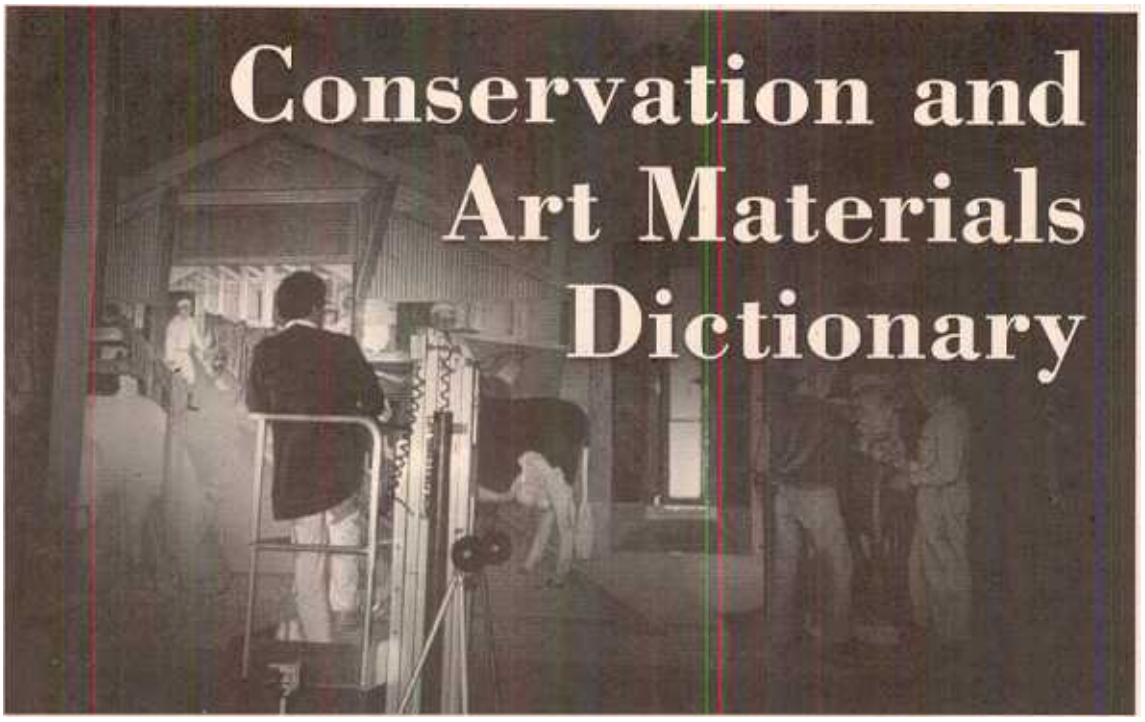
NCPTT NOTES

National Center for Preservation Technology and Training

UNITED STATES DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE

JULY 2000 NUMBER 36



Conservation and Art Materials Dictionary

Historic preservation and conservation are complex fields, a blend of art, history and science. Diverse applications can stretch from pest control in historic homes to pigment examination in a Japanese painting, from consolidation of a friable archeological sherd to storage of a video montage. Such a multitude of materials and techniques has given rise to a wide variety of terms across the preservation and conservation disciplines.

To address this diversity of terms, the Conservation and Art Materials Dictionary (CAMD) has been developed by the Museum of Fine Arts, Boston. Support for the project was provided by a 1998 Preservation Technology and Training Grant. CAMD is an electronic database that provides technical information about historic and contemporary materials used in all aspects of the conservation, preservation or production of artistic, architectural and archeological materials. By recording and disseminating this information, CAMD can serve as a resource for the global preservation community.

CAMD brings together the terminology for a wide range of materials (such as pigments, minerals, binders, coatings, adhesives, fibers, dyes, solvents, reagents, woods, surfactants, corrosion inhibitors, pollutants, pest control agents, construction and storage materials) used by different specializations. While initially conceived as a tool for art conservators and conservation scientists, this collection of information on materials will also be useful to students and professionals in fields such as art history, architecture, art, design, archeology and education.

