

CRM BULLETIN

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Management Issues in the Field of Cultural Resources

Trees growing wild on the roofs of historic buildings may seem like an improbable situation, but nevertheless, the Park Service has come to grips with this and other rather surprising issues. As the primary agency responsible for various facets of our cultural heritage, the Service deals with complex and unusual problems. This volume of the CRM BULLETIN covers a variety of issues presently occupying management decisionmaking time. In the case of vegetative intrusions onto historic areas, specific maintenance activities seem to offer a solution. But like the other problems covered in this volume, dealing with uncontrolled vegetation requires direct management involvement prior to action being taken by maintenance and other support personnel.

Maintenance, itself, has become a growing management concern, not simply in its performance, but in how to provide upward mobility ladders for maintenance employees seeking historic preservation experience. The ability to progress from one position to another within the Service is still being developed. Hugh C. Miller has some thoughts on how to fully accomplish it. Further updates on this challenging and important process will be covered in later issues of the BULLETIN.

The treatment of outdoor bronze statuary has become one of the most pressing issues of the 1980s. Discussions of how we protect as well as understand this very public form of art has generated new interest in this overlooked resource. Michael Panhorst explores interpretation as well as treatment of outdoor bronzes in his article, "The Appreciation and Preservation of Monumental Bronze Sculpture." Nicholas Veloz provides illustrative case studies taken from one region's efforts to treat bronzes in the park environment. All together, both articles offer useful perspectives on a significant part of our urban setting.

Like bronzes, ethnographic objects contribute to our record of human activity. Debra Berke explores the significance of NPS ethnographic collections in conjunction with her survey of Servicewide ethnographic objects. Her survey appears in this issue as a tool to assist scholars and non-scholars alike.

Peter Steele's article, "To Rehabilitate a Warship," illustrates another Park Service concern. The NPS has jurisdiction over historic vessels both at the Charleston Navy Yard and at Golden Gate National Recreation Area. A ship requires certain very specific adaptations of preservation processes. Its thorough restoration, for example, the way a hull is protected, demands diligent inspection and care. This process is discussed as it applies to CASSIN YOUNG, a warship historically associated with Charleston Navy Yard. The equally complex restoration of C.A. THAYER, a sailing vessel from Golden Gate National Recreation Area, will be covered in the next issue of the CRM BULLETIN.

Finally, to assist readers who have saved or wish to refer back to previous issues of the BULLETIN, an index of articles, consolidated according to year of publication and professional discipline, has been provided. It is available in tear-out form at the back of this issue.

Taking direct steps to solve the special needs of cultural resources represents only one management challenge for the 1980s. Nevertheless, the demands of these resources are great; and managers face the responsibility of how to preserve these tangible remains of our cultural past in an increasingly hostile environment.

The Appreciation and Preservation Monumental Bronze Sculpture

Michael W. Panhorst

Bronze portraits of soldiers, statesmen and local heroes erected around the turn of the century have lost much of their power to inspire public sentiment for the individuals and national ideals they memorialize. Weathering has adversely affected their appearance while their significance to patrons, sculptors, and audience has been forgotten. Few people realize the complex, time-consuming, expensive procedures involved in commissioning, modeling, casting, and dedicating public monuments. Even fewer understand that bronze sculpture was not designed for our increasingly acidic atmosphere that turns deep black, dark green, and warm brown bronze patinas to a monotonous, powdery shade of lime sherbet. Art historians and sculpture conservators remain undecided about the most effective cures for "greening," streaking, and staining; but they have begun to assess the situation, and two things are clear: (1) monumental bronze sculpture represents a rich cultural, historic and artistic heritage that merits serious study and interpretation, and (2) the statuary itself demands prompt attention if it is to endure.

An estimated 20,000 monuments and memorials are scattered across the United States (one in ten on National Park Service sites). Much of the bronze statuary evolved from the prosperous and socially conscious City Beautiful era (1893-1917). Portraits of stalwart Civil War soldiers like *General Stephen Dill Lee* populate many city parks; monuments to the soldiers and sailors of individual states appear in capital cities and on major battlefields. Sentinels, single-figure statues collectively representing every Johnny Reb and Billy Yank that served in the war, stand silent watch over cemeteries and county courthouse lawns from Maine to Texas, and from Florida to Minnesota. Memorials to other wars and warriors abound. Effigies of politicians, educators, inventors and philanthropists swell the ranks, marking the historic sites where these memorable men and women lived, worked, and died.

In portraits and symbolic statues, the chief component of the sculptor's language is the human figure. Ideas are delineated visually by the expressive treatment of the human form—alone, in groups, and in combination with accessory items.

A precise likeness does not convey the distinctive traits of an individual. But combined with elements such as posture and stance, it contributes to the characterization. The inspirational presence and calm determination of *General Stephen Dill Lee* is evoked by his upright carriage and his confident grip on his drawn sword, as much as by facial details. In the cavalry group of the Wisconsin State Monument at Vicksburg, the sculptor shows the courage and composure of a typical cavalryman by contrasting his steady aim with the agonized expression on the reared head of his wounded horse. This dynamic composition with its agitated outline forms a statement much different from the static sentinels, who stand with quiet dignity. The closed contour or silhouette of the statue and the simplified folds of the heavy cloak enhance the sorrowful attitude of memorial statues of this type.

Contours can be as beneficial to the success of a sculpture as the surface quality and massing of forms. The importance of silhouette is aptly demonstrated by analysis of a group in high relief on the base of the Mississippi State Monument at Vicksburg. Due to poor joining of separately cast appendages, and vandalism, the integrity and impact of the sculpture have been seriously compromised. In all probability, the blocky outline on the right of this group would have been alleviated by the flagstaff and handgun. The sword now missing from the colorbearer's right hand would have led the eye into the composition like another spoke revolving around the hub of the cannon barrel end. A rifle, perhaps with bayonet attached, may have been in the hands of the slumping soldier in the foreground. This would have provided the lower leg of a triangle formed by the commander's body and the missing flagstaff, and thus visually would have given a more unified character to the group.

Surface streaking and staining, a problem more endemic to bronze than vandalism, may also be seen in the Mississippi State Monument group, but a more illustrative example is found in a small relief plaque on Missionary Ridge in Chattanooga. In this panel, light green corrosion products and rivulets of a red stain (perhaps from iron mounting pins) camouflage the image, making it difficult to distinguish individual figures and virtually impossible to recognize the features of the men portrayed. This is especially unfortunate, since the scene indeed is historic and the combatants identifiable.

From all indications, vandalism, "greening," streaking and staining will continue, probably accelerated by acid rain, unless preventive maintenance is performed. Consequently, bronze sculptures should be inspected regularly so that problems may be handled before they become irremediable. Rusted mounting pins should be replaced with bronze before the castings crack; loose appendages should be secured before they are lost. Wear and tear, as well as potential injuries, caused by people climbing on accessible and unpoliced statuary, might be prevented by the installation (or reinstallation) of cast iron fences, part of the original design for certain nineteenth century monumental sculpture.

