News of Science

Restoration of Mayan Tikal

The city of Tikal, Guatemala, largest and possibly oldest site of Mayan civilization, will be explored and partially restored by the University Museum of the University of Pennsylvania. Froelich G. Rainey, director of the museum, says that the project is intended to make Tikal the "finest architectural monument of American Indian civilization available to the public." Under an agreement with President Carlos Castillo Armas of Guatemala, work will start approximately 15 Jan.

Tikal, deep in the rain forests of the Peten region and virtually deserted for nearly a millenium, is a foliage-covered metropolis of skyscraper temples, lavish palaces, dwellings, paved expressways, and long-dry reservoirs. Occupied for 2000 to 3000 years up to about the 10th century A.D., Tikal was rediscovered about a century ago, but was accessible only by mule-back until the Guatemalan Air Force built a nearby landing strip 5 years ago.

In the meantime, other parts of the Peten region had been explored by the Carnegie Institution of Washington, which excavated at Uaxactun from 1926 to 1937, and the University Museum, which worked at Piedras Negras for 10 years beginning in 1930. Their findings pointed to Tikal as the greatest of ancient American cities and the dominant center of Mayan history.

Accordingly, the Carnegie Institution in 1937 made a survey at Tikal, looking toward a restoration such as that now planned. With the new airstrip bringing Tikal within an hour's flight of Guatemala City, the project became feasible.

The University Museum will spend its first season at Tikal setting up adequate living and working facilities and clearing paths to enable archeologists to select structures for restoration. The major archeological work will start in about a year.

John Dimick, research associate for the museum and heretofore director of its expedition to Memphis, Egypt, is director of the Tikal project. Edwin M. Shook, on loan from the Carnegie Institution of Washington, is field director. Linton Satterthwaite, curator of the American section of the University Museum, is chief archeologist. In the early stages, a native labor force will work under Shook's direction.

Five great temples and dozens of smaller ones dominate the city center. In the style of the Mayan builders, the shrinelike temples rise from stepped, pyramidal platforms and are capped by exotic carvings. One of the temples is as tall as a 20-story building.

Two of the largest temples flank a 350-foot plaza. On another side of the plaza, a group of sculptured and inscribed stone monuments stands before a cluster of the smaller temples. Linking the central area with outlying sections of the city is an elaborately constructed network of causeways—graded roads that are comparable in principle to modern expressways.

Atomic Structure

For the first time, the atomic structure of a surface may be seen clearly through a field ion microscope. The instrument used was developed by Erwin Muller, professor of physics at Pennsylvania State University, who reported his work in a paper that he delivered at the 13th annual meeting of the Electron Microscope Society of America.

Muller developed the first field electron microscope in Berlin in 1936. In 1951 he modified this microscope to operate with ions, and it was with this instrument, further perfected, that he finally made the new field ion microscope. Heretofore Muller's most efficient microscope presented only blurred pictures of some large-size atoms widely scattered over a surface, but now all the atoms that constitute the surface of a specimen are clearly visible.

Muller's newest field ion microscope operates with a field strength of 5 million volts per centimeter. Built entirely of glass, it contains sealed-in wires used to apply up to 30,000 volts.

The instrument resembles two thermos bottles, one inside the other. It is heavily insulated to preserve the low temperatures—for example, −300°F—that are necessary for good microscope resolution.

Within the vacuum is a fine tungsten wire, its tip coated with the substance to be studied. The surface of the tip is shown on a fluorescent screen. The metal tip cannot be seen through an ordinary optical microscope. Helium is used to make the ions, which in turn produce the image on the fluorescent screen.

News Briefs

■ The Political Committee of the United Nations General Assembly has voted unanimously to establish an international scientific body to study the effects of atomic radiation on man's health and environment.

The committee voted 59 to 0 to adopt a much-revised resolution, sponsored by the United States, Britain, and six other nations. However, there was one major amendment; this provides for the expansion of the scientific committee that will make the study from 11 members to 15.

■ Richard E. Byrd, retired rear admiral, has been put in charge of all United States antarctic activities. Navy officials have commented that a Presidential directive, in the form of a letter to Byrd, will eventually place the United States on the same footing as Chile, Argentina, Great Britain, and Australia, the countries that maintain permanent bases in Antarctica. The directive outlined the following program:

Byrd will be "charged with maintaining effective monitorship over those political, scientific, legislative, and operational activities which comprise the total United States Antarctic program."

Byrd will act as adviser to the Operations Coordinating Board of the National Security Council on the preparation and execution of antarctic policy. The board has the responsibility of making sure that Presidential directives are properly carried out.

Byrd will assist the Secretary of Defense and other officials in the development of legislation related to antarctic activities.

A permanent unit for antarctic activity will be established, with Byrd coordinating the activities of all particular governmental departments.

Byrd has left for the antarctic to assume supervision of the first phase of a 4-year expedition that got under way with the recent departure of the icebreaker *Edisto* from Boston, Mass. The lead icebreaker, the *Glacier,* sailed a little later from Norfolk, Va.

George J. Dufek, a rear admiral and an antarctic veteran, is in direct command of the expeditionary task force of 1800 men, three icebreakers, one tanker, two auxiliary tankers, and three cargo vessels. The expedition has been desig-