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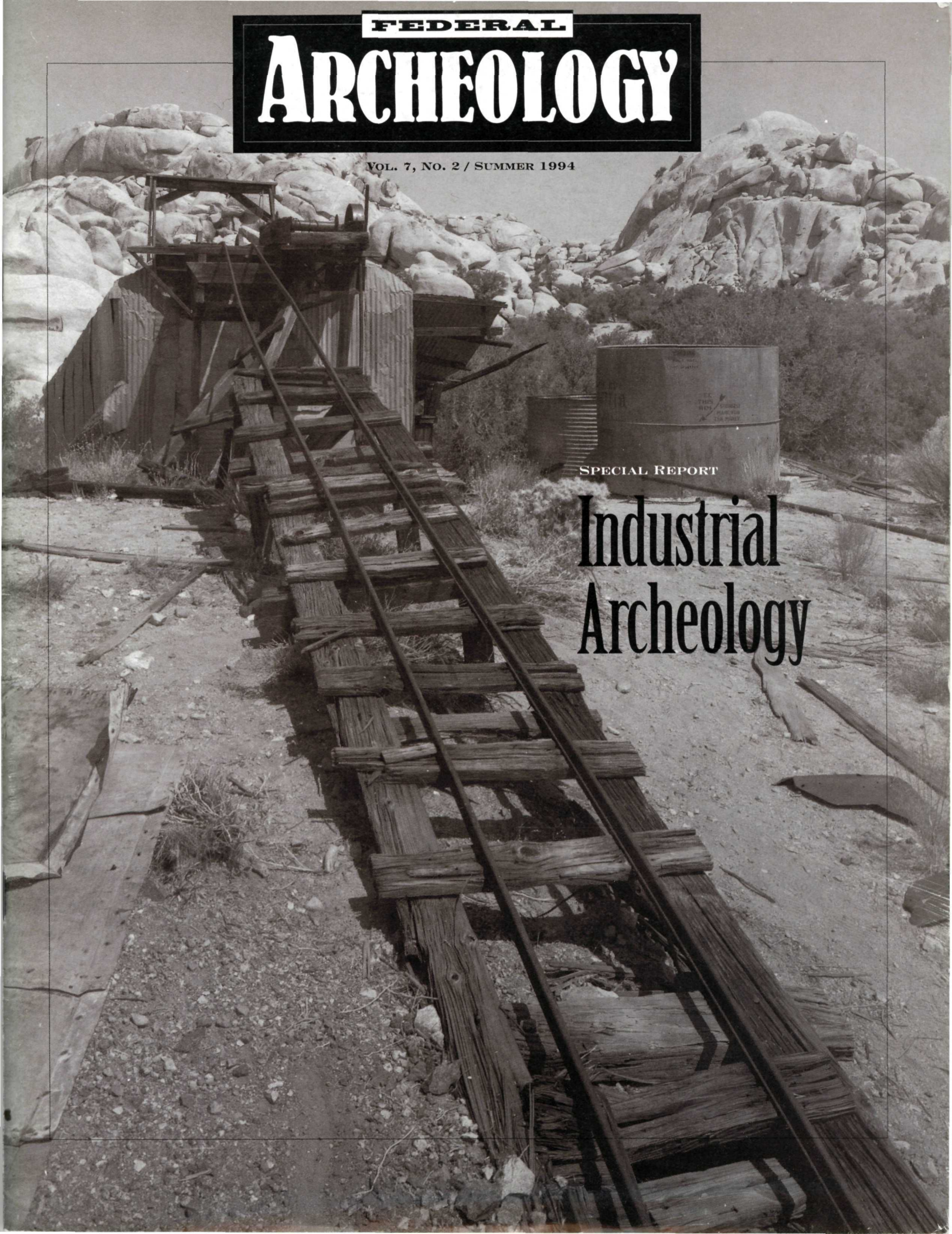

SPECIAL REPORT

Industrial Archeology

A Time for Seamless Cooperation

People See One Government, Not Separate Agencies

FRANCIS P. MCMANAMON

AS THE GOVERNMENT STREAMLINES its operations under the National Performance Review, federal bureaus face many challenges. One of the most important is improving the management of archeological collections, reports, and records from public lands and projects.

Archeological collections make up more than half of the museum property administered by the government. Preliminary surveys indicate that over 700 museums have collections from at least one agency; many from two or more. Often agencies legally responsible for these collections do not know where they are (the same goes for records associated with archeological projects, which are themselves invaluable capsules of information). Many collections have been found neglected and decaying in poorly designed storage areas, threatening the existence of artifacts and information that took millions of taxpayer dollars to collect and organize.

> NAGPRA has begun to foster a spirit of cooperation among agencies. There can, and should, be more.

These collections are an irreplaceable part of our national heritage, which is why laws were passed to collect and protect them for present and future generations. But funding shortfalls, lack of strong and consistent national pressure, and the sheer magnitude of the problem have conspired to hinder compliance with the law.

GIVEN THIS BACKDROP, the time is ripe for cooperative efforts, which can husband limited funding and staff experts to fill a common purpose. The Native American Graves Protection and Repatriation Act, with its pressing demands on collections across the nation, underscores the need.

Meeting the challenge requires close coordination with museum officials, Indian tribes, and Native Hawaiian organizations. Often these individuals and groups do not distinguish among federal agencies and departments. Cooperative projects demonstrate to them—and the public—that agencies can join together effectively as a seamless, integrated work force focused on meeting a common goal.

Efforts to locate and inventory collections to comply with NAGPRA have already fostered a spirit of cooperation among professionals of different agencies and disciplines. Federal archeologists, curators, physical anthropologists, ethnographers, and others are working together with increased efficiency, minimized redundancy, and reduced cost. There is potential for cooperation at the project, district, state, division, and national office levels. The activities necessary to comply with NAGPRA offer ample opportunities to work together: contacting museums that hold collections for multiple agencies; carrying out inventories of Native American human remains and funerary objects at museums; undertaking cultural affiliation studies; meeting and consulting with Indian tribes and Native Hawaiian organizations.

Such cooperative efforts could, perhaps should, become the means by which federal agencies identify all of their archeological collections, reports, and records, as well as evaluate their condition and provide for appropriate management. This is certainly the way the task could be done most effectively and efficiently.

Meeting the curation, care, and management requirements for archeological collections, reports, and records may require that agency managers redirect or acquire additional funds and staff. The bottom line is that either agency personnel needs to be assigned to the necessary curation and management tasks or agencies must enter into long-term agreements with organizations or institutions that provide these kinds of services.

Senior officials should support these efforts as they review and approve agencies' policies, budget proposals, and plans (the same sorts of cooperative goals can apply to other kinds of museum objects, such as natural history collections). Property management and cultural preservation programs at all bureaus should cooperate on developing the means to achieve this objective.

IN THE LONG RUN, all of our efforts must consider, but not necessarily be limited to: (1) assisting repositories in meeting curatorial and information management standards; (2) designating and maintaining regional centers for collections management, public education, and information dissemination; (3) increasing the uses of collections for study, display, and education; (4) continuing the implementation of the National Archeological Database; (5) identifying the best method and technology for retrieving, storing, and disseminating digital data, such as report texts; and, (6) working in partnership with other agencies.

These times of change present both challenges and opportunities. Working together, we can make sure America's rich archeological heritage gets the attention it deserves.

Francis P. McManamon is Departmental Consulting Archeologist, Department of the Interior, and Chief, Archeological Assistance Division, National Park Service.

NEW IN THIS ISSUE

This issue is brought to you courtesy of the many suggestions you sent in during our recent reader survey. Add to that a dash of desktop technology, sprinkle in a smidgen of other ideas we've had simmering, and here you have it—the new *Federal Archeology*.

Notice we've dropped the word "Report" from our name. "Federal Archeology" sums up what this publication is all about.

There are other name changes as well: "News and Notes" has become "Diggings"; "Archeological Protection" is now "Sitewatch." Several other improvements also make the publication more reader-friendly: capsules describing the articles in the table of contents and at the start of feature stories; more headings to quickly reveal what's inside to the busy reader; and substantive captions; among others.

We've also added a guest column—"Backfill"—for you to share your ideas with the rest of the audience. Please contact us if you would like to be a guest columnist for an upcoming issue. We're on the lookout too for projects to spotlight in "Diggings."

Finally, we've restructured the publication to better present the mix of long and short articles many of you applauded in the survey.

Watch these pages for further refinements in coming issues.

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FEDERAL ARCHEOLOGY is published by the National Park Service Departmental Consulting Archeologist and Archeological Assistance Program.

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Wall Street Mill, Joshua Tree National Monument, CA. BRIAN GROGAN/HAER

COLUMNS

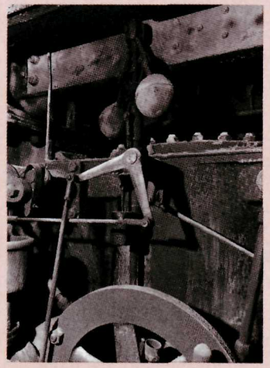
DEPARTMENTS

Cover: Ore track at Wall Street Mill, Joshua Tree National Monument, CA. BRIAN GROGAN/HAER
Frontispiece: Ventilation stacks on factory roof, Cleveland. JET LOWE/HAER

SPECIAL REPORT

INDUSTRIAL ARCHEOLOGY

Above: Hurricane Canal, UT; Below: Sloss Furnaces, AL. JACK BOUCHER/HAER



Diggings

News, Views, and Recently Noted

Study Fails to Link Damage to Exxon Valdez

There is no direct evidence linking the *Exxon Valdez* oil spill with injuries to archeological deposits in the Gulf of Alaska region, says a report submitted to the U.S. Forest Service. Disturbances were common, however, at the 38 sites selected for testing by federal and state agencies.

"There were injuries to archeological sites virtually everywhere we went," says supervisory archeologist Mark Cassell. Injuries ranged from erosion to vandalism to contamination by petroleum hydrocarbons. The Forest Service contracted the State University of New York at Binghamton to conduct the study.

According to the management summary prepared by principal investigator Albert A. Dekin, Jr., distinctions between the intertidal zone and the uplands are the key to understanding the contamination. Although upland sites did not evidence extensive contamination from a single source, they did reveal "a widespread, low-level contamination by petroleum hydrocarbons, hitherto unsuspected." The sources of hydrocarbons in the uplands appear to stem from modern subsistence and recreation, especially the use of aircraft, power boats, and camp stoves.

In the intertidal zone, investigators observed "an oily sheen being moved by water within the beach gravels at four sites in which we dug test pits." While oil had coated the gravels, it did not penetrate the "waterlogged, peaty subsoil or into the wooden artifacts," apparently because of hydrostatic pressure.

Nonetheless, archeologists will have to exercise caution during future excavations in the zone due to the potential for contamination from prior and ongoing land use.

Concern that carbon from the petroleum would skew radiometric dating proved unfounded. Investigators generally "confirmed the efficacy" of prior work by Exxon archeologists, detecting an approximately 9 percent error rate in their surveys.

For more information or a copy of the report, contact Dr. Albert A. Dekin, Jr., Department of Anthropology, Binghamton University, Binghamton, NY 13902-6000, (607) 777-6300, fax (607) 777-2477. The full reference for the report is: Dekin, Albert A., Jr., et al., *Exxon Valdez Oil Spill Archaeological Damage Assessment, Final Report*, Contract No. 53-0109-1-00325, submitted to the USDA/Forest Service by the Research Foundation of the State University of New York, September 30, 1993.

World Conference Convenes in December

It's not too late to take part in World Archaeological Congress 3, to be held in New Delhi, India, December 4-11.

The organizers are arranging sessions to debate and develop approaches to preserving cultural properties, from the role of governments and international organizations to ways to link the interests of traditional peoples, scientists, and others with a stake in the archeological record.

For more information, contact Francis McManamon, Departmental Consulting Archeologist, National Park Service, P.O. Box 37127, Washington, DC 20013-7127, (202) 343-4101, fax (202) 523-1547 or Makkan Lal, WAC3 Academic Programme Coordinator, +91-571-29143, fax +91-571-401750 (India).

Seeing Sites Through a New Lens

How do you decide if a site has what it takes to be nominated for the National Register of Historic Places? Sometimes the answer is subjective, varying from site to site. Amidst growing calls for greater objectivity in determining Register-worthiness, the Corps of Engineers is rounding up the best "how to do it" ideas from projects across the country.

The intent is to provide options to the conventional property-by-property approach—in the form of more "holistic" methods, says Frederick Briuer of the Corps' Waterways Experiment Station. "We're looking to move away from the trees to get a better look at the entire forest." The three-year study is part of a broader effort to improve techniques for evaluating environmental programs sponsored by the Corps.

"The current process may not be the wisest use of limited financial resources," Briuer says. "We hope to find ways to more resourcefully exploit information that is already available" through sources such as the National Archeological Database.

The study will review the underpinnings of the process at both federal and state levels while examining the "state of the art" as reflected in peer reviews of site nominations and other unpublished documents. The best

Continued on page 8

RICHARD BARNES

Gravesite Discovery Chills Museum Renovation

SAN FRANCISCO'S landmark art museum had been so thoroughly gutted for rehab that its colonnaded facade was "flapping in the wind," contractors say. But that problem paled beside what they found while constructing an addition under the courtyard.

Complications set in two months after crews started excavating a 33-foot-deep hole for the addition. Museum staffers expected some archeological remains, but what they didn't anticipate were intact wood caskets with shroud-wrapped skeletons inside.

In 1900, owing to a new ordinance, the Lincoln Park Cemetery was slated to be moved from the rolling dunes at the mouth of the bay. A few years later the city converted the site to parkland, and in 1909 turned part of it into a golf course.

Since the 1906 earthquake destroyed many records of the era, it's unclear why the graves weren't relocated. Apparently benevolent associations had assumed responsibility for the move. The cemetery encompassed a paupers' graveyard.

In 1922, the city built a three-quarter-size replica of a Napoleonic palace on the site. Today, the beaux arts California Palace of the Legion of Honor, a state landmark, houses the museum.

Surprisingly, the palace foundation hasn't settled over time. One engineer suspects that the sandy soil shifted to fill the space opened up as coffins rotted.

Preliminary borings at the start of the project—mandated by the state—had been inconclusive. To be safe, the museum asked archeologists to excavate a test trench, 50 feet long and 10 feet deep. Although the dig turned up many bone fragments, "we thought what we were seeing was a sloppy backfill job," says Deborah Frieden, project manager for the Fine Arts Museums of San Francisco. Evidence of the cemetery proved elusive because the graves had been dug at various elevations amidst the dunes.

Over 650 skeletons have been found so far, and archeologists expect another 100. It has cost almost a million dollars to relocate the remains and make up for the delay.

The $30 million retrofit—called for in part by the fragile building's vulnerability to earthquakes—is $10 million less than constructing a similar new facility.

For more information, contact Deborah Frieden, California Palace of the Legion of Honor, 233 Post St., 6th floor, San Francisco, CA 94108, (415) 750-3600, fax (415) 750-7686.

techniques will be field tested and refined for use on a wide range of sites.

Briuer is recruiting partners with similar research interests from the government and the private sector. "This R&D business can be plenty expensive and it certainly makes sense to network our efforts," he says. The flipside of the expense is the study's enormous payback potential.

For more information, contact Dr. Frederick L. Briuer at the Environmental Laboratory, U.S. Army Engineers Waterways Experiment Station, Vicksburg, MS 39180, (601) 634-4204, fax (601) 634-2835, e-mail briuer@ex1.wes.army.mil.

Shards Reveal Quake Risk East of Rockies

Some unusual allies are helping scientists predict the next "big one" east of the Rocky Mountains: the ancient potters of the Mississippi. Researchers are using shards excavated along the river to study the seismically active New Madrid Zone, near Memphis. Three magnitude-eight quakes struck the zone in the winter of 1811-12, ringing church bells as far away as Washington, DC, and Boston.

Although quakes rumble through here more often than anywhere else this side of the continental divide, they are difficult to investigate. Sediments from the Mississippi obscure fault lines. "In California you just go to the fault," says Martitia Tuttle of the University of Maryland. "Here you search for liquefaction features."

Liquefaction features often take the form of sandblows: small cones of sand that erupt to the surface during earthquakes. Along the Mississippi, sandblows have erupted through buried pottery, which can be dated. Elsewhere, prehistoric people dug pits in the sandblows and left pottery fragments behind.

By chance, Tuttle and fellow researcher Eugene Schweig of the USGS connected with archeologists excavating at a nearby air base being decommissioned. The group pooled their skills, taking study of the area's archeology and geology "to new realms of understanding," say Tuttle.

Ultimately, through a combination of soil analysis and carbon dating of the pottery, the team determined that sizable quakes struck the zone around AD 900 and 1400. This, says Tuttle, indicates a "short recurrence interval" of approximately 400 to 1,100 years. That means at least another couple centuries before the next big one.

Don't heave a sigh of relief just yet. Chances are that a smaller quake—at, say, six on the Richter scale—could hit in the next 100 years. Says Tuttle, "People should be just as concerned about magnitude six quakes because many of the buildings around here were not constructed with earthquakes in mind."

Tuttle is planning further research in the Maryland-DC region. For more information, contact her at the University of Maryland, Department of Geology, College Park, MD 20742, (301) 405-1311, fax (301) 314-9661, e-mail mt90@umail.umd.edu.

Kids' Magazine Gets Grant

The National Park Service archeological assistance division has been awarded a $35,000 grant to underwrite part of next year's publication costs for *ZiNj*, an innovative oversize magazine for kids on archeology, paleontology, and history. The National Park Foundation awarded the grant.

ZiNj began as a cooperative venture started by the Utah Division of State History in cooperation with the National Park Service Rocky Mountain region, the Forest Service Intermountain region, and the Bureau of Land Management, Utah. Originally initiated to reduce archeological vandalism, ZiNj has broadened its themes to include protecting heritage resources of all kinds.

Up-front audience research has been the key to its success. "Time was taken in the development phase to get input from kids and parents as well as educators and interpreters," says editor Kevin Jones. "We wanted to make sure that *ZiNj* would be sensitive to the needs of the public and well-loved by its intended audience."

