Volume 9:02

ACRA EDITION

American Cultural Resources Association

April 2003

The Spring 2003 ACRA board meeting was held at the Issak Walton Hotel, Essex, Montana, which is on the National Register of Historic Places (see Page 3).

In This Issue...

ACRA's Mission

Our mission is to promote the professional, ethical, and business practices of the cultural resources industry, including all of its affiliated disciplines, for the benefit of the resources, the public, and the members of the association by:

- Promoting and supporting the business needs of cultural resources practitioners;
- Promoting professionalism in the cultural resources industry;
- Promoting and providing educational and training opportunities for the cultural resources industry; and
- Promoting public awareness of cultural resources and its diverse fields.

A basic tenet of ACRA's philosophy is the cost efficiency of private-sector firms in meeting the need for expertise in cultural resource management. ACRA is strongly opposed to unfair competition from tax-supported contracting programs. We believe that a greater benefit to society, and to the resources, derives from the existence of a healthy community of tax-paying, job-generating, private-sector CRM businesses.

ACRA OFFICERS

President
Loretta E. Lautzenheiser, *Coastal Carolina Research, Inc.*

President Elect
Christopher D. Dore, *Statistical Research, Inc.*

Past President
Susan M. Chandler, *Alpine Archaeological Consultants, Inc.*

Vice President
Dan Roberts (RPA), *John Milner Associates, Inc.*

Executive Director
Thomas R. Wheaton (RPA), *New South Associates, Inc.*

Treasurer
Donald Weir, *CCRG, Inc.*

Secretary
Ann Emmons, *Historical Research Associates, Inc.*

MEMBERSONLY

In accordance with a new board directive, all newsletter articles that contain information related to ACRA business or proprietary information, such as our "Legislative Updates," will be listed in a separate document that resides on the ACRA website in the MembersOnly area. If the newsletter is opened while connected to the Internet the [click here] links will automatically take the reader to these articles.

MESSAGE FROM THE PRESIDENT

[CLICK HERE] ACRA President Loretta Lautenheiser keeps the membership informed about current and upcoming ACRA Activities.

LEGISLATIVE UPDATE

[CLICK HERE] Nellie Longsworth keeps the ACRA membership up to date on the latest from Washington, D.C. The latest topics include the following.

FY04 Appropriations Request For Historic Preservation Fund

Indian Contracting Bill Reintroduced in Senate

Reauthorization of TEA-21 And Streamlining Proposals

Executive Order 13287 - Preserve America

New House Resources Committee Chair And Private Property Rights

Department of Defense Does Not Target Cultural Resources

2003 ACRA AWARDS ANNOUNCEMENT

[CLICK HERE] Charissa Wang, Awards Committee chair provides detailed information about award categories and deadlines. The following are some of this year's categories.

Government Award
Industry Award
Public Service Award
Quality Product Award

A nomination form is included.

ON THE COVER

Issak Walton Inn

The Issak Walton Inn is on the National Register of Historic Places. It was built in 1939 for the Great Northern Railroad. The purpose of the hotel was to house railroad workers. It was also to serve as a possible hotel, when the southern entrance to Glacier National Park opened. Due to the depression, the third entrance never materialized.

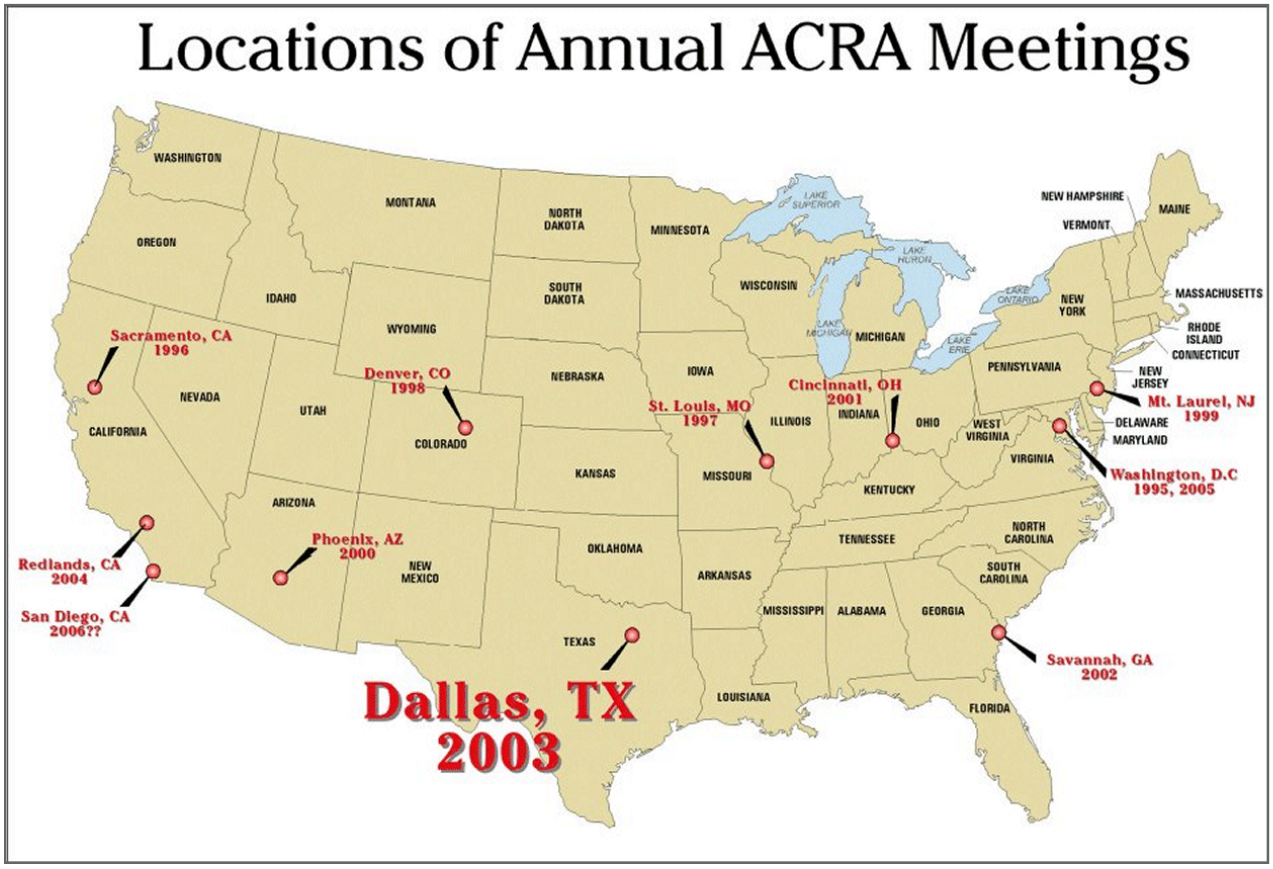
The hotel was named after Sir Izaak Walton, a sixteenth century English author and sportsman. Sir Izaak wrote the book *The Compleat Angler*.

