



Noel T. Boaz (left) and John W. K. Harris record data from stone tools at least two million years old. They discovered nearly 300 such tools in eastern Zaire. The finds argue for further study of human evolution in the largely unexplored area of Africa in which they were found.

WILLIAM DEKAY © 1988 NATIONAL GEOGRAPHIC SOCIETY

the sediments of the Nile Delta. They included volcanic ash, evidently from the violent eruption of the Santorini volcano in the Aegean about 3,500 years ago. This ash could account for the biblical "thick darkness in all the land of Egypt, three days" of the Moses story.

Archaeologists, both domestic and foreign, were active in Israel during the year. A reconsideration of the claim that Jericho was already a fortified town over 9,000 years ago was made by Hebrew University professor Ofar Bar-Yosef, whose study indicated that the "wall" was part of a flood-control system. The location of a rich tomb in a First Temple context in Jerusalem was taken to mean that the city was then both larger and grander than had heretofore been supposed. Owing to an unusually low water level in the Sea of Galilee, a wrecked wooden boat of the 1st century BC was recovered (and dubbed by the media the "Jesus boat").

There were teams from most of the Western European countries and from Australia, Canada, and the U.S. at work in Jordan. A new American Schools of Oriental Research institute building was completed in Amman. Among other sites, there were notable results from many years' work on both the settlement area and the cemetery at Bab-ed-Drha (one of the "Cities of the Plain"), dating back toward 3000 BC.

Nothing of archaeological interest happened in Lebanon or Iran, and little had been reported from Iraq and Syria, where most efforts had dealt with salvage excavations on sites in areas soon to be flooded behind dams. The salvage work along the upper reaches of the Euphrates in Turkey was about to end as the waters rose behind two major dams. The most remarkable event of the year in Turkey, in the ancient Hittite capital city of Bogazkoy, was the recovery of a fine large inscribed bronze tablet with the complete text of a heretofore incomplete inscription.

The Greco-Roman World. In Greece and Italy the long-continuing field programs of the various national "schools"

had not yet been reported. There was concern among the French, who for many years had been working in ancient Delphi, that a proposed bauxite-processing plant nearby would pollute the buildings on the site. The harmful effects of air pollution on the monuments of the Athenian Acropolis were well known. On Crete a Royal Ontario Museum team continued digging in both Minoan and protohistoric Greek levels at Komos. At the site of Murio in Tuscany, Italy, a U.S. team had recovered much new information on Etruscan culture. At Bova Marina, on the very toe of the Italian "boot," what might well be the earliest Jewish synagogue in Europe was being cleared. The floor plan of a sumptuous Roman house was encountered during the construction of a parking lot in Aix-en-Provence, France.

Eastern Asia. In the U.S.S.R. east of the Urals, a site described as the "Troy of Siberia" was under excavation. It was said to have been the capital of the Khakas, destroyed in the Mongol invasion, as described in the poem "Iskander Name." In Tadzhikistan a site called Takhti Sanguine was yielding an interesting collection of Bactrian and Hellenistic material. There appeared to be an increasing amount of archaeological activity in China, much of it pointed toward the clearance of tombs. In one case, the tomb of a nobleman of c. 2,500 years ago near Xian (Sian), the tomb itself was completely bare save for the "gambling implements" of tomb robbers of much later times. An "archaeological boom" was also reported from Japan, particularly near the city of Nara where artifacts and inscriptions of the Asuka period (AD 552-645) were being recovered.

(ROBERT J. BRAIDWOOD)

Western Hemisphere. Noteworthy developments in archaeology during 1986 included the emergence of hotly debated positions concerning legislation and policy decisions on antiquities smuggling and disputes over Native American rights concerning the reburial of precontact human remains, as well as significant new discoveries.

In heated debates that reflected deep divisions within agencies, universities, and the archaeological profession, archaeologists and physical anthropologists were forced to confront a clash between scientific and cultural values over the issue of long-term storage and study of bones versus Native American demands for the respectful treatment and reburial of ancestral remains. While some in the scientific community upheld the scientific benefits of unrestricted access to human skeletal material for studies of past pathology and physical characteristics, others argued that long-term storage is unnecessary and that the scientific techniques for proper analysis can better address the sensitivities of both Native Americans and Europeans concerned about ancestral remains. In New York the site of a projected \$20 million sewage-treatment plant was found to contain the well-preserved remains of an early Iroquois settlement and six human burials. After intense negotiations between traditional Iroquois leaders and federal and state officials, the burials were temporarily removed, briefly studied in coordination with an Indian spiritual leader, and ceremonially reburied according to traditional procedures.