CAMD has been developed as an electronic database, so that users can selectively compare records or simply browse all records. And the data can be continually updated and revised with additional information. In order to be useful, however, CAMD must be accessible to as many people as possible. Since electronic publication on the World Wide Web potentially pro-

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NCPTT NOTES

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NUMBER 36

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Conservator working on Coit Tower Mural
San Francisco, CA
(Image courtesy Frances Gale)

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Conservation Dictionary

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vides an immediate and international audience, the database will be placed on the Museum of Fine Arts Internet site in August 2000.

CAMD includes descriptions and technical information about natural and commercial products as well as methods and terms used in the analysis and characterization of these materials. Each entry was selected based on the material's mention in art, conservation or related scientific literature or its use in a conservation lab. All information in the database is from published sources such as books, articles, manufacturer's literature, materials safety data sheets and Web sites.

Examples of the materials and terms included are:

1. Materials used in the production, conservation or analysis of historic and artistic objects and sites, including pure materials (cotton, gold, English oak, peroxide) and processed materials (Tyvek®, Dutch metal, eosin, portland cement, Art-Sorb®)
2. Compositional groups (acrylic, oil, alcohol, polymer)
3. Chemical and physical phenomena (relative humidity, crystallization, absorption)
4. Functional classes (abrasive, detergent, scavenger, geotextile)
5. Analytical tools (hygrometer, Mącbeth booth, infrared spectroscopy)
6. Material characterization terms (crizzling, hardness, tear resistance)
7. Devices (solander box, smoke detector, air filter)

For searching purposes, alternative, trivial and archaic names are also included in a synonym list along with common misspellings, particularly of trademark names.

Each dictionary record contains a brief but comprehensive description. The format used for an entry is, first, the general class of material (fiber, polymer, pesticide), then its primary use or biological source. For a natural product, the native geographical region is listed. Information is supplied about the material's production, manufacturer, historical availability, composition and physical characteristics (appearance, physical state, melting point, volatility, odor, density, crystallinity, refractive index, solubility, strength and hardness). The entry lists the industrial uses of the material, such as self-stick adhesives, fabric coatings and printing inks. Additionally, specific examples of the material's conservation uses are listed with accompanying citations. Because of the condensed format for these descriptions, references to review articles, book chapters and books direct the reader to more specific information about a material and its applications. Some of the references, such as manufacturers' Web sites and *Journal of the American Institute for Conservation* articles will soon include World Wide Web links.

Since the field of conservation is constantly growing, new materials and techniques are evaluated continually, resulting in more information and reference sources. The dictionary will continue to grow as data become available.

Summary

The Conservation and Art Materials Dictionary will be a unique resource for the fields of conservation and preservation. It consolidates technical information about historic and contemporary materials used in all aspects of the conservation or production of artistic, architectural and archeological materials. No other resource has this scope and magnitude. The database supplies information in a concise dictionary format and allows flexibility for search and comparison of materials. CAMD will help standardize terminology and increase access to obscure information. The dictionary also creates a historical context for materials used in conservation in the last few decades and develops a chronological record of new materials as they are evaluated for use. Since extensive distribution of the dictionary is essential for effectiveness, the Museum of Fine Arts, Boston will incorporate the database into its conservation Web site. A demonstration of the Conservation and Art Materials Dictionary occured at the 28th Annual Meeting of the American Institute for Conservation of Historic and Artistic Works (AIC) in Philadelphia, June 8-13 2000.