COME JOIN US IN SEPTEMBER

FOR THE 8TH ANNUAL ACRA MEETINGS

SEPTEMBER 11-14, 2003

AT THE STONELEIGH HOTEL IN DALLAS, TEXAS



Check the ACRA website for upcoming conference details at: http://www.acra-crm.org/conference.html

Observations on Changes in HABS/HAER Mitigation Since the late '90s

By Roy Hampton, III
Hardlines Design Company, Inc.

The Historic American Buildings Survey (HABS) and the Historic American Engineering Record (HAER) are often used to document historic resources that are undergoing demolition or some other type of adverse effect as a result of federal spending or permitting. These projects are often triggered by Section 106 of the National Historic Preservation Act. As a result, many CRM firms are involved in documentation of buildings, bridges, dams, and other resources through HABS and HAER.

HABS was established in the 1930s for the dual purpose of recording significant examples of American architecture and to provide employment for architects who were jobless because of the Great Depression. The Historic American Engineering record was established in the late 1960s to focus more specifically on the recordation of resources with industrial, scientific, or engineering significance. HABS documentation is usually focused on the historic and architectural significance of a property. For HAER documentation, engineering technologies, machinery, and manufacturing processes often are emphasized.

HAER documentation has been traditionally associated with resources like factories, dams, and, of course, bridges. However, as resources of the recent past become eligible for the National Register, an interesting variety of resources have been documented through HAER. HAER documentation projects completed by my firm since the early 1990s have included such resources as jet and rocket engine test stands, nuclear laboratories, large dockside ore un-loading machinery, and even an EC-35 aircraft that was used as a flying command post during the Cold War.

The traditional elements of HABS/HAER documentation standards have remained fairly constant over the years. Resources are visually documented through archival black and white large format photographs with 4" x 5", 5" x 7", or 8" x 10" negatives and prints. HABS/HAER photography often involves not only existing conditions field photography, but also photographic copies of construction drawings, historic photographs, and other documents associated with the resource. A written text is composed according to a strict format, describing the resource, outlining its history, and explaining its historic, engineering, architectural, or cultural significance.

HABS/HAER documentation is divided into four levels. Level IV is the lowest level of documentation and generally involves only listing of basic facts about the structure. The most commonly used levels of HABS/HAER documentation are Levels I, II, and III. Level III involves large format photography and completion of a text. Level II reports also involve these elements, but a more detailed text and a larger number of photos are included. Level I HABS/HAER documentation includes even more intensive text and photographic documentation, plus measured drawings of the resource completed according to a strict HABS/HAER format.

These basic requirements have been fairly constant in recent times, but some changes have occurred recently in the way that HABS/HAER documentation is completed. The major changes are related to a number of areas, notably developments in technology, and changes in how most HABS/HAER mitigation projects are reviewed and administered. These developments have led to an evolution in the way HABS/HAER work is done by CRM firms today.

One important legislative/policy change has been related to management of HABS/HAER projects. When I started work as an architectural historian at Hardlines Design Company in 1997, the National Park Service (NPS) reviewed all of our HABS/HAER projects. Even HABS/HAER reports documenting small, locally significant resources such as tiny single-span truss bridges were reviewed by NPS. However, a decision was made to focus NPS efforts on documenting nationally significant resources. As a result, many HABS/HAER mitigation projects today are administered by State Historic Preservation Offices and are not reviewed by NPS.