The host of corrosion problems besetting bronze pose problems more vexing than vandalism. Sculpture conservators and metallurgists concur that undesirable changes to the artificial, chemically induced patinas originally applied at the foundry occur principally by exposing bronze to sulfur and nitrogen compounds in a damp environment, but these same specialists disagree about the best methods to arrest corrosion and repair damage. Solutions range from washing with soft natural bristle brushes, and de-ionized soap and water, followed by several coats of wax to the stripping of all corrosion products (usually with glass bead peening), repatination, encapsulation with an acrylic lacquer (Incralac) and the application of wax. Alternatives include peening with soft abrasives (ground corn cob or walnut shell) and mechanical scrubbing with bronze wool and brass brushes. Some conservators advocate the use of Benzotriazole (BTA) as a corrosion inhibitor. All agree on the use of either beeswax, carnauba or a microcrystalline wax as a sacrificial coating which must be renewed at least annually, to protect the cleaned, renovated or restored bronze.

Controversy regarding the safe and appropriate conservation of bronze focuses on the surface of the metal. Can chloride pitting be controlled? Does any remnant of the original surface texture or patina exist after light green and black accretions appear on bronze? Since corrosion products are formed at the expense of the metal (like rust) should they be removed? The irreversibility of stripping the "natural" (environmentally induced) patina dictates cautious consideration. A less intrusive treatment, sealing corrosion in a plastic or wax envelope, may only postpone problems. Moisture can migrate through pin holes from the inside of a statue or through cracks in the sealant and thus may stimulate surface deterioration in spite of wax and Incralac.

Aesthetic concerns compound the problem. Did sculptors expect statuary to acquire the matte pea green "natural" patina thought, incorrectly, to be protective? Rare evidence (*Technology and Conservation*, Spring 1983) indicates that some did. Yet Augustus Saint-Gaudens put two layers of gilding on his equestrian monument to General William T. Sherman (New York City, 1903) at his own expense to prevent it from looking "like an old stove-pipe." Further indication of the color sculptors intended for monumental sculpture is provided by small-scale bronzes and hand-painted plaster competition models. These range from dark green to warm golden brown, often with highlights achieved by polishing. Replicas, sketches and studies kept indoors, waxed and polished have rich translucent patinas that glow with a jewel-like quality. Similar surfaces may be found only on small parts of outdoor sculpture like the toes of boots, which receive regular oiling by the touch of hands, and the saddle, saddlebag and mane of the horse on the Wisconsin State Monument at Vicksburg, frequently ridden by children and consequently buffed, thus retarding corrosion and removing its products.

The potential gains of conscientious preservation are illuminated by comparing monumental bronze sculpture with the recently cleaned and waxed bust of Lincoln on the Gettysburg Address Memorial. Thorough cleaning, waxing, and polishing produced results

dramatic enough to stop the heart of an outdoor sculpture connoisseur! No stains or streaks disfigure the face. Minute detailing can be seen around the eyes and furrowed brow and in the curly beard. Light plays across the folds and broad planes of the shirt and jacket. The surface is a deep rich brown—and it beads water.

As centennial anniversaries of public monuments approach, it is appropriate that outdoor sculpture receive special attention. Fortunately, the National Museum of American Art, Smithsonian Institution, is planning a computerized inventory of American sculpture, in and out-of-doors; and the National Trust for Historic Preservation is starting a center for the preservation of public sculpture. Currently, the National Park Service is studying the materials and distribution of outdoor sculpture and public monuments in an effort to quantify the cost of damage caused by acid rain.

These organizations realize that the history of our cultural and artistic artifacts deserves investigation and the structures themselves merit special scrutiny. Moreover, scholars, conservators and custodians of outdoor sculpture agree that a comprehensive scheme of inspection and planning for the particular needs, as well as documentation and evaluation of the individualized treatments, of each piece of outdoor sculpture are necessary immediately if this statuary is to regain the beauty stripped away by neglect and by an environment that grows more deadly by the day. Only through a prompt, concerted effort may we assure the appreciation and preservation of monumental bronze sculpture.

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MAINTENANCE TRAINING FOR HISTORIC PRESERVATION:

Is It A Different Ball Game?

Hugh C. Miller, AIA

Historic preservation is not really a different ball game. It has a common features with the maintenance of modern facilities. It also has very specific rules. But it is a game that can be played at totally different levels of expertise. The goal is simply to learn to do the best job possible at the appropriate level, and in so doing, to progress to the next. In the National Park Service, opportunities exist for just such advancement, depending on individual interest and aptitude. Historic preservation is no sacred process performed by the anointed few, but the application of a philosophy in which everyone participates, whether as maintenance employees, specialists, professionals, managers, or a combination of these.

Full participation by NPS maintenance staff in the preservation process has been a lot of long-time goal of the Washington Office. Servicewide training courses for maintenance workers and maintenance managers started in the early 1970s. In addition to Mather and Albright Training Center courses, historic preservation maintenance training has come of age in most regions and some parks. A program to train and certify maintenance staff for historic structure preservation work began in the North Atlantic Region in the late 1970s and is now formally referenced in the NPS-28 Guidelines. Simultaneously, systems to improve preservation maintenance management were being developed. The North Atlantic Region designed the computer based Preservation Maintenance Inspection System (PMI). The Southwest Region and the Rocky Mountain Region developed model Historic Structures Preservation Guides (HSPG). Using these systems and the general guidance of NPS-28, other regions and parks are now developing HSPGs. These are the new play books; and training in how to play the game is gathering momentum.

The key to the training for preservation maintenance is understanding the goals and objectives of the process. Preservation involves actions that prevent wear, loss, or decay of materials. The process is continuous, rather than a one time maintenance project. Washing a painted wall and in painting worn or defective areas may be labor intensive, but over time, it extends the life of the protective film. Similarly, it minimizes additional build-up of film thickness along with the risk of cross-grain cracking or paint-film failures resulting from accumulation of paint coats. Knowledge of preservation as a process rather than successive, unrelated steps distinguishes the expert from the student, and is a skill created not at once but only as the student passes through a series of training activities or experiences.

Formal preservation maintenance training deals with the definitions and ideas involved in the preservation process as well as learning how to evaluate and handle critical problems. Classes and field exercises explain the maintenance management system and how it applies to preservation work. Inspection systems offer the key to problem identification, part of which is determining cause and effect as well as degree of seriousness. When one can differentiate between the symptom and the actual cause of the problem, the solution comes more easily. Indeed, the student who progresses this far has come a long way toward thinking through building problems and making preservation decisions.

The exercise of inspecting a building also calls one of the first ground rules of preservation into play. To preserve existing (especially historic) parts of a structure, the method of preservation or repair must not change that part. "Fix it like new" or "fix it better than it was" is usually philosophically inappropriate. The definition of original or historic period fabric will indicate where extreme care must be used, and the selected treatment

should involve the least change. Where later period, non-historic repairs or replacements need work, good mechanical solutions are probably the way to go.

Learning to prioritize is another important aspect of such training. Problems can be categorized as "urgent," "necessary," "nice," and "watch it for awhile." But all too often, time is spent on "nice" projects, like polishing the brass plaque by the front door while the "necessary" cleaning of debris from the gutters goes ignored. The attempt to shore a cracked wall may be putting emphasis in the wrong place, while simple structural monitoring might indicate the crack is not moving and the only fix needed is sealing it from weather.

All of this is good practice when maintaining any building but especially good practice in historic preservation training. One can see it is the same ball game, but with slightly different rules.