Of concern to Native Americans and archaeologists throughout the U.S. was the burgeoning growth of black-market trade in pillaged artifacts from prehistoric sites. As recently as the 1970s, the problem appeared to be centered in Latin America, where whole culture areas were being ravaged. However, it was now becoming a focus of concern in the U.S. as well. A *New York Times Magazine* article highlighted the limited response by the authorities as compared with the high profits for the looters. Single specimens of ancient Pueblo pots were selling for an average of \$15,000, a ceremonial Hopi basket for as much

as \$120,000, and the financial harvest from a single site could reach \$1 million. In Virginia treasure hunters were sentenced to a year in jail after they were caught using sophisticated detection devices to plunder Civil War artifacts from the Richmond National Battlefield Park. In the Southwest, where federal officials estimated that 80 to 90% of all sites had been disturbed or destroyed, one treasure hunter found with \$2 million worth of stolen artifacts received only a suspended sentence.

It was noteworthy that a rising number of archaeological discoveries resulted from legally mandated environmental impact studies, and that many of these field investigations were conducted by private archaeological enterprises rather than universities or museums, the traditional sponsors of field survey and excavation teams. During a government-sponsored archaeological survey in California's Sierra Nevada, a team led by Ann Peak of Peak and Associates found what might represent the oldest human dwelling in North America. A radiocarbon age determination of at least 9,700 years from charcoal in a hearth located within an oval packed-earth house floor suggested that Native Americans were living in more sedentary, permanent settlements 2,000 to 3,000 years earlier than had previously been documented.

One important line of evidence used to document the early presence of man in the Americas beyond 12,000 years ago was refuted in 1986 by new age determinations. In 1966 animal bone was found eroding out of a deep gorge of the Old Crow River in the Yukon Territory, Canada, which included several fragments of bison and mammoth and a sharpened caribou bone tool or "hide scraper." Initially it yielded a series of radiocarbon dates of between 25,000 and 32,000 years ago, suggesting the presence of early man 20,000 years before the time that many archaeologists believe man first ventured onto the North American continent. Suspecting contamination from modern carbon sources, D. Earl Nelson of Simon Fraser University, Burnaby, B.C., used minute samples from previously untested protein-containing tissues of the bones to test the radioactive age in a nuclear accelerator. The new dates were almost 30,000 years younger. Although the bone artifacts were ancient, they were manufactured several hundred years before the time of Christ.

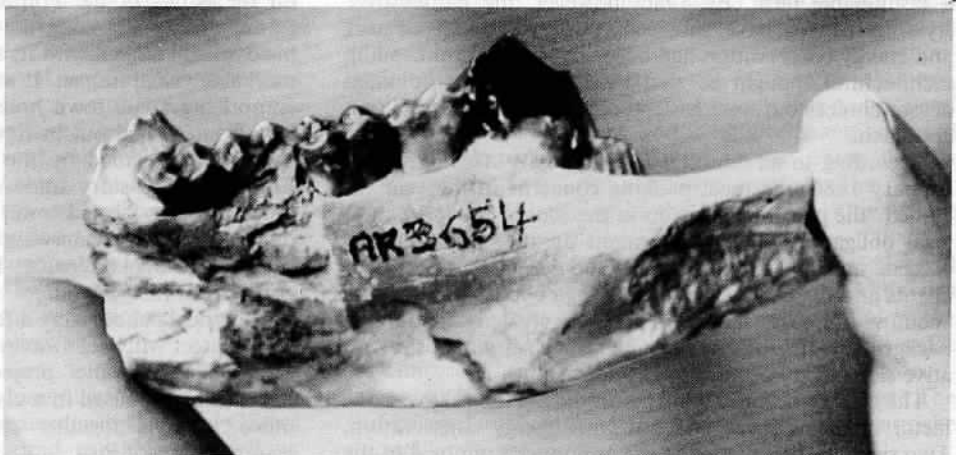
In several localities in North America where conditions had favoured exceptional preservation, unexpected discoveries were brought to light, including a fleet of 2,000-year-old wooden canoes in North Carolina and preserved cloth associated with a 7,500-year-old cemetery in Florida. Stephen R. Claggart of the North Carolina Division of