This has led to some loosening of HABS/HAER standards for projects managed by states without NPS involvement. Some SHPOs have their own state HABS/HAER guidelines that include some requirements that differ somewhat from federal HABS/HAER standards. Other states generally follow the federal HABS/HAER standards but allow for extra flexibility in terms of report formatting. Many states have adhered to the federal HABS/HAER practice of requiring

..continued on Page 6

HABS/HAER ..

..continued from Page 5

archival large format photography, but in some cases archival 35 mm prints have been accepted by some SHPOs.

Another policy-related change in HABS/HAER documentation is the tendency to bundle other mitigation products into contracts that include HABS/HAER documentation. The reasoning behind this is that the HABS/HAER documentation is a good record of the property for historical reference purposes, but that mitigation of historic resources also should include more direct public involvement and educational elements. Some of these elements consist of traditional items like historical plaques, brochures, museum displays or books, and other publications. However, less traditional mitigation items such as websites, video presentations, interactive educational software, and professionally videotaped oral history interviews, have been added to many HABS/HAER project scopes of work recently.

The difficulty for many small-and medium-sized architecture or CRM firms in completing these less traditional mitigation items is that many of us do not possess in-house software development labs or videography departments, and may not have a great deal of experience in dealing with these. Cost estimation for unfamiliar tasks may be difficult, and subcontractors must be found to assist with tasks that cannot be completed in-house.

Repeated experience with these less-than-traditional mitigation items should make dealing with them easier. Small firms also can begin to construct relationships with companies that specialize in these areas so that a proven project team can be quickly assembled. Finally, it also is wise to ask the project client if they have worked successfully in the past with a specific videographer or software developer that they would be willing to recommend. Using subcontractors that the client likes and has worked successfully with can go a long way towards assuring that the client is satisfied with the results of your project.

Finally, technology has affected the way we do HABS/HAER documentation. Reports are composed on word processors now instead of being hammered out on the typewriter. HABS/HAER documentation reports, photos, and drawings are now available online at memory.loc.gov, a searchable NPS website. A .pdf version of the *Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation* (1990) also is available online at www.cr.nps.gov/habshaer/pubs/standard.htm.

For photography, digital pictures still are not accepted for HABS/HAER documentation by NPS. However, I have found that the digital camera is a useful field tool for helping me select and compose views for HABS/HAER photography. The photographer and I often take "test shots" with the digital camera to help compose a field view before it is recorded permanently on expensive sheet film using the large format view camera. The large format view is also backed up by a compositionally similar digital photo, which often leads to faster matching up of the large format views with the corresponding photo list entry when the film returns from being developed and printed.

The most striking technological changes may be related to HABS/HAER drawings. These drawings were once completed by painstakingly executing each line and point by hand with pen and ink on sheets of Mylar. Even lettering was completed painstakingly by hand with a pen-like copying device known as a Leroy. However, today NPS allows HABS/HAER drawings to be completed on AutoCAD or other computer drafting programs, and finished drawings are printed on Mylar sheets by a plotter, eliminating time-consuming hand rendering.

However, since the adoption of AutoCAD drawing for HABS/HAER drawings, a few HDC clients have expressed a preference for the look of hand rendered ink-on-Mylar drawings. In these cases, Hardlines uses AutoCAD to develop a compositional template for each drawing sheet. The template is then placed below a Mylar sheet, and the lines are traced onto the Mylar, stippling and line weight effects are added, and the lettering is completed using the Leroy. This gives the hand rendered look of ink on Mylar while allowing HDC to use the efficiency of AutoCAD for compositional layout and plotting linear perspective.

Development of special 3-D drawing programs in AutoCAD also has facilitated the ease with which three dimensional HABS/HAER drawings, like cutaways and isometric renderings, can be created. The advent of laser measuring devices and photo digitizing technologies also provide other opportunities to streamline the process for data gathering for HABS/HAER drawings.

In general, the overall format of HABS/HAER documentation has remained largely the same. However, the day-to-day practices that CRM firms use to complete HABS/HAER documentation for their clients has changed significantly due to technological advances, changes in oversight and review of HABS/HAER projects, and the tendency to bundle an ever-widening array of public involvement items in RFPs for HABS/HAER projects. I expect that legislative changes and technological developments will continue to change the way we do HABS/HAER documentation in the coming years.

[Based on a presentation given at the 2002 ACRA Meetings in Savannah, Georgia.]

ON THE MOVE

Mead & Hunt
Mr. Chad Moffett

Mead & Hunt, one of the largest and most experienced historic preservation firms in the Midwest is expanding into Minneapolis to meet market demand. The team will be headed up in Minnesota by Chad Moffett, senior architectural historian.

The expansion will allow Section 106 compliance studies, architectural surveys, National Register nominations, historic preservation planning, and historical research to be offered from Minneapolis. It also allows Mead & Hunt to better serve its current clients in the state, such as the Minnesota Department of Transportation (Mn/DOT).

Moffett, who has six years of experience, serves as project manager for preservation projects. He conducts historical research, contextual studies, and architectural surveys. Moffett also focuses on landscape history and preservation planning. He works extensively on Mn/DOT compliance projects.