The second level of training— formal workshops or structured on-the-job training— provide opportunities to use historic buildings for their learning potential —to see and understand historic construction methods, to learn about materials and material performance, to share information on procedures that worked and did not work. If the goal is to preserve our historic structures "forever," then we have an opportunity to use our structures as laboratories—not guinea pigs to test unknown procedures but as subjects to be observed over time under known conditions that will inform us of how buildings really age and what we can do about the accompanying deterioration.

Formal training provides basic information for the beginner—the truisms of the trades and the "no-nos" of practice. Special training workshops and experience sum up knowledge of historic construction techniques, architectural form, and elements and surfaces that define a structure's architectural character. Structured, long-term apprenticeships or on-the-job training develops journeymen level competence in a trade, with special understanding of the relationships between old materials and new. Here, an Individual Development Plan (IDP) can identify basic and special skills to meet identified career goals.

Standard trade skill development can be obtained by formal or correspondence courses. Selected short-term on-the-job training to meet an IDP will provide experience in a specific preservation task while offering learning opportunities on how to approach an historic building. They will help maintenance workers answer questions about what's historic as well as what we want the building to look like. Furthermore, such programs make it possible for maintenance workers to gain a working knowledge of the preservation process as well as journeyman proficiency. Following the certification program, there is the potential to become a preservation specialist. This requires extensive experience on the job or a long-term training program like that available at the Williamsport Preservation Training Center.

At another level of play, the development of maintenance managers for historic preservation can start with formal training offered at Mather Training Center. Such courses merge the process of dealing with historic structures with the principles of the maintenance management system. They define how work on historic structures differs from work on modern facilities. From the definition of the resource values to the special nature of materials or equipment needed, the process is orientated to prevention of fabric loss from the original building. From here, on-the-job training and special workshops can be utilized to meet the needs of an individual maintenance manager.

At whatever level of play, there is a slot for everyone interested in historic structures. The proper maintenance of historic structures is preservation, and the challenge of working on historic structures clearly makes all the difference in the ball game.

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OUTDOOR SCULPTURE IN THE PARK ENVIRONMENT

Nicholas F. Veloz

Several techniques for treating outdoor bronze sculptures have been applied to statues ranging from 15 to 75 years of age. These procedures involve cleaning the statues with solvents, detergents, and low pressure soft abrasives to remove old wax coatings, 10 year old insoluble Incralac, corrosion products, dirt, and exuding core material. Procedures included application of Benzotriazole (BTA) as a corrosion inhibitor, and a final application of wax as a sacrificial protective coating.

Realization that many outdoor monumental sculptures in the National Capital Region have been casually maintained prompted this program. In the past, care ranged from absence of oversight to semi-regular cleaning using hot water, steam, and a variety of proprietary chemicals. There were occasional variations, such as brushing a heavy coat of beeswax on the Paul Manship sculpture, *Theodore Roosevelt*, and using low pressure soft abrasives without exposing the bright metal of the underlying bronze. Throughout the treatment, two basic tenets were followed:

1. Preservation of the sculpture was emphasized, with aesthetic considerations being of secondary importance. Appropriate treatment included minimal intervention, no removal of original surface, and reversible procedures. It was also felt that the ultimate appearance should have a metallic luster, consistent with that of bronze.

2. No "pat" treatment worked for all statues. Adjustments were made between statues and even on the same statue based on perceived need and the effect of specific treatment.

What follows are several examples illustrating these approaches. They dramatize the importance of management awareness of cultural resources as well as management commitment to their maintenance and care. In all cases the process was as non-abrasive as possible and developed both to protect the original fabric and preserve its bronze appearance.

THEODORE ROOSEVELT

Since its installation in 1967, *Theodore Roosevelt* received sporadic treatment in the form of washings with hot water/steam and unknown detergents or other chemicals. In partial deference to the artist's wishes, a beeswax coating was heavily applied, but the high points were not buffed. Close examination during cleaning indicated that pigment had been added to the last applied coating. In 1978, the statue and previously applied coating appeared black; in places especially exposed to the weather, this black coating had eroded, with a thin film of light green corrosion products covering the exposed surface of the bronze.

The encrusted wax coating was removed with solvents. Application of straight turpentine proved effective, particularly when turpentine soaked cloth diapers remained in contact with the hardened, dirty wax for a short period of time. Particularly difficult areas were scrubbed with stiff natural bristled brushes and/or nylon covered sponges ("dobie pads").

Next, the entire statue and granite plinth were scrubbed with "Spic and Span," a commercial detergent containing sodium sequecarbonate, trisodium phosphate, and other cleaning materials. Following vigorous scrubbing, the sculpture was rinsed with copious amounts of water, blotted, and allowed to dry. We wiped it with diaper rags and Varsol (a petroleum distillate), then scrubbed localized areas of grime with the nylon pads until no dirt appeared on the rags. The statue had a somewhat light brown to golden color interspersed in places with a light haze of green corrosion. Most of these light green areas corresponded with areas which were green prior to the cleaning.

The use of BTA seemed appropriate for this outdoor sculpture. After wiping the statue with rags soaked in denatured alcohol, we applied BTA in a aqueous solution (3% by weight) containing approximately a 75:25 mixture of warm water/alcohol. The statue

received two coats of the water/alcohol/BTA solution with a pump-type garden sprayer. It dried between coats, and after spraying. This treatment resulted in the deposition or residual crystalline BTA on the statue, easily washed off using a garden hose with a spray nozzle. Again, the statue was blotted and allowed to dry. The BTA darkened the dry statue, somewhat equal to the "wet" appearance of the statue, prior to BTA application.

Two coats of Microcrystalline wax applied in large smooth areas with rags, and in more inaccessible or textured areas with shoe polish dauber brushes provided final protection. After the second coat, the statue was buffed using diaper rags and shoe polish buffing brushes. Final appearance resembled the wet appearance of the statue after the BTA application. The statue had a lustrous/metallic sheen, with virtually no distinction between previously "bronzed" areas and those hazed with green.

Treatment the following year revealed areas turned green from rain streaking, although overall appearance remained good. We washed the statue with an Ivory flakes and water solution, then blotted it, allowed it to dry, and waxed it again. Rather than buff only the final wax application, we buffed the two 1979 applications individually. Although the 1978 treatment appeared better, the statue showed improvement over its appearance at the beginning of the 1979 treatment.

For a number of reasons, *Theodore Roosevelt* remained untreated until the early summer of 1983. At that time, areas such as the coat skirt, shoulders, head, and upraised arm exhibited large patches of moderately green corrosion, minus the four year old wax coating. Waxed areas were removed with Varsol, followed by washing with a solution of Igepal C0-630 in water.

Rather than apply paste wax with rags, a solution of wax, BTA, and mineral spirits was applied with a pump-type sprayer. Following the application of two coats, we buffed the wax with rags and brushes. The statue did not look as good as it did in the past; areas still had a green appearance following the complete treatment. The statue regained its metallic luster, however, and the color contrasts were not as striking. Several possibilities may explain this difference. In addition to a variation in wax formula and application, temperatures varied, being in the low to mid 70's as compared to high 80's in previous years.

