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-

nated Operation Deepfreeze. In the first phase of its work the task force will prepare bases and supply facilities to be used by the United States in its contribution in the International Geophysical Year.

■ Axel Wenner-Gren, donor for the Wenner-Gren Foundation for Anthropological Research, New York, has announced a gift of 5 million kroner for the establishment of a new 10-million-kroner scientific center in Stockholm, Sweden. The remaining 5 million kroner will be obtained through a mortgage on the building; the Swedish Government has promised to donate a site for the project. Wenner-Gren commented that the contribution should be regarded as a step in the expansion and continuation of his donation program.

Purpose of the new scheme is to encourage collaboration between Swedish and foreign research workers (with emphasis on the Nordic area) by affording accommodation to approximately 100 foreign scientists in a building that will be named the Wenner-Gren Center for Scientific Research. Ten of the 18 stories of the building will be used as exhibition and office premises, both for the Wenner-Gren Foundation and for manufacturers of technical and scientific apparatus, making it possible for scientists to rent apartments at extremely low rates.

The building will also comprise conference rooms, a library, auditorium, lecture halls, a restaurant, and so forth. Construction is expected to be complete within 2 years. The plan for the center was devised by a board consisting of Siegbahn, Theorell, and Nilsson of Stockholm, Bohr of Copenhagen, Virtanen of Helsinki, and Nicolaysen of Oslo.

■ The Atomic Energy Authority of Great Britain has pointed out in its first annual report that the primary threat to fulfillment of its programs on schedule is lack of skilled manpower. The report comments that the difficulty of recruiting and retaining sufficient numbers of skilled scientists, engineers and craftsmen has been "acute throughout the ten years of the project and shows no signs of becoming easier."

The report noted that the authority is in competition with industry. Because it is dependent on public funds, the authority does not have the same freedom of maneuver as industry in the matter of salaries.

The report covers the period from 19 July 1954 to 31 Mar. 1955. During that period the British Government announced a 10-year program for building 12 electric power stations to be run by nuclear energy. It also disclosed its decision to proceed with the development and production of thermonuclear weapons.

■ The United Nations Food and Agriculture Organization proposes to embark on a new survey of the world's food resources. The object, which was outlined on 7 Nov. to delegates from 71 nations that were attending the tenth anniversary meeting in Rome, is to see whether or not there is enough food for a world population that is growing at the rate of 100,000 daily.

The survey would go into many unexplored fields. One would be the possible use of great land areas not now used for growing food, especially in the tropics and in semiarid regions.

■ The newly ratified Convention on Great Lakes Fisheries brings under a joint United States–Canada conservation program perhaps the greatest fresh-water fisheries anywhere in the world. The convention provides for the establishment of the Great Lakes Fishery Commission, which will be composed of six commissioners, three from each government. This body will seek the preservation and improvement of the lakes fisheries through dual activities in the fields of fishery research and sea lamprey control.

In research, the commission has the duty of coordinating the scientific activities of all agencies engaged in scientific study of lakes fisheries—the United States and Canadian Governments and the conservation departments of the eight Great Lakes states and the Province of Ontario. The convention thus provides machinery for the pooling of the efforts of all fishery experts in the area and the coordination of their research.

The commission will have no power to regulate fishing operations. It can, however, recommend conservation measures to the party governments on the basis of its scientific findings.

The second major responsibility of the commission is to destroy the parasitic sea lamprey. The lamprey has proved to be a scourge to the trout and whitefish of the upper lakes, having already destroyed those species in Lake Huron and Lake Michigan. Lake Superior fisheries are now also under serious attack.

The commission has wide powers in the field control of the lamprey. It is expected the commission will make extensive use of electric barriers which, placed across spawning streams, prevent the lampreys from going upstream.

■ A comprehensive appraisal of progress in cancer control in the last 10 years will be made by 50 American and European scientists. As outlined by the American Cancer Society, the group of scientists will work in three committees, each studying one area of research.

The purpose of the survey is to find the most promising directions for future research. The organization of the study, as set up earlier this year by the society's directors, provides for the following three committees.

One committee to determine where medical science stands today in its search for more effective control of cancer.

A second committee to consider whether research support to scientists and institutions from funds contributed by the public is sufficiently broad and flexible to assure maximum progress and to enlist and maintain the most imaginative and creative intellects in the field of cancer.

A third committee to plan research in lung cancer, an endeavor for which the society has allocated $1 million in 1956.

■ The United States and the Soviet Union have reached an agreement on the exchange of medical films. The exchange plan arose from discussions held between Paul W. Schafer, of Walter Reed Hospital, Washington, D.C., and B. V. Petrovsky, member of the Soviet Academy of Medical Sciences, during an international meeting that took place in Washington last year. In the initial exchange each country will make available ten technical films on medical subjects.

■ First-year results from research in a psychological testing program for premedical students at the University of Texas Medical Branch "look successful," according to D. Bailey Calvin, dean of students. The 5-year research program, financed by a grant from the Josiah Macy Jr. Foundation, is developing psychological tests to determine in advance a prospective medical student's emotional stability and the strength of his desire to study medicine.

Scientists in the News

JAMES M. MITCHELL, formerly assistant to the director of the National Science Foundation, has been named associate director of the foundation. Mitchell was Deputy Assistant Secretary of Defense prior to joining NSF, and from 1948–1953 he was U.S. Civil Service Commissioner.

JOHN T. WILSON, who has been serving as program director for psychobiology at NSF, has been appointed assistant director for biological and medical sciences. Previously Wilson spent two years as head of the personnel and training research branch at the Office of Naval Research.

CHARLES A. COULSON, Rouse Ball professor of applied mathematics at Oxford University, England, has won the $500 Lecomte du Nouy award for his book