Mead & Hunt's historic preservation team serves clients such as engineering firms, government agencies, utilities, and community organizations.

"Our goal is to be responsive and proactive in meeting the needs of our clients. Having an office in Minnesota not only helps accomplish that, but it also cements our presence in the Midwest," said Amy Squitieri, manager of historic preservation.

Mead & Hunt provides professional services in the fields of historic preservation, municipal and infrastructure engineering, highway and bridge engineering, aviation and military engineering, architecture and building engineering, water resource engineering, and environmental studies to clients throughout the U.S. Founded in 1900, Mead & Hunt is a privately held, employee-owned corporation with offices nationwide.

GETTING DOWN TO BRASS TACKS WITH RECENT PAST RESOURCES

By Kimberly Konrad
Landmark Consulting

A dilemma seen across the many disciplines of historic preservation is how to address recent past structures that have historic or architectural significance. We have been programmed to think that historic means built in the 19th century or earlier. The fact is that 20th century buildings constructed as recently as 1950 are eligible for historic status and preservation planning, and this is just those structures which fall under the umbrella of the National Register's "Fifty-year" rule. The intent of this article is to address the philosophical and technical preservation challenges of recent past resources and to suggest how preservation professionals and CRM practitioners proceed once a recent past structure has been identified and evaluated as historic.

Preservation efforts necessary for a recent past resource *must* begin with an understanding of the historical and cultural significance of the resource. This requires a substantial effort in generating and fostering awareness, and even more so an *appreciation* of buildings of the 20th century–many constructed during our own lifetimes. Buildings of the recent past merit or deserve to be studied and selectively conserved using the same preservation methodology that is applied to recognized traditional historic structures. There is an increasing consensus that newer structures comprise too large a portion of our built environment to be disregarded in the preservation process. Although basic building typologies have not yet been fully developed, if these recent past examples of architecture *can* survive, they have a significant story to tell future generations about our era.

If a preservation professional were dealing with a traditional 19th century structure that had recently been identified as a significant historic site, the appropriate course of action for conservation would involve identifying and establishing preservation priorities with the production of a ***historic structure report.*** The next steps would involve research and documentation to record and analyze the initial construction of the property and subsequent alterations through historical, physical and pictorial evidence. The performance and condition of the building's materials and overall structural stability would be assessed and evaluated. This process of carefully documenting and studying the causes and effects of the building as a whole and of its part is what is involved in the production of a *historic structure report* (HSR). An HSR is defined as a document prepared for a building, structure or group of structures of recognized significance to record documentary, graphic and physical information about the property's developmental history. It is also the objective to record conditions of its materials and structure and to provide recommendations for treatment and use for its continued preservation. An HSR is intended to provide a definitive understanding of the history and evolution of the building while defining its integrity in order to minimize loss of significant fabric or character. This report typically offers a comprehensive analysis of the building's condition and is used as a primary guide to prepare a long-term program for ongoing preservation and conservation.

An HSR process often begins with the investigation and review of primary and secondary sources of information such as previous building reports, historic photographs, original architectural drawings, trade journals, building catalogues or notes. The sources available for researching a structure of the Modern era are more varied than those for the study of earlier buildings. For example, it is often possible to interview those who designed, built, and/or used these structures. In addition to consulting primary sources that also exist for earlier structures, Sweet's Architectural Products Catalog, which dates back to the

beginning of the 20th century, and individual trade catalogues or product literature directly from the manufacturing company may provide information about the composition of the material as well as installation details. Patent research also can provide valuable data on the manufacturing processes and installation techniques. Construction project correspondence and meeting minutes may be available. More recent sources such as taped interviews, movies, radio and television broadcasts, can literally add another dimension to this historical research. There have been an increasing number of studies on the cultural phenomena that influenced the design of this period, which in turn has facilitated the appreciation of recent past heritage. This research on the cultural history of the Modern era is often complemented by new research of technology, science and engineering. Government agencies or conservation laboratories are constantly carrying out scientific research on modern materials and assemblies.

This primary and secondary research of a recent past structure is supplemented with a series of condition assessment reports based on extensive surveys of a building's major components, such as walls, roofing, fenestration, ornamentation, and drainage, as well as reports on the structure, the building systems, and compliance with current building regulations and codes. Together these studies paint a detailed portrait of the construction and physical state of the building. A detailed chronology of building construction and alterations also is compiled and included in the final HSR.

Material and system condition assessment is understandably the most challenging aspect of conducting an HSR on 20th century buildings. Understanding a modern building requires a full understanding of the design intent, the form and materials, the construction technology, the historical and sociological context, the relationship between the interior and exterior skins and their finishes, and finally, its use and function. As a result of the complexity of the modern materials and assembly systems, these assessments typically involve professionals from several specialized disciplines, such as architects with a familiarity in the building type and its construction technology; architectural historians with a focus on the period of construction; material scientists or conservators; and structural and mechanical engineers. Involving the facilities managers or those responsible for the maintenance of the building also can prove helpful. A team effort often produces the best results. The team always should involve material scientists or conservators with the ability to perform and analyze tests on the materials to better understand what is occurring with regard to deterioration and to better identify a repair method. Testing often confirms or verifies the information gathered from product literature obtained during the research phase.