THE ARTS OF WAR AND THE ARTS OF PEACE

The *Arts of War* and *The Arts of Peace*, located on the west side of the Lincoln Memorial Circle, created a slightly different problem. A gift from the people of Italy in 1951, their original "fire-gilding" was replaced in 1972 with gold plating, using brush plating techniques. They were also coated with a lacquer called Incralac. However, examination in 1983 revealed serious faults in the lacquered surface of all four statues. On surfaces having southern exposure, large areas of "milky-white" lacquer revealed cracking and flaking. In other more protected areas, the lacquer had darkened significantly, obscuring the gold plating. In places, flaking lacquer had left the gold plated surface completely exposed.

Although a methylene chloride paint remover easily removed the Incralac in preliminary testing on Valor (one of the *Arts of War*), performance of the actual work was extremely difficult. The Incralac was, for the most part, insoluble. Toluene, xylene, DMF, MEK, acetone, lacquer thinner, and several methylene chloride paint removers were tried, the most successful being a marine methylene chloride paint remover and approximately 900 psi water pressure.

Prior to lacquer removal, the statues had a gold "spray paint" appearance rather than a metallic gold hue. Small localized areas of corrosion were also visible. Following removal of the Incralac, they appeared brilliant and shiny, with patches of dullness and discoloration, particularly at soldered repairs.

Next, the statues were washed in a solution of detergent/water/BTA, and coated with a BTA spray, as previously described for *Theodore Roosevelt*. This procedure varied slightly for individual statues. The

Arts of Peace, washed with the detergent/BTA twice, received additional applications of the BTA spray due to the porosity of their castings.

After the BTA application, we waxed the statues much the same way as the *Theodore Roosevelt* statue in 1983. Their final appearance was a much brighter, lighter, and more golden color after treatment, with a "matte" finish due to their lack of buffing. In the future, these statues will be "washed and waxed" approximately every two years, somewhat in the manner of the 1979 *Roosevelt* treatment, with removal of the wax through the use of solvents, detergents and hot water every 4 to 6 years.

CONCLUSIONS

The procedures for treating selected statues in the National Capital Region developed as alternative methods for maintaining outdoor bronze sculptures. Each sculpture received individual treatment, with modifications to the procedures as dictated by individual needs and requirements. There was no one simple answer, or solution to all problems. Procedural alterations sometimes occurred due to unexpected complications, such as not reapplying Incralac to the "gold horses" when the weathered material became insoluble and was of questionable benefit. So treated, outdoor sculpture has been found to be more stable in its exposure to the environment, and to retain an appearance close to the artist's original conception without substantial deterioration.

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TO REHABILITATE A WARSHIP

Peter Steele

The National Park Service acquired the destroyer USS CASSIN YOUNG from the U.S. Navy in 1978. The ship opened to the public in 1981, as part of the Charlestown Navy Yard exhibit at Boston National Historical Park. CASSIN YOUNG is the first warship afloat under National Park Service management. The experience of rehabilitating it provides a relatively new application of preservation practice and may be of interest to cultural resource managers.

Acquisition

Why acquire a warship in the first place? For Boston National Historical Park, CASSIN YOUNG was a "natural," representing ships built and repaired at the Charlestown Navy Yard during and after World War II. From its establishment in 1800, the Navy Yard's purpose was to serve the U.S. fleet by building, repairing, modernizing, and supplying ships. During World War II, the Navy Yard specialized in building destroyers, including Fletcher class destroyers such as CASSIN YOUNG. This intense military-industrial effort on the home front was a major reason for Allied victory and one of the highlights of Navy Yard history. Throughout the 1950's, CASSIN YOUNG was also one of many ships to visit the Navy Yard for maintenance and modernization. Thus, the ship fits directly into the Navy Yard's primary historical roles of ship building and ship modernization. Along with USS CONSTITUTION, CASSIN YOUNG shows 150 years of change in shipyard work—and in America's Navy—from ships of wood, sail, and muzzle-loaded cannon of the early Republic, to ships of steel, powered by oil, carrying computer controlled weapons—ships that comprised the world's most powerful fleet at the end of World War II.

As one of the last remaining Fletcher class destroyers which fought so effectively in World War II, CASSIN YOUNG took part in most of the major naval battles in the Pacific in 1944 and 1945, receiving two Kamikaze hits. The ship has intrinsic historical significance in much the same way the forts and battlefields do.

While CASSIN YOUNG fits well into the Charlestown Navy Yard, the project could have proved disastrously expensive if the vessel had been in poor condition. Fortunately, CASSIN YOUNG was in excellent structural shape despite having been "mothballed" since 1960, partially stripped of parts, and subject to various degrees of corrosion.

Restoration vs. Rehabilitation

Despite the drama and historical significance of battles and war production, the park decided not to restore CASSIN YOUNG to her World War II appearance. The ship had been in active service throughout the 1950's, and our decision was to rehabilitate the vessel to its late 1950's appearance. In this way, we could save the extensive equipment and structural fabric added in the 1950's and more fully interpret the ship's entire history, as well as the shipyard's role in modernization of the fleet.

Records

The park acquired and developed a variety of records to document the ship's operational and structural history, its appearance and condition prior to rehabilitation, and the rehabilitation process. With the ship, we acquired 2,500 blueprints, 2,000 technical manuals, and 6,000 archival papers detailing the ship's original structure and armaments, various modifications, maintenance and equipment operations, and routine activities aboard. The collection also includes approximately 1,000 historical photographs, and extensive historical documents and written histories detailing the ship's activities during her period of active service from 1943 to 1960. The park developed a complete photographic record

(about 1,000 images) of all exterior areas and interior spaces prior to rehabilitation, as well as hundreds of photographs of the rehabilitation process.

Led by Historian Technician Francy Bockoven, the park also recorded 26 interviews with former CASSIN YOUNG crew members, documenting living conditions and shipboard activities during both World War II and the peacetime operations of the 1950's.

Major aspects of the rehabilitation, such as sandblasting and painting, replacement of life lines, re-installation of armaments, and installation of interpretive labels are documented in Section 106 review forms. One specialized test involved measuring the thickness of each steel plate which comprised the ship hull, using ultrasonic test equipment. The thickness of the hull is a crucial factor both for keeping the vessel afloat, and for long-term preservation. Destroyers like CASSIN YOUNG have very thin hulls, down to 5/16" thick or less, because they were built for speed. Serious corrosion destroys thin structural fabric and threatens the watertight integrity of the vessel. Hull thickness tests showed very little loss in CASSIN YOUNG's hull thickness in comparison to the construction specifications. We tested the thickness of each hull plate in three spots per plate, for all plates below water line. The record of these thicknesses includes about 110 tests and provides a baseline for future reference.

The Hull and Exterior Surfaces

Corrosion can kill any metal ship. Prior to rehabilitation, CASSIN YOUNG looked very sick, marred with extensive and severe rust, missing parts, and "mothball" equipment. The last Navy diver inspection of the underwater hull, in 1965, reported marine fouling, paint failure, and corrosion of metal over 30% of the underwater surface. The surface experienced 15 years of continuous corrosion since that time. Boston National Historical Park was fortunate to have a dry dock (one of the nation's oldest) and a maintenance crew with the skill and dedication to successfully dry-dock a warship. With the ship in dry dock, we inspected, tested, and prepared the hull for many more years of service with minimum loss of fabric.