Well-loved it has been, Jones says, thanks largely to the ongoing involvement of kids in all aspects of publishing the magazine. The subscriber base grows daily, and plans are in the works for "ZiNj TV," a Saturday morning program to be sponsored by two television stations and syndicated nationally in 1995.

The grant will contribute to the production of four issues. In that period, says Jones, "a degree of stability will be achieved to allow ZiNj to survive and thrive." The magazine hopes to match agency backing with long-term corporate support.

Staffers are developing a network of *ZiNj* correspondents among cultural resources specialists, park interpreters, and others. If you have a story or an idea for one, contact Kevin Jones or Lydia Nibley, ZiNj Magazine, Utah Division of State History, 300 Rio Grande, Salt Lake City, UT 84101, (801) 533-3565, fax (801) 533-3503. A subscription is $8 for four issues.

"Archeology" Premiers with Antietam Episode

The 1994 premier of "Archeology"—to air on The Learning Channel Monday, September 26, and again on Sunday, October 2—will focus on the discovery and excavation of four soldiers from the Army of the Potomac's Irish Brigade, killed at the Battle of Antietam on September 17, 1862. Appearing in the half-hour show will be historian Edwin Bearss and archeologist Stephen Potter, both of the National Park Service, as well as forensic anthropologist Douglas Owsley of the Smithsonian.

The episode focuses on identifying one of the soldiers who was in his forties when he died. At that time, the Army of the Potomac was mostly volunteers in their late teens and twenties. The four met their death in the attack on Confederate forces in Bloody Lane.

For more information, contact Dr. Stephen Potter, National Park Service, National Capital Region, 1100 Ohio Dr., SW, Washington DC 20242, (202) 619-7280.

REPORT FROM THE BALKANS

Investigating Mass Graves for the U.N.

CAL CALABRESE

IT'S NOT OFTEN that archeologists are issued a helmet and flak jacket at the start a project, nor is it normal to need the protection of a platoon of soldiers armed with Uzzis. But then this is no ordinary assignment. We are here at the request of Physicians for Human Rights, which—under the auspices of the U.N. War Crimes Commission—is investigating alleged mass executions

The request came through DOI Assistant Secretary George Frampton, who asked National Park Service Director Roger Kennedy to make available the forensic archeology expertise of the Midwest Archeological Center, which I direct. Three center archeologists have accompanied me to the former Yugoslavia: Doug Scott, Ralph Hartley, and Melissa Connor.

All sides in the fighting have leveled accusations of rights abuses. The United Nations, which protects an area along the Danube now known as U.N. Sector East, established the War Crimes Commission to investigate.

As in most areas of scientific study, the interdisciplinary team has become the norm in these kinds of investigations. Police, attorneys, document examiners, physicians, forensic pathologists, and forensic anthropologists all work hand in hand. Archeologists—the most recent team members—bring unique qualifications from years of surveying and excavating sites. To put it in law enforcement terms, we have superior skills in extracting evidence from the ground. For this project, we join an international team recruited by Physicians for Human Rights.

A recent U.N. reports says there are at least 98 mass graves in the former Yugoslavia. We are to exhume bodies at two sites to find out if they had been tortured or executed. Perhaps more importantly, we hope to identify the remains of victims and return them to their families. There are at least 28,000 missing persons in Croatia today.

OUR PRIMARY MISSION is to Vukovar—in the Serb-dominated Sector East—where up to 200 Croat hospital patients are believed to be buried in a mass grave. When we arrive, the local authorities threaten military intervention if we start to excavate. The threat abrogates an earlier agreement with the Serb authorities in Knin. Wisely, the U.N. withdraws the team.

We redeploy to Sector West, which the Croats control, joining other team members investigating grave sites near Packracka Poljana. Here it is believed that Croat soldiers tortured and killed an undetermined number of civilians of Serbian descent. As the matter is still in the medical-legal jurisdiction of the U.N. War Crimes Tribunal, details cannot be discussed. I can say, however, that we found a series of graves with the remains of people who had met violent deaths.

The main reason we were recruited for this somber assignment is our experience at the center, which pioneered the use of metal detectors and forensic ballistics in these kinds of investigations. Firearms expert Doug Scott, who heads the center's Rocky Mountain research division, first employed these techniques at the Little Big Horn battle site over a decade ago. From a cartridge casing's location and condition, he was able to determine whether the person firing it was moving (on horseback, say) or standing still. Scott refined the methods while investigating rights abuses in El Salvador and Iraqi Kurdistan.

HERE IN THE FORMER YUGOSLAVIA, the daily gunfire provides an eerie soundtrack for our work, suggesting that the U.N. is at best maintaining an uneasy peace. The wartime tumult compounds the normal problems encountered in an archeological project. It took days for our equipment to clear customs, and basic tools like hammers and nails are hard to come by. Good shovels are a luxury.

In Zagreb, we stay briefly at the Hotel Esplanade—one of Europe's best—but other times we are billeted with the U.N. troops. In a town called Erdut, we sleep at a rundown, deserted resort under heavy U.N. protection. We eat with Russian, Belgian, and French soldiers. Food consists of MREs—"meals ready to eat"—with the occasional good fortune of having them heated before consumption. Near the city of Osijek, we camp on an abandoned runway with Dutch and Russian troops.

The men and women of a friendly Dutch platoon provide transportation, protection, and logistical support. Travel outside U.N. perimeters is prohibited without armed escort. Areas are swept for mines before we excavate.

Perhaps this is not the easiest or most pleasant assignment an archeologist might undertake, but for us it is among the most rewarding. We have the opportunity to apply skills learned over a lifetime of studying past cultures to a very real and dramatic modern context. We see first hand the destructive power struggles in the guise of ethnic and religious hatred. At the same time, we have the chance to resolve the disappearance of many families' loved ones and assist a war crimes investigation. This is truly applied archeology.

The American members of the U.N. team spent nearly two months in the former Yugoslavia. For more information, contact Cal Calabrese or Doug Scott at the NPS Midwest Archeological Center, Federal Bldg., Rm. 474, 100 Centennial Mall North, Lincoln, NB 68508-3873, (402) 437-5392, fax (402) 437-5098.

Sitewatch

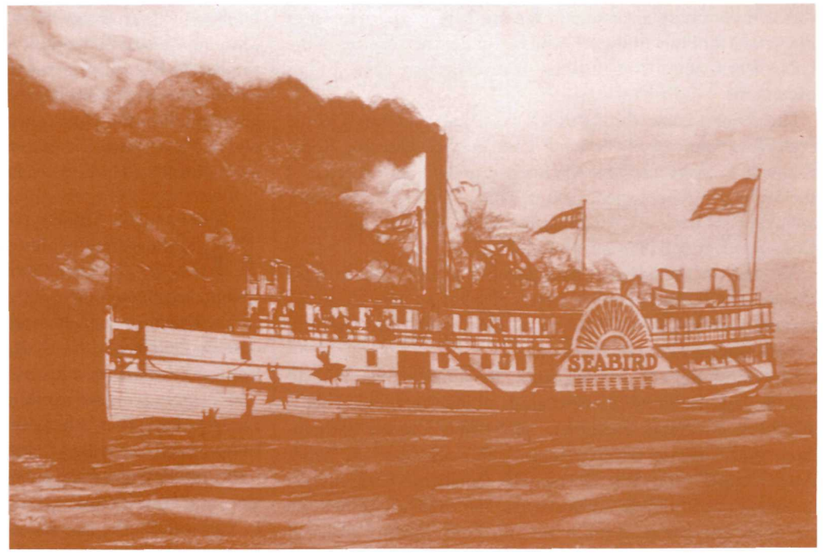
Protecting the Nation's Archeological Heritage

Abandoned Shipwreck Act Upheld

A U.S. Court of Appeals recently rejected a commercial salvor's claim against the constitutionality of the Abandoned Shipwreck Act(ASA). In the case of *Zych v. Unidentified, Wrecked and Abandoned Vessel* (19 F.3d 1136 [7th Cir. 1994]), the Seventh Circuit Court of Appeals ruled that Harry Zych, a commercial salvage business operator, was not entitled to be awarded salvage rights for a shipwreck believed to be the *Seabird*, which sank in Lake Michigan just north of Chicago on April 9, 1868.

In his arguments, Zych contended that ASA was unconstitutional because Congress had exceeded the Supreme Court-ordered limit on legislation in the admiralty and maritime context. The limit states that Congress can neither exclude a thing that clearly falls within the admiralty law nor include a thing that clearly falls outside it. Zych argued that in passing the act, Congress unconstitutionally excluded the law of salvage.

The court rejected Zych's argument and held that the ASA has no effect on the law of salvage because it does not apply to abandoned shipwrecks. The law of salvage assumes that the salvaged property is owned by someone other than the salvor, who has been awarded the salvage rights. ASA, however, applies only to abandoned property.



Artist's rendering of the *Seabird* on fire just before it went down in 1868.
GREAT LAKES HISTORICAL COLLECTION, MILWAUKEE PUBLIC LIBRARY

Thus the court appeared to hold that, whereas title to an abandoned shipwreck is transferred to the state under ASA, the shipwreck remains "abandoned" for purposes of applying the law of salvage.

The court also rejected Zych's argument that a federal court could order the state of Illinois to pay him a salvage award and ruled that a Supreme Court-created exception to federal sovereign immunity cannot be analogized to 11th amendment state sovereign immunity. Consequently, since Illinois did not consent to Zych's suit and Congress has not expressed any intent to abrogate Illinois' 11th amendment sovereign immunity, Zych's suit is barred.

In its findings the court concluded that "the 11th amendment does not allow us to order Illinois to pay a salvage award to Zych. The Abandoned Shipwreck Act then, as it affects this case, does not exclude a thing that clearly falls within the admiralty and maritime law. The Constitution is not violated . . . and the decision of the district court is affirmed."

Unowned Shipwrecks Still Protected, Says U.S. District Court

Even without title or ownership interest, a state can protect and preserve historic shipwrecks, as two recent cases demonstrate.

Lathrop v. Unidentified, Wrecked & Abandoned Vessel and *State of Florida v. Lathrop* (817 F.Supp. 957 [M.D. Fla. 1993]) are two consolidated cases involving a dispute over an alleged unidentified shipwreck within the waters of Florida's Canaveral National Seashore. When the action arose, Congress had already passed the Abandoned Shipwreck Act but it had not yet become law.

In 1988, a U.S. District Court in Florida, under general admiralty law, granted Randy Lathrop a salvage lien, or ownership interest, in what he believed to be a sunken 18th century Spanish galleon and its cargo in the waters of Canaveral National Seashore.

Today, title would pass to Florida under the Abandoned Shipwreck Act. In April 1990, however, the state required that Lathrop obtain a permit before conducting salvage. The state archeologist and chief of the bureau of archeological research denied his permit. Salvage, they asserted, was inconsistent with an agreement between the state of Florida and the federal government on the seashore's proper use. The federal government concurred with the assertion.

At a hearing, Lathrop—awarded ownership of the alleged shipwreck under general admiralty principles—won a preliminary injunction preventing interference with his operations.

Subsequently, Florida sought to prohibit Lathrop from excavating. By this time he was dredging craters in the ocean floor. Noting that the state did not own the shipwreck, the U.S. District Court denied Florida's motion.

Lathrop was edging closer to obtaining the state's permission to begin salvage when, in July 1991, the United States—through the Army Corps of Engineers and the National Park Service—asserted its *regulatory* interest in protecting the seashore from unprofessional excavation.

The Corps told Lathrop that his award of ownership did not preclude the United States from regulating salvage within the agency's "dredge-and-fill jurisdiction." The Corps asserted its authority over dredging in tidal water from the mean high water line to the outer limits of the continental shelf.

The Corps, therefore, did not recognize the injunction. Furthermore, the Corps said that Lathrop must comply with the Rivers and Harbors Act of 1899 before dredging in navigable waters of the United States.

In other words, the Corps told Lathrop he would need a permit before resuming salvage. The Park Service took an analogous position, asserting that Lathrop must obtain an Antiquities Act permit.

In 1992, Florida and the Corps denied Lathrop's permit request. Lathrop's Antiquities Act permit was also denied. He then filed a motion to prevent the United States from requiring the permits.

In April 1993, the U.S. District Court for the Middle District of Florida denied the motion. The court held that Congress can supplement admiralty law by regulating salvage activities.

Thus, even when the Abandoned Shipwreck Act does not apply, federal agencies and states can assert regulatory interest in a shipwreck even if they cannot assert ownership. Because this opinion has been published, it will likely be cited in future cases.

Fourth Looter Sentenced Under Florida's RICO Act

In 1992, the state attorney for Florida's 20th judicial circuit used that state's "organized crime" statute to charge Donald Paul Williams, L. Frank Hudson, Peter Alexander Smitt, and Ronald Allen Webb.

The four eventually pled guilty to racketeering conspiracy under Florida's Racketeer Influenced and Corrupt Organizations (RICO) Act, criminal mischief, and grand theft for "the unauthorized excavation, destructive probing, digging and removing of earth . . . in a destructive effort to locate buried treasure" on five state-owned and two federally owned sites in Charlotte, Lee, Hillsborough, and Pinellas counties. Donald Paul Williams was sentenced in January of this year; the other three were sentenced in 1993.

The case, in which Assistant State Attorney Robert A. Lee served as lead prosecutor, was the culmination of an intensive joint investigative effort by the Florida Department of Natural Resources, the Florida State Parks Service, the Florida Department of State's Bureau of Archeological Research, and National Park Service rangers and investigators in cooperation with the state attorney's office.

State authorities had been aware of destructive treasure hunting on state and federal archeological sites in south Florida—such as Big Cypress National Preserve, Everglades National Park, and Ding Darling National Wildlife Refuge—going back over 20 years. However, the identity of the person(s) systematically digging on and destroying remote Indian mounds and other historical sites remained a mystery.

Then, in July 1991, Park Service officers at Cayo Costa State Park came upon a group of individuals in the process of sinking an exploratory shaft into an isolated section of the park, where local legend recounts stories of pirate activity. Focusing their investigative efforts on these individuals (Williams, Smitt, and Webb) and the person who directed them to the site (Hudson), state officers uncovered evidence of "treasure hunting" activities throughout the region going back for more than a decade.

Prominent among the incidents was the well-publicized mass destruction of the Caloosa Indian temple mounds on Big Mound Key in 1980. Many of these past activities, numbering nearly 60 separate incidents, involved the use of bulldozers and backhoes to dig massive trenches through sites such as Big Mound Key, where a trench 20 feet wide, 25 feet deep, and 200 feet long was gouged into the site, destroying about 7,000 cubic yards of a shell midden.

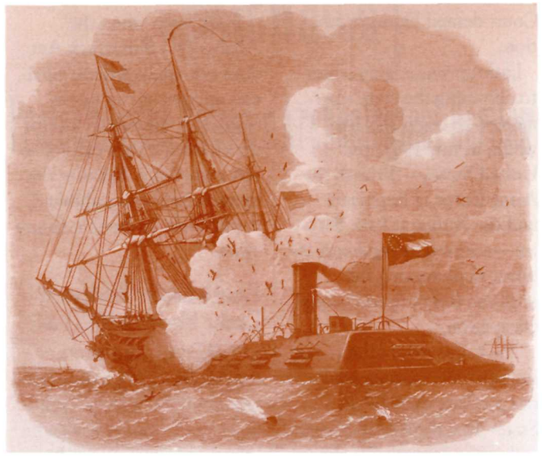
Fines Used to Reward Citizen Stewards

Citizens who acted as good stewards for archeological sites will receive monetary rewards, thanks to a provision of the Archaeological Resources Protection Act used for the first time by the National Park Service, working closely with the Departments of Justice and the Navy. The rewards—to be presented to people who reported thefts at a national battlefield and two Civil War era shipwrecks—come from fines paid to the U.S. Treasury by criminal violators of the act.

Intended to promote exemplary stewardship in protecting America's past, the rewards were appropriated through an arrangement that allows agencies to improve the protection of sites by using funds from the fines to reward citizens assisting in prosecutions.

The Treasury warranted funds for these rewards following successful prosecution of criminal violators who looted Tennessee's Chickamauga-Chattanooga National Military Park—a Civil War battlefield—and trafficked remains from the USS *Cumberland* and CSS *Florida*—two Civil War shipwrecks in the James River off Newport News, Virginia—across state lines (see the fall 1993 issue). William C. Lane, Jr., and the Confederate Naval Historical Society will receive the rewards.

In February 1992, Lane, a visitor to the Chickamauga-Chattanooga park, reported that someone was using a metal detector to remove artifacts, an offense under ARPA. The information was used by Steven McKnight, the assistant U.S. Attorney for the eastern district of Tennessee, to prosecute Douglas Franklin Dodd. Dodd was convicted and ordered to forfeit his metal detecting equipment and pay $4,000 in restitution to the park. He also paid a $500 fine.



The Confederate ironclad *Merrimac* (or *Virginia*) rams the *Cumberland*.
CONFEDERATE NAVAL HISTORICAL SOCIETY

In 1993, the U.S. Attorney for the eastern district of Virginia successfully prosecuted two watermen and two private collectors who pled guilty to interstate trafficking in artifacts from the Civil War shipwrecks, a violation of both Virginia state law and ARPA.

Officers of the Confederate Naval Historical Society, a private, non-profit organization, informed the FBI that remains of the *Florida* were being trafficked interstate. That information, which led to the recovery of some of the artifacts from the collectors, was incorporated into their prosecution.

Navy Lieutenant Anthony Antonellis, a special assistant attorney attached to the U.S. Attorney's office, served as lead prosecutor in *United States v. Fred Larry Stevens* and *United States v. Gary Williams*, which resulted in criminal convictions, $1,500 in restitution, and $1,000 in fines. The National Park Service provided certification to Treasury for the citizen steward reward with the approval of Captain C.E. Ellis, Jr., commanding officer of the Navy legal services office in Norfolk.

The act's reward provision requires that land managers certify to the Department of the Treasury that evidence was furnished in a civil or criminal prosecution, that it led to a finding of a civil or criminal violation under ARPA, and that a penalty or fine was paid as a result. Treasury is directed to pay a reward equal to half the penalty or fine, or $500, whichever is lower.