CAMD Project Team

The CAMD project team has researched, compiled, entered

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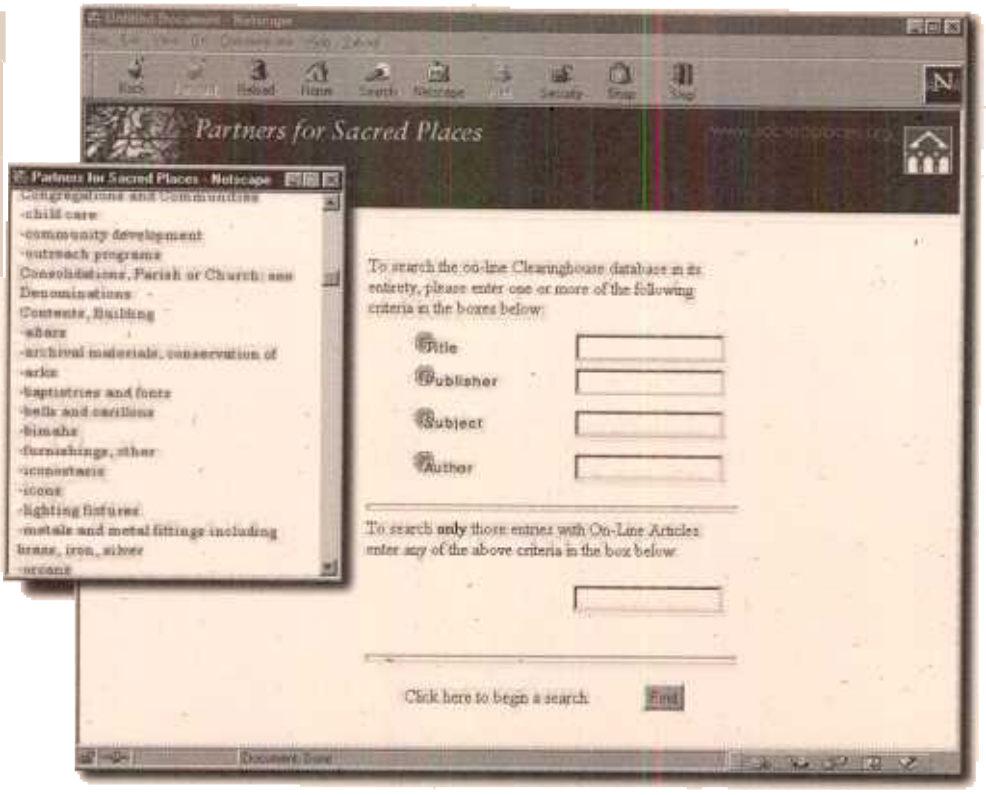

Query screen from the online Information Clearinghouse.

Partners for Sacred Places Online Information Clearinghouse

Partners for Sacred Places was founded in 1989 as the only national, non-profit, non-sectarian organization devoted to helping Americans preserve and care for sacred places of cultural and historic value. Since then, Partners has helped thousands of preservation organizations and congregations focus attention on the historical importance, architectural significance and public value of older religious properties. It offers assistance through a free Information Clearinghouse and other outreach programs, builds partnerships at the local level to develop an effective national network of advocates, and promotes understanding of the public value of sacred places.

The Information Clearinghouse

The Information Clearinghouse, a valuable resource for preservationists, comprises over 7,000 resources on the care and active use of historic religious properties. Much of the collection is unavailable elsewhere. For nearly a decade, Partners has added hundreds of new items yearly, including unpublished building histories, capital campaign brochures, legal and real estate documents, newspaper articles, materials on the care and preservation of historic cemeteries, and papers on the preservation of stained glass, paint and tiles.

The collections are used by two groups: first, preservationists who may be familiar with general preservation technologies but not with the issues surrounding the stewardship of religious properties such as denominational histories and liturgical building requirements, precedent-setting legal cases, the intricacies of capital campaigns, innovations in adaptive reuse, or where to find qualified stained glass or gravestone conservators. Second, congregations are introduced to the importance of sound maintenance and preservation of their properties and the benefits of hiring professional architects and conservators and encouraged to contact local and state preservation groups for assistance. In short, the Clearinghouse has materials that can help any individual or organization with an interest in preserving this country's historic religious architecture and landscapes.