Following ultrasonic and photographic documentation, and collection of paint samples, the entire exterior hull was sandblasted and painted according to current U.S. Navy specifications.¹ The Navy specifications included complete information for painting all surface areas, and the paints varied by section of the ship, such as underwater hull, waterline ("boot-topping"), waterline to deck ("freeboard"), deck, superstructure, etc. The paints and application methods comprised integrated systems and provided the most durable protection known to the Navy. The Navy had discontinued use of many of the paints first applied to CASSIN YOUNG, and so it would have been extremely difficult to produce them. For example, the antifouling paints (F-14 HPN and F-15 HPN) were hot plastic paints produced in solidified form in 600-pound cans. These had to be broken up with axes, pounded into small pieces with sledge hammers, heated to 300 degrees F. in 110-gallon reducing kettles, and applied hot. Then it proved to bond poorly with the anti-corrosion paints and routinely resulted in extensive paint loss and hull corrosion. Fortunately, the modern Navy paints are much easier to apply and more effective, and the finish coats have the same appearance as the paints used in the 1950's.

Further hull protection was provided by adding 100 zinc blocks, or anodes, to the underwater hull. This system was based on the theory that a less noble metal (zinc in this case), when connected to a more noble metal (the steel hull) in a corrosive environment, will generate an electromagnetic current sufficient to protect the more noble metal.² Called polarization, this system should fully protect the underwater hull from corrosion for eight to ten years.

Ultimately, the best corrosion protection for an underwater hull is an impressed current cathodic system. Here, a series of specially designed anodes are hung from the ship and provided with electrical current which they can distribute automatically to monitor and control corrosion all over the hull. With such a system in place, corrosion and future dry-docking can be postponed indefinitely.

Dry-docking CASSIN YOUNG also allowed us to check all the penetrations of the hull, such as the sonar dome, drain pipes, water intakes, and propeller shaft alleys. The Navy had blanked off the drains and intakes; they were sound, as was the sonar dome, propellers, and rudder. But the propeller shaft alleys have to be periodically repacked and recovered on the exterior to prevent water from entering the ship. Park personnel accomplished this difficult job during the dry-docking, and that completed the hull work.

Public Support and Personnel

Ships are popular with the public, and Navy warships have special appeal to those interested in military history, to veterans, to the armed services and related organizations, and to anyone touched by patriotism. The CASSIN YOUNG has received tremendous public support which has helped its rehabilitation.

Former crew members and other interested people formed the USS Cassin Young Association, with nationwide membership. The Association has donated thousands of hours of volunteer service, hundreds of historical artifacts, and many valuable goods and materials while enjoying the pride of good work and the fun of several reunions. In addition, the Navy League of the United States, the U.S. Naval Sea Cadets, the Reserve Naval Mobile Construction Battalion (the "Seabees") the U.S. Army Reserve, the U.S. Coast Guard Reserve, and the Navy itself have all provided valuable goods, services, and information free of charge. Specialized technical information on ship maintenance came from various ship memorials around the country. In this vein, we highly recommend Mr. Stafford Morss, repair officer for CASSIN YOUNG's inactivation in 1960, and Vice President of the USS Massachusetts Memorial for many years. In estimated total, these individuals and organizations have donated over \$378,000 of goods and services to the CASSIN YOUNG rehabilitation, and their support still continues.

In the long run, however, we relied on the good will and knowledge of others. The job required a regular staff with considerable technical knowledge of ship maintenance and operations, the ability to lend others in doing the work, and firm dedication to preservation principles and quality work. Many people on the park staff brought these elements to the job, and the most important among them was a career Navy man named Averil Phelps, who knew Navy ships inside and out. Mr. Phelps implemented the work and supervised the volunteer activities throughout the rehabilitation.

Other Activities of Interest

There are myriad other concerns and activities encountered in CASSIN YOUNG rehabilitation. Some of the concerns seem elemental, but the solutions can be more difficult.

A ship needs a safe port. With the Navy Yard's large, deepwater piers sheltered in Boston's inner harbor, a safe berth, with the addition of new mooring lines, no problem in this case. We seriously considered leaving CASSIN YOUNG in dry dock for preservation and display, because that situation so graphically illustrated the use of the dry dock, the role of the Navy Yard, and the relationship of ship to shipyard. We had several concerns about leaving CASSIN YOUNG permanently in dry dock, however, and a paramount one was safety. It is dangerous enough for visitors to wander around piers, open decks, and steep ladders, and even more dangerous on narrow gangways and decks over a dry dock floor.

After proper documentation, we replaced all the wire cables (aptly called life-lines) which encircle the edges of the decks. To the life-lines we added historically appropriate rope netting (called "snaking") which makes an effective barrier against falling overboard. Non-skid paint on the main deck, pads on low overheads, and careful restrictions to public access aboard ship are other safety measures we have followed. They have required only very slight changes to historic fabric or appearance.

When the Navy "mothballs" a ship, they add outside covers and inside pipes and machinery which seal the ship's interior and remove humidity, thus preventing interior corrosion. We had to remove this material from public areas of the ship, but reactivation of

such dehumidification systems may be the best long-range solution to preservation of non-public ship spaces.

Other major steps were reactivating CASSIN YOUNG's electrical systems and air-handling systems, both of which were needed to permit rehabilitation work and public visitation aboard. Throughout the project, a multitude of stored parts were reattached in their proper location, including air-search radar, surface-search radar, gun director radars, gun directors, and homing torpedo launchers. Other equipment and parts were acquired, from bunk frames and mattresses to quadruple 40 mm gun mounts, 21-foot torpedoes, depth charges, inflatable life rafts, and a wooden, 26-foot, motor whaleboat. After all, a warship like CASSIN YOUNG had to complete complex operations at sea, sometimes during war, while providing a home for approximately 300 men.

Rehabilitating this ship has been a challenge in which the Park Service has applied preservation principles in a new area, while enjoying skilled staff and volunteers, and cooperation among many governmental and private organizations. Since the ship opened to the public in June, 1981, approximately 528,000 people have visited CASSIN YOUNG... while we continue to turn back the ravages of time.

¹*Naval Ships' Technical Manual*, NAVSEA, 0901-LP-190-0002, Change 5, Chapter 9190, "Preservation of Ships in Service" (Paints and Cathodic Protection), January, 1970 changed 15 October 1978.

²*Ibid.*, Section XI, "Cathodic Protection," 9190.231, "Corrosion Control," p. 56.

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VEGETATIVE THREATS TO HISTORIC SITES AND STRUCTURES

Robert Warnock, Lila Fendrick, Barbara Hightow, Terry Tatum

In the District of Columbia, native tree saplings have attained heights of ten feet atop the Jefferson Memorial. Along the 184 miles of the Chesapeake and the Ohio Canal, woody vines, shrubs, and seedlings have disturbed the masonry locks, aqueducts, and canal banks. At the Worthington House in the Monacacy National Battlefield, trees grow from rotted rain gutters, and poison ivy roots have penetrated the brick walls. Furthermore, successive reforestation has altered Civil War vegetative patterns at Manassas National Battlefield in Virginia.

If not afforded the proper levels of management, plants can rapidly overtake an historic structure or landscape. Despite the preservationist's goal of creating and maintaining a static slice of time, landscapes and their built components change constantly. Buildings have a limited life expectancy and garden plants eventually die. Neglectful maintenance results in the reduction of a building's useful life or in plants reaching ungainly proportions.

Maintenance of the built and natural components of an historic site requires an understanding of their separate needs. Maintenance techniques applied to one type of resource are seldom applicable to the other, yet the need exists for a unified plan to insure that the separate elements of a site support its overall goals. Management of the natural components of a landscape may be as involved a process as the management of the built components, and, ultimately as essential to the preservation of the historic resource.

