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The Value of Photographic Documentation in Archeological Research: A Case Study

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Archival photographs are rich sources of data for archeologists, interpreters, conservationists, and cultural resource managers. Systematic photographic recording greatly increases the amount of information that can be extracted regarding knowledge of original construction fabric, history of stabilization, and reconstruction of culture history. The purpose of this article is to emphasize the value of photographs in archeological research and to make recommendations on ways to improve the quality of the data recorded. The example used is the prehistoric Anasazi great kiva at the site of Kin Nahasbas, Chaco Canyon, New Mexico, which was originally excavated in 1935 by a field crew of the School of American Research/University of New Mexico, and reexamined by the National Park Service in 1983 prior to stabilization and backfilling operations for preservation purposes.

The great kiva at Kin Nahasbas was originally excavated to obtain comparative information on features that are specific to this type of structure. While student reports were prepared (Luhrs 1935; Murphey 1936), these were never published. The only account of this work appeared in an evaluation of great kivas in Chaco Canyon (Vivian and Reiter 1965:52-61). The only published photograph, an overview of the great kiva, does not provide detailed evidence about the condition of the structure's wall.

Because the site was treated with benign neglect once the 1935 work had been completed, the north wall of the great kiva, in particular, had deteriorated. When funds became available in 1983 to stabilize the walls and backfill this structure, the authors prepared a Historic Structure Report in order to document the state of the site and information about its construction, use, history, and its place within a broader culture context (Mathien and Windes 1988).

Prior to initiating fieldwork, efforts were made to collect all the available data on the site of Kin Nahasbas and its history of research and preservation. The only stabilization efforts reported are the use of two trenches excavated around the great kiva in 1935 to drain the water from this area and a similar effort in 1976 (Mathien and Windes 1988:9-11). It was assumed, therefore, that none of the great kiva walls had been stabilized.

Other than five individual overviews of the great kiva taken over the years for various purposes (Mathien and Windes ~988:106-108), the only series of photographs that could be used to document the original wall fabric was found in Luhrs' (1935) student report. An examination of these photographs indicated that while the entire wall of this circular structure had been included in the various pictures, the photographs would be difficult to

use for detailed analyses because they were taken from several different angles, at different distances from the wall, and during various stages of excavation. Often a scale or provenience information were not included. As a result, some close-up views of the northern part of the wall allowed discernment of individual rocks, while in other sections of the wall it was impossible to even determine the number of courses present. The negatives from which these prints were made could not be found; and even if they had been available, it is doubtful that enlargements would have been clear or usable due to grainy film.

Based on this evaluation, it was decided that controlled photographic documentation of the great kiva wall in 1983 prior to and after stabilization would provide the best record for future studies. A comparison of the photographs taken after the great kiva was cleared with those taken by Luhrs would aid in the determination of the extent of damage during the 48-year interval, and the post-stabilization photographs would provide evidence of changes resulting from pointing, capping, rebuilding, and other stabilization procedures.

Photographs

A systematic procedure was followed to obtain three sets of photographs of the same areas of the great kiva for comparative purposes. These photographs were taken prior to clearing out the great kiva interior, after the fill had been removed, and after the stabilization masons completed their work. All photographs were taken from the centerpoint of the great kiva using a 4 x 5 inch camera. A 70-cm-square frame (internal dimensions, marked in 5 cm intervals) and a small photoboard designating the site number and wall section were included in each photograph. To start the initial series, the frame was placed on the bench of the great kiva on the northern side (beneath the east wall of the antechamber) and was centered in the photograph. The remaining photographs in the initial series were taken in a clockwise direction and with a 50% overlap in coverage until all sections of the wall had been photographed. Figure 1 is an example of one of these photographs.

Analysis

Figure 2 is an elevation of the great kiva wall based on data taken from the photographs; it indicates the areas stabilized in 1983, the possible areas stabilized in 1935, and the wall core or exposed bedrock. The 70 cm square frames that correspond with the wall sections photographed in 1983 have been identified.

To determine the damage that occurred between 1935 and 1983, Luhrs' photographs were compared with the prestabilization sets. Some damage to the great kiva walls was expected, but the discovery of some evidence for stabilization had not been anticipated.

Damage was noted in three major areas: the old wall along the northern side beneath the antechamber, which had been out of alignment when originally excavated (Luhrs 1935:10) had fallen in by 1983; a small niche in the northern section had disappeared; and part of the wall core on the eastern side had eroded away.

The northwestern section of the great kiva showed evidence of "stabilization" in Wall Hole 4. Luhrs' photographs (1935:22, Figure B; 25, Figure A) were compared with prestabilization photographs taken in 1983; Wall Sections 16 and 17 (Mathien and Windes 1988: Plates 9497) indicate that additional slabs had collapsed on the left side of Wall Hole 4, and an area about 95 cm long had been rebuilt on the right side. This stabilization incorporated longer stones that form crude bands, and the original wall on the right side had smaller laminate sandstone chinks than this later reconstructed portion.

One photograph by Luhrs shows a workman facing the bench on the east side of the great kiva in a position suggesting he may have been repointing sections of the bench top (Figure 3). While no tools or pails of mortar can be seen, the dark color between the rocks directly in front of this individual suggests fresh mortar. The two stones with a dark mixture on top of them and to the man's right in this photograph may be his source of mortar. One additional photograph Luhrs 1935:25, Figure A) indicated some stabilization

of part of the wall on the northwestern side of the great kiva. This is the same area where stylistic and masonry additions near Wall Hole 4 were noted. No other evidence of stabilization or repair was detected.

The lack of standardized methods of photographic recording discouraged more detailed analyses using the 1935 data, but the knowledge gained about the original fabric of all but two areas allows reliance on the pre-stabilization photographs taken in 1983 for further research purposes. Because the great kiva has been backfilled, these photographs will be the only accessible data remaining by which future investigators will be able to examine the walls.

The 1983 photographs were used to reevaluate the masonry styles constructed by the prehistoric Anasazi in this structure, and for relative dating of the various construction phases. (Mathien and Windes 1988).

