

Promoting Communication

Imagine sitting at your desk and having instant access to all the data, reports, and maps you need to complete a project. In this age of advanced computers, it's easy to search library holdings, download data, and exchange information with colleagues—all without leaving your office. Soon, information combining voice, images, and text will be commonplace.

The Federal archeology program has grown to the point that, more and more, researchers and managers must use the electronic highway to avoid duplication of effort and build upon previous work. No one today can fully comprehend the amount of data being produced by archeological investigations, and while computers can help with storage, there is a bigger issue: knowing how to find and access what's needed to get your job done.

Perhaps because field and lab work generates so much information, archeologists were among the first to store and process data with computers. The Intermountain Antiquities Computer System is one example of an early, and continuing, effort to compile and maintain a regional database. Over the past several years, most State Historic Preservation Offices have computerized site records or are in the process of doing so. Although access is restricted—for protection's sake, site locations are often not made public—hard copy can be easily printed up to help archeologists carry out projects.

It's not difficult to describe a site or artifact with data fields that respond to queries. What type of object is it? How old is it? Although the discipline has few descriptive standards, there is some agreement about the information needed to manage a site or collection. However, databases geared to a different purpose—numbers of archeological sites recorded at the state and county level—may not need to access all of the data fields from the original documentation.

Information clearinghouses, like the Listing of Education in Archeological Programs (LEAP), combine database files and word processing programs to manage data and assemble reports of special interest. When maintained in a database, this information can respond to a user's specific questions.

Databases often do not convey the full context of a site. For that, agencies have relied on publication of project results as a way of sharing information. With rising publication costs, many reports have a limited circulation and are not accessible through libraries. Agencies are working hard to overcome this problem.

The U.S. Army Corps of Engineers St. Paul district underwrote a special issue of an archeology journal to share information among U.S. and Canadian researchers. The Corps' southwestern division, the Department of Defense legacy program, and the University of Arkansas are publishing overviews of the archeological literature on a third of the continental United States (bibliographic references from the overviews are being added to the reports portion of the National Archeological Database, which inventories literature about archeological investigations in the United States).

Knowing that a report exists is the first step. Availability is of equal concern. Online search and retrieval of full reports is becoming practical as more and more Federal agencies begin to request electronic versions of reports. As technology advances, it may become possible to convert earlier reports into machine-readable format at current funding levels.

For research and planning, systems that can call up layers of environmental and cultural data are highly desirable. Many agencies are cooperating on geographic information systems that plot "on-the-ground" relationships among cultural resources, land development, and preservation actions. Such systems foster better management by bringing together environmentalists, preservationists, engineers, and planners.

Databases, user groups, electronic bulletin boards, and client-server/information retrieval systems are all increasing exponentially. Some are designed for corporate information sharing. Others are created for individual projects. Some can be accessed only through an agency, while others are available through global research or commercial networks. Directories of these resources are beginning to appear in professional newsletters, such as the *Society for Professional Archaeologists*.

At the national level, the National Archeological Database—established by the National Park Service and operated through a cooperative agreement with the Center for Advanced Spatial Technologies at the University of Arkansas—has become an internationally recognized resource for land managers, educators, researchers, contractors, museum professionals, preservationists, Native Americans, and others. Additional data modules are in the works; demonstration projects, such as the initiative for a World Wide Web interface, point to new capabilities for formatting, embedding pictures, and linking text to other documents. This enhanced sharing of information promises to promote even better stewardship of the nation's archeological resources.

—Veletta Canouts
National Park Service

Digital Antiquities

With well over 50,000 sites on record, the Intermountain Antiquities Computer System—IMACS—boasts one of the largest cultural resources databases in the country.

IMACS grew out of a cooperative effort between the University of Utah and the Bureau of Land Management in the 1970s. Based on this early work, and with the Forest Service joining the team, IMACS was developed in 1981. Sites now in the system include those recorded prior to IMACS and those entered more recently through contracts with the University of Utah, the State Historic Preservation Officers of Idaho and Utah, and the Nevada State Museum.

IMACS is actually a group of database management programs sharing nearly identical data. While the programs cannot interact directly, they can exchange information. Each member institution is responsible for organizing and maintaining its own system. The University of Utah publishes a user's handbook of common codes.

Because users share the same format, cooperative projects are possible. Examples include a major statewide pipeline project and an interagency geographic information system developed to predict looting of sites and artifacts in southeast Utah.

For information contact the U.S. Forest Service, Region 4, Cultural Heritage and Tourism, 324 25th Street, Ogden, UT 84401, ph. 801-625-5172.