Vegetation Management

For any historic or interpretive site, a decision should be made as to the appropriate role of vegetation. Where this is not done, the vegetation eventually becomes a problem. Left to natural processes, it encroaches upon historic resources. The key to control and management is interrupting the natural succession process at the appropriate stage and implementing a maintenance program.

Managing vegetation may be handled in two ways: (a) overwhelming the current growth with man-power, machinery, and chemicals, a technique one Park Service maintenance director called "fire-fighting," and (b) developing a long-term reasonable maintenance plan optimally developing vegetative management guidelines for each resource or group of resources within a park system. This second method allows vegetation management to be preventive rather than corrective, ultimately decreasing operational costs and benefiting the historic resources.

Vegetative threats can be grouped by several major plant types, each posing a specific problem. It should be noted, however, that these threats frequently involve two or more plant groups in combination. The following overview of the major plant types focuses on methods of vegetation control and management as applicable to problems identified in the site investigations.

Herbaceous plants:

Herbaceous plants include wildflowers, grasses, and weeds, all less damaging than woody plants which have more invasive root systems. However, such plants develop in mortar joints or masonry defects, trapping moisture especially in the Middle-Atlantic states where freeze-thaw cycles are extreme. Prolonged presence of herbaceous plants can result in humus build-up, attractive to the development of larger, potentially more harmful plants.

For the most part, herbaceous plants are best removed by hand pulling or weeding. The application of approved herbicides is another solution, although less preferable due to potential long-term damage. Hand pulling also insures closer inspection of the historic resource, which can pinpoint structural maintenance needs at an early stage. Management fires or approved broadleaf weed killers are other, less preferable, control methods.

Vines:

Vines cause severe damage since they create a damp area between their leaves and the walls of a building, while sending out invasive root systems. Vines growing directly on a wall may strangle a wooden or masonry structure, forcing apart its components (i.e., wisteria lifting off a wooden porch roof or the balusters from a limestone balcony). They may insert tendrils or aerial roots in the mortar or brick, weakening the mortar and masonry by increased exposure to freeze-thaw actions, or enlarging the openings and dislodging stone or brick from a moisture damaged wall (poison ivy, English ivy, Boston ivy, honeysuckle). A root enzyme which attacks the stability of lime may disintegrate the mortar until only the sand remains (all vines). Dense vine growth prevents the sun from drying the wall: as moisture builds up, dry rot can occur in wood, and decay in mortar and masonry (primarily poison ivy, English ivy, Boston ivy, Virginia creeper, and honeysuckle).

Vines may be controlled by girdling or by cutting at the base (left to dry, they should be carefully removed from the structure within a few weeks). Great care must be taken in removing vines so as not to disturb mortar and masonry. Digging up roots will discourage further growth, but elimination of habitat will be required to eliminate all growth. Organic debris should then be cleared from around a structure allowing the surface to be exposed to sunlight and free air circulation. In some cases, a systemic herbicide may be recommended when a vine is severely damaging to a structure, and should be applied to roots and stems. Where a vine is to be used as a part of the historical interpretation of a site, a strict grooming design and schedule should be followed. In such a case, intensive maintenance is the only acceptable solution.

Lichens, Mosses, and Fungi:

Lichens, mosses, and fungi represent a group of bacterial and plant growth which, although less visible than other vegetative threats, can be equally damaging. Requiring continual dampness, their presence suggests a moisture problem inherent in the structure. Further, they may make way for more damaging plants by causing humus accumulation or chemical reaction with masonry, resulting in deterioration.

A variety of solutions including diluted ammonia, toxic washes, and herbicides can be applied to control growth. Preventive measures to allow for good air circulation should be practiced once the lichens, mosses, or fungi have been removed.

Shrubs:

Shrubs pose many of the same problems as trees when their presence is invasive or when plantings have reached ungainly proportions. Shrubs in a garden setting can be lush, well-shaped plants if they are periodically pruned. Left unmanaged, most become tall, spindly, and unsightly. Those established in cracks, crevices, mortar joints and other undesirable places can develop particularly strong and damaging root systems. The presence of shrubs on an historic structure indicates an accumulation of organic material in excess of an acceptable level, generally indicating structural deterioration and the need for physical repairs. Invasive shrubs perhaps on an historic earthen fortification or masonry wall need to be removed entirely, lifted out by the roots, and the structure repaired. If the plants may be cut off at their base, then structural repair is not needed.

Successional shrubs and saplings encroaching upon an historic meadow or farmland may be controlled through regular mowing during the spring and summer months. Livestock grazing is an alternative to mowing which may be appropriate to the interpretive goals of some sites. Controlled burning or the application of approved broadleaf herbicides may also be used as treatments in extreme cases.

Trees:

Trees which gain great heights and have extensive root systems may pose a severe threat in proximity to an historic landscape. Management options for well established invasive trees are relatively few, generally requiring a decision to remove the tree or face continued damage to a structure.

For long-term management of a property, a buffer or management zone should be designated around historic structures, buildings, gardens and historic vistas. Any tree which could cause a threat over its lifetime and its full size should be removed as soon as possible. The buffer or management zone should be designated, taking into account potential root and limb spread.

With trees, methods of removal are limited and must be considered on an individual basis. As extensive roots decay, foundation settling can occur, requiring continued checks for repair needs. In certain cases, mature trees may be left in place to support an historic structure, or guard against erosion; their ultimate removal should be planned in conjunction with necessary repairs to the structure.

In summary, the discussion of plant types and their potential for damage applies here to single-source vegetative threats. However, most of the problems encountered in this study involved multiple threats. Single-source threats are more likely to occur under controlled situations, and might often involve an ornamental plant growing beyond its design intent. In any case, a number of factors should be considered in designing a program for vegetation management at a particular site.

The literature on treatments for destructive vegetation recognizes the following dangers of uncontrolled plantings:

- (a) damage, including the destruction of mortar, bricks and stone by penetrating root systems and the introduction of moisture;
- (b) the growth of small trees in gutters and roofs where pockets of soil have collected;
- (c) cracking of foundations and walls by root invasion and excessive withdrawal of ground moisture resulting in ground shrinkage and foundation movement;
- (d) blockage of gutters by leaves;
- (e) decay of building materials resulting from the growth of lichens, algae, mosses and fungi, plus damaging chemical reactions, moisture retention and staining of walls;
- (f) corrosion and discoloration of building materials by toxic substances used for removing lichens, algae, mosses and fungi or for killing vegetation; and
- (g) overgrowth of foundation plantings and other vegetation which alter the appearance and/or character of buildings and historic landscapes.

Summary Findings and Recommendations

Damage caused by vegetation at historic sites may be grouped into three maintenance problems. At Virginius Island, Worthington House, Potomac Canal, the earthen embankments at Fort Washington, and Fort DeRussy, the nebulous character of the area surrounding an historic resource allows for vegetative encroachment. To rectify these situations, the boundaries need to be clearly defined.

Neglect of an historic building or structure can further damage the resource. The Worthington House roof, Fifteen-Mile Creek, the Jefferson Memorial, and the Batteries at

Fort Washington are all areas where a program of responsible structural maintenance could eliminate invasive vegetation.