The difficulty in classifying walls as Hawley's (1934) Type I or Type II (Vivian and Reiter 1965:53) was clarified when it was seen that there were several patterns in the masonry even in a single photograph; these differences were not between the old and new walls but within small areas of the new wall. As a result, two to three construction/remodeling sequences were identified; the old north wall, the newer remaining sections of the great kiva, versus parts of the bench which were distinct.

Recently, pioneering approaches to the study of architectural attributes of Chacoan structures, particularly wall veneer, have been carried out in the field (Morenon 1977, Terrel and Durand 1979). These new methods employ quantitative data analyses, and the question as to whether these data can be obtained from photographs and used effectively was explored in a preliminary manner using the 1983 Kin Nahasbas database.

By enlarging the pre- and poststabilization photographs so that the 70 cm square frame was the same size, it was possible to select a sample of wall rocks for measurement and analysis. To obtain a reasonable sample of wall rocks from each wall section of the great kiva, the area within the frame was used. Two thin lines were drawn from the upper right corner to the lower left and from the upper left to lower right of the frame, a 1-m distance. The length and width of all stones touching these axes were measured, and the measurements were converted to actual size (Mathien and Windes 1988:108-118, 167-D9). Lengths of wall rocks were used for analyses.

Because visual inspection of wall veneer had indicated two different prehistoric construction phases, and the areas encompassed within our sample had not been stabilized prior to 1983, it was expected that a statistical evaluation of wall rock lengths should indicate that Wall Sections 12 and 3 were different from Wall Sections 4-18. Using the converted measurements obtained from the pre-stabilization photographs taken in June, a large sample t-test for the comparison of two population means was applied with $\alpha = .05$ and rejection at $\pm 2\sigma$. The test indicated that Wall Section 1-2 and 3 were not statistically different from one an- other (we know both were part of an older great kiva wall). Wall Section 1-2 was compared to Wall Sections 4, 8, and 16 and were found to be statistically similar, but Wall Section 9-14 and 17-18 were different from Wall Section 1-2. As expected, Wall Section 3 did not compare well with any of the newer wall sections (Wall Section 4-18). Therefore, there did seem to be some validity to the concept that photographs, if properly taken, could provide quantitative data that could be measured and tested.

With regard to areas that had eroded out, then been rebuilt to surrounding wall heights in 1983 by the masons who were part of the stabilization crew in Chaco Canyon, the results of similar statistical tests were not as promising. Those areas that were disturbed show some differences in technique, particularly thickness of mortar and rows of chinking, but none that grossly misrepresent the stylistic pattern of the original wall fabric. The rebuilt/ stabilized areas (Test Trench 1, between Wall Sections 13-14, and Wall

Hole 3 in Wall Section 15) differed statistically from Wall Sections 3, 9, 13, and 15, but not from Wall Sections 4, 8, 10, 16, 17 or 18. Because there are twice as many instances where the hypotheses of equal means would not have been rejected, the

procedure cannot be considered effective in this instance. If future work using this procedure proves it is impossible to differentiate between stabilized and unstabilized walls, our masons must be commended for excellent matching work, but we will be left with difficulties when trying to distinguish between original and stabilized walls.

Conclusions and Recommendations

The research potential of measuring wall rocks from photographs needs to be explored further and improved. While the analyses employed were not as useful a discriminator between stabilized and unstabilized walls with a similar veneer style, they did provide quantitatively distinct differences between prehistoric wall veneer types. It is recommended, therefore, that all National Park Service personnel who take photographs keep in mind the potential uses of the photographic record. To insure future usability:

1. Use a large scale with standard markings.
2. Place scale and mugboard with provenience information in every photograph. The scale should be as perpendicular to ground as possible to eliminate distortions.
3. Take each photograph perpendicular to wall face. Oblique shots are difficult to examine later.
4. Take repeat photographs from the same place using the same scale if possible before and after wall work.

Once a set of photography exists that can be used to evaluate these preliminary methods, the methods will need reevaluation. Improved photographic documentation will aid the cultural resource manager and researcher in many other aspects of their work and should be a goal whether or not the experimental approach taken at Kin Nahasbas proves to be a useful tool at a later date.

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The Natural Resource Potential of Historic and Prehistoric Archeological Sites

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Archeological sites contain buried information which can contribute significantly to an understanding of the natural! histories, geomorphological processes and effects of man's land uses in the National Parks and protected areas of the Virgin Islands. Examples presented herein demonstrate how archeological investigation and interdisciplinary exchange of information can increase understanding of past and present environments and contribute to sound resource management.

On St. Thomas and St. John, almost every bay on the north shore contains a prehistoric cultural site, and three such sites have been reported from ridgetop locations. The islands also abound with plantation sites and other historic sites and structures related to Colonial and post-Emancipation agriculture and industry.

Frequently, as in the Virgin Islands National Park, emphasis has been placed on protection and management of "natural resources," while cultural sites have generally been considered distinct and separate resources, related specifically to man and his activities. But the two can not, and should not, be separated. In the Caribbean, particularly, natural areas and landscapes of the present have been substantially affected, and often altered by man's past activities. What may be considered a natural area in the Virgin Islands National Park today usually directly reflects impacts of prehistoric and historic human land uses.

Evidence of former environmental conditions and clues to man's past land uses lie in the archeological deposits themselves, and in the interpretation of stratigraphy which is exposed during archeological investigations. The very process of archeological investigation frequently uncovers extensive information pertinent to understanding the natural history of the areas where research takes place. Archeological deposits or middens left by prehistoric people contain food refuse items and mancrafted products which provide a record of the flora, fauna and mineral resources available in the environment at the time. For example, ceramic griddles and the stone "teeth" of cassava graters indicate the cultivation of manioc, one of several floral species introduced to the islands by prehistoric settlers. Colonial archeological deposits contain, among other things, evidence of use of local materials to make lime and other construction materials, remains of local and introduced food resources, and palynological and macrobotanical evidence of medicinal and other plants available to slaves and planters after European settlement of the islands. Occasionally representatives of extinct species are identified in cultural middens. For example, in 1917, at Magens Bay in St. Thomas, archeologist Theodoor deBooy excavated a prehistoric midden in which he found bones of an extinct rail *(Nesotrachis debooyi),* subsequently named after the archeologist, along with bones of *Isolobodon portoricensis,* a small rodent once abundant in Puerto Rico and St. Thomas, but no longer known in the Virgin Islands.