A historic structure report plays an important role in the protection of historic character and significance of an important resource – whether dating to the distant or recent past. The task of identifying significance, both physical and historical, is often the key to establishing a process for guiding and overseeing interventions or preservation efforts. This definition of significance, when regarding recent past buildings, **must** involve a close look at the physical materials and construction techniques, often more so than simply at the history of the building or its historical associations. This is the key difference between traditional buildings and modern buildings.

Often due to lack of funds or other resources, preservation efforts and documentation of significance is "intervention driven" or reactionary rather than based on a systematic evaluation. A systematic evaluation has never been more imperative than it is when addressing the preservation of a recent past resource. Given the complexity of the materials and construction, and the degree of experimentation implemented by its designers, anything less could result in the loss or destruction of significant history and fabric. Prior to any intervention, at the very least the cause of deterioration should be identified. Again, this is not as straight-

GETTING DOWN TO BRASS TACKS ..

..continued from Page 9

forward as it might be with traditional materials and construction techniques. Only with the benefit of both historical survey work and information gathered through laboratory testing and site investigation is it possible to determine the actual conditions of the materials and devise an approach for repair. A systematic preservation approach of research, inventory, testing and contextual design can afford a property owner with limited means a methodology to accomplish his/her goal of fiscally responsible stewardship and without compromising the integrity of their structure.

Preservation professionals in the U.S. and other countries have spent much time over the last 15 years discussing the difficulties of applying this current preservation philosophy and methodology to the preservation and conservation of 20th century, and in particular mid-century, structures. Most preservationists are stalled on the issues and concerns characteristic of buildings from this period, such as prefabricated or composite materials and building systems, standardized detailing without any regard to differing climatic conditions, and the short life span of many of these materials. These characteristics are felt to pose problems too great to be addressed by applying traditional preservation methodology.

It is true that few if any time-tested methods for conserving and repairing most modern building products exist at this time. In the absence of documented methods, these materials should be approached with the same level of attention and value as any other historic building material. Unlike traditional building materials, however, many of these new materials despite the great variety, were very short-lived, meaning they are less durable and have a greater tendency to deteriorate. They also were produced in limited quantities and are not a “renewable” resource that will always be available to provide replacement materials. Many of the materials found on modern buildings are unlike any we are used to preserving on older traditional structures. Ironically, it is the experimental or composite nature of these materials that while being the basis of their technical significance is also typically the reason for their deterioration and ultimately their extinction. Modern architecture was the combination of a minimalist aesthetic with young technologies and a degree of professional inexperience.

The increased research and study of the properties and characteristics of modern building materials is absolutely essential for making informed decisions about treatment and establishing a knowledge base from which to proceed in preserving our recent past. What is quickly forgotten is that we as a preservation community did not know all there was to know about traditional building materials and construction techniques when we started applying our preservation process on traditional materials. The analysis of an existing structure, diagnosis of its problems and proposing solutions that respect the existing structure should be skills that a preservationist should be able to apply just as easily and successfully to a 1960 curtain wall as to a 1860 masonry wall. It simply requires accurate and thorough documentation and an understanding of what elements cause deterioration or damage to these mass-produced or man-made building materials. With an understanding of the theories and reasoning behind the design of modern era structures, the technical and philosophical challenge facing the preservationist and CRM professional today is the need to acknowledge and balance the fact that the experiments of the modern engineer and architect represents a historic value of their own.

Kimberly Konrad is a preservation consultant and principal of Landmark Consulting in Albany, New York. Ms. Konrad specializes in the documentation and assessment of existing building conditions, the causes for deterioration and in developing preservation and conservation strategies for historic and recent past buildings.

CONTRACTING UNDERWATER ARCHAEOLOGY PROJECTS

By J. Lee Cox, Jr., Director
Dolan Research, Inc.

Over the last several decades, the advent of increasingly sophisticated technology has allowed researchers to penetrate and explore further underwater providing new frontiers from which archaeologists have gathered significant information enhancing the existing historical and archaeological database. The first scientific studies of shipwrecks as archaeological sites were undertaken in the early 1960s by the University of Pennsylvania's University Museum. Dr. George Bass directed several archaeological projects off the coast of Turkey for the museum. Initially many traditional archaeologists were skeptical about using cultural information gleaned from submerged shipwreck sites. But once the techniques enabling the exploration, survey, and excavation of shipwrecks and submerged structures were mastered, scientists soon realized the valuable contributions that shipwreck studies could make to the historical and archaeological records.

Published reports starting in the 1960s and 1970s began to shed light not only on ship construction and ship-types, but also on the cultural and social development of societies which produced the vessels. From ship's timbers, cargoes, and personal possessions at wreck sites, archaeologists have been able to reconstruct much of the history of waterborne trade and communication, naval warfare, and cultural relationships between distant civilizations. Shipwreck site are now studied as unique archaeological features and can provide anthropological insights to researchers.