Archives was directing a project to salvage the remains of at least 21 cypress wood canoes, which were exposed by falling water levels in Lake Phelps in Pettigrew State Park. The decline was caused by drought and the use of lake waters to fight forest fires. The boats, one of which was some 8.5 m (28 ft.) in length, appeared to have been abandoned by ancient inhabitants whose artifacts and stone tools provided the first clues to the discovery as the modern shoreline began to recede.

In another case of exceptional preservation, David Dickel and Glen Doran, codirectors of the three-year-old Florida State University excavation of a cemetery dating to 5500 BC, discovered the body of a seven-eight-year-old female child covered by a cloth that represents the earliest known example of one complex weaving technique. Around her neck was a bead necklace. Both finds, like the ancient house floor in California, suggest that archaeological reconstructions concerning the supposed "hunter-gatherer" lifestyle of these early Indian peoples might have to be revised. The discoveries point to a more "leisure and production"-oriented way of life and the presence of social status differences thousands of years earlier than had been projected by many archaeologists.

A major trend in recent South American archaeological research was the increasing shift to a concern for past environmental conditions, food patterns, and non-Western agricultural and animal-domestication practices through time. Excavations in Peru by Sheila and Thomas Pazorski of the University of Denver, Colo., added new evidence indicating the existence of a diversified coastal agricultural complex, based on native potato-like tubers, beans, peanuts, and native fruits such as peppers and lucuma, that was well established as early as the 2nd millennium BC. The Pazorskis' tabulations of the differing plant foods through time showed that corn (maize), the main staple of ancient Mexican cultures, did not even make its appearance on the coast of Peru until 900 BC. Many scholars had assumed that the coastal peoples were primarily dependent on fish and marine resources, but the research supports the existence, as early as 2000 BC, of a distinctive coastal agricultural system that differed from both the Mexican maize-based economy and the native grain and camelid economies of the Andean highlands.

A parallel study of changing animal bone ratios through time, from excavations of the southern highlands of Junin in Peru by Katherine Moore of the University of Michigan, documented the fundamental shift to a mixed hunting economy and the potential domestication of camelids as early as the 4th millennium BC. These plant and animal



AROUND THE WORLD

The jawbone of a *Propleopus*, a small kangaroo-like animal, was among several discoveries of remnants of previously unknown species millions of years old in Riversleigh, Australia.

studies together added new evidence for the clear presence of indigenous economic patterns early in Andean culture history, long before the establishment of the Pre-Inca and Inca empires in coastal and highland Peru.

In the former Inca territory of Mendoza Province in west-central Argentina, Juan Schobinger of the National University of Cuyo announced the discovery of an Inca child mummy found at over 4,575 m (15,000 ft.) elevation. The remains of the well-preserved eight-nine-year-old child were found in a stone cairn, wrapped in a feather-covered textile and associated with small stone llama and human figurines covered with gold and spondylus shell from coastal Ecuador.

Controversial new lines of evidence relating to the antiquity and date of entry of early man into the New World also surfaced in Chile. Thomas Dillehay of the University of Kentucky, working at the well-publicized early man site of Monte Verde in south-central Chile, reported the discovery of early houses and living floors dating 13,000 years ago. This date attribution was viewed with caution by many scholars because it was several thousand years before the date range of 10,000–12,000 years ago generally accepted for man's immigration into North America. Subsequently, however, Dillehay gathered new data from excavations into an even deeper occupation level, two metres (six feet) below the 13,000-year-old site. These excavations yielded a small hearth together with broken and split cobbles, and radiocarbon determinations suggested human habitation as early as 33,000 years ago. While the stratigraphic sequence was well documented, a number of archaeologists were withholding acceptance until the materials had been subjected to the same level of reexamination and new dating techniques as the Old Crow River finds.