For the past three years, multidisciplinary archeological investigations have been conducted at Plantation Zufriedenheit, a cotton and sugar plantation which formerly encompassed most of the Magens Bay watershed in St. Thomas, US Virgin Islands. The archeological project attempts to document the impacts of man's activities on the land, and to record environmental changes which have occurred since about 1500 B.C.

Evidence of former environmental conditions, quite different from those of today, have been identified in the Arboretum at Magens Bay. The Arboretum today is a seasonally wet area with a rich humus topsoil. During storms and rainy periods, water rushes down steep guts inland of the Arboretum, and flows across a flat low area at the bases of the slopes where the Arboretum is located. Because there is no outlet channel in the immediate vicinity of the Arboretum, after the forceful waterflow has subsided, standing water remains on the ground surface of the low-lying Arboretum for several weeks. Today this

area is not a habitat for *Chione cancellata;* however, while conducting archeological tests in the Arboretum, Emily Lundberg (Lundberg 1985:206) discovered abundant *Chione cancellata* shells in sandy silt soils beneath the surface humic soil horizon. The even distribution of the shells, and the absence of an identifiable cultural midden in association with the shells, led Lundberg to conclude that a section of the Arboretum formerly was a brackish pond or small mangrove lagoon that provided a natural habitat for *Chione cancellata.* Radiocarbon dates on the shells provided corrected dates of 425 B.C. And 1150 B.C., indicating the times when the former habitat was present.

Other archeological evidence has enabled reconstruction of changes in the shoreline at Magens Bay. Buried shells of *Donax denticulatus,* a small bi-valve which burrows in the wavewash zone of the beach, extend from the present beach berm to a distance of about 300 feet inland from the present high water mark. This evidence suggests an earlier more inland shoreline. Additionally, a series of shovel tests conducted between the inland coconut grove and the shore provided a continuous soil profile which permitted indentification of a former beach berm inland from the present berm. This evidence further supported the hypothesis that the most recent trend in the shoreline change has been recession of the water's edge from a previously more inland position.

Contributing to the gradual prograding of the beach at Magens Bay has been erosion of the upper slopes and accumulation of soil overburden on the alluvial plain below. Evidence provided in archeological deposits documents the history of man's effect on the erosional patterns, soils distribution, and ecology of the watershed from the prehistoric period to the present. Stone axes, and stone and shell adzes and celts recovered from the prehistoric deposits at Magens Bay attest to the clearing of land for village settlement and the harvesting of large trees for construction of canoes and houses. Cotton spindle whorls and cassava griddles suggest the clearing of land for cultivation.

Greatly accelerated rates of soil erosion, however, were initiated during 18th century exploitation of the land, especially the fertile upper slopes of the plantation, for sugar cultivation and other agricultural pursuits. Erosion intensified as a result of a shift to cattle grazing during the 19th century, and culminated in 20th century unplanned and unmonitored development of the upper reaches of the watershed. Evidence of this erosional history is found in archeological tests excavated at the bases of slopes and on the alluvial plain of the plantation. Here an earlier humic soil horizon and early 18th century artifacts underlie a soil accumulation as much as 100 cm thick. Soil chemistry analyses of the strata have further verified the upland origins of this overburden (Righter 1989). The erosional patterns and changes in distribution of soils in the watershed have, in turn, altered habitats and resulted in changes in flora and fauna of the area.

The foregoing examples are but a few which illustrate the natural resource potential of archeological sites and demonstrate the numerous ways in which investigation of archeological sites can reveal environmental change through time. The effects of prehistoric and historic land uses are visible in the landscapes of today, while clues to flora and fauna of the past are sealed in cultural deposits. It is essential, therefore, that interdisciplinary research aimed at both archeological purposes and natural science goals be incorporated into resource management programs in our National Parks and protected areas.

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Forgiving the Lath/Saving the Plaster

Kay D. Weeks

Lath is a base to which plaster is applied to create a solid, finished wall. For example, primitive man used reeds and sticks as the framework for mud plaster. Later, wood lath was coated with lime and sand plaster. Still later—extending to the present time—wood, metal, and gypsum board lath were bases for gypsum plaster. At this date, "lath and plaster" are still the acknowledged components of a finished wall, but new materials are continually being developed to enhance strength, lightness, and fire-resistance, and also to allow plastering over bases that only a few years ago were considered impractical or impossible to plaster such as masonite, plywood, and smooth concrete.

Wood Lath (Riven to Machine-cut)

With the abundance of forests in 17th century America, early lath for interior wall plaster was made from wood. Logs were "riven" or split along the grain of the wood on all four sides by a hatchet blade on a lath hammer. The wood strips were then nailed to studs, with space in between for the plaster keys. By the first quarter of the 18th century, lath was made by sawing a thin board, then splitting it into separate strips, or by partially splitting the sawn board in alternate directions to produce a zig-zag which was pulled slightly apart, then nailed into position. The latter type is known as "accordion lath."

By the early 19th century (except in rural areas), riven and split lath began to be replaced by machine-cut lath. Lath cut by a reciprocating saw exhibited vertical marks, whereas the circular saw left distinctive rounded marks. Compared to handmade lath, machine-sawing resulted in faster, cheaper lath production and in a uniformity of the wood strips. Machine-sawing left a rough, "hairy" surface, which provided a better adhesive bond for the scratch coat (this was most likely an unintentional by-product of the machine rather than a planned technological advancement).