Absence of human management at an historic site also can result in plants resuming a pattern of natural growth contrary to site goals. The problem in this case is not limited to volunteer plants but may include ornamentals exceeding their design intent. Examples include Manassas Battlefield, Antietam Cemetery, the Yellow Barn at Glen Echo, Clara Barton House, Four Locks, Carderock, and Widewater.

With a lack of clear policy as to vegetation management, Park Service staffs face the dilemma of managing both natural and man-made elements of a landscape. The need for definition of site areas is a recurrent one. At Manassas, for example, the historic pattern of vegetation serves to unite otherwise disparate elements and present a sense of the area's historical association. Historic sites, then, must be defined by a purpose and their associated vegetation managed to support that purpose. Improved general maintenance plans and educational programs for park maintenance supervisors and their staffs might ultimately allow such specific problems and solutions to be addressed Servicewide.

Further, goal clarification is needed at a number of sites to determine the direction of vegetation management. Once the purpose of a site is established, a management zone should be defined which may be smaller than the physical bounds of the property or support the preservation if not the interpretation of the entire site. At Virginius Island, a management zone consisting of 20 to 30 feet around the historic industrial ruins would aid in their long-term preservation and serve to make them more accessible to visitors. Only clearly defined management planning allows the historic scene to properly reflect its historic story.

This article came from a report prepared by Soil Systems, Inc. for National Capital Region. The authors work for Soil Systems, Inc.

TANGIBLE RESOURCES: EVIDENCE OF INTANGIBLE ETHNOGRAPHIC OBJECTS IN THE NATIONAL PARK SERVICE

Debra Berke

Pipe bags covered with seed beads and porcupine quills, shiny burnished black pottery, and miniature baskets with feathers and shells—these are just a few examples of the ethnographic objects in National Park Service collections. Ethnographic objects may be defined as the tangible material products of a social group. Objects made for the purpose of daily living, i.e., clothing, weapons, tools, and religious articles are typical.

A survey recently completed by the Curatorial Services Branch, Preservation Assistance Division, WASO, collected information on the numbers and types of objects and cultures represented in National Park Service collections. This information came from a variety of curatorial documents, National Park Service catalog cards, and telephone conversations with regional and park staffs. For the purpose of the survey, we developed a working definition of an ethnographic object, which is published at the end of this article along with the survey results.

The purpose of the survey is twofold. First, it lets Park Service staff know the types and locations of ethnographic objects in individual parks. It gives us a sense of the scope of our collections, and may be used to inform researchers of our ethnographic objects, thereby encouraging their scholarly examination. Secondly, the survey may be used as a planning tool. Managers, curators, interpreters, and conservators can consider the survey results in the light of their park collections when developing and implementing park programs.

The National Park Service owns over 16,000 ethnographic objects. The most notable feature about many collections is the concentrated material from one area or site. This occurs because many parks were created to preserve and interpret a distinct land area as well as the events that took place there. As a result, parks collect objects documenting the natural history, prehistoric people, and historical periods of specific areas. For example, Grand Canyon National Park collects and preserves geological, biological, and archeological specimens, as well as native ethnographic pieces. This collection offers a rich picture of life in the Grand Canyon at many different periods of time.

The National Park Service has some ethnographic collections of major importance. The collections at Hubbell Trading Post National Historic Site, Yosemite National Park, Grand Teton National Park, Mesa Verde National Park, and Pipestone National Monument are just a few examples. The value of these collections is based on the wealth of material from a particular group, the large numbers of one type of item, and the fine pieces of craftsmanship represented. In addition, the Park Service protects pieces unique in their documentation or the important events they depict. For instance, there are around 400 Sioux items at Agate Fossil Beds National Monument, Nebraska. The ranch area once belonged to James Cook, an early homesteader, who became friendly with Red Clouds Band of Sioux. The Band camped on his ranch during the late 1800s and early 1900s. As a token of friendship, they gave him items like beaded pipe bags and pipes, a buckskin shield, headdresses, and clothing. The Cook family documented these items in a catalog, and today many of them may be found in the park's museum collection.

Ethnographic objects are material evidence of human behavior, providing concrete primary information on the culture as opposed to secondary information. Since cultures continually modify and change, ethnographic materials document aspects of the life and traditions of a group at one period of time.

Contemporary native people value ethnographic objects as tangible evidence of their heritage. At Yosemite National Park, local Native Americans take pride in having baskets made by their relatives on display in the park museum. Also, contemporary Yosemite area

basketmakers get ideas for weaving patterns by studying baskets in the park collection. At all parks, staff must be sensitive to the fact that objects in their collection may have strong meaning to native peoples.

The collections at Yosemite National Park exemplify major Park Service ethnographic collections. Yosemite National Park has over 4000 ethnographic objects, approximately 3000 of which are baskets. This basket collection chronicles the development and changes of the Native American basketmaking tradition in California. Baskets in the collection spanning the period from prehistoric time to 1984 exemplify this time depth. The park has baskets made by Lucy Telles, an innovative basketmaker during the early 1900s. She helped introduce finer stitching, new forms, and more intricate two color weaving patterns. The park has some of her earlier pieces made in the new style, as well as the last basket she was making when she died in 1956. We included a picture of Lucy Telles from the Yosemite collection. Taken in 1933, she is seen working on the largest basket ever made in the Yosemite-Mono Lake region.

The Yosemite basket collection is an example of cultural material from one geographic area. Many of the baskets in the collection were made by groups like the Miwok, Paiute, Western Mono, Yokuts, and Washo from the vicinity of Yosemite National Park. Not only are there baskets in the collection, but photographs of people making baskets, examples of materials used in fabricating baskets, bone and metal awl tools, and unfinished baskets. Other unique items in the Yosemite ethnographic collection include the only collection of Central California dance regalia with a time depth of 90 years and the largest collection of Miwok ceremonial regalia.

Focusing on the history and culture of the Nez Perce people, Nez Perce National Historic Park preserves a major ethnographic collection. Physically, the park is a conglomeration of 24 scattered sites in the vicinity of the contemporary Nez Perce Indian Reservation. The park ethnographic collection of over 2100 objects is a crucial resource for preserving and interpreting Nez Perce culture.

Nez Perce people have been affected by a variety of events and circumstances, including contact with explorers, missionaries, and the United States government; and they have been influenced by commercial ventures of fur trading, mining, logging, and agriculture. Items from many of these periods in Nez Perce life are in the park museum collection. For example, a friendship medal given to the Nez Perce by Lewis and Clark dates from 1805, the exploration period, Two Hudson Bay trade cloth blankets with designs made from European glass beads reflect times of trade. Some objects in the collection, like woven bags, chronicle Nez Perce adaptation to new circumstances. The park has approximately 10 of these woven bags from the early 1800s made from traditional materials of hemp, squaw grass, and natural dyes. Eighty newer bags in the collection used the same weaving techniques with materials available to the Nez Perce after 1840 like corn husks, dyed wool, cotton string, and imported jute.

There is great potential for the modern Nez Perce tribe to view and use the park ethnographic collection as reference and repository of their culture. They have already entrusted the storage of the tribal ethnographic collection to the park. From time to time, native craftspeople examine objects in the collection to learn about traditional manufacturing techniques and materials. Some women have looked at buckskin dresses in the collection in order to make their own authentic wedding dresses.