Within the last 35 years or so, archaeologists working in North American and Caribbean waters have excavated and published reports on just about every type of shipwreck site. The entire complex of man's past involvement with maritime activity in the New World has been examined at shipwreck sites: including 16th century Ships of Discovery, 17th century Basque whaling vessels, Spanish Galleons, French & Indian War vessels, Revolutionary War vessels, steamboats, 18th and 19th century wooden sailing vessels, Civil War vessels, canal boats, steamships and even historically significant 20th century ships. Each archaeological discovery, investigation, and publication adds to the slowly expanding database on submerged sites and contributes to our knowledge and understanding of our country's maritime heritage. The discipline of underwater archaeology is still in its infancy.

A major development in the study of submerged cultural resources in the United States was the passage of the Abandoned Shipwreck Act in 1988. With passage of this legislation, the study and assessment of Submerged Cultural Resources became part of Section 106 Review of the National Historic Preservation Act . Common types of projects with submerged components include bridges, beach replenishment, dredging navigational channels, and waterfront/pier construction projects. In summary, the Abandoned Shipwreck Act provides for the United States to assert ownership over any abandoned shipwreck in State waters and submerged lands. Submerged lands means lands that are "lands beneath navigable waters" as defined in Section 2 of the Submerged Lands Act. It also provides guidelines for the designation of abandoned shipwrecks as national historic parks, recreation areas, and marine biological sanctuaries. The act provides Federal authority to transfer ownership of abandoned shipwrecks to the state on whose submerged lands the wreck is located. The act provides federal protection to any shipwreck that meets the criteria for eligibility for inclusion in the National Register of Historic Places.

The Act also directed the National Park Service to prepare a set of guidelines to assist the States and Federal agencies in developing legislation and regulations to carry out their responsibilities under the Act. In accordance with the Act, the guidelines were intended to maximize the enhancement of cultural resources; foster a partnership

..continued on Page 12

CONTRACTING UNDERWATER ARCHAEOLOGY..

..continued from Page 11

among sport divers, fishermen, archeaologists, salvors, and other interests to manage shipwreck resources of individual States and the United States; facilitate access and utilization by recreational interests; and recognize the interests of individuals and groups engaged in shipwreck discovery and salvage.

While the "Abandoned Shipwreck Act Guidelines" are advisory and, therefore, non-binding to States and Federal agencies, these agencies are encouraged to use the Guidelines and other applicable standards and guidelines to establish, review, revise, and implement programs to manage shipwrecks under their ownership or control. States and Federal agencies are free to adopt the "Abandoned Shipwreck Act Guidelines" in their entirety, make changes to accommodate the diverse and sometimes unique needs of each State or Federal agency, reject parts as inapplicable, or use alternative approaches.

States with full time underwater archaeologists include: Maryland, North Carolina, Massachusetts, South Carolina, Wisconsin, Florida, and Texas. Underwater archaeologists work throughout many facets of the Federal Government: the U.S. Navy through the Naval Historical Department, The U.S. Park Service with the Submerged Cultural Resource Unit, NOAA with their Marine Sanctuary Programs, and the National Maritime Initiative.

With that as a brief introduction, contracted underwater archaeological projects typically follow a progression of phases during the 106 Process, as listed below.

<u>Phases of Underwater Archaeological Projects</u>

1) Background historical research (Phase IA)
2) Remote sensing surveys (PHASE I)
3) Diver investigation of remote sensing targets (PHASE IB)
4) Evaluation of potentially significant sites (PHASE II)
5) Mitigation of threatened sites (PHASE III)
6) Conservation of excavated material

Technology plays a vital role in identifying submerged cultural resources. The very nature of the submerged environment, in most cases, makes remote sensing necessary to locate underwater archaeological sites. As with all technology, remote sensing equipment and its accessories have become increasingly more sophisticated and effective in assisting individuals locate submerged sites. They also have become more complicated and more expensive. This is a real concern because there are only so many dollars that will be spent on conducting this research.

The increasing reliance of such technology raises certain questions. What remote sensing equipment is available? What works best and is most appropriate for specific projects? How expensive is all this equipment? Is it worth it? Do the results gathered justify the costs? In federal compliance projects, what are the minimum survey requirements needed to meet the Section 106 standards?

I will focus here on the methodologies involved with completing a Phase I Underwater Archaeology Project – which will involve a Remote Sensing Survey.

<u>Phase 1 Remote Sensing Surveys</u>

Each underwater project area invariably seems to contain its unique environmental conditions that would influence the effectiveness and appropriateness of certain pieces of remote sensing equipment. What may be suitable for a shallow, fresh water creek site, may not be as effective in an open blue water location. That being said, typical equipment needed for a Phase I remote sensing survey include: a survey boat, magnetometer, side scan sonar, depth sounder and differential global positioning system (DGPS). An integrated Positioning software package, e.g. Hypack, is also crucial to any boat-based survey. The versatile program allows us to design the survey area, guide the survey vessel precisely along predetermined tracklines (using DGPS coordinates), collect real-time positioning data, as well as integrating the magnetometer and bathymetric data.

The positioning software also allows us to calculate the number of line miles that will be required to finish the survey; which is important when developing a cost estimate and budget for any project.