Problems with Wood Lath

Whether hand-riven, split, or machine-cut, one may automatically think of wood as the true lath, with metal and gypsum board later and somehow inferior substitutes—at least esthetically. Wood was indeed the traditional lath for plaster walls and ceilings for many years and, from a contemporary viewpoint, the hand work involved in making the earliest lath is particularly compelling. But it was wood's problems as a stable base for plaster that spurred development of other lath systems— first metal, then gypsum board.l Wood lath expands and contracts with changes in the humidity, causing the plaster to crack. Wood lath can rot. And the mechanical bond (keys formed by the plaster curling around the back of the closely placed wood slats) was often incomplete to begin with. Sometimes early lath was too closely spaced so that no plaster or very little plaster squeezed through the gaps. Or, over time, structural problems cause plaster to separate from wood lath. When plaster loses its key, walls can bulge, ceilings can sag, and chunks of plaster can even fall to the floor.

Even though the wood lath has its faults and the plaster shows signs of deterioration such as cracking or sagging, replacement should not be a foregone conclusion. If maximizing retention of the historic interior is the goal, the existing wood lath and plaster need to be respected as a unit when making repairs. (Obviously, if the troublesome lath is replaced, the plaster is destroyed as well.)

In general, cracks can be repaired with minimal removal of the original plaster. For example, hairline cracks can easily be filled with an all-purpose drywall joint compound. Seasonal cracks that open and close with variations in humidity can also be successfully treated using a "quick-setting" (60, 90, or 120 minutes) joint compound in conjunction with fiber glass mesh tape. The tape is used to bridge the crack and is then feathered over

with more quick-set compound. An all-purpose joint compound should be used as the final coat prior to sanding.

Larger diagonal cracks, often the result of structural overloading or building settlement, are best handled by professional plasterers. In this case the crack needs to be widened slightly, strengthened with metal lath, then patch plastered; but again, repairs are essentially cosmetic. Plasterers generally use a ready-mix base-coat (to which water is added) for patching larger cracks or holes extending to the lath. The finish coat may consist of all- purpose joint compound or a gauged lime putty. Another mix plasterers use to patch cracks or small holes, or for finish-coat repair, is a "high-guage" lime putty (50% lime, 50% gypsum). This produces a white, easy-to-sand patch.

When some of the plaster keys on a ceiling have broken and the plaster is loose or sagging, one common repair technique is to re-attach the sound plaster mechanically to the lath with flat-head wood screws and plaster washers. After the old plaster is secure around a hole, patching can take place. Plasterers always moisten the old wood lath thoroughly before re-plastering or it will twist and buckle when the wet plaster is applied. Another way to reattach plaster to wood lath involves injecting liquid adhesives behind the wood lath, or into the plaster wall surface itself, then applying pressure by means of a brace until the bonding process is complete. (Using water-based adhesives, as opposed to solvent-based formulations, avoids problems with flammability and toxic fumes.)

As noted, if repairing historic plaster and dealing with old wood lath seem fraught with problems, the inclination may be to demolish the plaster and start over. But demolition is a dirty operation, is expensive, and ultimately, there really is no substitute for the special quality of hand-worked plaster applied in three-coats (the sanded scratch and brown coats, and lime finish coat).

If saving the plaster means forgiving the wood lath, there is a compromise approach followed by professional plasterers and increasingly recommended for homeowner repairs. Both for small patch plastering and larger repairs, the wood lath is retained in place, then covered with metal lath as a base for new plaster. Plasterers like this method because the double lathing technique makes a stronger patch. (The keys using metal lath are top-rated.) Preservationists like it because a maximum amount of the historic plaster wall is saved; the vestigial wood lath remains as part of the building's record without having to perform as a functional base for new plaster.

When Lath and Plaster Can't Be Saved

Where lath and plaster are extensively damaged (for example, from moisture) and need to be removed, it should be acknowledged that part of the building's history is being removed at the same time. Although creating a new wall surface is not "preservation," some framework and finish for the room has to be selected as a replacement. In this event, metal lath or gypsum board lath are frequently used as a base for new, three-coat plaster work. (It is much less common today to use wood lath as a replacement system, but wood is still available.)

Compared to wood, metal and gypsum board lath may seem to be recent technological advancements. This is not true. Metal lath was patented in England in 1797 and gained popularity in the United States toward the end of the 19th century. Gypsum board lath (also called plasterboard and rock lath) was first produced in England in 1890 and used extensively in this country after the turn of the century. So, although the earliest lath was wood, metal lath and gypsum board lath have a long history as well and may ultimately merit preservation in their own right.

To end this brief discussion of historic lath—wood, then metal, then gypsum board—some differences might be noted in the total amount (base-coat plus finish coat) of plaster applied. Three-coat plaster over wood lath generally resulted in a wall surface about 3/4" to 7l8" thick. Three-coat plaster over metal lath provided about the same thickness. Gypsum board lath reduced the total surface thickness to about 112" because only two

coats of wet plaster were used. Even so, the sheer amount of applied material made all three earlier lath and plaster systems fairly comparable in surface thickness.

On the other hand, today's modern systems use significantly less plaster. The popular veneer plaster over blue-board—a modification of the historical gypsum board lath—reduces the plaster surface to around 1/32" to 1/16" in thickness for one coat and 1/8" for two coats. Although using much less plaster, proponents of this newest of lath and plaster systems cite its surface hardness and shortened installation and decorating time overdry wall. Designed to reduce the cost of materials, veneer plaster is less expensive than a two- or three-coat plaster job but only slightly more expensive than dry wall. When complete, a troweled or textured wall surface looks more like traditional plaster than dry wall.

Finally, there is dry wall itself. It, too, is paper-covered gypsum board produced in standard sheets and nailed to studs and joists. However, in a discussion of lath and plaster, dry wall has no place. As the name itself indicates, no wet plaster is used at all.

Note: The repair of historic plaster is the subject of a *Preservation Brief* that will be published by the Preservation Assistance Division, National Park Service, in the Fall of 1989 and sold by the U.S. Superintendent of Documents, Government Printing Office.