Leap in Time

In late 1987, with the help of many Federal agencies, the National Park Service established LEAP, the Listing of Education in Archeological Programs clearinghouse. LEAP summarizes a wide range of public education programs carried out as part of archeological projects sponsored by the Federal government and others.

Descriptions in the clearinghouse are listed by products. Educational products vary from posters, brochures, and exhibits to films, school curricula, and programs enlisting volunteers. Listed under each product, by state, are the sponsoring agency or organization, a contact person, and a summary.



The Listing of Education in Archeological Projects offers information on programs such as archeology camps for kids (photo by Roger Friedman/courtesy National Park Service).

A wide range of sponsors submits information to the clearinghouse: Federal, state, tribal, and other public agencies as well as private museums, and educational organizations. LEAP is intended as a reference to be used by all of these groups as well as tourism bureaus, archeologists, educators, and other individuals.

Summaries of clearinghouse information, published in 1990 and 1992, include all the information collected from 1987 through 1991. The summaries have been distributed to many Federal agencies, Congress, libraries, educators, museums, and other interested individuals.

For information contact the National Park Service, Archeological Assistance Division (Attn: Dan Haas), P.O. Box 37127 (Suite 210), Washington, DC 20013-7127, ph. 202-343-1058.

The LOOT File

LOOT—the Listing of Outlaw Treachery Information Clearinghouse—contains summary information on approximately 250 cases (1967-94) that involve the looting or vandalism of archeological sites nationwide. The LOOT records contain prosecution information on charges,

pleas, judgments, sentences, published legal opinions, and resource damage assessments. They are available to law enforcement personnel, attorneys, judges, and cultural resource managers to guide case preparation, prosecution, and sentencing, and improve agencies' stewardship capabilities toward archeological resources.

Federal, state, and local agencies, as well as individual archeologists, submit cases voluntarily to the clearinghouse. The case studies help track the nature and scope of archeological looting and vandalism in the United States, provide a comparative body of data for improved case-work, and further the understanding of situations and conditions where resource violations occur. Such information exchange among law enforcement and cultural resource professionals is also a goal of the Secretary of the Interior's National Strategy for Federal Archeology.

The information, maintained in a secured database, is protected from disclosure under the Freedom of Information Act. When necessary and appropriate, prosecutors, solicitors, law enforcement personnel, land managers, and specified others, on a need-to-know basis, can query the database for more detailed information. In addition, summary statistics are available for general use.

The LOOT Clearinghouse served as a primary source for the *Archeological Resources Protection: Federal Prosecution Sourcebook*, co-published with the Department of Justice, which serves as a principal technical reference for U.S. attorneys and departmental solicitors. LOOT also has been used as a reference for archeological protection training.

For information contact the National Park Service, Archeological Assistance Division (Attn: Richard Waldbauer), P.O. Box 37127 (Suite 210), Washington, DC 20013-7127, ph. 202-343-4113.

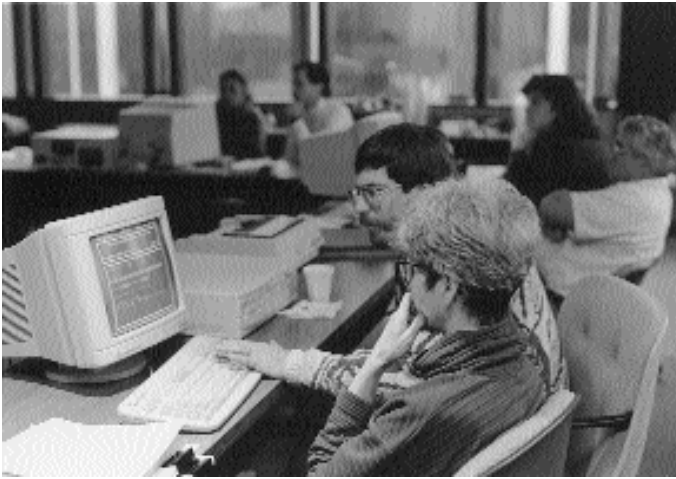
A Database of Databases

NADB is a "database of databases," an interrelated set of data modules on archeological activities in the United States. Each module focuses on a particular concern for archeologists, related professionals, and others.

Two modules, NADB-Reports and NADB-NAGPRA, are accessible through the Internet or by modem hook-up. Two more modules, NADB-Permits and NADB-MAPS, will be online in early 1995. Still others are in the planning stage.

NADB is a model for cooperation as well as for information exchange. The system's growing success is largely due to agreements between the National Park Service archeological assistance division—which supervises NADB—and a nationwide network of sponsoring organizations. For example, the system is maintained and operated by the Center for Advanced Spatial Technologies (CAST) at the University of Arkansas under a cooperative agreement with the Park Service.