Typically, magnetic, acoustic and bathymetric data can be collected simultaneously. Although lane spacing requirements need to be adjusted according to the project area, 75-foot spacing seems to be an effective distance. Lane spacing requirements are primarily needed to adjust the collection of magnetic data, since a 500 kHz side scan sonar sensor provides approximately 300 feet of coverage during each lane. The magnetometer only records magnetic disturbances much closer to the sensor than the side scan sonar - thus the requirement of closer lane spacing. It must be remembered that archaeologists are only magnetically sampling the bottom at predetermined intervals - (which is influenced by boat speed and sample interval; both of which can be adjusted). Statistically, 75 feet seems to be a reasonable distance; it provides surveyors with an excellent chance of discovering magnetic signatures typically associated with most types of shipwrecks. Only a small craft, resting parallel and directly between two survey lanes, would avoid detection. However, in some project areas where small wreck sites may be the expected vessel types, closer lane spacing (e.g. 50 feet) might become more suitable. In other offshore areas where only larger ocean-going vessels would navigate, wider lane spacing would be appropriate (100 feet).

Description of Equipment

Magnetometer

Cesium magnetometers are the state of the art machines used to detect ferrous objects lying on or buried beneath the seafloor. The magnetometer, which acquires data on the ambient magnetic field strength by measuring the variation in cesium electron states, uses an underwater sensor towed aft of the survey vessel. In very shallow water environments, it can also be mounted off the bow of a survey vessel. As the sensor passes near objects containing ferrous metal, a fluctuation or disturbance in the earth's magnetic field is detected. This fluctuation is measured in gammas and is proportional to the amount of ferrous metal contained in the sensed object and the distance from the sensor.

Although the earth's magnetic field changes with both time and distance (diurnal change), over short periods and distances the earth's field can be viewed as relatively constant. The presence of magnetic material and/or magnetic minerals, however, can add to or subtract from the earth's magnetic field creating a magnetic anomaly. Rapid changes in the total magnetic field intensity, which are not associated with normal background fluctuations, mark the locations of these anomalies.

Magnetometer data are contour plotted and each anomaly is normally analyzed in terms of the following parameters: magnetic intensity (total distortion of the magnetic background measured in gammas); sample interval duration (detectable signature duration); signature characteristics (negative monopolar, positive monopolar, dipolar, or multi-component); and spatial extent (total area of disturbance).

Side Scan Sonar

The side scan sonar derives its information from reflected acoustic energy. Side looking sonar transmits and receives swept high frequency (300 or 600 kHz) bandwidth signals from transducers mounted on a sensor that is towed by a survey vessel. Two sets of transducers mounted in an array along both sides of the towfish generate the short duration acoustic pulses required for high resolution images. The pulses are emitted in a thin, fan-shaped pattern that spreads downward to either side of the towfish in a plane perpendicular to its path. As the fish is towed along the survey trackline this acoustic beam sequentially scans the bottom from a point beneath the fish outward to each side of the trackline.

Acoustic energy reflected from any bottom discontinuities (wrecks) is received by the set of

..continued on Page 14

Contracting Underwater Projects..

..continued from Page 13

transducers, amplified and transmitted to the survey vessel via a tow cable. The digital output from state of the art units is essentially analogous to a high angle oblique photograph which provides detailed representations of bottom features and characteristics. Sonar allows display of positive relief (features extending above the bottom) and negative relief (such as depressions) in either light or dark opposing contrast modes on a video monitor. Examination of the images thus allows a determination of significant features and objects present on the bottom within a survey area.

Acoustic targets are normally defined according to their spatial extent, configuration, location and environmental context. Sonar data from a survey area can be mosaiced together; but the resulting mosaic is only helpful in delineating and categorizing general bottom types. Individual targets (e.g. potential submerged cultural resources), need to be displayed in detail and described independently.

SubBottom Profiler

Subsurface profilers generate a high-energy, low-frequency acoustic pulse into the water column in the range of 400 hertz to 8 kHz. The signal generated by the system propagates downward to the floor of the body of water where it is partially reflected at the water-sediment interface. The balance of the signal continues into the bottom and is partially reflected at each successive subsurface interface, e.g. changes in sediment characteristics or rock surfaces.

It has been my experience that sub-bottom data has little or no value in a submerged cultural resource survey. Low frequency sub-bottom profilers are not useful survey tools. Sub-bottom data typically provides only a limited understanding of the geophysical characteristics of individual objects or sites in the coastal and inland survey areas that I have worked at. While the idea sounds good on paper, a standard 3.5 kHz sub-bottom profiler, for the most part, does not provide any useful information to the archaeologist. The narrow sound beam may or may not penetrate deeply through bottom sediment, and if a buried object is encountered, records depict only an elliptical return - providing little information on the target beyond how deeply buried something is. The object must be large and you must be directly over it, otherwise you will get no feedback from the machine. There are other, more sophisticated seismic instruments and procedures that can provide researchers with geophysical information, however, the cost of such systems is prohibitive for the budgets of the vast majority of submerged cultural resource investigations. The magnetometer is a much more useful, and cost-effective way to locate submerged objects. More useful data of the subbottom is derived from taking core samples.