1 Knight's American Mechanical Dictionary published in 1872 defines lath as "one of the narrow strips nailed to the studs of partitions to support plastering." This assumes that lath automatically means wood lath, although there is a note adding that metal is sometimes used. In 20th century dictionaries, the definition of lath is routinely broadened to include gypsum board, adding "also a building material in sheets used as a base for plaster."

National Council on Public History

Barbara J. Howe

The National Council on Public History was organized in 1979 and incorporated in 1980 to meet the needs of individuals who were beginning to call themselves "public historians." Those were the days of the job crisis and what academics called "alternative careers." But it was clear to those outside that academy that "alternative careers" was derogatory, and it was beginning to be clear to some of those in the academy, particularly at the University of California—Santa Barbara, that there may be things that could be done to better prepare students for the jobs awaiting historians who knew where to look for them. The Council began as just that, a council made up of the board of directors, but it expanded to a full membership organization in 1984.

The Public Historian became the official journal of NCPH in 1980 and continues to serve that function. Special issues on the National Park Service (Spring 1987) and Preservation Technology (scheduled for publication in 1991) may be particularly interesting to historians involved in cultural resources management work. The journal is always soliciting articles about research and projects underway in public history, and manuscripts may be submitted to Dr. Otis Graham, Editor, *The Public Historian,* Ellison Hall, University of California—Santa Barbara, Santa Barbara, CA 93106.

In addition to the journal, members receive the quarterly newsletter *Public History News*. We try to have a CRM section in each newsletter, and we would welcome contributions to the newsletter about projects, exhibits, current research notes, and publications. These may be sent to our executive secretary and newsletter editor, Dr. R. Wayne Anderson, NCPH, 403 Richards Hall, Northeastern University, Boston, MA 02115.

NCPH also sponsors annual conferences. In 1989, we held our meeting in St. Louis as a joint meeting with the Organization of American Historians. In 1990, we will be meeting in San Diego in early March. Our 1991 meeting will be in Toledo, OH. In addition to traditional sessions, our conferences feature a variety of workshops to meet the continuing education needs of our members. In 1987 and 1989, NPS historians' workshops were scheduled to coincide with our meetings to encourage the historians to attend the NCPH meetings.

In recent years, NCPH has developed an active publications program. Our *Directory of Historical Consultants* will help you find contract historians who are interested in CRM work, as well as other areas of contract history work. We, however, make no recommendations about the work of these individuals. We will soon be updating our *Public History Education in America: A Guide,* which identifies academic programs in public history. Our "Guide to Continuing Education for Public Historians" offers information on seminars and short courses in CRM and other topics. We also offer a syllabus packet for those teaching public history courses. All of the above publications are available at a discount to our members. With the Robert E. Krieger Publishing Co., Inc., we have arranged for the reprinting of the *Report of the Committee on the Records of Government* and have two volumes under contract: one on professional ethics, edited by Theodore Karamanski; and one on corporate archives, edited by Arnita Jones and Philip Cantelon.

NCPH has tried to address the concerns of historians in CRM in several ways. We will prepare a position statement to the NCSHPO on our views of the status of the National Register of Historic Places for its current review. We have lobbied to raise the qualifications for historians working on CRM projects; worked with the National Coordinating Committee for the Promotion of History to express our concerns about issues related to the National Park Service, such as the inclusion of sites that we feel are ineligible for the NPS and the revised management policies; and addresses on legislation regarding historic shipwrecks. During my tenure as chair of NCPH, although not as part of my

official duties, I served on the National Parks and Conservation Association's Commission on Research and Resource Management Policy in the National Park System to incorporate the concerns of historians into that report.

NCPH, like any organization, can only be as strong as its membership. We invite you to join with us to promote the utility of history in society through professional practice and to address the needs of public historians. Membership dues are $28 for individuals and $38 for organizations. Mail to the University of California Press, Journals Department, 2120 Berkeley Way, Berkeley, CA 94720. Since membership includes a subscription to a journal published by the UC Press, the press maintains our mailing list.

For further information, please contact our executive secretary or our current chair, Dr. Theodore Karamanski, Department of History, Loyola University of Chicago, 6525 N. Sheridan Road, Chicago, IL 60626 (Phone: 3121508-2229.)

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The Preservation Priority Matrix

Catherine Colby

"Among the many historic structures and sites in a park, which ones merit the available preservation funds?" The Preservation Priority Matrix is a computerized tool that begins to answer this question for cultural resources managers.

Concept

The matrix provides a comprehensive framework for considering all the cultural resources in a park, and can assist managers with setting priorities. The matrix fits into the planning process after approved resource management documents. The latter define the goals, while the matrix will provide an intermediate step before actually scheduling preservation work to take place. In the matrix the approach to describing structures is very broad. Buildings are not broken down into components, and the program does just enough of an inventory to allow prioritizing. Rather than repeating data from the List of Classified Structures or the Inventory and Condition Assessment Program for example, it contains a field for an identifying number which has the potential of linking to these and other NPS databases in the future.

The data entry for each structure is relatively quick and simple because there is only one input screen. It indicates what types of basic data need to be collected, and the Preservation Priority Matrix User's Manual provides definitions for these entries. (They are also described below.) Once the required information is entered in the database, the program (dBASE III Plus, compiled in Clipper) will sort the data and print the selected reports. One of the reports lists all the structures or sites organized in order of highest priority for preservation. There are eight additional reports which give other useful combinations of data.

The flexibility and ease of altering data and providing quick analysis of information are the very distinct advantages of using database software. The program organizes specific data in order to help deal with subjective questions. This is one of its advantages and also its limitation. The shuffling of data can only provide assistance, and the results need very careful consideration by managers. In addition, some of the data that must be entered depends on professional judgment. Therefore it is important to stress that the matrix is only a tool. The matrix does not supply absolute answers, but can help in guiding the decision-making process.