The rewards will maximize the strategy behind ARPA, enacted to help agencies manage archeological sites and artifacts in place, not merely prosecute violators. Raising awareness of the serious looting problem—among federal prosecutors as well as the public—is key to the strategy.

SAA Honors Five Site Defenders

The Society for American Archaeology has given its 1994 public service awards to five people for their work in two precedent-setting cases.

In one case, five men were successfully prosecuted for trafficking in artifacts looted from a previously unexplored Hopewell mound, one of the largest ever constructed in the Eastern Woodlands. The case marked the first application of the act's provisions that forbid interstate trafficking in archeological resources removed in violation of state and local laws.

In the case, the seventh circuit of the U.S. Court of Appeals determined that these provisions are similar to other federal laws concerning crimes committed in interstate commerce and therefore upheld the convictions. The Supreme Court denied a petition for further appeal.

The SAA presented awards to Deborah Daniels, former U.S. attorney, Larry Mackey, assistant U.S. attorney and chief of the criminal division, Scott Newman, former assistant U.S. attorney, and James Beck, special agent of the FBI. They were commended not only for their diligence in prosecution, but for their sensitivity to the importance of recovering more than 3,000 looted artifacts and their efforts in educating the public about archeology.

In the other case, a looter tried to avoid conviction by using arguments similar to those that made enforcement of the Antiquities Act problematic in some parts of the country after a 1972 case.

This case began after a long investigation in 1986-87, when government agents in Oregon seized over 2,800 looted artifacts, tools, photographs, and documents. These implicated a looter in activities that violated the Archaeological Resources Protection Act.

Although the defendant was convicted, he appealed on grounds that the act was unconstitutional. The defendant argued that his activity was protected by the principles of academic freedom. The government countered by citing his lack of academic credentials and institutional affiliation, as required for anyone to be granted a permit under the act. The appeals court agreed and upheld his conviction. The Supreme Court denied his petition for further appeal.

For his appellate brief and argument, the SAA commended Assistant U.S. Attorney Jeffrey Kent of the District of Oregon. Kent went on to share his experience with other attorneys through a course sponsored by the National Park Service and the Department of Justice titled "Overview of Archaeological Protection Law." Because of his work, notes the SAA, "the law today has broad appeal and practical utility for prosecutors across the country."

Private Sites Protected, Says Indiana Supreme Court

On March 7, 1994, the Supreme Court of Indiana affirmed a determination by two lower courts that the Indiana Historic Preservation and Archeology Act applies to private property. The case was decided in Whitacre v. State, 629 N.E.2d (Ind. 1994), *aff'g* 619 N.E.2d 605 (Ind. App. 1993).

In 1982, Robert Whitacre and his wife discovered a Hopewell Indian site (c. A.D. 150) on a Dearborn County farm. After purchasing the property, Whitacre asked an archeologist at the Indiana Department of Natural Resources whether he needed a permit to excavate.

He was told that he would need a permit as well as an approved plan. When Whitacre sought a judgment from the Dearborn County Court that the department did not have authority over private property, the court found for the department.

Whitacre took his case to the Indiana Court of Appeals, which—in affirming the lower decision—cited a state supreme court opinion that preserving archeological sites is within the state government's legitimate interests. The appeals court found that the legislature was empowered to relegate its authority over private sites to the Department of Natural Resources.

The court said that in ascertaining the legislature's intent, it reads a law as a whole, attempting to effect all its provisions. The court concluded that the Historic Preservation and Archeology Act would be superfluous unless the legislature had intended to authorize the state to oversee sites on private property.

Whiteacre took the case to the state supreme court, which affirmed the earlier findings. Consequently, the act's applicability to private property is now the law throughout Indiana.

Looting Costs Rancher Estimated $25,000

The destruction of 21 petroglyphs in the Glen Canyon National Recreation Area cost a retired Utah rancher an estimated $25,000.

On March 10, McKay Bailey pled guilty in federal court to an ARPA violation as part of a plea agreement in which he will reimburse the Park Service for restoration of the archeological site and direct government expenses. In addition, Bailey will forfeit his 1990 Ford pick-up, valued at approximately $12,000. Bailey's lawyer said in a television interview that the case had cost his client $25,000.

But, said Glen Canyon superintendent John Lancaster, "McKay Bailey . . . destroyed history. Although he has pled guilty and will pay for his crimes, the damage is done."

Tennessee Valley Training

In its first go-around, the Tennessee Valley Authority's ARPA training program was quite successful. From September 1993 to January 1994, a total of eleven 8-hour sessions were attended by 226 law enforcement and public safety officers. According to Steve O. Watson, manager of operations support of the public safety service, the TVA is beginning to target some areas of archeological violation and hopes to report soon on the case activity he hopes will be generated.

Huastecano Homecoming

A collection of over 1,000 pre-Columbian artifacts, mostly from the Huastecano tribe, was returned to the government of Mexico by U.S. customs officials under the terms of the Treaty of Cooperation between the countries.

The artifacts, valued at nearly $50,000, were seized from a private residence and business in 1990 and are currently on display in the McAllen International Museum in Texas. The collection of 1,337 pieces, dating from A.D. 900 to 1200, includes pots, figurines, and burial beads as well as Anasazi pot sherds.

Robbing the Looters

The U.S. Geological Survey is slowly spiriting away what is perhaps the site looter's most valuable tool: map coordinates. On the Survey's latest maps, many archeological sites are gone, having slid under the cartographic sands of time. "We don't want our knowledge of these places to become a looter's guidebook," says Jerry Rogers, director of cultural resources for the National Park Service.

In the past, it's not been unusual to catch looters red-handed with the maps, available through the Survey and open for inspection at over a thousand libraries across the country. Now, when revising a map, the USGS deletes all archeological sites and ruins unless instructed otherwise by the responsible agency.

Breaker House, Anaconda, MT.
JET LOWE/HAER

SPECIAL REPORT

INDUSTRIAL ARCHEOLOGY

Over the past 25 years, industrial archeologists have successfully recorded the remains of a great many American engineering structures, including literally thousands of bridges, canals, factories, mills, dams, power stations, mines, blast furnaces, aqueducts, woodworking shops, and railways. Many of these surveys have been conducted through the auspices of the Historic American Engineering Record, founded in 1969 as a program of the National Park Service. HAER's measured drawings, photographs, and written histories are permanently archived in the Library of Congress. In addition, several universities have also conducted recording projects, including the University of West Virginia, Michigan Technological University, Brown University, Boston University, and Rensselaer Polytechnic Institute. These institutions also train students in the field.

Unlike the more traditional subfields of archeology, in which digging is central to the recovery of data, industrial archeologists rarely dig and instead prepare extremely precise measured drawings and large format photographs of standing structures and ruins. The overwhelming emphasis upon surface recording methods reflects the training of many industrial archeologists in the fields of engineering, architecture, and architectural history; moreover, there is little need for excavation when many industrial sites are still above ground. While there are approximately 1,500 members in the Society for Industrial Archeology, founded in 1971, no more than a few dozen are "dirt archeologists."

Much more research has been conducted on industrial sites along the East Coast than in the American West, and this has been especially true in the cities of Lowell, Massachusetts, Patterson and Newark, New Jersey, Troy, New York, Philadelphia, and New York City. The principal exception is the intensive research conducted on the mining industry in Nevada and California. In recent years the emphasis upon field recording has been increasingly accompanied by studies of hazardous waste industrial middens and by the recognition that proper artifact curation is essential, a major concern when one considers the sheer scale of many large industrial artifacts (see *Recommendations of the Large Industrial Artifact Advisory Panel*, NPS, 1991).

The sole professional journal in this field is IA, *The Journal of the Society for Industrial Archaeology*, a biannual available through membership in the SIA (write c/o Room 5014, NMAH, Smithsonian Institution, Washington, DC 20560). Other publications in this field have been somewhat sparse, and a bit overly geared toward the coffee table (for example, *Industrial Archeology* by Theodore Anton Sande, Penguin Books, 1976) and lay audiences (*Traces of the Past* by David Weitzman, Charles Scribners Sons, 1980; and *World Industrial Archeology* by Kenneth Hudson, Cambridge University Press, 1979)

Fortunately, there are clear signs that the literature on industrial archeology is improving, and the first scholarly textbook has just been written by Robert B. Gordon and Patrick M. Malone (*The Texture of Industry: An Archaeological View of the Industrialization of North America*, Oxford University Press, 1994). When combined with George Togas, *The Archaeology of Industry in North America* (unpublished Ph.D. dissertation, University of Arizona, 1987), and some excellent site-specific monographs on iron making (*200 Years of Soot and Sweat: The History and Archeology of Vermont's Iron, Charcoal and Lime Industries* by Victor R. Rolando, Vermont Archaeological Society, 1992; and *Industry and Technology in Antebellum Tennessee* by R. Bruce Council, Nicholas Honerkamp, and M. Elizabeth Will, University of Tennessee Press, 1991), there is no denying that the field of industrial archeology is finally attaining an acceptable level of professionalism.

Given the great numbers of abandoned or soon-to-be-demolished industrial sites in North America, there unquestionably is a need for archeologists to record these remains and ensure that older technological knowledge is not altogether lost. While it may appear distinctively "American" to destroy sites which no longer express "cutting edge" technology, it is certainly comforting to know that the information stored by industrial archeologists in the Library of Congress will forever be available for use by future generations who wish to adapt old technological ideas to future needs.

David R. Starbuck, Plymouth State College
Editor, Society for Industrial Archeology

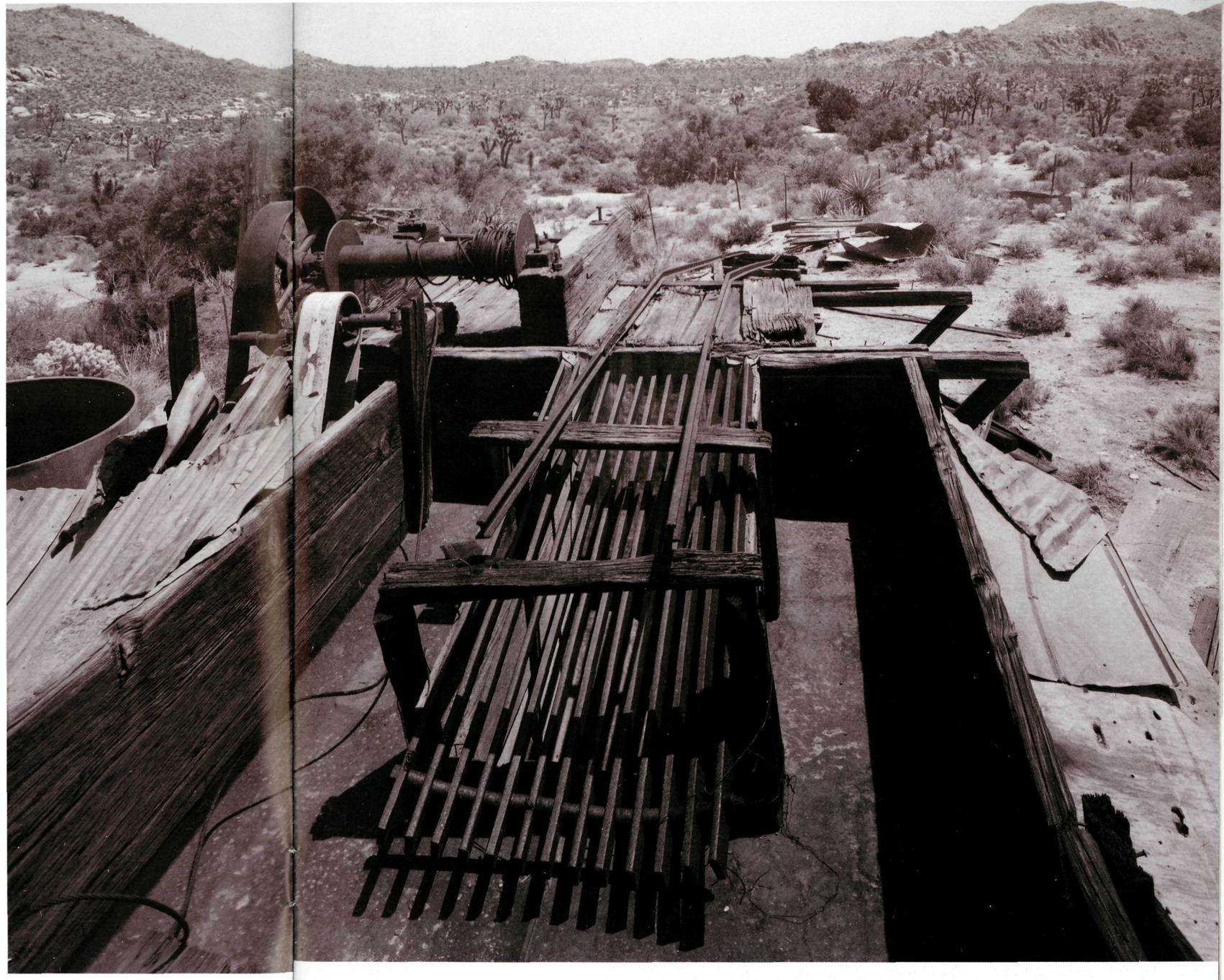
The 1990s may be the "last chance" to capture the history of the West's hard rock mines, says Eric DeLony, chief of the Historic American Engineering Record. A new project pioneers the way at California's Joshua Tree National Monument, pairing some unexpected partners in the "splendid isolation" of the Mojave Desert.

BY DAVID ANDREWS

The Joshua Tree beckons to travelers along the faded tar road, its edges frayed by the sand and brush of the Mojave. Mormon pioneers named the tree, the legend goes, whose upraised limbs led them on to the promised land. But these modern-day seekers are on quite another quest: to record southern California's mining heritage—which stretches from the 1800s through the "second gold rush" of the Great Depression—before it's too late.

The long-abandoned mines face a host of dangers, from souvenir hunters to the rising price of gold, which, along with improving technology, may lure a new generation of prospectors to the rocky slopes of the Little San Bernardino Mountains. And with the San Andreas Fault slicing through the valley below, quakes threaten to plunge the remains into the ever-widening shafts that pierce the mountain flanks.

Given the threat, the recording teams' timing couldn't be better. Nor their composition. For the first time in the 25-year life of the Historic American Engineering Record—the National Park Service unit that manages the teams—a bona-fide, dirt-digging archeologist will labor alongside the traditional recruits: archeologists, engineers, historians, and photographers.



South end of ore track at Wall Street Mill. ALL PHOTOGRAPHS BY BRIAN GROGAN/HAER

Written in Rock and Rust

The idea is tailor-made for this project. Although the monument is best known for its namesake—the legendary Joshua Tree—the region's cultural roots run nearly as deep. "From early human habitation, to gold mining, to cattle eras and modern times, we have a continuum here," says former Joshua Tree Chief of Resources Bob Moon. "The human adaptation to this area is just a spectacular story."

A chance meeting led HAER, long at the forefront of industrial archeology, to field the new team member.

In January 1989—at the behest of DeLony and Bob Spude of the National Park Service Rocky Mountain region—100 professionals and scholars convened at southern California's Death Valley National Monument to flesh out a plan to deal with the disappearing sites. During a brainstorming session at the monument's historic Skidoo Mine, DeLony says, "Shelly Davis-King, an archeologist from California's mother lode region, asked what was I planning to do archeologically. I said 'Well, we usually don't do archeology' and she jumped on me. 'How can you not do archeology?' She really opened my eyes and pointed out the potential of an archeological component."

Since Davis-King wasn't available for the recording project, DeLony recruited archeologist Don Hardesty from the University of Nevada at Reno—an expert in the history of mining—and together the two spearheaded the concept at the heart of the Hard Rock Mining Initiative, as the Park Service calls the plan. Now, he says, "I wouldn't venture into a ruinous hard rock mining site without an historic archeologist. There's just so much to be revealed that without one you would be selling the site short and missing an awful lot."

Hardesty has the "best vision" for interpreting the West's hard rock sites, says DeLony. The archeologist accompanied HAER teams to both of the properties recorded at Joshua Tree.

The team assigned to the Lost Horse Mine is not about to sell this site short. Like an old miner scouring his pan for that flash of color, they will pour over hundred of bits of information. The team's makeup ensures that not much will be missed. Field leader Karl Stumpf of Falls Church, Virginia, brings his skills as a manager and practicing architect. Architect Carolyn Kiernat hails from Minneapolis. A third architect, Martine Dion, is here from Quebec. Richard Vidutis of Takoma Park, Maryland, is the team's historian.

And Lost Horse will benefit by the experience of not one but two archeologists: Hardesty and Lester Ross (at the time with the San Bernadino County Museum Archaeology Information Center). Nationally known lensman Jet Lowe, on staff at HAER, will capture the site on film.

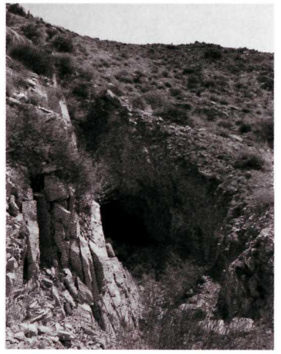
North end of ore track and crusher at the Wall Street Mill.

Long-Lost Glory

They start work with a brisk trek up a faded wagon road early one morning in June 1992. "We got up at 5 a.m. to get out there before the heat of the day," Vidutis says. After an hour clambering up the rocky terrain, the destination looms in sight: a long-petered-out encampment of rotting wood, decayed foundations, and rusted pipes and machinery—the 25 percent of the operation that has survived the ravages of time.

Long gone are the glory days of Lost Horse, when miners scratched out in the neighborhood of $5 million in today's currency from the 500-foot-deep shaft. That may be small change next to the fortunes made by the Sacramento mother lode further north, but Lost Horse has its own story to tell.

Hardesty gazes into the darkness once lit by the hat-lamps of the long-gone. There is a wealth of history here, he says.



