refuse deposits were found at various levels down to 4.7 meters below ground level.

A midden at one of the deepest levels contained large quantities of pottery, mollusk shells and animal bones. It was 25 to 30 centimeters thick over the whole area of the excavation and represents, according to the researchers, "the debris from a substantial and undoubtedly sedentary occupation of the site." A sample of burnt wood from this level was radiocarbon dated at 2,600 B.C. This determination, say the researchers in the April 15 *NATURE*, places "the origins of Maya settlement and civilization in the Yucatan Peninsula back in the third millennium B.C., some 1,700 years earlier than the first occupation known until now."

The Belize find pushes back the date for the Maya Early Formative period, but

the Mayas are probably best known for their Classic or advanced period. And since most Classic Maya ruins have been discovered in the Yucatan lowlands, it has been thought that their Classic civilization developed there. Now evidence from another expedition suggests that the advanced Mayan culture may have spread into the Yucatan after it developed in the highlands along the Pacific coast (where the Classic style is very rarely found).

John A. Graham and Robert F. Heizer of the University of California at Berkeley have been working at Abaj Takalik, a site located among coffee plantations near Retalhuleu, Guatemala, near the Pacific

Ocean. Their expedition, sponsored by the National Geographic Society, examined a Maya stela (dated stone monument) that predates any found so far. "The badly eroded bar dot date we found on the Abaj stela is no later than the first century B.C. and possibly as much as one to two hundred years earlier," says Graham. The date on the monument, even though incomplete, is thought to be the oldest recorded date yet found in the New World (see cover photo).

Prior to this find, one of the earliest accepted dates for such Mayan works was A.D. 292, from the famous lowland site of Tikal. Graham now expects that date to be pushed back considerably. The Abaj stela is definitely Mayan, he explains, and the art style and hieroglyphic writing are fully developed—indicating that this was not the first such monument, and that older ones are yet to be found.

The Guatemala find has other interesting implications. The dated stela was found among 50 to 60 large Maya monuments and several major Olmec monuments. The Olmecs suddenly appeared in Middle America around 1,200 B.C., and are thought to have had some influence on the Mayan civilization that came into its own more than one thousand years later. The Abaj site may shed some light on the relationship between the two cultures. "This is the first time Olmec and Maya carvings have been found side by side," says Graham. "We're speculating that the Olmecs settled the place before the Maya arrived, but hopefully that will be determined in later excavations." More to come when the team goes back to Guatemala early next year. □

## Swine flu: Advice, dissent and politics

Two and a half months after the death of a Ft. Dix, N.J., Army recruit from swine influenza complications, the federal government and four drug companies are gearing up for an all-out attack on the disease. President Ford requested and Congress last week appropriated \$135 million to finance production of about 200 million doses of swine influenza vaccine—enough to immunize most U.S. residents. This, the first mass influenza inoculation in history, has drawn both praise and sharp criticism from scientists, and generated the inevitable cry of partisan election-year politics—a charge that is, this time, probably unfair.

One death, 11 active cases and signs of swine viral exposure in 500 other Ft. Dix recruits signaled a potential pandemic to flu experts. Most flu cases last winter were caused by Victoria/A strain (first isolated in Victoria, Australia). The sudden appearance of a radically different strain such as the Ft. Dix swine virus might, therefore, indicate the early stages of a worldwide epidemic.

Pandemics, says Mt. Sinai medical

school microbiologist Edwin D. Kilbourne, have always been preceded by major viral mutations and tend to appear in 10-year intervals. One is expected during the late 1970s, he says. A strain of swine flu virus caused the 1918 pandemic that killed 20 million persons, mostly from related pneumonias. (Although antibiotics are now available, the Hong Kong flu still killed 20,000 in the United States in 1968.) The virus, it is thought, has been harbored in swine ever since, giving infected animals a mild, flu-like illness. The virus isolated at Ft. Dix is basically similar to the version found in swine, but has mutated enough antigenically to cause concern. Those persons born before about 1925 probably have antibodies (generated during the 1918 outbreak and aftermath) to protect them now, says Walter Dowdle, head of virology at the Center for Disease Control in Atlanta. But those under 50 would be highly susceptible.

No other cases have been found outside the base thus far, but, says Kilbourne, 1) flu is essentially a winter disease and the virus may be "seeded" to over-summer