Background

In 1988, Historical Architect Tony Crosby developed the Preservation Priority Matrix on a Macintosh computer for Buffalo National River. This was the first attempt at determining whether this computerized tool would be helpful in managing cultural resources. The prototype idea had come from a chart, covering much of one wall, which had been prepared by Historical Architect Billy Garrett at Grand Canyon National Park. The latest step in the development of the matrix has involved setting up the structure in dBASE III Plus and compiling it, so it could be easily used on IBM-compatible computers in all parks in the region.

The first database will soon be delivered to Guadalupe Mountains National Park. Feedback from this use will help in finalizing the program for regional distribution. The matrix was designed for use by park and regional staff to establish priorities for individual resources in relation to others within a particular park, not local area, state, or region. It was not intended to assist in setting regional or national priorities, but could provide some help at the regional level. The matrix can be a very long range planning tool, continuing to be useful as personnel changes, because it is very "user-friendly" and quick to learn.

Overview of the Matrix Categories

The organization of the matrix is straightforward. It consists of some categories containing only information, and other categories which have a value rating assigned to them. These value ratings are weighted according to their relative importance, then totaled to provide an overall priority value. The value ranges can be re-evaluated to determine appropriate weighting factors as conditions change or more information becomes available. Though originally conceived with historic structures in mind, the matrix categories are general enough to apply to parks with archeological sites as well.

There are twelve value categories containing types of information that help distinguish one site or structure from another. These are National Register status, historical significance, amount of documentation (as it may affect preservation action), architectural significance, physical condition, ongoing threats, ease of access, integrity (amount of original fabric and character remaining), interpretive value, present use, potential use, and treatment decision.

Each structure or site is given a rating according to the intensity of the particular category. For example, if access to a backcountry cabin involves a rigorous hike on poorly defined, steep trails it is rated with a 1 on a scale of 1 to 3 for access. (Its difficult access makes the cabin a less likely candidate for preservation.) Each category is rated from low to high according to need for preservation action. Therefore the following rate highest: the worst condition, more threatening impacts, easiest access, most integrity, historical and architectural value, highest interpretive potential, and most important use.

Some categories have been selected as more important in determining need for preservation action. Therefore the range for rating from 0 to 3 is weighted times 1, 2 or 3 depending on their relative importance. For example, interpretive value is considered more important than the potential use of the structure, so the range for interpretive value is weighted times 2 (x 2), and the range for potential use is weighted times 1 (x 1). In another example the impacts threatening a resource are considered to be less significant in determining preservation decisions than the percentage of the structure which may have lost its integrity because of later alterations. This is based on the fact that some threats can be alleviated. Threats are therefore weighted times 1 and integrity is weighted times 3.

The value categories are weighted according to their relative importance as follows:

1. National Register status.... 1
2. Historical significance..... 1
3. Amount of Documentation....1
4. Architectural significance.. 1
5. Condition..... 3
6. Threats..... 1
7. Access..... 1
8. Integrity..... 3
9. Interpretive value..... 2
10. Current use..... 2
11. Potential use..... 1
12. Treatment decision..... 1

DEFINITIONS OF INFORMATION CATEGORIES

Area Location of site **Site** Name of site or group of structures **Structure** Name of structure including subsurface archeological structures and surface structures or rooms designated by function or number. For archeological sites, retaining walls or other features might be included. **ID Number** Any relevant site or building identification numbers. Examples are LCS, CSI, State Register, HS number, NHS number, Smithsonian number,

property records number, MMS number, or other. **Element Number** Examples are building wall or foundation. This number can also link to other databases. For archeological sites this may be features or appliances of a structure. **Time Period** Prehistoric, historic, or non-historic **Dates Constructed** Dates built and altered, earliest first. **Type of Documentation** Types of existing written and/or graphic documentation currently available and which could be needed to undertake specific preservation activities. Examples are histories, construction records, correspondence, black and white photos, slides, video, sketch plans or maps, preservation plans, HSR, preservation construction documents, HSPG, surveys.

DEFINITIONS OF VALUE CATEGORY NAMES AND THEIR RATINGS

National Register Status 3 Listed on the register. 2 Nominated to register. 3 Not evaluated. **Historical Significance** 3 Structure is very important to the history of the park. 2 Structure has some importance in the history of the park, or has importance because it is part of the historically significant site. Structure has a minor role in the history of the park. **Amount of Documentation** Amount of written and graphic documentation currently available. 3 Adequate written background and graphic documentation. 2 Some written background and graphic documentation. Minimal amounts of either written or graphic material. 0 None. **Architectural Significance** A structure has architectural significance if it is representative of a style or has distinctive architectural features, or the circumstances of its design or construction, or the architect have importance to the park. 3 Structure is representative because of its architectural style, design, features, designer, or circumstances of its design. 2 Structure has some architectural importance, or it is part of a significant site design. Structure has little architectural importance. 0 No architectural importance. **Condition** Physical condition of structure based on HSPG assessment or assessed by regional staff or CRM team. 4 Not safe, structurally unsound. 3 Poor, major repair needed to stabilize or "mothball". For archeological sites: major deterioration since last examined, and immediate action needed. 2 Fair, signs of deterioration; there may be a major element which has failed. Archeological site with minor disturbance or deterioration since last evaluated. Good, intact, in maintainable state, or for archeological site, no treatment required. **Threats** Threatening, detectable negative effects on a site or structure's significant characteristics or integrity. Examples are poor drainage or vandalism. 3 Severe: resource will be significantly damaged or irretrievably lost if action not taken within 2 years. 2 Moderate: damage or loss if action not taken within 5 years.