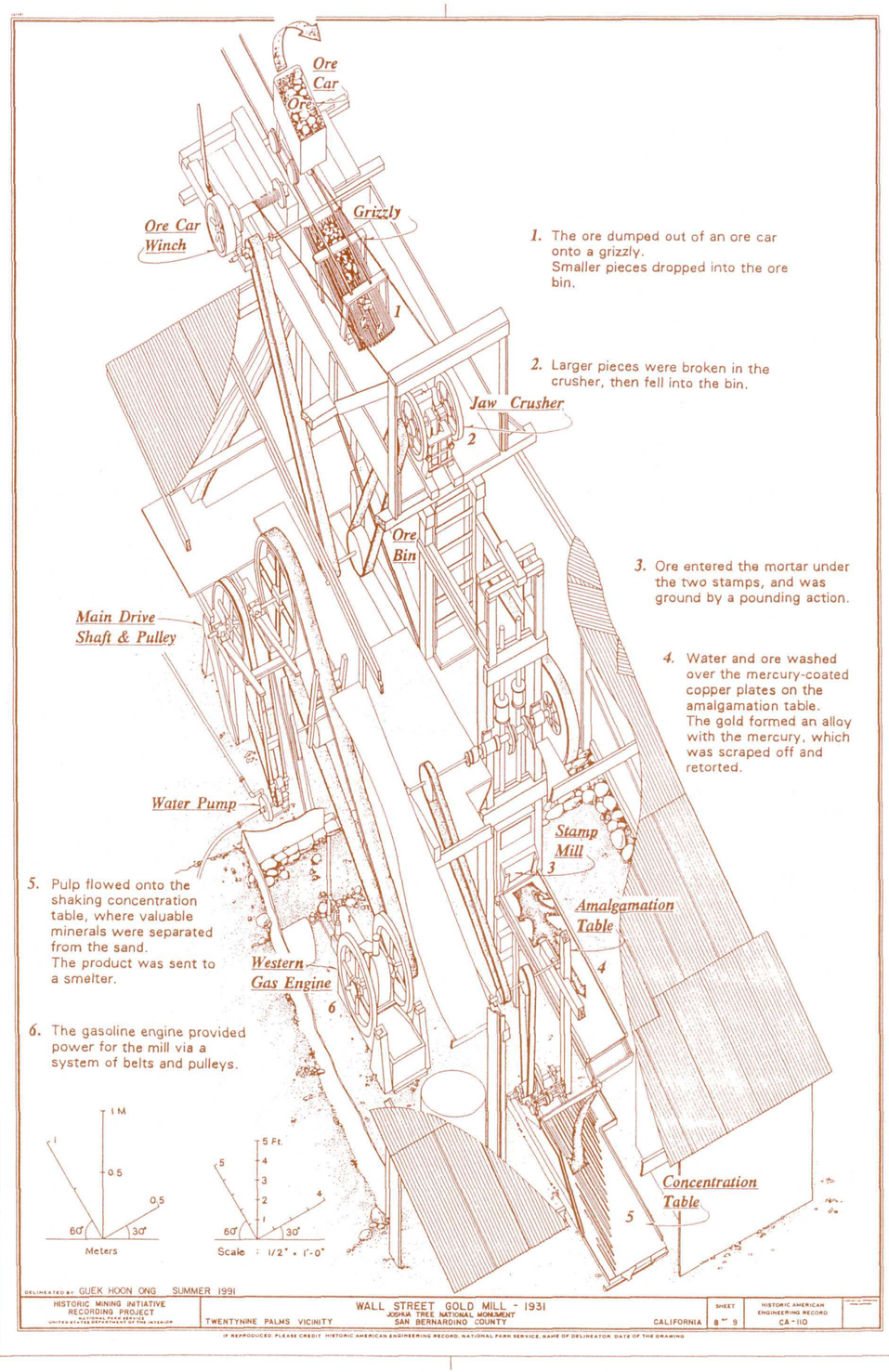
Or rather several stories, depending on who's telling. In one, a cowboy named Johnny Lang found ore while searching for his lost steed. Another version has a gang of rustlers stealing Lang's horses while he and a partner staked the claim. In a third, Lang bought the claim from someone else who stumbled on it while looking for his horse.

Whosever horse it was, Lang and his cohorts did file a claim in 1893. Thomas and J.P. Ryan bought out Lang's partners two years later, and he eventually sold his interest too. Rumor has it that Lang was caught stealing the others' share. In 1905, the miners hit a fault line and lost the ore-bearing vein. Part of the monument since 1936, the remains have stood rusting and unused since a failed attempt to re-start the operation in the 1930s.

The deep gash in the mountain's face fed the site's centerpiece—a ten-stamp mill—which is the prime focus of the team's attention. The stamps, weighing in at 850 pounds apiece, crushed ore from the mine into fine powder. The powder was then mixed with a mercury compound that held the gold while the rest washed away. The precious yellow metal was then extracted from its liquid host.

Something just as precious was essential to the entire process: water. This is how it worked. Rock was dumped into a chute just outside the mine entrance at the ridgetop. Once crushed, the powder slid into flowing water, which ran over copper plates coated with mercury. Forced downhill by gravity, the liquid amalgam of gold and mercury flowed over more plates for further refining. By the time the flow reached bottom, the ore had been stripped clean.

Pioneered by the ancient Romans, the process migrated to this hemisphere with the Conquistadors in the 1500s. Even today, it makes hard rock mining a risky business, says DeLony. "The tough part of hard rock mining is the tremendous capitalization up front. You may have to run miles of pipeline out a site. That's why it's such a boom or bust proposition. You can hit it big or lose thousands if not millions of dollars." At Lost Horse, the



miners ran a riveted pipe from a ranch three miles away—as the crow flies—over the rugged terrain.

The team's job is to document how this age-old technology worked, as well as how it shaped life at Joshua Tree. And was in turn shaped by it.

After the arduous hike, the team is enveloped by—in DeLony's words—"splendid isolation." It's 12 miles to the nearest phone (a gas station booth on I-10); the only link to the outside world is a two-way radio tuned to monument headquarters. Days sizzle with temperatures to 110 degrees; nights echo with the call of the coyote. You either love the desert or hate it, DeLony says.

This team, well briefed by Park Rangers, has no trouble adjusting. "The landscape, the plants and trees all seemed so dry and sparse at first, yet breathtaking," says Dion. "I didn't think I could adapt myself so fast to a place full of snakes, insects, spiders, and scorpions. Of course the two June earthquakes made it even more contextual."

"Wall Street is what you would call a vernacular site," says DeLony, "cobbled up from bits and pieces of timber, sheet metal, and automobile engines."

Besides, the job provides plenty of distraction over the course of twelve weeks. "You can generally break the summer into three parts," DeLony says. "The first three to four weeks is very, very intensive field work where you're measuring the site. The middle portion is where you're developing your drawings and pieces for the historical reports. The last part is production. The architects are on the board finalizing their ink-on-mylar drawings, the historian is at the word processor."

Historian Vidutis, to draw his picture of life at Lost Horse, ranges far outside the monument's boundaries—to newspaper archives and land offices in Sacramento, Los Angeles, and elsewhere. Lowe comes in during the final phase to do his lens work. "These prints are not 35-millimeter snapshots, they are large format—4 x 5s, 5 x 7s," says DeLony. The large format's precision is essential to recording the nuances of the mining operation and producing a record-quality photograph.

Making the Gears Mesh

Many things are going on at once over the project's course. Initially, there's a "learning curve" as the team deciphers the particulars of the site (Hardesty is the only one versed in mining technology). With this group, drawn from different disciplines, it takes awhile to "mesh gears" as team members learn each other's language. Architects think in terms of drawings, for example, while archeologists think in terms of site descriptions.

Hardesty and Ross characterize the site's archeology using five categories: artifacts, features, feature systems, sites, and districts. It is a sophisticated descriptive technique; ultimately, their archeological "map" can be linked to similar ones from other sites to show the hard rock mines in a larger historical context.

Their report explains the technique. Objects that can be carried away are classed as artifacts. Features, on the other hand, are not portable: mine shafts, vats, footpaths, foundations, and so on. Feature complexes are clusters of features associated with the same activity, such as piping water or mining ore. The mining complex includes claims markers, prospecting pits, mine shafts, a rail cart system, and so on. Sites and districts are self-explanatory: Lost Horse is a mining site within the larger Joshua Tree mining district.

Hardesty underscores that, by themselves, neither a recording project nor an archeological inventory can do the site justice. The two must work together, hand in glove.

He and Ross detect many remains not part of the historic record: two ore crushers, a possible amalgamation site, cyanide tailings, a water tank, troughs, a chicken coop, a barbecue, and refuse heaps rich enough to make an archeologist smile.

For this initial survey, the pair do no digging (that comes later, depending on the monument's plans). Instead they systematically inspect the ground while scoping the surrounding hills with binoculars. Ross says the miners felled a forest of pinyon and juniper to shore up the shaft and power the steam engines.

During the operation's heyday, an entire crew did nothing else but log the giant juniper bushes and pinyon pine trees that once blanketed the hills. The wood stoked massive boilers that, through pressure, powered the flow of water 700 feet up the mountianside. Today, although the hills have been denuded, a few pinyon pine survive in the deep washes.

Standing at the mouth of the mine, Hardesty gazes into the darkness once lit by the hat-lamps of the long-gone. There is a wealth of history here, he says, more than enough to establish the place along Joshua Tree's "continuum of human habitation."

A macabre twist in that continuum connects Lost Horse with the other major property to be recorded.

Mining in the Vernacular Vein

In 1931, William Keys patched together the Wall Street Mill from tractor engines, chicken coops, timbers, and cyanide tanks he'd rounded up from mines that had gone bust (by this time, a cyanide process had replaced mercury-water amalgamation). Like any enterprising entrepreneur, he saw a need and the way to fill it.

With the Depression, the desert had once again cast its spell, luring the jobless south from Los Angeles into the Mojave. Newspapers called it the "second gold rush." Some, DeLony says, were able to "scrape together a living" on the slopes of the Little San Bernardino Mountains.

Many came with a bedroll, a pickup, and not much else. They trucked their diggings to a "custom mill" that, for a cut, refined the product. Wall Street was one such outfit.

The HAER team is similarly stripped down and ready to work this scorching summer six decades later. This group is staffed by Supervisory Architect Ruth Connell of Annapolis, Historian Elizabeth Wegman-French of the University of Colorado, and Architectural Technicians Guek Hoon Ong of Louisiana State University and John Eberly of Texas Tech. Hardesty is the team's archeologist; Brian Grogan of Yosemite, California, is the photographer.

Wall Street is the only mill in the region that remains virtually intact and potentially operable (having done so as recently as 1966). Because of that, and its local technological significance, it has already won a spot on the National Register of Historic Places.

Abandoned truck at Wall Street Mill.

There is much to measure and interpret. An ore chute, ore crusher, and a two-stamp mill are supported by skeletons of heavy timber. The construction around this hardwood core is an eclectic assemblage of wood framing and corrugated sheet metal. The decks encircling the structures are made of wood planks while floors at grade are of the most modest of materials: dirt.

The mining equipment includes refining tables, a water pump, a Fairbanks Morse engine to run it, two large galvanized-iron water tanks, and a 12-horsepower Western gas engine to power the labyrinth system of shafts, belts, and pulleys. San Francisco's Baker Iron Works built the mill in 1891; the rest of the machinery dates from the 1890s to the 1930s.

"Wall Street was what you would call a vernacular site," says DeLony, "cobbled up from bits and pieces of timber, sheet metal, and automobile engines. Bill Keys was a 'desert rat,' combing the desert for anything of value. Lost Horse, on the other hand, was more sophisticated, a real mining company with definite goals and objectives and expected efficiency and productivity to go along with it.

"That's the nice thing about Joshua Tree. You have evidence of two similar operations that represent two different levels of the mining industry, one very thrown together and the other very planned, engineered, and constructed."

This is not to say that Bill Keys wasn't a sharp operator. He sited his mill at a well, avoiding the high cost of piping in water and allowing him to run his own mine.

His was the savvy of experience. Keys came to the desert around 1910, hiring on as a "watchman" for an absentee mine owner. When the owner died, he inherited the mine as back payment for wages. Keys eventually acquired more than 20 claims, which he leased as his main source of income.

One day in 1925, Keys came face to face with the human continuum of Joshua Tree. He found Johnny Lang partially mummified along a weather-beaten trail. Maybe the double-cross had finally caught up with him. Today, Lang's grave is still in evidence where Keys laid him to rest.

Keys had his own showdown with destiny in the 1940s. Ambushed by an angry neighbor in a feud over the mill road, Keys proved the better shot. Convicted of murder, he spent five years behind bars before an investigation initiated by Eric Stanley Gardner led to a full pardon.

What Made the Project Work

History was made at Wall Street, but most of the mining records for this part of the world are in Riverside, California, and Los Angeles. Wegman-French conducted research there and elsewhere, tracking down old documents, photographs, popular press articles, and more. But eyewitnesses truly put her report over the top.

"What really made the project work for us," says DeLony, "was we would get into it for three or four weeks, learn what we could about the site, begin our drawings, and then bring one of the miners in for a walk-through. He would show us how all of the pieces fit together and answer any unexplained questions we had about a specific machine or feature or hole in the ground. Like 'Where did the water come from?' or 'How did you get the water from the well to here?'

"A lot of these sites would have been worked into the 1930s, the 1940s, so these people are still around but most are well into their elderly years. So you can look at this 1990s period as probably the last opportunity to get them out into the account." The surviving members of Bill Keys' family were also interviewed (he died in 1969).

Hardesty's report complemented the information compiled by the others, noting that—despite "low visibility"—the remains of a bunkhouse, workshop, and transportation network are still in evidence. "Perhaps Wall Street's most immediate preservation goal should be an interpretive plan," he says. His findings, cast in the same categories he used for Lost Horse, promote the possibility.

"One approach is to treat the mill and other mining properties at the monument as parts of a 'collection' to be used in the exhibits of an outdoor museum of technology" to be developed at Joshua Tree. Collections in that "museum," which would encompass all the monument's mining landscapes, could include standing buildings and structures, dumps for waste rock, archeological sites, road networks, and the like. The outdoor exhibits would employ the same museum methods used indoors—labels, interpretive graphics, and devices for directing visitor traffic flow (signage, brochures, and so on).

Last Chance for a Legacy

Hard rock mining is *the* major historical interpretive theme for a large part of the western United States, says DeLony, and now is the time to record the little remaining evidence of it. "The price of gold is up to $393 an ounce and the technology is out there to rework the tailings from previous gold operations. If

View of the mill headworks at Wall Street Mill.

something is not done soon, these sites just won't be there in 20 years."

There is hope, he adds. "What I've learned through almost 25 years of doing this is that the mining industry is completely capable of underwriting the costs of some of these interpretive sites and museums. And we have had some success interesting the industry in their own heritage."

Given the workplace hazards faced by miners over the years, does this present a potential challenge in terms of balanced interpretation?

"It does pose an interesting question. When I go up to representatives of the mining industry and say 'Hi, I'm Eric DeLony from the National Park Service,' they usually run to the other side of the room. That happens when anyone from the federal government wants a meeting with them. What we have to offer is the opportunity to commemorate, to preserve, the history of mining. Usually once you start that dialogue there's an interest. You just have to figure out a way to articulate your concerns. But no one can argue that this history should not be preserved in the Historic American Engineering Record in the Library of Congress. Once you get that down then it just becomes a matter of how."

And will the archeologists stay on the same side of the room with his partners from other disciplines?

"That depends on the archeologists. In a way I saw that I was venturing onto their turf at Joshua Tree. But to me, it represents an exciting possibility for the disciplines to get together to develop some very interesting projects."

Reports by Richard Vidutis, Don Hardesty, Lester Ross, and Elizabeth Wegman-French informed this article. For additional information, contact the Joshua Tree National Monument, 74485 National Monument Drive, Twentynine Palms, CA 92277-3597, (619) 367-7511 or the Historic American Engineering Record, National Park Service, P.O. Box 37127, Washington, DC 20013-7127, (202) 343-9603. Prints of the photographs (and all others in the HABS/HAER collection) are available for a nominal fee through the Library of Congress Photoduplication Service, Washington, DC 20540, (202) 707-5640. Consult the Library of Congress for prices and ordering procedures.

'LIVING ON THE BOOTT'

Before the mill corporations moved in, the site where Lowell would be built was an isolated farming community. The setting was peaceful, with farmhouses, fields, and pastures along the shores of the Concord and Merrimack Rivers.

The landscape would be dramatically altered to make it suitable for large-scale textile manufacture. Since a good deal of the land was part of the flood plain, and therefore wet and unstable, much earth had to be brought in to level the ground and make it solid enough to support large buildings.

Archeological investigations confirmed this fact. Deep features such as privy shafts or foundations were not dug into glacial subsoil, as would normally be the case, but into artifact-rich soil brought in as fill.

After filling in the land, canals had to be built. The canals brought water inland from the rivers to the mill machinery through the use of water wheels. In addition to all this filling and earth moving, the mills themselves and the buildings that would house the workers had to be constructed.

"Living on the Boott," a phrase coined by the workers at the Boott Cotton Mills, came to symbolize a way of life in Lowell, Massachusetts, during the 19th century. For those who labored in the mills and made the short walk home to the company boardinghouses, "the Boott" was both workplace and living quarters. Skilled and unskilled alike toiled 12 hours a day, six days a week, seldom straying beyond the confines of the town.

Much has been written about Lowell, and its detailed record of letters, diaries, and documents will no doubt lead to more. But this is only the side of the story that people have chosen to tell. Beneath the streets, the parking lots, and the backyards of the present-day city, another story awaits.

BY STEPHEN A. MROZOWSKI, GRACE H. ZIESING, AND MARY C. BEAUDRY

Finally, trees and grass had to be planted, fences put up, and streets and paths laid out. The result was a *new* city that completely transformed the rural landscape.

The primary focus of our research was the unskilled mill workers who lived in the company boardinghouses and the skilled laborers who lived in the adjoining tenements. We also excavated the rear yard of the Kirk Street Agent's House, constructed around 1845. The agent, much like a chief executive officer today, was hired by the owners to run the operation.