In addition to the lack of useful data from a standard sub-bottom profiler, it also adds costs to any project. Not only the cost of the profiler but also other indirect costs incurred because towing the sub-bottom profiler can often slow down an entire project. Since the sensor for the sub-bottom is so heavy and cumbersome (150 lbs or more - a david, or some type of lifting device is required to tow it), favorable weather conditions are a prerequisite for conducting a survey with it. Magnetometer and sonar sensors create much less drag in the water and can be effectively operated in a wider set of sea state conditions. Often project days are typically lost to weather conditions when using sub-bottom profilers, particularly when working in open water conditions. In my opinion, for the cost sub-bottom profilers provide little useful information in an underwater archaeology project and are unnecessary.

SEVEN MAGIC QUESTIONS:
HOW TO IMPROVE YOUR WIN RATIO BY SELLING VALUE INSTEAD OF PRICE

By Tom Sant

There are lots of consultative sales methods around. You may have been trained in one, or read a book about one, that you particularly like. Each has its unique strengths and techniques. But they all have at least one thing in common. They try to get sales people to focus on what matters to the customer. You build sales momentum by demonstrating that you are delivering an important solution to an important problem. That is the essence of all these consultative methodologies.

To be able to create a client-centered solution - and to be able to write a client-centered proposal - there are seven questions you must be able to answer. Oddly enough, lots of people try to write proposals without knowing the answers to even half of these questions. That makes it impossible to create a message that sounds "right" to the buyer. Here are the seven questions. Make sure your sales people uncover the answers, make sure every proposal and sales presentation is based on them, and you'll win a lot more business.

1. **What is the client's problem?** Look beyond the obvious. Your contact in the customer organization may describe the problem in terms that are specific to his or her interests. An IT manager sees the lack of on-line access to customer account information as a data integrity problem. To the vice president of sales, it's a revenue problem, because it's keeping the sales force from separating good clients from the not-so-good.

2. **Why is it a problem?** Who is affected by this problem? How are they affected? Try to trace the links as high up the organizational ladder as possible to get a sense of how big the pain is. This also will indicate who else may need to be part of the decision team.

3. **What objectives does the client have in mind for a successful solution?** How will the client measure success? In terms of business or financial performance? In terms of improvements in the technology infrastructure? Or in terms of customer loyalty or employee morale? Each of these areas - business results, technical outcomes, and social relationships - is potentially important. Which leads us to the next question.

4. **Which of those objectives is most important?** They may all be important, but which one matters the most? This tells you two things. First, it tells you the order in which to put your presentation of key outcomes. You want to put the customer's most important outcome first. That way, the customer will think that you think the way they think. Second, knowing which objective is most important tells you where to look to develop your value proposition. You want to base your ROI or other presentation of value on what matters the most to the customer.

5. **What are the ways we can solve the client's problem?** Usually there's more than one way to solve a particular problem. If you're having trouble with how long it's taking your sales force to write sales proposals, for example, I could recommend software to automate the process, training to improve their skills, or a combination.

6. **What are the probable outcomes from each potential solution?** Any of the potential solutions might take care of the problem. The important issue is what kind of outcome the customer will get. Will it match up to their expectations for a positive result? Will it meet their criteria?

7. **Which solution is best?** Based on the answers to the previous six questions, we should be able to answer the final question. It should be fairly obvious which solution meets the needs and delivers the results the customer desires most.

Trying to write a proposal or make a sales presentation without knowing the answers to these questions is like competing in an archery contest blindfolded. You might hit the bullseye occasionally. But you're just as likely to shoot yourself in the foot.

One in a series of weekly sales tips provided by the Sales Training Camp. For more information on their newsletter and sales tips, go to ww.salestrainingcamp.com. Reprinted with permission.

ACRA EDITION

6150 East Ponce de Leon Ave., Stone Mountain, GA 30083

ACRA's Members-Only Listserver

ACRA now has an online discussion group just for members. "MembersOnly" is a listserver that operates much the same way as ACRA-L, with the exception that it is only available to ACRA members. Its purpose is to offer the board, members, and the executive director a venue to share the latest news from ACRA; promote dialogue between members on current issues; and enable members to post announcements or inquiries.

To subscribe to the list, a member must contact ACRA's Executive Director, Tom Wheaton. Once you have supplied Tom with your e-mail address, he will subscribe you to this list. Contact Tom at 770-498-5159 or e-mail: tomwheaton@newsouthassoc.com.

2003 ACRA EDITION SCHEDULE

DEADLINE	PRODUCTION
February 3	February 17
April 7	April 21
June 2	June 16
August 4	August 18
October 6	October 20
December 1	December 15

ACRA *Edition*
is a bi-monthly publication of The American Cultural Resources Association. Our mission is to promote the professional, ethical and business practices of the cultural resources industry, including all of its affiliated disciplines, for the benefit of the resources, the public, and the members of the association.

This publication's purpose is to provide members with the latest information on the association's activities and to provide up-to-date information on federal and state legislative activities. All comments are welcome.

Please address comments to:

Jeanne Harris, Editor
ACRA News
ejharris@aol.com

or

Thomas Wheaton,
Executive Director
c/o New South Associates, Inc.
6150 East Ponce de Leon Ave.
Stone Mountain, Georgia 30083
770•498•5159