Low: continuing effect of impact known and will not result in irreparable damage. 0 None. **Access** Degree of ease or difficulty in reaching a site or structure (not handicapped accessibility). 3 Easy, can be reached by car. 2 Moderate, reached by 4-wheel drive vehicle or from a dirt road or with less than an hour walking on park trail. Difficult, reached only by hiking trail over an hour. **Integrity** Integrity involves the amount of original fabric and character remaining as opposed to reconstructions or additions. 3 The structure has been altered very little or not at all. Mostly original fabric and/or low impact preservation techniques used. 2 The structure has been altered somewhat: restored or reconstructed, and/ or incongruous preservation techniques and materials. The structure has been so altered that little of the original fabric or character remain. **Interpretive Value** The relative importance for the interpretive program proposed for the park. 3 The structure is very important in expressing approved interpretive themes and objectives. 2 The structure itself is not important for interpretation except as part of the whole site. The site or structure has a minor role in interpretive plans. 0 The site or structure has no importance for interpretation. **Present Use** Type of present use. Examples are visitor use as part of interpretation program, visitor use for functional purpose (rest room), staff office use, staff storage use, or concessioner use. Other uses can be research, scientific testing, or current socio-cultural

ceremonial use. 3 Interpretation to visitors, in interior. 2 Visitors to site, research, staff use. 1 Other. 0 None. **Potential Use** Potential use categories are similar to present use. It may be the final approved treatment or use that is currently being considered. (Though the ratings are identical to those for present use, this is weighted times 1 and present use is weighted times 2.) **Treatment Decision** 3 Must be preserved. 2 Should be preserved. May be preserved. 0 May be disposed of or demolished.

Because space is limited in the input screen, an ADDITIONAL INFORMATION field of 500 characters allows any other relevant data to be included.

Sorting and Reports

Once the ratings, weighting, and data entry are completed, the program can sort information and print the following reports:

1. Structures in Order of Greatest Need for Preservation
2. Ten Structures Most Needing Preservation with their Value Category Data
3. Value Categories for All the Structures at a Particular Site
4. National Register Status of All Properties More than 50 Years Old
5. Physical Threats and Physical Condition for the Ten Structures with the Highest Interpretive Values
6. Uses and Treatment Decisions for the Five Structures with the Highest Interpretive Values
7. The Five Structures in the Worst Condition, Most Threatened, with Most Difficult Access, and Least Integrity
8. Type of Amount of Documentation and National Register Status for a Particular Structure
9. List of all the Structures with their Identification Numbers and Dates Constructed

Again it is important to stress that the matrix does not give absolute answers. Priority results are based on whatever values are input, and thus they are still very subjective. The matrix can, however, provide a useful framework for approaching the whole range of preservation decisions required in a park.

Though the Preservation Priority Matrix program has been developed in the Southwest Region, a diskette and User's Manual will be made available to all interested NPS cultural resource managers. It has been compiled so that purchase of dBASE III Plus is not required. If interested, please contact Catherine Colby, Historical Architect in the Southwest Regional Office, Division of Conservation. (commercial: 505/988-6796, and FTS 476-1796.)

Dogwatch

James P. Delgado

"Dogwatch" is the term traditionally used for the two-hour watch during which half the ship's crew eats supper and swaps stories.

Maritime Resources in the National Park System

The National Park System of the United States is comprised of nearly 440 areas throughout the United States, Guam, Saipan, Puerto Rico, and the Virgin Islands. These areas are of such national significance as to justify special recognition and protection in accordance with various acts of Congress. While national parks, monuments, and reservations date back as far as 1872, the system was not created until August 25, 1916, when Congress established the National Park Service. The National Park System has grown since then to incorporate parks, monuments, national preserves, national lakeshores and seashores, national rivers, and wild and scenic riverways, national historic sites, battlefields, parks, and monuments, national memorials, national recreation areas, and national parkways. In these diverse units of the National Park System, the National Park Service protects, preserves, and interprets superlative natural, historic, scenic, and recreational areas.

Because one of the major aspects of the American past is maritime history and culture, not surprisingly there are units of the National Park System devoted to maritime cultural resources. These include Cabrillo National Monument in San Diego, CA, which commemorates the 1542 voyage of Juan Rodriguez Cabrillo and the Spanish discovery of California. Another unit, Perry's Victory and International Peace Memorial at Put-in-Bay, OH, commemorates Oliver Hazard Perry's decisive victory at the Battle of Lake Erie, the greatest naval battle of the War of 1812 and the lasting peace between the United States and Canada that followed. In Honolulu, the USS *Arizona* Memorial in Pearl Harbor honors the American servicemen who lost their lives, most aboard the battleship *Arizona,* during the Japanese attack of December 7, 1941.

Three parks are entirely devoted to the maritime past. San Francisco Maritime National Historical Park is home of one of the country's largest maritime museums and the nation's largest fleet of historic vessels—the scow schooner *Alma,* square-rigger *Balclutha,* schooner *C. A. Thayer,* paddle tug *Eppleton Hall,* ferry *Eureka,* tug *Hercules,* and steam schooner *Wapama.* In Salem, MA, Salem Maritime National Historic Site preserves wharves, a bonded warehouse, and the U.S. Customhouse of one of the nation's great mercantile centers. Chesapeake and Ohio Canal National Historical Park, stretching 184 miles between Cumberland, MD, and Washington, D.C., preserves the 1828-1850 canal, once a water link to the coal mines of the Allegheny plateau.

Parks established to preserve other aspects of history or nature also possess significant maritime resources. In Boston National Historical Park, the Charlestown Navy Yard, with historic buildings, dry-docks, and the WWII destroyer *Cassin Young,* preserves part of America's naval tradition that dates from the early 19th century. At Vicksburg National Military Park, MS, the restored and partially reconstructed Civil War ironclad gunboat USS *Cairo* offers a tangible reminder of Union naval muscle on the western rivers. The Cuyahoga Valley National Recreation Area in Ohio includes the Ohio & Erie Canal, while Cape Hatteras National Seashore, on North Carolina's Outer Banks, includes historic lighthouses, lifesaving stations, and scattered pieces of wooden-hulled shipwrecks that lie along 60 miles of shoreline.