We know the layout of the boardinghouses by examining old floor plans and the one remaining structure in Lowell as well as similar buildings in other communities. The first floor housed a dining room, a sitting room, a washing and storage area, and rooms for the boardinghouse keeper. The second and third floors contained bedrooms shared by the boarders, which were heated by fireplaces. Unlike the Kirk Street Agent's House, there were no modern conveniences; throughout the 1800s residents used an outdoor privy in the shed at the back of the yard.

Mill #5, looking up the Merrimack Wasteway.
JET LOWE/HAER

There was no sense of privacy either. According to an early resident, as many as six people had to share a room measuring 14 feet by 16 feet, "with all the trunks, and boxes necessary to their convenience." Even though privacy was not commonplace in the 1800s under any circumstances, mill workers were probably not accustomed to sharing their space with strangers.

A more intimate view of the boardinghouses is offered by the memories of Blanche Graham. She lived in the boardinghouse as a child with her parents, who worked in the mills during the early years of the 20th century. She remembers entering the building into a long hallway that led into a reception room with wooden tables and chairs where men sat and talked and played cards. She remembers the dining room with its three long wooden tables and the kitchen with a sink and a black stove along one wall.

Graduate students from Boston University excavate a well in the rear yard of Boott Boardinghouse Unit #45.

Her description reveals a stark existence: "Wasn't much furniture, cause them days they didn't have much furniture . . . Mattress was like straw or some darn thing . . . or maybe feathers . . . and wooden chairs, everything was wood . . . there was no fanciness. Maybe a plain wooden bureau with a few drawers to put your clothes in . . . and a mirror to stick up on the wall. That was the furniture."

As Blanche remembers, the lighting was kerosene and there was just one water closet containing a toilet and a sink with cold running water. This one bathroom was for the entire house, and everyone had chamber pots in their bedrooms. This was, however, an improvement on the outdoor privy that was used by boardinghouse residents during the 1800s.

Preferred by Rats

Privies were not a very pleasant solution for the problem of human waste. With the number of people using them, they would had to have been cleaned out fairly frequently to keep them from becoming offensive. In Lowell this was accomplished through what was called the "night-cart" system. Farmers from outlying areas were given licenses to clean privies and cart off the city's sewerage and rubbish during the evening (hence, "night-workers"). This system proved unsatisfactory as problems with leaking night-carts and the farmers' demands for higher wages exceeded the benefits of maintaining the privies.

By 1890 the Board of Health of the City of Lowell ordered that all privies be abandoned and replaced by water closets hooked up to sewer lines. Archeological investigations showed that the corporations were slow to comply with the law. Over 700 machine-made bottle fragments were excavated from two privies in the boardinghouse backyards. The process for making this kind of bottle was not put into use until 1910, which meant that the privies were not abandoned and filled in until at least 1910, 20 years after the city demanded it be done.

Because of the privies, drinking water was unsanitary for the boardinghouse residents. Most water was obtained from wells in the backyard or from the canals. The wells were easily subject to contamination because they were shallow and were placed too close to the privies—a look at the layout of the backyards confirms this. The canals were no better.

Stepped tower privies were used in all the mills along the canals, and the human waste was released directly into the water. The city began to provide piped water as early as the 1870s, but many boardinghouses continued to rely on their primitive sources well into the 1890s.

One unpleasant side effect of these unsanitary conditions was that the boardinghouse residents had to put up with rats. Blanche Graham remembered rats at her boardinghouse, and we found plenty of evidence of them in the archaeological record.

Not only did we find rat bones, but we also found evidence of their eating habits. Many of the animal bones and plant remains in the boardinghouse backyard had rodent teeth marks on them. At the Kirk Street Agent's House, no rat bones were found and only one piece of bone showed signs of having been gnawed.

This, perhaps, was one of the most glaring differences between life at the boardinghouse and life at the Agent's House. The rats probably preferred the boardinghouse not only because of its more unsanitary conditions, but also because food was stored in bulk in the basement.

The Luxury of Hygiene

Working in the mills was a dirty business. The various processes involved in making cloth released clouds of lint that stuck to bodies covered with sweat and machine grease. Washing facilities at the boardinghouses were not equal to the task of keeping the residents clean.

Consider the facilities. There was no running water as we know it. Water was brought in from a backyard well. A lead pipe found in the one of the wells may have carried water to a cistern in the basement or to the kitchen, but this late addition appeared to have been constructed by the residents and not the company since similar pipes were not found in other boardinghouses. Just when water hookups were installed is unclear, but even in the early 20th century bathing facilities were nonexistent.

Doing laundry was a hardship. Clothing was scrubbed in a tub of water and hung on a line to dry, which took a considerable

Blacktop removed revealing boardinghouse wall remains.

Mill worker filling a shuttle, ca. 1917.
MUSEUM OF AMERICAN TEXTILE HISTORY

amount of time. One of the privileges of boarding was that your bed linens were washed for you by the boardinghouse keeper. Personal clothing, however, would have either been sent out for a price or done during precious leisure time.

Several artifacts related to personal grooming were found in the boardinghouse excavations. We recovered two kinds of combs that were used in grooming. One was the regular kind of straight comb used to get tangles out, but the other was a fine-toothed comb. Fine-toothed combs were used in the 1800s to comb dirt and lice out of the hair.

Another piece of evidence for "remedial grooming" came in the form of glass cosmetic and cologne containers, several of which were excavated from the backyards. These "little luxuries" were probably prized possessions that helped with personal hygiene. They would have helped disguise the odors and irregularities of complexion that might result from infrequent bathing.

"Kiss Me I'm Sterilized"

Our current understanding of germs as the agents of disease was not fully accepted until the very end of the 1800s. For most of the 19th century people believed that disease was carried in clouds of poisonous gases (miasmas) emitted by decaying waste. The only defense against disease borne by these threatening vapors was plenty of sunlight, ventilation, and dryness, all of which the corporations recommended but did not provide.

The very sources of these miasmas—the accumulated refuse in the backyards, the uncapped privy vaults, and the contaminated wells—were not attended to. Even considering the disease theory of the day, workers did not live in very healthful conditions—and the real culprits, viruses and bacteria that spread through human contact and in contaminated drinking water—were allowed to run rampant.

Sickness was a frightening reality of life in Lowell in the 1800s and early 1900s. Diseases that are seldom a threat today could kill hundreds of people in the prime of life a hundred years ago.

A case in point is the influenza epidemic of 1918, which spread through the world before it was over. This disease, called Spanish Influenza, was a particularly virulent strain of the flu virus that circulates throughout the population every year. It attacked the lungs and brought on pneumonia, most frequently in young people between the ages of 21 and 29.

The epidemic hit Lowell in the fall of 1918, with 141 deaths reported during the week of October 6-12. There were no antibiotics to fight the disease, but vaccines were developed to try to prevent it.

That the outbreak was on the workers' minds was apparent by an artifact excavated from the fill of a privy vault: a plastic pin-back button depicting a man and a woman kissing surrounded by the words "KISS ME [illegible] I'M STERILIZED."

The drawing is cartoonish, rendered with very simple lines. The costumes and hair styles suggest the early 1900s, and a curious object protruding from the woman's right shoulder looks like a hypodermic needle. It seems that the button was meant to advertise the fact that the wearer had been vaccinated against a disease (probably the Spanish Influenza) and was safe for kissing!

Excerpted by permission from "Living on the Boott": Historical Archaeology at the Boott Mills Boardinghouses, Lowell, Massachusetts, *by Stephen A. Mrozowski, Grace H. Ziesing, and Mary C. Beaudry, to be published by the University of Massachusetts Press. The manuscript was prepared under a grant from the Lowell Historic Preservation Commission. For further information, contact Stephen A. Mrozowski, Department of Anthropology, University of Massachusetts, Boston, 1000 Morrissey Blvd., Boston, MA 02125-3393, (617) 287-6850.*

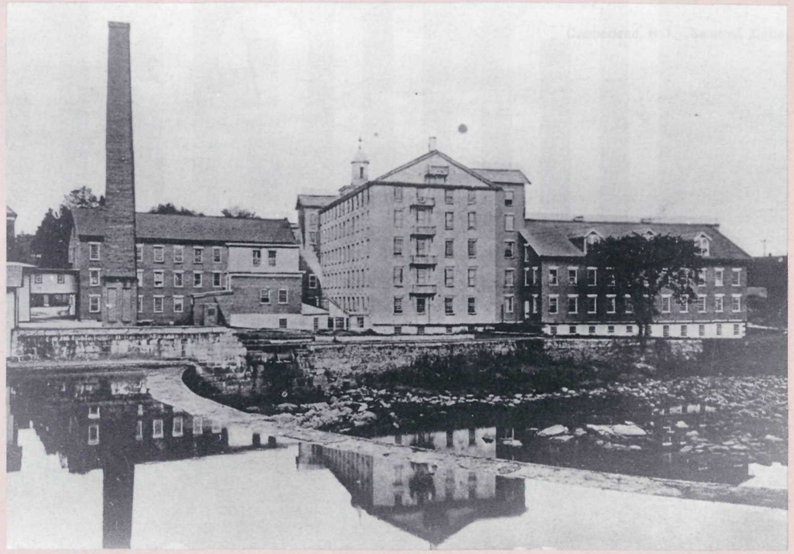
A New Kind of Park

NATIONAL HERITAGE AREAS

The Blackstone River meanders for 46 miles from headwaters near Worcester, Massachusetts, to its mouth at Narragansett Bay. The valley rising up from its banks—called the "birthplace of the American Industrial Revolution"—bears the indelible mark of history on its land and waterways.

Today, the Blackstone River Valley is making history again by pioneering a new concept in national parks: the national heritage area.

What are heritage areas? The non-profit National Coalition for Heritage Areas defines them as "regions with a distinctive sense of place unified by large-scale resources: rivers, lakes or streams, canal systems, historic roads or trails, railroads. They may include both rural and urban settlement, and are cohesive, dynamic environments where private property ownership predominates, where change is inevitable, and where further large-scale government ownerships of property is rarely appropriate."



Samoset Cotton Mills, Cumberland, RI.
BLACKSTONE RIVER VALLEY NATIONAL HERITAGE AREA

Blackstone, the first to be designated, fits the concept perfectly. From the 1790s, the river's steep and constant drop in elevation attracted craftsmen and would-be industrialists. At first the rushing water turned wheels that drove gristmills, iron forges, and other small craft shops that dotted the countryside. In the 19th century, these cottage industries were dwarfed by the textile mills that soon spread over the valley. By 1880, the Blackstone was known as the nation's "hardest working river," one of the most thoroughly exploited and polluted waterways in the United States.

The Blackstone—site of America's first factory, Slater Mill—powered business competition as well as technological innovation. It also lured workers from farm to factory, into a new system that critics called "wage slavery." Mill owners controlled jobs, housing, schools, roads, churches, stores, and recreation in exchange for job security and a 60-hour work week. By the 1900s the textile industry was heading south in search of cheaper workers, to new mills often built by money and engineers from the valley.

Heritage areas educate residents and visitors alike about community history, traditions, and the environment, says the coalition, even as they provide for outdoor recreation. The intent is to "promote heritage awareness at the grassroots" and respond to a local sense of what's important to include in an area. The program is designed to encourage partnerships among local businesses, labor groups, professional organizations, and citizens.

Although Blackstone was conceived as part of the national park system, the heritage area concept was designed for flexible application at the state, regional, and local levels. America's Heritage Industrial Project, for instance, spans several Pennsylvania counties.

So far, there are two areas in addition to Blackstone: the Illinois and Michigan Canal National Heritage Corridor in Illinois and the Delaware and Lehigh Canal National Heritage Corridor in Pennsylvania, also conceived as national park units.

As this issue goes to press, however, many other types of heritage areas are in various stages of development. Congressional hearings are being held on H.R. 4607, to establish the Fort Vancouver National Heritage Area; H.R. 2949, to establish the Augusta Canal National Heritage Area in Georgia; H.R. 1685, to establish the Essex Heritage District Commission; H.R. 3144, to authorize funding to implement the plan for the Steel Industry Heritage Project; and H.R. 3988, to provide for the preservation and interpretation of certain lands and structures relating to the coal mining heritage of West Virginia and the rest of the nation.

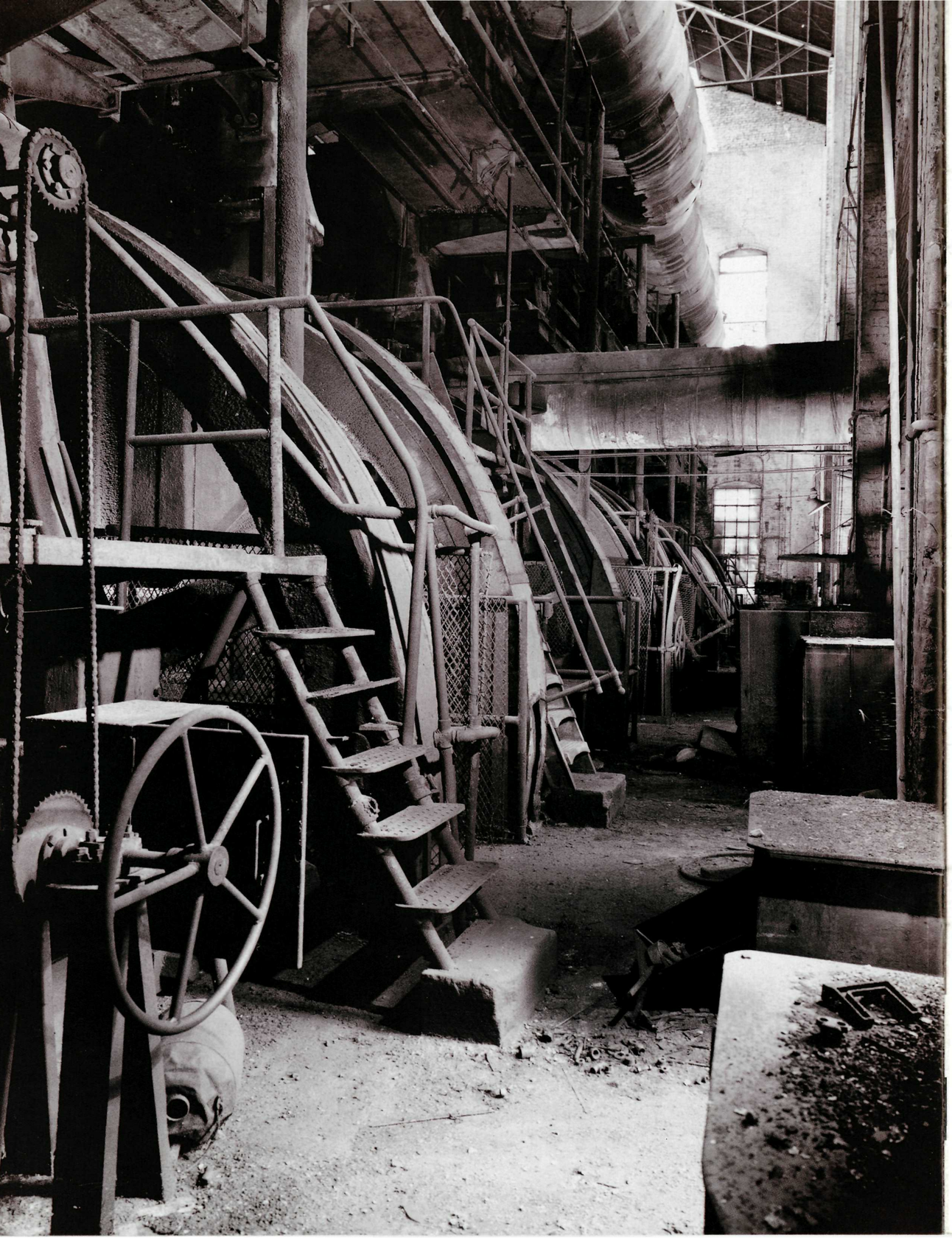
For more information, contact the National Coalition for Heritage Areas, P.O. Box 33011, Washington, DC 20033-0011, (202) 673-4204, fax (202) 673-4038.

Engine of Injustice

Black Labor and Technological Change at the Sloss Furnaces

With its tangled maze of pipes, boilers, and stoves—ruled by two 70-foot-high blast furnaces—Birmingham's Sloss complex is astonishing to behold. Hidden inside the labyrinth is a little-known truth about the African Americans who helped run it.

By Alex Lichtenstein



THINK OF THE CITY OF BIRMINGHAM, Alabama, and Bull Connor, Martin Luther King, the Sixteenth Street Baptist Church, and the Birmingham Jail readily come to mind. While these icons of the civil rights struggle justly dominate Birmingham's historical consciousness, the city King called "the most segregated in America" was also known as the "Pittsburgh of the South." Indeed, Birmingham has a significant history of coal, iron, and steel production, and in the late 19th century the "Birmingham District" became the industrial heartland of the Deep South, and consequently the locus of the south's first free industrial proletariat.[1]

In fact, the city's physical landscape reveals this story more readily than it does the struggle for racial justice. The winding streets and Victorian homes in the hills above town bespeak southern gentility, but the rail lines that bisect the basin below, lined with brick industrial buildings surrounded by turn-of-the-century working class neighborhoods betray a past at odds with images of pastoral Dixie.

Only two miles from the new banks and office buildings of downtown Birmingham, and dominating city vistas from the surrounding hills and superhighways, stands a relic of the bygone industrial era: the Sloss Furnaces. A major site of pig-iron production in the Birmingham District for 90 years, Sloss shut down in 1970, long after Birmingham had passed its prime as an industrial center. However, recognizing that "one of the modern day resources we have to draw upon is the potential benefits that can be derived from a relic of our early development," an unusual combination of boosters and community activists successfully saved Sloss from the wrecker's ball, and in 1981 the site was designated a national historic landmark open to visitors.[2] This "history you can touch and smell" (in the words of a tourist brochure) is well worth a visit for anyone interested in the industrial, technological, or labor history of the postbellum South.