Impressive trends are already apparent since CAST began monitoring log-ons in late 1993. By spring 1994, the number of monthly users had more than doubled, from 460 to over 1,000. The broadening range of users now includes professors, librarians, and students at U.S. and foreign universities; Federal, state, and local archeologists; members of tribal groups; museum curators and managers; consultants; private companies; high school teachers; and librarians.



Participants at NADB regional coordinators meeting.

These are the modules that make up NADB:

NADB-REPORTS is a bibliographic inventory of reports, mostly of limited circulation, about archeological investigations in the United States. The database is interactive and can be queried by publication, geographic information, keywords, and other subject fields. NADB-Reports is updated annually; 30,000 records were added in 1994 bringing the total to 130,000.

Local data providers, usually the State Historic Preservation Offices, send new or revised records to one of five NADB regional coordinators in the National Park Service. The five regional databases are compiled at the archeological assistance division office in Washington, DC, and then transferred to the online system.

NADB-NAGPRA focuses on the Native American Graves Protection and Repatriation Act, passed in 1990. It is presently a text-oriented database that provides the full Act as well as information on regulations and guidance. Minutes of NAGPRA review committee meetings and notices published in the Federal Register, also provided, are updated periodically. NADB-NAGPRA identifies contacts for tribes and Federal agencies as well.

Some parts of the module are being designed for interactive use. Information on NAGPRA summaries and inventories will also be available on the NADB Network.

NADB-PERMITS, scheduled to be online in early 1995, will provide standardized data for some 5,000 permits for archeological and paleontological projects conducted on Federal and Indian lands under the Antiquities Act of 1906 and the Archeological Resources Protection Act of 1979. The permits archives are presently housed at the archeological assistance division office of the National Park Service and at the Smithsonian's National Anthropological Archives.

Users will be able to query the permit records according to: 1) descriptive information about an archeological activity; 2) administrative information for tracking the permit process; and 3) information on identifying individuals and institutions associated with an activity.

NADB-MAPS (Multiple Attribute Presentation System) will also come online in 1995. This module will enable users to display maps of the United States showing archeological and environmental data at the state and county levels. This library of national maps can be down-

loaded for a variety of purposes. An interactive system for constructing maps based on database queries is being designed for future implementation.

NADB is evolving; other data modules will be implemented as opportunity and funding permit. In addition to these four modules, recent planning sessions between the Park Service and CAST have identified additional modules and the underlying support needed for implementation. These include 1) a NADB bulletin board, which is now operating as a prototype at CAST (Note: there has been discussion of a Federal archeology listserv [FEDARCH-L] as well); 2) a NADB-AMC (Archives, Manuscripts, and Collections) module to assist computerization of records with the goal of online access for collections information (Note: NAGPRA is a specific portion of such information); 3) a NADB-LOST (Listing of Stolen Things) module for information on thefts of archeological and ethnographic objects, with special reference to items covered by NAGPRA (Note: this project would be coordinated with the International Foundation for Art Research and the FBI, who maintain databases on stolen art and artifacts); and 4) conversion of NADB-LEAP (Listing of Education in Archeological Programs), which already exists in a stand-alone version (Note: some or all aspects of the program might be made available online or coordinated with ERIC).

Summary data collected for the Secretary's Report to Congress on the status of the Federal archeology program will also be made available under a NADB-SRC data module. Needless to say, all of the modules involve substantial organizational and data gathering efforts before they will be ready for online access.

For information contact the National Park Service, Archeological Assistance Division (Attn: Dr. Veletta Canouts), P.O. Box 37127 (Suite 210), Washington, DC 20017-7127, ph. 202-343-4101.

Border Exchange

In 1988, the Corps of Engineers St. Paul district—in advance of a project to control flooding in the Souris River basin—was planning to study the area's cultural resources. The project required that Canada, which shares land along the river, store water in its upstream reservoirs during heavy rains. During an early consultation, the North Dakota State Historic Preservation Officer remarked that both Canadians and Americans should benefit from the research. The remark spawned a special publication.

The journal of the North Dakota Archeological Association issued a separate volume sponsored by the Corps; Virginia Gnasbasik of the St. Paul district acted as volume editor. Articles solicited from U.S. and Canadian researchers focused on the archeology, history, and geomorphology of sites along the river in both countries. Nearly 1,500 copies of the journal were ultimately printed by the St. Paul district and provided to members of the association and others.

For information contact the U.S. Army Corps of Engineers, St. Paul District, CENCS-PD-ER (Dr. John Anfinson), 1421 USPO and Custom House, St. Paul, MN 55101-1479, ph. 612-220-0260.