The NPS serves as the custodian for 59 historic lighthouses at parks as diverse as Glacier Bay National Park and Preserve, AK; Cabrillo National Monument, Golden Gate National Recreation Area, and Point Reyes National Seashore, CA; Fort Jefferson National Monument, FL; Kalaupapa National Historical Park, HI; Acadia National Park, ME; Cape Cod National Seashore, MA; Isle Royale National Park, Pictured Rocks National Lakeshore, and Sleeping Bear Dunes National Lakeshore, MI; Gateway National Recreation Area, NJ; San Juan National Historic Site, PR; and Apostle Islands National Lakeshore in WI.

Thousands of shipwrecks lie within waters encompassed by the boundaries of the parks. Some parks, like Cape Cod National Seashore, Golden Gate National Recreation Area, Channel Islands National Park, Fort Jefferson National Monument, Cape Hatteras National Seashore, Biscayne National Monument, Padre Island National Seashore, and Isle Royale National Park contain dozens, and in some cases hundreds of shipwrecks dating from as far back as 1558. Even interior parks, like Glen Canyon National Recreation Area and Grand Canyon National Park, have shipwrecks —in this case riverboats and a steamer shipped across the desert and assembled on the banks of the Colorado River for an ill-fated mining venture in 1912.

Some parks, like Cape Cod, Cape Hatteras, Gateway, Point Reyes, Golden Gate, and Sleeping Bear Dunes, have historic lifesaving and Coast Guard stations that once rescued mariners in distress. Glacier and Yellowstone National Parks both have historic boathouses and Glacier has a fleet of historic tour boats. Indiana Dunes National Lakeshore includes a historic fish house, and Assateague Island National Seashore preserves a historic fish factory. Even natural resources may possess significance to the nautical past. At Moores Creek National Military Park, NC, stands of live oak and pine trees, the raw materials of that state's 18th and 19th century naval shores industry, are preserved.

The National Maritime Initiative's responsibilities include assisting parks in identifying additional maritime resources, nominating them to the National Register of Historic Places or preparing National Historic Landmark (NHL) studies, assessing preservation options and plans, providing technical advice, and providing information for interpreting maritime history, culture, and resources. The Initiative's work has included NHL studies of the scow schooner *Alma* at San Francisco Maritime NHP, and the hulk of USS *Arizona* at the *USS Arizona* Memorial. Shipwrecks in several parks have been nominated to the National Register, and assessments of lighthouses, shipwrecks, and historic craft, such as the tour boats at Glacier National Park, have been undertaken. Whenever requested, the Initiative stands ready to provide assistance and support to the various units of the National Park System to further identify, protect, preserve, and interpret the maritime cultural resources in America's national parks.

Computer News

All the News with Bits!

Betsy Chittenden

Questionnaire Results

4,000 computers! The National Park Service owns and uses more than 4,000 personal computers, according to preliminary results of the Servicewide questionnaire completed last May. The questionnaire, originally designed to collect information for the Servicewide microcomputer purchase (now stalled, see below), has resulted in an enormous amount of information about the use of computers and software in the NPS that can be used for planning. Among the other results:

—The most requested new systems were case incident reporting, automation of standard forms, and visitor information.

—More than 5000 personnel are using WordPerfect on more than 3000 workstations, with another 1500 packages needed. No other word-processing software or dedicated word-processing system had more than 350 users.

—Use of GIS is increasing in the NPS, with about 50 workstations currently set up.

More results from the questionnaire will be published in this column after final figures are in. Anyone interested in questionnaire results for their particular region or park can get information from Gina Moriarty at Information and Data Systems Division in WASO, FTS 343-4490.

NPS Computer Standards

The NPS Automation Standards Committee met in July to review current standards and adopt new ones. Overall, the current standards seem to be serving quite well, and only minor changes were made to existing standards. WordPerfect 5.0 remains the word-processing standard, and dBase III Plus remains the database management software standard. Although dBase IV has been released and is available, it has been found to be too "buggy" and unreliable to be made a standard. New standards include:

—AutoCAD for computer-assisted drafting software.

—Fastback Plus for floppy-disk based backup software.

—CC:mail for electronic mail on Local Area Networks.

—Technical standards for laptop microcomputers.

—ARC for file compression software.

—Everex or compatible for tape backup systems.

Again this year, no standard for a spreadsheet program was chosen. Data in spreadsheet software is almost always used in-house in a particular office, and rarely shared across park or regional boundaries. Use of spreadsheets is thought to be declining overall. At present, 63% of NPS spreadsheet users use Lotus 1-2-3, with most of the rest using MultiPlan.

IRM Planning

Bureaucracy Quiz: What procedure do you follow to have the development of an automated system reviewed and approved in the NPS, to make sure that it doesn't duplicate an existing system? Answer: None! Until FY90, that is. This fall, the first NPS Information Resources Management (IRM) Long Term Plan will be drafted at a meeting of the regional and WASO Information Management Coordinators. The process of producing a Long Term Plan will involve examining existing and planned systems and determining

communications needs, support needs, and identifying duplicate systems. Much of the information in the plan will be taken from the results of the Servicewide questionnaire (see above). Required by the Department of the Interior, and identified as a major need in the recent ADP questionnaire, the planning process will be annual and ongoing. Along with the benefits of Servicewide review of planned systems, the planning process will help get major systems into the budget process, to increase financial and management support of vitally needed computer systems

Departmental/BOR Microcomputer Procurement

The BOR procurement (the Servicewide "mega-buy" for microcomputers, printers, and software), is stalled after the award was successfully protested by a vendor. Options being considered include using an "8A" (minority owned) vendor, reconsidering the original best and final bids, or dropping this method of procurement. The last option is being considered because the specifications of the BOR procurement, now nearly a year old, are rapidly becoming out of date and any equipment purchased using them may no longer meet our needs by the time it arrives.

ParkNet

Information and Data Systems Division has successfully lobbied for $1 million for FY91 to build a Servicewide communications network, to be called ParkNet. ParkNet will serve as a backbone of communications within the NPS, linking WASO, the regional offices, and the major mainframe computer systems (such as the Boise Fire Center, Finance, and Property). It will greatly simplify communications throughout the service, as well as reduce communications costs. Planning and prototyping will be done in the coming fiscal year.