In the post-industrial age of the microchip, the sheer immensity of the industrial plant almost defies belief. The two enormous blast furnaces, over 70 feet high, dominate the 17-acre site. But the molten iron that flowed several times a day from the "notch" at the base of the furnace was a product of a complex process dependent on a vast assemblage of machinery to harness the raw energy needed to put a furnace "in blast." Rail line spurs and hoists for iron ore and coke, enormous engines to pump air, 12 tall, cylindrical hot blast stoves to heat it, six large boilers to produce steam to power the entire plant, and a network of giant pipes to integrate the entire process give the site a fantastic appearance—it resembles nothing more than the bizarre, simultaneously archaic and futuristic world of the film *Brazil*. As the on-site blacksmith, who works a small forge in the shadow of the furnaces, remarked to me, to modern eyes it is astonishing that the plant actually worked.

[It has been suggested] that the furnace company's failure to adopt modern technology can in large part be attributed to the ample supply of cheap black labor in the Birmingham district.

SLOSS FURNACES NATIONAL HISTORIC LANDMARK

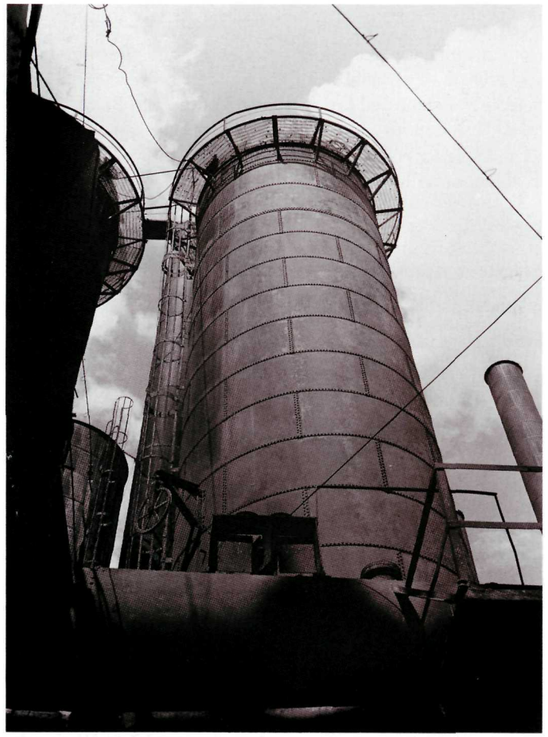
A visitor is free to wander at will to get a feel for the place, but the "self-guided tour" that winds through the maze of pipes, boilers, stoves, and engines is absolutely essential to grasp the actual operation of the furnace and the manufacture of iron. The tour roughly follows the path of the industrial process itself, beginning with the enormous air blast generated at the blower building, basically a giant bellows. The next stop is the torpedo like brick-lined stoves used to heat the air blast to 1400 degrees Fahrenheit in preparation for the furnace, then up a steel stairway to a catwalk that runs around the No. 1 Furnace, where the superheated air was used to smelt iron ore.

On one side of the furnace, one can examine the skip hoist, a mechanized pulley system that carried raw ore and coke from arriving rail cars up to the furnace mouth (unfortunately not accessible to visitors). Not until 1927 did this device end the extremely hazardous process of stoking the furnace at the top by hand, 30 years after mechanization in comparable northern plants.[3] As a tour panel points out, workers stoking the furnace were on occasion overcome by the heat and fumes, and fell into the volcano below to be melted in the blast with the rest of the raw materials.

Finally, stretching approximately 100 feet to the east from the base of the furnace, and fully accessible to visitors, is the casting shed, a long, low hangar with a sand floor in which molten iron was molded into pigs in the final stage of the 19th century production of iron. After exploring the furnace and pig-casting area, the tour leads back to the boilers which generated the steam power that drove the entire process, beginning with the air blowers. Interestingly, the boilers themselves were eventually heated by gas drawn off from the furnace, thus completing the circle of an entirely self-contained production facility.

CERTAINLY THE SELF-GUIDED TOUR and indeed the site itself are limited and rudimentary, really more of an undeveloped park than a comprehensive museum. Nevertheless, careful attention to the handful of informational panels can provide an excellent sense of the interaction between the initially overwhelming technologic process and

Overleaf: main pipe to No. 1 Furnace; opposite: engine blowing room.
JACK BOUCHER/HAER



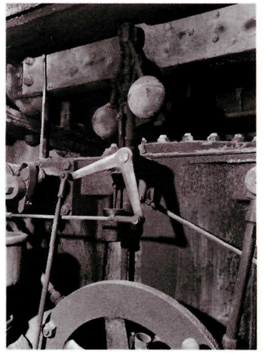
View looking up at Stove 14.
JACK BOUCHER/HAER

another crucial element of production: the men who worked at the furnace.

The narrative is particularly attentive to how the human element combined with—and was shaped by—the technological imperatives of early iron production, using oral testimony by workers to good effect. For example, it was interesting to learn that the craft of brick masonry remained an important element in the maintenance of the hot blast stoves. The brick latticework lining the interior of these stoves was built to exact specifications to retain heat, and a skilled mason who learned the craft from his father describes the harrowing experience of working inside an oven to make delicate repairs on the brick "checkers." Pride in 19th century craft traditions appears to be carried into the dangerous and frightening heart of industrial labor. Similarly, the description of the unskilled, heavy labor of stoking a furnace always in danger of explosion offers a dramatic sense of the fragility of the human contribution to production in the face of an immensely powerful industrial process.

Another superb illustration of the connection between labor and the industrial process is found in the gripping eyewitness description of the crucial work done in the casting shed, where hot molten iron flowing from the furnace every four hours was cast by hand in sand molds. The words of Edward Uehling, the engineer who eventually mechanized the iron-casting process, indicate that the work of breaking and carrying the newly cast pigs was arduous, hot, and dangerous. Workers wore wooden shoes in order to protect their feet from being scorched by the liquid iron and had to work at a rapid pace to clear the shed for the next opening of a furnace notch.

Despite Frederick Winslow Taylor's infamous presentation of the pig-iron carrier as a dumb brute in need of scientific management, it is clear from the panel that this difficult work was carried out by a select group of workers who retained a fair measure of job control. Records of another furnace company in the Birmingham District indicate this as well. In 1897, when the iron carriers in his plant struck to demand an increase in the size of work crews, the furnace operator complained that "it is a little remarkable that iron carriers should call themselves skilled laborers. This, however, is a fact"—a fact he discovered when it proved difficult to replace these men with green hands.[4]



Fly-ball governor on blowing engine.
JACK BOUCHER/HAER

The photograph that accompanies Uehling's description of pig casting shows the shed workers as black, but there is no other indication or discussion of the racial characteristics of this important component of the labor force. But in other areas of the site, the question of race is given some of the attention it deserves.

According to one historian, in 1900 a majority of the workers at Sloss were black[5]; there is no direct statement of this fact on the site, but a number of panels describe the impact of segregation on the work force—both in daily life (company picnics were strictly segregated, as was housing and all public accommodations in Birmingham) and in the construction of job categories. One panel points out that all the technicians, foremen, supervisors, and "skilled" workers at the plant were white, while the so-called "common labor" was entirely black. "That's just the way white folks are," one black worker is quoted as saying. Another panel notes the ambivalent response of black workers to the growth of union power at the furnace after the 1930s, which eventually helped a few move into semi-skilled positions but did little to challenge structural job segregation until forced to by the Civil Rights Act in 1965. Sloss closed down five years later.

UNFORTUNATELY, all of this is suggestive rather than comprehensive, raising more questions—about race in the workplace, the development and impact of unionization on work and race relations, and the impact of mechanization—than it answers. If the black experience with the CIO is duly mentioned in general terms, there is little exploration of the full range of opportunities and limitations this may have represented. If, indeed, white and black workers alike made gains in the workplace through union representation, there is no indication of how this was translated into changes in Birmingham's racial climate, or alternatively, how the labor movement helped perpetuate segregation both within and beyond the plant gates, as some historians have suggested.[6]

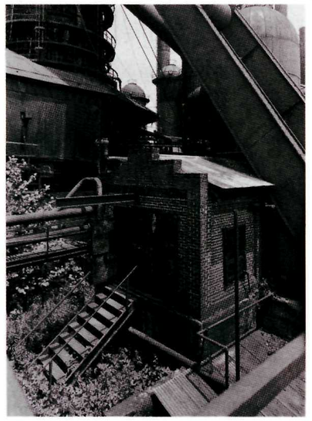
Similarly, if the most interesting facet of the site is that it conveys an immediate impression of the intimate connection between dangerous work and craft pride and control, technological wizardry and intense human effort, it fails to explain how labor and the productive process shaped each other over time. The most compelling descriptions of workers' experience at the furnaces focus on labor processes essentially dictated by 19th century iron technology, and are frozen there.

No. 2 Stove Stack.
JACK BOUCHER/HAER

True, at Sloss charging the furnaces, opening and closing the notch to control the flow of molten iron, and molding, casting, and carrying the pig-iron were all carried out by hand until the late 1920s. But the remaining physical plant actually consists of several layers of 19th and 20th century technology, artifacts of both the hand-casting era and the advent of the mechanized processes that eclipsed it. Unfortunately the industrial archaeology of the site remains opaque to the visitor. While some descriptions of labor are attentive to the contrast between mechanized and non-mechanized production, rarely are the chronology or implications of modernization made explicit.

The initial development proposal to preserve the abandoned furnaces noted that "the primary importance of the site today is the insight which it offers into the pace and extent of technological change of the period during the late 20s and early 30s."[7] But this is not readily apparent to the visitor, whose attention is more often called to the preceding period of industrialization. Thus, while a furnace on this site was first put in blast in 1882, the extant one was rebuilt in the 1920s; unfortunately there is no indication of how much more "modern"—or efficient—20th-century production was, other than in the mechanical charging system made possible by the skip hoist.

SIMILARLY, when I visited Sloss, lying in one corner of the casting shed, as if left there by accident, were what appeared to be 19th century tools for plugging the iron notch or for breaking pigs by hand, with no explanation as to their function. This labor-intensive process was eventually superseded, and the panel that describes the sand-casting of pig-iron also calls attention to the remains of a pig-casting machine, visible to the right of the casting shed but inaccessible. This conveyor belt, which automatically filled molds with molten iron, was not built until 1931 (35 years after its invention)—which means, incredibly, that the archaic process of sand-casting pigs persisted until the Great Depression.



No. 2 Furnace skip-hoist engine room.
JACK BOUCHER/HAER

No explanation for this long delay is offered, nor are the reasons for the decision to finally mechanize, a decision clearly dictated by factors other than the availability of technology. Moreover, there is no hint that mechanization must have had profound implications for the size and skill level of the work force as well. Elsewhere, the exhibit notes that 2,000 workers labored at Sloss in 1900, and that this force had been reduced to 250 by 1970, on the eve of shutdown. But this decline is not connected to changes in the productive process.

Thus one of the most pressing questions in the industrial and labor history of the South—its competitive handicaps—tends to be obscured by the site. Gary Kulik, who was a consulting historian on Sloss for the Historic American Engineering Record, has suggested that the furnace company's failure to adopt modern technology can in large part be attributed to the ample supply

No. 2 Furnace skip-hoist.
JACK BOUCHER/HAER

of cheap black labor in the Birmingham District, which began to decline in the 1920s.[8]

Not only does the site fail to incorporate Kulik's insight, but there is no exploration of the impact technological delay may have had on the weak position of the southern iron industry in the national market. Also unmentioned is the fact that for four decades the essential coal and coke for the furnaces was produced by convicts leased from the state by the Sloss Company, and this forced labor was seen as "absolutely necessary both from an economic standpoint and in order to guarantee operations in the face of bad weather, railway disaster, strikes, or other contingencies."[9] The mechanization of the late 1920s coincided not only with the increasing exodus of black workers from the South, but also with the abolition of convict leasing in Alabama.

Boiler stacks.
JACK BOUCHER/HAER

TODAY, the isolated Sloss furnaces stand apart from the main circuits of capital and development in Birmingham, which no longer bases its economy on iron and steel. The former centrality of heavy industry is equally hard to grasp within the confines of the site itself. Although the industrial process within the plant gates is laid bare, there is little sense of how raw materials were obtained, and where the final product went once it left the furnaces. Thus the place of the furnace within the Birmingham District's emerging political economy, its role in reshaping the surrounding hinterland, and even perhaps the Alabama plantation belt, and the story behind its ultimate demise remain hidden and obscure.

As Mike Wallace has suggested, public displays of industrial history should "strive for a still better connection of past, present, and future"—that is, industrial sites should be placed in the context of industrialization, growth, and deindustrialization. One information panel at Sloss hints at this when it notes (without comment) that in the 1950s Sloss began to procure its coal from Brazil and Peru. This certainly points toward the importance of what Wallace notes is the true meaning of the abstraction "deindustrialization"—"the global reorganization of capitalism in the late 20th century." If "behind the facade of solidity lies the quicksilver reality of mobility and relentless transformation," at Sloss, the idle furnaces and gas ovens, the cold pipes, the silent blowing engines, and perhaps, the concerts now performed in the casting shed testify to the process, played out in less than a century in the heart of the "Magic City."[10]

The developers of the Sloss Furnaces National Historic Landmark hoped it would "provide a mirror of [Birmingham's] past," but this glass can only be seen through darkly as of yet.[11] Nevertheless, despite its limitations, the Sloss furnaces provide a unique glimpse at the horror and the glory of industrialization in the New South. Ultimately, I found my visit there to be thought-provoking and even moving. This unusual national historic landmark recreates an industrial history that is rapidly receding, one which profoundly shaped the lives of thousands of black and white southerners and, indeed, American workers.

Excerpted by permission from "Black Labor and Technological Change at a National Historic Landmark: Sloss Furnaces, Birmingham, Alabama," Radical History Review *56:119-126, 1993. For further information, contact Alex Lichtenstein, Assistant Professor of History, Florida International University, Miami, FL 33199, (305) 348-2328.*

NOTES

1. Stanley Greenberg, *Race and State in Capitalist Development* (New Haven: Yale University Press, 1980), 209-42; Ethel Armes, *The Story of Coal and Iron in Alabama* (Birmingham: Chamber of Commerce, 1910); Carl V. Harris, *Political Power in Birmingham,* 1871-1921 (Knoxville: University of Tennessee Press, 1977).

2. Jim Waters & Associates, "Sloss Furnace: Proposal for Initial Development," submitted to Birmingham City Council, October 1980 (in author's possession); Barbara J. Mitchell, "Steel Workers in a Boom Town, Birmingham, 1900," *Southern Exposure* 12 (November-December 1984): 56-60.

3. On the introduction of furnace-charging technology at Sloss see Gary Kulik, "Black Workers and Technological Change in the Birmingham Iron Industry, 1881-1931," in *Southern Workers and Their Unions: Selected Papers, the Second Southern Labor History Conference, 1977,* ed. Gary Fink and Merl E. Reed (Westport: Greenwood Press, 1981), 26; Gary Kulik, "Birmingham: Old Iron Furnaces Still Central Element of Industrial City's Skyline," *American Preservation* 1 (February-March 1978): 20-23.

4. On labor in the casting shed see Kulik, "Black Workers and Technological Change," 26-27; Alfred M. Shook to James T. Woodward, 22 June 1897, *Shook Papers,* Birmingham Public Library.

5. Mitchell, "Steel Workers in a Boom Town."

6. For a harsh assessment of the United Steelworkers' impact on race relations, see Robert J. Norrell, "Caste in Steel: Jim Crow Careers in Birmingham, Alabama," *Journal of American History* 73 (December 1986): 669-94; for a dissenting view, see Judith Stein, "Southern Workers in National Unions: Birmingham Steelworkers, 1936-1951," in *Organized Labor in the Twentieth-Century South,* ed. Robert Zieger (Knoxville: University of Tennessee Press, 1991).

7. Jim Waters and Associates, "Sloss Furnace: Proposal for Initial Development," 6; see also Kulik, "Birmingham: Old Iron Furnaces Still Central Element of Industrial City's Skyline."

8. Kulik, "Black Workers and Technological Change," 24, 28-31.

9. *Second Annual Report of the Sloss-Sheffield Steel and Iron Co.,* 30 November 1901, SSS & I Co. Records, Birmingham Public Library.

10. Mike Wallace, "Industrial Museums and the History of Deindustrialization," *The Public Historian* 9 (Winter 1987): 9:19.

11. Jim Waters and Associates, "Sloss Furnace: Proposal for Initial Developement," 3.

Labor Theme Study

NATIONAL PARK SERVICE LOOKS FOR NEW LABOR LANDMARKS

Frick Company Foundry, Waynesboro, PA, ca. 1890.
SMITHSONIAN INSTITUTION/NATIONAL MUSEUM OF AMERICAN HISTORY

A plan to identify and spotlight landmarks in the history of the nation's workers will wed the epic sweep of major events with a close-up look at the farmers, factory hands, miners, and office clerks who made them happen.

"This kind of project is essential to increasing public awareness that labor is essential to our national heritage," says James Grossman, director of Chicago's Newberry Library, which is carrying out the study for the National Park Service. "The very preservation of a mine, a kitchen, a slave cabin, or a union hall sends a powerful message to the public."

Until a generation ago, the study of labor history was tied to the discipline of economics. Researchers generally focused on labor markets, unions, collective bargaining, and legislation. They largely excluded women, African Americans, and immigrants. To learn more about these historically "inarticulate" actors, historians shifted focus from the union hall to the workplace, the community, and the home.

Today, after over two decades of the "new social history," researchers are returning anew to the big picture, putting aspects of today's workplace such as factory flight in context of similar patterns in past eras.