(JOEL W. GROSSMAN)

See also Anthropology.

Architecture

It became apparent in 1986 that changes in architectural thought had taken place. During the 1970s, when there had been a struggle for form and style, the design ethic known as "postmodernism" was born and flourished. Also at that time new concerns with conservation and preservation emerged and influenced architectural style. Conservation of energy and resources dictated some facets of design, while a renewed interest in history and cultural heritage led to new creativity in restoration, reuse, and harmony of new with old. Contextualism—or how a new building fits into its visual, social, and historical context—became a fashionable term. By 1986, however, the battles over style seemed to have subsided. Concerns about context and energy conservation had been absorbed into prevailing architectural thought so that they no longer dominated design choices but were instead part of an inclusive design approach.

According to an editorial in *Progressive Architecture* in January 1986, the most pressing concerns of the year included "the place of architects in the economic world, their legal obligations, the management of their practices and careers, and the relationships of the design professions to clients and the general public." Design could not exist in a vacuum. The most successful practices created a favourable background of sound management against which the creative side of architecture might flourish.

The dramatic slump in oil prices during the year was one factor in the reduced concern with energy conservation. Two signs of the times were the announced removal of the

solar collectors that had been installed in the White House during the administration of Pres. Jimmy Carter and the abolition by the American Institute of Architects (AIA) of its Energy Committee.

The importance of an integrated architectural approach that would satisfy planning criteria was especially noticeable in regard to new large-scale developments. This was true whether such developments were commercial, mixed-use, or cultural. For example, developer Peter Palumbo's plans for the Mansion House Square site in the City of London, the subject of a long and bitterly fought battle over a design for a glass tower by the late Ludwig Mies van der Rohe, continued to attract controversy and criticism from conservation bodies even after the tower was rejected in 1985. Following rejection of the Mies design by the planning authority, Palumbo announced the selection of James Stirling as architect for the site. In June 1986 plans for two possible alternative developments were unveiled, only one of which would demand the demolition of the Victorian Mappin and Webb building. However, the new design for a trimmer tower attracted complaints from English Heritage, which felt that it would block significant views of St. Paul's Cathedral and the church of St. Mary-le-Bow.

A proposed development in London's dockland, known as Canary Wharf, also met opposition from planners. The scheme, proposed by a consortium of U.S. banks and designed by Skidmore, Owings & Merrill of Chicago with I. M. Pei & Partners of New York City and the English firm of YRM, would cover 28 ha (70 ac) on the Isle of Dogs and provide a financial centre of approximately 930,000 sq m (10 million sq ft). The most controversial features were three 240-m (790-ft) towers, which, according to opposing conservationists, would spoil the view and overpower the surrounding landscape. A proposed new plan for Charing Cross station, London, unveiled by the Terry Farrell Partnership in March, would provide more than 37,000 sq m (400,000 sq ft) of commercial space by using the air rights over the railway tracks. This scheme would also depend upon approval by the planning authority.

Political rather than planning factors threatened the future of the new Opéra Complex at the Place de la Bastille in Paris. There was speculation that the project, designed by Carlos Ott, might be reduced, modified, or even eliminated following the March 1986 French general elections. The complex was originally conceived by the former Socialist government and was scheduled to be opened in July 1989, the 200th anniversary of the French Revolution.

PortAmerica, designed by architects Philip Johnson and John Burgee, was to be a \$1 billion mixed-use project on the banks of the Potomac River in Prince George's County, Md., adjoining the Capital Beltway. Its amazing historicism coupled with its staggering scale promised a remarkable visual impact. It was to include a residential area comprising 1,200 town houses and condominiums (some bow-fronted) laid out in rows clustered around a series of parks and intended by the designers to evoke Georgian England. A 52-story trade centre would be housed in a reflective glass-faceted tower surrounded by five Italianate office buildings. Waterways and the river frontage were designed to evoke Venice. The project was scheduled for completion in 1996.

Historical echoes were a feature of a mixed-use complex by architect Michael Graves in the foothills of San Diego, Calif. "The Aventine" project included a 400-room hotel, a health club housed in a classical rotunda, and a six-story office "palazzo" together with a tower that resembled the leaning tower of Pisa.