A new exhibit of 380 Nez Perce ethnographic items displays and describes this wealth of information about Nez Perce culture. The exhibit portrays Nez Perce lifestyle, craftsmanship, history, and their reverence for the earth. One emphasis of the exhibit is the role of women. Two of the objects associated with women are a love potion and a calendar string. The love potion, probably made by a medicine woman for sale to another woman, worked if the potion contents touched a desired man. The hemp calendar string dates from 1890-1920. Beads and knots record the events of one woman's life over two years.

The ethnographic collections at a park, together with the other resources of the park, give us a tangible, more complete understanding of native life in these areas. For this

reason, ethnographic objects are a crucial resource of the National Park Service. We must increase our awareness of these materials, and assure that they are properly preserved so they survive into future times. The publication of this survey is one step toward expanding our awareness and concern for ethnographic objects in the National Park Service.

The author is Staff Curator, Curatorial Services Branch, Preservation Assistance Division, WASO. Photographs are by Jeanne Southard, Museum Technician (photography), National Capital Region. The objects photographed are taken from the Department of Interior collection of over 1000 ethnographic items, presently stored in the National Capital Region Museum and Archeological Regional Storage Facility. The photograph of Lucy Telles is from Yosemite NP.

Historic NPS Owned Concession Buildings

Randall J. Biallas

Many park buildings constructed to serve visitors are included on or meet the criteria for listing on the National Register of Historic Places. Their association with park development and/or their architectural/engineering significance make these utilitarian buildings important contributors to our national patrimony. One of these under-recognized but significant types is concession buildings.

During 1982-1983, the Center for Architectural Conservation at Georgia Institute of Technology, under contract to the WASO Engineering and Safety Services Division, conducted an architectural/engineering inventory-inspection survey of all 1006 NPS owned concession buildings, excluding approximately 1000 other such buildings in Yellowstone National Park. The primary purpose was to determine the physical work required to bring these buildings to a maintenance condition, financed from the Visitor Facility Fund.

Following the survey, the Associate Director for Cultural Resources requested selected regional offices to review the survey reports and determine which buildings met the National Register criteria. The following table categorizes these concession buildings based upon regional office responses.

LCS Buildings = currently on the List of Classified Structures, and included on or appears eligible for the National Register.

Historic ?-Yes = not currently on the List of Classified Structures, but included on or appears eligible for the National Register.

Historic ?-Maybe = not currently on the List of Classified Structures, but may be eligible for the National Register.

Historic ?-No = doesn't appear eligible for the National Register.

	Total	LCS	Historic	Historic	Historic		
	Bldgs	Bldgs	?-Yes	?-Maybe	?-No		
AKR		20	—	—	—		20
MAR	18	6	11	—	—	1	
MWR	97	18	—	—	—	79	
NAR		34	9	—	—		25
NCR		1	—	1	—		
PNR		132	23	6	—		103
RMR	*297	116	119	—	—	62	
SER		93	5	—	—		88
SWR	23	6	8	—	—	9	
WR		291	127	47	9		108
TOTAL	*1006	310	192	9	9	495	

* excluding approximately 1000 Yellowstone National Park buildings, only 43 of which are on the LCS.

As noted in the table, approximately 50% of the buildings (310 + 192 = 502) surveyed are included on or appear to meet the National Register criteria. However, only approximately 60% of these buildings (310) are currently on the List of Classified Structures.

The largest number of early significant concession buildings, such as the Lake Hotel (1889-1891) at Yellowstone National Park, and the Bryce Canyon Lodge (1924-1927) at Bryce Canyon National Park were built by railroad companies to encourage tourism. Another large number were built by the Civilian Conservation Corps in the 1930's.

This exercise identified historic buildings in the computerized Building Inventory-Inspection Program data base, enabling appropriate review for proposed physical work under the Visitor Facility Fund. It also identified deficiencies in the List of Classified Structures, as well as a backlog of work to fulfill our legislated obligation to nominate properties that meet the criteria to the National Register. Finally, it started us in the process of relating different data bases that are maintained in WASO. In the future we hope to go through similar exercises using the Quarters, Roads, Dams, National Register, and HABS/HAER data bases.

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TAX INCENTIVES FOR REHABILITATING HISTORIC BUILDINGS

Sharon C. Park, AIA

The National Park Service administers, along with the Internal Revenue Service, the federal tax incentives program for the rehabilitation of historic income-producing properties. This program involves the rehabilitation of certified historic structures, which are buildings listed in the National Register of Historic Places, or buildings which contribute to registered districts. To date, over 250,000 historic properties have been identified as potentially eligible to receive tax benefits.

Since 1976, Federal tax benefits have been available for rehabilitating historic income-producing properties. The current benefits, specifically a 25% investment tax credit, have been available since January, 1982, as a result of the Economic Recovery Tax Act of 1981. In order to qualify for the rehabilitation tax credits, the rehabilitation must be "substantial."

This means that the amount of money expended in the rehabilitation must exceed either the basic value of the building or \$5,000, whichever is greater. This tax benefit allows the owner or long-term lessee to take 25% of the rehabilitation costs as a credit against taxes owed to the federal government. In addition, the new, adjusted basis of the rehabilitated property can be depreciated over a 15-year cost recovery period.

The National Park Service ensures that the rehabilitation has been consistent with the historic character of the certified historic structure. The regional offices of the National Park Service (Alaska, Atlanta, Denver, Philadelphia and San Francisco) review and certify the rehabilitation, using the Secretary of the Interior's "Standards for Rehabilitation" to evaluate whether the historic character of the building has been preserved. Once a successful rehabilitation has been completed, the National Park Service issues a letter of final certification which the owner attaches to his or her income tax return. Ninety-two percent of the rehabilitation applications submitted to the National Park Service are eventually certified as consistent with the historic character of the building. The high rate of success in this program comes from the dedicated efforts of the regional staffs, who assist owners in conforming with the Secretary of the Interior's "Standards for Rehabilitation."

Since 1976, there has been almost 6 billion dollars worth of rehabilitation activity directly associated with projects qualifying for federal tax benefits. During the first 2 quarters of fiscal 1984, 1,612 projects have qualified for tax benefits, representing an estimated 870.4 million dollars' worth of private investment. From information obtained as part of a questionnaire to owners of rehabilitated properties, 63% of those owners said that they would not have undertaken the rehabilitation without the availability of the federal tax benefits for historic preservation.

In addition to the private investors who have benefited through the investment tax credit, there have been many direct and indirect benefits to the general public. The most obvious benefit is the number of historic buildings brought back to a serviceable life. Because 49% of the rehabilitated properties have involved rental housing units, one of the most tangible benefits has been the creation of over 29,000 new housing units within historic properties since 1976, many slated for low or moderate-income families. With 22% of the properties for mixed-use 16% for office use, and 8% for commercial use, the historic downtowns are turning around. Some of the indirect benefits to society involve an increase in the number of jobs created, increased local government tax bases, and new sources of potential revenue from personal income, sales, and corporate taxes. After a three-year study on the tax incentives program, the General Accounting Office reported that losses to the Federal Government appear small in relationship to the dollar value of rehabilitation work performed on historic structures.

For more information on the 25% Investment Tax Credit or copies of the Secretary of the Interior's "Standards for Rehabilitation," please write to Preservation Assistance Division, National Park Service, Washington, D. C. 20240.

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