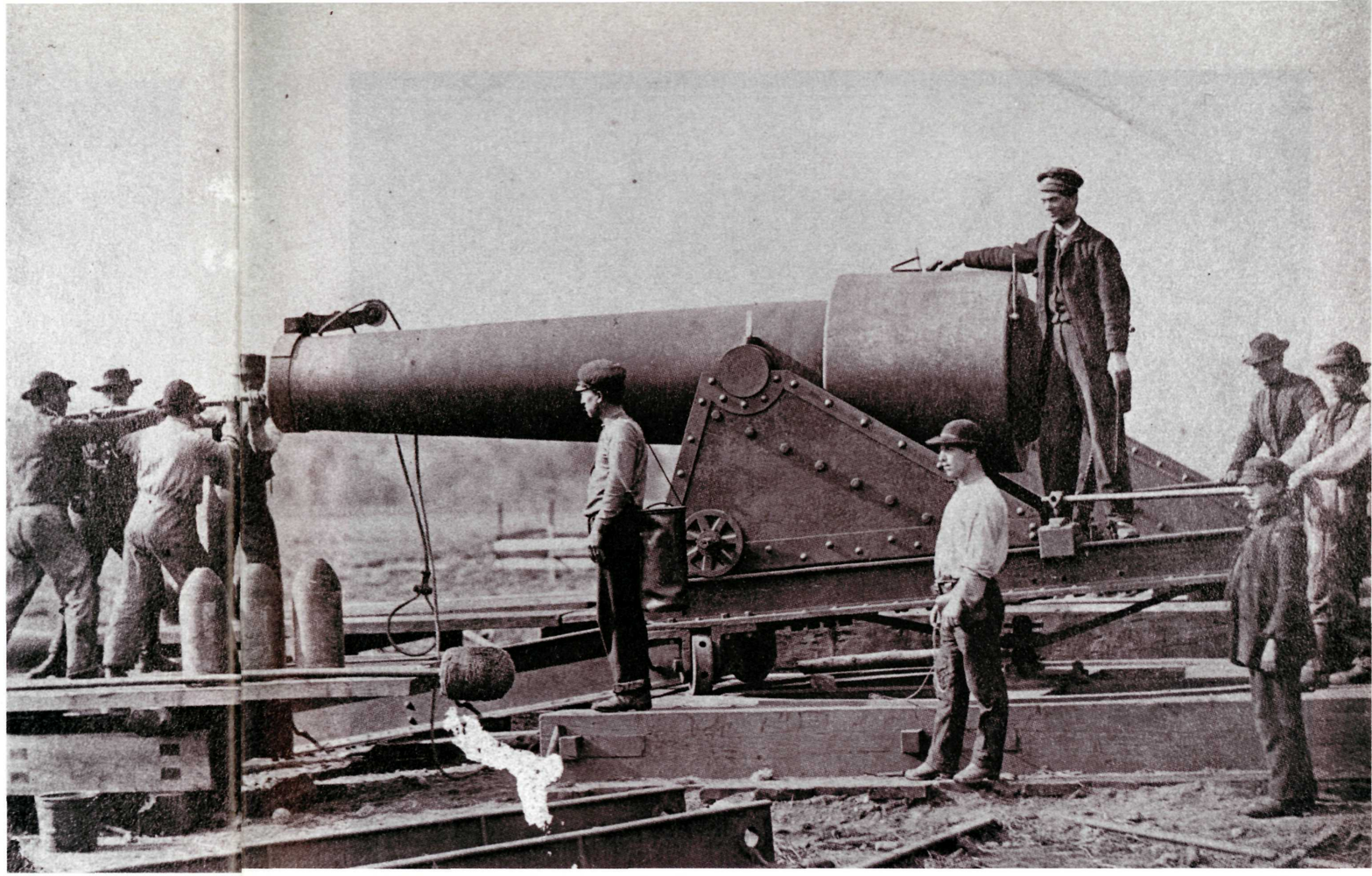
The study's guiding principle will be the role of landmarks in education. The study group is looking for sites that fit the following categories: work processes, such as the rise of the assembly line; events, such as strikes and lockouts; people, such as labor leaders; leisure establishments, such as amusement parks and theaters; communities, such as factory towns; and meeting places, such as union halls.

For information or to suggest sites, contact James Grossman, Family and Community History Center, 60 West Walton St., Chicago, IL 60610, (312) 943-9090.

HIGH-CALIBER DISCOVERY

The Marathon Battery Superfund Site, on the Hudson River across from the West Point Academy, sits squarely inside a National Register property. Archeologists expected some evidence of its historic heritage, but not this.

BY JOEL W. GROSSMAN



Civil War-era photo of gun crew testing R.P. Parrott's 30,000-pound rifled cannon. Children were often employed in the highly dangerous work.
PUTNAM COUNTY HISTORICAL SOCIETY, NEW YORK

MY FIRST IMPRESSIONS were not good. What would emerge three years later as a major Civil War-era discovery began as a somewhat somber visit to a heavily overgrown, debris-covered shoreline of the Hudson River. Standing in the cold, numbing rain, I was surrounded by a sea of brick rubble from collapsed 19th century buildings and by the more modern junk of rusting car bodies. It was a challenging place to do archeology. The site was both foreboding as a focus of study and contaminated with cadmium.

I was here to direct archeological fieldwork in advance of a multi-million-dollar Superfund cleanup sponsored by the Environmental Protection Agency (under an agreement with EPA, the Army Corps of Engineers was overseeing the remedial action; Malcolm Pirnie, Inc.—who hired my firm—was providing contractual coordination of the actual work). The Marthon Battery Plant had produced nickel cadmium batteries on the site from the 1950s through the 1970s, as part of the Nike missile program. Here, at a cove just inland from the mouth of a brook, a cleanup facility was to be built to process cadmium-laced sediments. Given the urgency of the cleanup, the issue was could the archeology be done practically, expeditiously, and without undue cost.

EPA believed it could, consistent with the section 106 standards and guidelines of the National Historic Preservation Act. It hammered out the particulars of an agreement to fund and steer the project, the first major attempt to study and protect the prehistoric and historic resources of a Superfund site. The investigation, if successful, would prove the feasibility of meeting the act's mandates on similar sites elsewhere around the country.

The crumbling walls of West Point Foundry, at the foot of a canyon fronting the cove, attest to why the property is on the National Register of Historic Places. Military weapons were developed here from the early 1800s through the Civil War. Of five production centers set up to counter defense deficiencies observed in the War of 1812, the foundry was the only one under "civilian" control (more on this later).

Where I stood—on Civil War-era furnace fill then thought to be the brook's flood plain—project engineers expected little of archeological significance had survived the many decades of industrial construction and demolition. Besides, military maps from the site's earlier life depicted the area as blank and unoccupied. The vegetation suggested otherwise.

Computer enhancement of commercially available aerial photographs provided the first clue that something was here. Most of the hill and shore appeared as one color, suggesting a homogenous plant cover, perhaps centuries old. Our area was multicolored, suggesting more recent, more diverse plant life. To the trained eye, the enhanced images evidenced multiple episodes of past disturbances and human activity.

AIRBORNE PHOTOGRAPHY was our first adjustment to the demands of the project, phased to comply with the dictates of the National Historic Preservation Act. Each of the phases—identification, evaluation, and documentation of the remains—would require state-of-the-art tools in the hands of a multidisciplinary field crew. A core team came equipped to handle computerized Geographic Information Systems, image analysis, computer transit mapping, concurrent database and data processing, and 3-d photogrammetry, as well as EPA HAZMAT procedures and precautions.

View of excavated gun-testing platform taken with ultra-high-resolution 3-d photogrammetric camera for plotting on computer mapping system.
GROSSMAN AND ASSOCIATES

The project's health and safety plan, tailored to the relatively low level of contamination, required that crew members do little more than wear a "level D" Tyvek suit and follow basic procedures of cleanliness precluding the possibility of undue contact with excavation soil. All of the team members were medically monitored before, during, and after fieldwork.

The main challenge, given the impending construction of the cleanup facility, was to get the job done quickly and efficiently. Under heated domes—moveable steel-frame, air-inflated shelters—the team labored below ground in frozen conditions through the cold of two winters.

Environmental control was essential. Artifacts had to be kept at controlled temperatures, and the waterlogged ground maintained in a thawed and dry state. Two 300,000 BTU heaters operated 24 hours a day. Once the excavation got going, up to 50,000 gallons daily were pumped out to de-water the site.

Defining the location and extent of buried remains, the second phase, called for using a range of on-site computer-based processing and mapping systems. A powerful IBM-based system provided immediate hard-copy plots of survey and geophysical data.

First, the crew carefully mapped and removed trees and other plant life, noting their species and size so botanists could reconstruct the environment after the work was completed. Then, at 10-foot intervals over the 400- x 700-foot area, they surveyed the ground with magnetometers—to produce an underground magnetic map of historic remains beneath the fill. The magnetometers were hard-wired to portable data collectors, which facilitated the immediate transfer of the information to the mapping computers.

With evidence of modern debris filtered out, the mapping computers rendered 2- and 3-d views of the subsurface topography. These underground maps showed the location and relative size of anomalies, each of which would require individual subsurface testing. The coordinates of each anomaly were fed into a computer transit system, which—using a near-infrared beam—pinpointed where crew members should probe. In this case, they used backhoes to cut through the frozen ground.

After methodically examining over 30 anomalies in sequence—with no results to show in the subzero temperatures—we reached anomaly number 35. Slowly, the crew peeled away the four feet of slag and fill that had accumulated over the last 120 years. There, they revealed the remains of a cannon hoisting tower, a rail line running to it from the foundry, and the well-preserved 12-by-12-foot base of a gun testing platform.

Excavating in the deep cold under heated domes.
GROSSMAN AND ASSOCIATES

Throughout the testing and excavation phases, because of government strictures against removing potentially contaminated materials from a Superfund site, conservation and curation facilities were constructed in the field. Here the crew washed, sorted, x-rayed, decontaminated, electrolytically conserved, and computer-inventoried artifacts as they were excavated (at a rate of up to 5,000 per week). This way, the onsite conservation team was able to ascertain the age and origin of some artifacts within hours of discovery. With walkie-talkies, they immediately fed back this information to the field crew, to help direct their efforts.

The artifacts were exotic, inconsistent with the published historic record. The unanticipated find precipitated an intensive investigation at the National Archives and elsewhere. Slowly, the significance of the platform came to light.

FOLLOWING THE ARRIVAL of new director R.P. Parrott in 1837, the foundry both consolidated and expanded its production facilities to enhance its security and self-sufficiency. At its peak, the foundry controlled six mines and 11,000 acres of timberland, employing 700 employees with a capacity to produce 10,000 tons per year of cast iron for the weapons produced there. It was a major research and development center for heavy artillery.

Parrott's public image was one of a lone inventor who created at his own expense, in isolation, with little government support. On the face of it, the foundry appeared to be an example of fledgling capitalism at its best, a private firm rising to meet the needs of the nation's defense. In fact, it was a heavily government-underwritten "proprietary" operation, much like the Flying Tigers in World War II or Air America in Vietnam.

On the eve of the Civil War, the Union was in danger of being outgunned by the superior artillery of the French and British, both potential allies of the South. The "proofing" platform, as it turns out, was being used to test a 30,000-pound rifled cannon capable of bombarding cities from a distance of five miles with almost pinpoint precision. Each shell could carry 300 pounds of a new and deadly chemical dubbed "St. Elmo's Fire." Today we would call it napalm.

The consequences of the testing program were profound. The chemical—being developed in a classified project for the eyes of President Lincoln only, directly under his supervision—was to be used for the saturation-shelling of southern cities. Although later accounts suggest otherwise, the long-range gun—in concert with other batteries of rifled cannon—ultimately burned a third of Charleston to the ground.

Parrott took full credit for the cannon's invention. Archival evidence, however, suggests that key elements were derived from confidential European designs acquired through military espionage.

In 1879, Parrott's successor at the foundry wrote that a Captain Schwartz of the Imperial Russian Navy had appeared in January of 1860 with covertly obtained plans for the production of the secret British Armstrong rifled cannon. By March, a mere two months later, Parrott had produced what he called "the first experimental gun on my own system," words he would later retract during closed-door congressional testimony.

The actions of Captain Schwartz were entirely consistent with the Russian policy towards the emergence of the United States as a world power. The Czar viewed a unified United States as a counterweight to Russia's recent enemies in the Crimean War—the English and the French.

As the Civil War progressed, the foundry became part of a spy network that stretched from the Black Sea to the White House. The espionage evidenced there saved the Union millions of dollars and years of development time, time the North did not have at the outbreak of hostilities in 1861. Parrott quickly produced a cannon that could stare down a British ironclad, five to twenty percent more deadly and accurate than weapons being wielded by other nations.

What had taken Great Britain over a decade and more than $12 million to develop, the foundry accomplished in a matter of months at a fraction of the cost. While the Union was five years behind Europe in heavy weapons technology at the start of the war, by 1863 it had matched, if not surpassed, its European counterparts.

The platform excavation filled in the details. The crew members used an assortment of tools to expedite excavation and recording as well as limit their exposure to potentially toxic conditions: photo enhancement, computer mapping, computer-

Civil War-era photo of the crane and conning tower, found buried under four feet of rubble next to the test platform. PUTNAM COUNTY HISTORICAL SOCIETY

based correlations with historic maps, among others. Portable x-ray equipment was employed to identify important metal artifacts below the corrosion layer and—in the hands of U.S. Army explosives experts—to examine the cast-iron shells we discovered. One was a standard exploding piece, another an incendiary type much like those used to burn Charleston (as standard operating procedure, gun-testing platforms—which could explode—were always sited far away from production facilities).

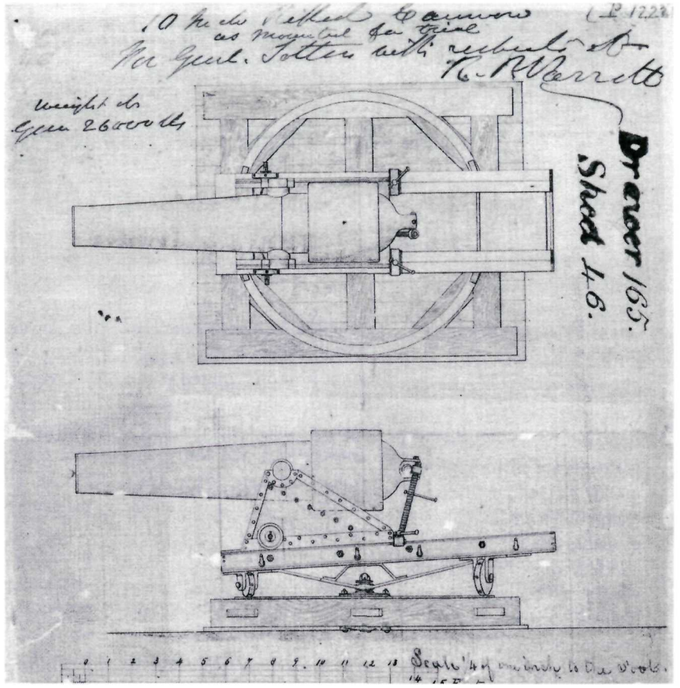
Ultimately, over 5,000 Civil War artifacts were recovered from the platform excavation alone. Through study of what had been the ground surface during the Civil War, the team reconstructed where the gun crews stood, which was correlated with historic photographs of crews "proofing" Parrott's cannon.

THE SECOND PART of the investigation focused on excavating a housing complex, located on a ridge overlooking the production facilities in the valley below. Here the remedial action required that an existing road be expanded and paved to accommodate 18-wheelers going to and from the cleanup facility. The expansion would obliterate the remains of the complex.

In line with Parrott's legend as the lone inventor, the complex was described in the historical record as home to predominantly poor Irish and English laborers. The archeological evidence painted a more complex picture.

The over 145,000 Civil War artifacts we excavated suggested the presence of skilled workers from England, France, Germany, and Austria, countries then developing heavy weapons. Microscopes, gauges, thermometers, calipers, carbon arcs, and many other scientific implements were found. Domestic items, as well, paint a less-than-compelling picture of poor laborers: elegant ceramic goblets and tableware from France, England, and Hungary; gentlemen's smoking pipes from Paris and Glasgow (notably a Tyrolean pipe from the Austrian Alps); an assortment of musical instruments; a broad range of toys including miniature doll house figurines; many late 18th and early 19th century European coins, including several specimens of Spanish Imperial Reales minted in Mexico; and much, much more.

Finally, consistent with the kinds of R & D activities associated with heavy ordnance, each of the house excavations unearthed fuses, primers, and cannon calibration and cleaning tools as well as unidentifiable electronic instruments including batteries and what seemed to be early capacitors. Hardly the repertoire of poor immigrant laborers.



Drawings of the cannon executed by R.P. Parrott or an assistant. NATIONAL ARCHIVES

The apparent inconsistency between the material remains and the historical record triggered a re-orientation of the archival research away from a strict focus on the foundry grounds to the influence of foreign technology and foreign workers on Parrott's operation. This fruitful line of inquiry tapped a host of resources from the Civil War era: private correspondence, records of the Navy Ordnance Bureau, and congressional testimony from closed hearings on corruption and faulty workmanship in the North's heavy weapons industry.

There is an important postscript to the investigation. Using the same high-tech tool kit employed elsewhere, the team made yet another discovery beneath the housing complex and 20th century road to the foundry from the hills above: a totally preserved series of prehistoric living floors, dating from 2,000 to 5,000 years old. They too were excavated and recorded, by a crew working under heated domes over a 10-day period.

THANKS TO THE INCONSISTENCIES we uncovered between the archeological and the historic record, Parrott's story was set straight and a new chapter, perhaps, written on the history of the Civil War. In the past, Lincoln's espionage operations have earned little credence among historians. However, based on these archeological discoveries, a story has emerged of national and international intelligence operations that flourished under the executive sanction of President Lincoln and his inner circle of military advisors. The historical implications suggest a level of technological and geopolitical sophistication that appears not to have been fully recognized in past treatments of Lincoln's Executive Branch structure and operations.

Even beyond that, within the context of this and similar sites, EPA has demonstrated the feasibility and practicality of doing justice to significant cultural resources under the section 106 compliance procedures of the National Historic Preservation Act. What's more, the project's successful use of applied technology illustrates that the work can be carried out even in the potential presence of contaminants, both safely and without delay. I am pleased to note that the remedial action at the Marathon Battery Company site will be completed by the end of this year, well ahead of the original schedule projected by EPA.

In a fitting twist, the ramifications of the project rippled back across the Atlantic when I was invited to Russia to speak on archeological methods in contaminated environments. As I told the story of how Russia secretly assisted the Union during the Civil War, the audience was enthralled. I sensed that there will be many more collaborations to come.

For more information, contact Dr. Joel W. Grossman, Grossman and Associates, Inc., 201 E. 16th St., New York, NY 10003, (212) 473-2259, fax (212) 473-2595. Questions in regard to federal compliance with the National Historic Preservation Act for this and similar projects can be referred to Mr. Robert Hargrove, Chief, Environmental Impacts Branch, EPA-Region II, Federal Building, New York, NY, (212) 264-1840.

NAGPRA NEWS

Implementing the Native American Graves Protection and Repatriation Act

Grant Proposals Compete for $2.3 Million

Over 200 proposals for Native American Graves Protection and Repatriation Act grants—requesting approximately $23 million—are competing for $2.3 million in available funds.

Indian tribes, Alaska Native villages and corporations, and Native Hawaiian organizations submitted 107 proposals. Museums submitted 113 proposals. Proposed projects range from sponsoring NAGPRA workshops, to coordinating intertribal discussions on cultural affiliation, to hiring repatriation coordinators.

The awards will be announced after the proposals are reviewed by NAGPRA staff and by a panel of Native Americans and museum professionals.

Funding for additional grants was included in President Clinton's FY 1995 budget request. Grant guidelines will be distributed in the early fall to all 760 native organizations with standing in the NAGPRA process and to all museums that have submitted copies of their summaries to the NAGPRA office. Application deadlines are planned for January or February 1995.

Section 10 of NAGPRA authorizes the Secretary of the Interior to make grants to museums to assist them in conducting inventories and identification required under the act, and to Indian tribes, Alaska Native villages and corporations, and Native Hawaiian organizations to assist in the repatriation of human remains and cultural items.

Guidelines for NAGPRA grants were mailed in late December 1993 to 760 federally recognized Indian tribes, Alaska Native villages and corporations, Native Hawaiian organizations, and the 473 institutions that submitted copies of NAGPRA summaries to the departmental consulting archeologist. The deadline for tribal applications was March 24, 1994 and the deadline for museum applications was April 8, 1994.

Tribal Contact List Updated

Continued communication with Native organizations and documents from the Bureau of Reclamation have allowed the National Park Service archeological assistance division to produce the third version of its list of NAGPRA tribal contacts.

This second revision to the list, finalized in April, was mailed to the many institutions requesting it. The list of NAGPRA contacts at federal agencies was also updated and mailed to all Indian tribes, Alaska Native villages and corporations, and Native Hawaiian organizations with standing in the NAGPRA process.

Congress intended NAGPRA to foster open discussion and joint deliberations. The lists were compiled to facilitate this process. The tribal list contains the name of the chairperson, corporation president, or chairman of the board unless the division has received written notification from the chairperson or a resolution from the board designating another individual as the NAGPRA contact.

The federal agency contact list contains the name of the federal preservation officer unless the division has received written notification of another individual designated by that agency as the NAGPRA contact.

Updates are expected on a bi-annual basis. If your agency, tribe, organization, corporation, or village has a different contact person from the one listed, or if any address, telephone or fax information is incorrect, please contact Mandy Murphy of the NAGPRA staff.

Museum Penalty Process Approved

Attending to unfinished business was the theme of the seventh meeting of the Native American Graves Protection and Repatriation review committee, held May 12-14 in Rapid City, South Dakota. The committee reviewed drafts of several sections previously reserved in the proposed regulations—particularly §10.12 regarding civil penalties and Appendix B, a sample inventory—and the solicited testimony prior to the drafting several other sections.

Following discussion, the committee recommended that the departmental consulting archeologist publish these two sections in the Federal Register as proposed regulations.

Under the statute, the Secretary of the Interior is authorized to assess civil penalties against any museum that fails to prepare summaries or inventories or does not repatriate human remains and cultural items. The committee recommended that penalty amounts be determined using a two-stage approach: first a museum would be penalized an initial assessment based on a percentage of its annual budget, followed, if necessary, by a daily penalty for continued non-compliance.

The committee also reminded museums and federal agencies that they are in non-compliance with the statute if they have not sent summaries to culturally affiliated Indian tribes, Alaska Native villages and corporations, and Native Hawaiian organizations.

The committee had previously recommended that the regulations include a sample inventory of human remains and associated funerary objects. The committee considered a revised draft of the document that included information on accession and catalogue numbers, collection history, a description, and evidence of cultural affiliation for each human remain or associated funerary object.

The committee solicited public recommendations regarding three additional sections of the regulations: those dealing with the disposition of unidentified human remains in museum or federal agency collections, the disposition of unclaimed human remains and cultural items from federal or tribal lands, and the future applicability of the statute.

The committee will continue to solicit such recommendations at future meetings. Drafts of the relevant sections are not expected before January 1995.

Russians Eye NAGPRA

The story is all too familiar. Looters robbing ancient native sites of cultural objects and human remains and selling them on an illegal market. But the setting for this story is not the Four Corners region or the Pacific Northwest.

This story is from Russia.

On March 17, 1994, Tatyana Yuryevna Achirgina, a Russian Eskimo, and Sergey Nikolayevich Kharyutchi, an ethnic Nenets from Russia, visited the archeological assistance division to discuss issues related NAGPRA. The visit came as part of "Native Peoples: Issues of Local Autonomy & Federalism," a U.S. Information Agency program aiming to expose its participants—specialists on and representatives of Russia's indigenous groups—to the Native American response on political, economic, and cultural issues.

The meeting was an early stop in the group's trip, which will include meetings with Native Americans in the southwest and Alaska and information sessions on federal agency policies, advocacy programs, legal issues, and tribal sovereignty.

A discussion with NAGPRA program leader Tim McKeown focused on the specifics of the law and the differences in relationships between the government and native peoples here and in Russia. Achirgina, an Eskimo community coordinator and freelance broadcast journalist, was particularly concerned with the increased smuggling of Native cultural objects and human remains. As a result of the visit, she was asked for her help in providing information on international smuggling as part of a report to Congress on the topic currently being prepared by the division.

Kharyutchi, the deputy governor on national policy in the Yamal-Nenets Autonomous District near the Arctic Circle in Russia, raised the matter of confidentiality of sacred sites and information. He related a Nenets legend of a golden woman guarded by a tribal elder. Once every year a group of tribesmen are guided to her to perform annual rituals. The elder changes the hiding place as soon as the group leaves. According to Kharyutchi, the golden woman is symbolic of Nenets cultural treasures which must remain hidden from the outside world.

The indigenous peoples of former socialist countries are looking to the United States and Canada for examples in how governments should cooperate with them, both Russians said. The division offered them help in developing legislation.

Explaining the Act's Finer Points

Nothing beats a good example. A series of case studies helped explain several of the finer points of NAGPRA at the Keepers of the Treasures third annual meeting held May 2-4 at the Warm Springs Indian Reservation in northern Oregon.

More than 200 tribal representatives from approximately 60 Indian tribes, Alaska Native villages and corporations, and Native Hawaiian organizations examined approaches to interpreting summaries and inventories, requesting additional documentation from museums and federal agencies, asserting claims, disputing museum or federal agency determinations, preparing for repatriation, and deciding on alternatives to repatriation.

Presenters included review committee chair Tessie Naranjo, committee member Martin Sullivan, and NAGPRA program leader Timothy McKeown. Keepers of the Treasures is an intertribal organization founded in 1991 to support and assist the preservation, maintenance, and revitalization of the cultural lifeways of American Indians, Alaska Natives, and Native Hawaiians.

For more information contact Gordon Pullar, President of the Board of Directors of Keepers of the Treasures, 707 A St., Suite 205, Anchorage, AK 99501, (907) 272-9531, or Mary Stuart McCamy, Project Director, Keepers of the Treasures, 666 Pennsylvania Ave., SE, Suite 200, Washington, DC 20003, (202) 547-9009, ext. 3313.

NAGPRA Workshops

Representatives from the archeological assistance division will be conducting workshops on NAGPRA implementation at the the Mountain Plains Museum Association annual meeting, in Corpus Cristi, Texas on October 20 and at the University of Nevada-Reno (continuing education), Denver, November 11-13. For more information contact the host organization or Jean Kelley of the NAGPRA staff.

Connecticut Tribe Recognized

The Mohegan Tribe of Indians of Connecticut gained Bureau of Indian Affairs recognition March 7. Any museum or federal agency that has possession of, or control over, Native American human remains or cultural items believed to be culturally affiliated with the Mohegan Tribe should provide a summary of those materials to Ralph Sturgis, Chief, Mohegan Tribe of Indians of Connecticut, 27 Church Lane, Uncasville, CT 06382, (203) 848-9252.

For More Information

Contact Timothy McKeown, NAGPRA Program Leader, Archeological Assistance Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127, (202) 343-4101, fax (202) 523-1547.

NADB UPDATE

On Line with the National Archeological Database

NADB Takes on Global Cast

Between November and March, the number of people using NADB doubled, a trend that promises to continue.

The diversity of users is striking. Most are American professors, librarians, and students, but a sizable number of academics are accessing NADB via the Internet from Australia, Austria, Belgium, Canada, Chile, England, Egypt, France, Germany, Greece, Israel, the Netherlands, Scotland, Slovakia, Spain, Sweden, and Switzerland.

Equally surprising is that high school librarians and teachers are discovering NADB. Many federal, state, and local archeologists, tribal members, museum curators and collections managers, private consultants, and municipal librarians are examining NADB's potential.

NAGPRA Module Offers Contact List

When NADB-NAGPRA went on line in 1993—to facilitate compliance with the Native American Graves Protection and Repatriation Act—it provided the full text of the act, information on regulations, NAGPRA review committee meeting minutes, and NAGPRA notices published in the Federal Register. The module also identified contacts for Indian tribes and federal agencies.

All of these features are still in place, but several were just updated. The tribal and federal contact lists were substantially expanded as well as reformatted to provide a cleaner copy when downloaded to a personal computer and printed. The minutes of recent review committee meetings were also added along with new notices in the Federal Register.

Records of 130,000 Investigations Now On Line

The NADB-Reports module, also updated in April, now features over 130,000 records of archeological investigations. Plans are underway to convert several large bibliographic databases into NADB-Reports.

When automating records, many groups are emulating the data structure of NADB-Reports. As a result, their databases can be incorporated into the module. Predictions are that the module will contain over 250,000 records by 1996.

New Tool for Data Providers

The success of NADB-Reports is primarily due to the work of numerous data providers all over the United States, whose efforts are coordinated by five NPS regional coordinators. This system was made possible through cooperative agreements with state historic preservation offices and the Department of Defense.

The local data providers have been using a Clipper-compiled stand-alone system to enter and update their records. Karr and Associates, a computer consultant firm, recently wrote a more user-friendly version using Integrated Preservation Software. This version makes data entry and retrieval easier, and allows data providers to customize their databases.

Dealing with Duplicate Entries

Given the vast network of data providers across the country, some duplicate records have arisen among the five regions. However, these duplicates likely constitute only 5 percent of the database.

A concerted effort is being made to purge the database of the extra records. The system also contains a huge number of keywords that have not been indexed. If users want to query the database with keywords, they should enter them in combination with other data elements, such as state. A keyword index is in the planning stages.

Permits Module Available Soon

A soon-to-be-released module will feature standardized data for some 5,000 permits issued for archeological and paleontological projects conducted on federal and Indian lands under the Antiquities Act of 1906 and the Archaeological Resources Protection Act of 1979. The permits are currently stored at the archeological assistance division and at the Smithsonian's National Anthropological Archives.

This database will augment information about archeological investigations already available through the NADB-Reports and NADB-NAGPRA modules. Users will be able to query the permit records according to descriptive information about the archeological activity, administrative information for tracking the permit process, and identification information on individuals and institutions who were associated with the project.

NADB-Permits will also be cross-referenced to related publications compiled in NADB-Reports.

This database is expected online in 1995.

For More Information

Contact NADB, Archeological Assistance Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127, (202) 343-4101, fax (202) 523-1547.

Publications

In Those Days

A weathered woman in a rocking chair cradles the fiddle her father played in his days as a slave. This telling image—and the accompanying story of her family—are among the many accounts of African American life filling the pages of *In Those Days: African-American Life Near the Savannah River.*

Developed by the Corps of Engineers Savannah district and the interagency archeological services office of the National Park Service southeast office, the book is available from the COE Savannah district, 100 W. Oglethorpe St., P.O. Box 889, Savannah, GA 31402-0889.

Examining Landmarks

Two of the country's best-known archeological sites are examined in a pair of new books from Washington State University, *Ozette Archaeological Project Research Reports Volume II: Fauna* and *Papers on the Early Classic Period Prehistory of the Pajarito Plateau, New Mexico.*

The publications, both resulting from collaborations between Washington State University and the National Park Service, are available from Reports of Investigations, Department of Anthropology, Washington State University, Pullman, WA 99164-4910 (Ozette: $27.50, Pajarito: $16.50, plus $1.50 shipping and handling for each volume).

Protecting Totems

The preservation assistance division of the National Park Service has published "Exterior Woodwork: Protecting Woodwork Against Decay Using Borate Preservatives." Available from "Preservation Tech Notes," Preservation Assistance Division-424, National Park Service, P.O. Box 37127, Washington, DC 20013-7127.

The Corps on Cultural Resources

Chapters on cultural resources highlight two new reports from the U.S. Army Corps of Engineers Waterways Experiment Station. Both Earth Resources Stewardship at Department of Defense Installations and Legacy Earth Resource Workshop are available by contacting Lawson Smith, Geotechnical Laboratory, USAE Waterways Experiment Station, 3909 Halls Ferry Rd., Vicksburg, MS 39180-6199, (601) 634-3153, fax (601) 634-3153.

New International Journal

A new publication introduced in May, *The International Journal of Heritage Studies,* publishes articles of relevance to the entire heritage field. The journal plans to explore the problems of conserving, presenting, and interpreting cultural heritage on an international scale.

To submit articles or to subscribe, contact The *International Journal of Heritage Studies,* University of Plymouth, Earl Richards Road North, Exeter, England EX2 6AS.

Archeology and Public Education

Because it provides successful models and practical advice on managing cultural resources, Jordan E. Kerber's book, *Cultural Resource Management: Archaeological Research, Preservation Planning, and Public Education in the Northeastern United States,* transcends its regional focus. The $65 book can be ordered from Greenwood Publishing Group, 88 Post Rd. West, P.O. Box 5007, Westport, CT 06881-5007, (800) 474-4329.

Conferences

The Future of Wilderness

This year marks the 30th anniversary of the Wilderness Act. The sixth annual National Wilderness Conference, November 14-18 in Santa Fe, will review the nation's wilderness mandate and assess accomplishments in research. For more information, contact Peter Keller, National Park Service, Park Planning and Protection, Room 3230, 1849 C St. NW, Washington, DC 20240.

Conserving Painted Wood

Internationally renowned conservators, art historians, and curators will explore a range of topics related to paint on wood November 12-14 in Williamsburg, Virginia. For more information, contact Valerie Dorge, Gettysburg Conservation Institute, (310) 822-2299.

Ohio's Prehistoric Past

The third annual Ohio Archaeological Council conference will focus on research in late prehistoric period cultures of the Ohio area. For more information on the conference, to be held November 18-19 in Cincinnati, contact Robert Genheimer, OAC conference coordinator, Cincinnati Museum of Natural History, 1720 Gilbert Ave., Cincinnati, OH 45202, (513) 345-8503, fax (513) 345-8501.

Call for Conservation Papers

St. Paul, Minnesota, will host the 23rd annual meeting of the American Institute for Conservation of Historic and Artistic Works June 6-10, 1995. Conservators, curators, art historians, and others are invited to submit abstracts addressing ethics in conservation.

Send abstracts to Jay Krueger, AIC vice president and program chair, National Gallery of Art, DCL, 6th St. and Constitution Ave., NW, Washington, DC 20565.

Industrial Treasure

The National Register Database Is an Invaluable Research Tool

AMY FEDERMAN

INDUSTRIAL ARCHEOLOGISTS are always searching for new tools to supplement traditional sources of documentation. They need look no further than the National Register of Historic Places.

Many, many industrial sites and their surroundings have been included in the National Register since it was established in 1966 as the nation's official list of properties worthy of preservation. Today, more than 25 years and 62,000 listings later, the documentation associated with the Register has grown into a unique resource in its own right.

The National Register Information System (NRIS), launched in 1986, incorporates the wealth of data submitted in the process of nominating these listings. Over the last eight years, NRIS has been updated daily and new features added to increase the speed and utilities for searching the database.

Researchers can search the NRIS by categories such as historic property type, geographic location, ownership category, federal agency, architectural style, architect, historic and current function, construction material, area and period of significance, and National Register criteria. The NRIS can also be searched by a range of different types of industries—for example, by comparable types of manufacturing structures or by hydroelectric power stations along specific waterways.

The National Register staff can provide data in a variety of formats. Those who merely need a list of properties in their community can request printouts by writing in or calling. Researchers can get more detailed information by requesting copies of the actual nomination forms or visiting the Register.

ON-LINE ACCESS to the NRIS is currently available to cultural resources offices in states and federal agencies, and work is underway to expand access to other researchers. Access via INTERNET is also under consideration. Those who want to run their own research models to manipulate NRIS data can receive a download of database elements on floppy disks or tapes. The Environmental Protection Agency, for example, recently folded NRIS data into EnviroText, an on-line database of environmental regulations available to federal agencies.

> The National Register Information System has opened up access to National Register documentation that was not possible a decade ago.

NRIS also permits information on properties to be combined with other types of computerized data systems. Archeological property data, for example, has been integrated with spatial information about elevations and soils to assist in developing predictive models for site locations. These can be used to develop strategies for research, surveys, field work, and site protection.

Rather than create new forms for recording sites, users across the country have also preloaded data from the NRIS into their own systems. Updated and new data can then be shared and transferred electronically. Sharing data in this fashion reduces the amount of time required to enter data and fill out forms.

The ability to transfer information facilitates widespread access for cultural resource management as well as for research and publication projects. The less time spent in redundant capture of information, the more that is available for analyzing and using the data.

Amy Federman is president of the Society for Industrial Archeology. For more information on the National Register Information System, call (202) 343-5726. Researchers are also welcome at the Register offices, located at 800 North Capitol St., NW, Room 99, Washington, DC. Inquiries regarding on-line access or data transfers can be directed to John Byrne, NRIS Database Manager, at (202) 343-9543.

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