However, Partners has always felt that many more could be served by this collection; until now, access to the Clearinghouse was limited to the time Partners' staff could give to consulting with those who called looking for information (and then photocopying and mailing materials to them.) In 1998, Partners for Sacred Places received a Preservation Technology and Training Grant to digitize and make accessible via the Internet its Information Clearinghouse database and a large selection of documents. By going online Partners can help many more people and congregations than could be served directly by its staff. Indeed, this project has created America's most comprehensive and accessible Internet-based site that provides both technical and bibliographical information on the preservation of religious properties.

What's Online

This project had two central components. The first was the creation of an Internet-readable version of Partners' In-

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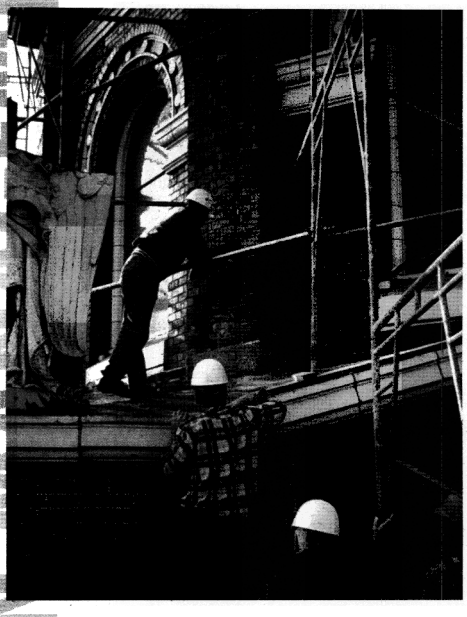

Restoration of Saint Mary of the Angels Church, Chicago, IL

Sacred Places

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formation Clearinghouse database, which is similar to an annotated card catalog. Second, 125 articles on the care and preservation of religious properties were collected and integrated into the Web version of the database. These articles cover a broad range of topics, including fundraising, stained glass protection and restoration, energy conservation, architectural history, historic landmark designation, building maintenance, organ restoration, care of graveyards and cemeteries, slate roof repair, project management, adaptive reuse profiles, handicapped accessibility and fire safety.

The Web site was designed for practicing preservation professionals, academic and other researchers, and the owners and users of historic religious properties. For example, the site can provide a property restoration committee with information on the technical aspects of repairing its building and advice on how to work with experienced contractors and architects, to raise money, and to maintain its building properly after restoration. For the preservation professional, the online version of Partners' Information Clearinghouse database provides previously unpublished information about many materials.

How to Use the Site

Partners' current Information Clearinghouse page <**www.sacredplaces.org/info.htm**> on its Web site is the entryway to this new resource. Any user who wants to view or download an article on a specific topic can perform an easy search by subject of the 125 online articles. The user can view the list on the left side of the screen, click on "fundraising," for example, see a list of twelve articles on the subject, and then read or print them. The complete online database can also be searched by author, publication, title or keyword. For example, a user can type in "New York Landmarks Conservancy" under "publisher" and get bibliographic references—and many articles—from Common Bond, the excellent newsletter on religious property stewardship.

Thanks and Credits

Partners wholeheartedly thanks its colleague organizations that assisted in the project. This Web expansion would not have been possible without the support of the following individuals and groups who generously gave us permission to include the 125 articles used for this project: Ken Lustbader, director of the Sacred Sites Program, New York Landmarks Conservancy; Michael Stern, former director of the Historic Religious Properties Program, Preservation Alliance for Greater Philadelphia; Holly Fiala, former executive director of Inspired Partnerships; and Andy Rudin, director, Interfaith Coalition on Energy.

—Tuomi Forrest

Mr. Forrest is the Director of Information and Outreach Services at Partners for Sacred Places. In this capacity he has offered technical advice and consultation to hundreds of congregations of all faiths on the care and active community use of their historic religious buildings.

Conservation Dictionary

Continued from page 2

and reviewed information on almost 10,000 materials.

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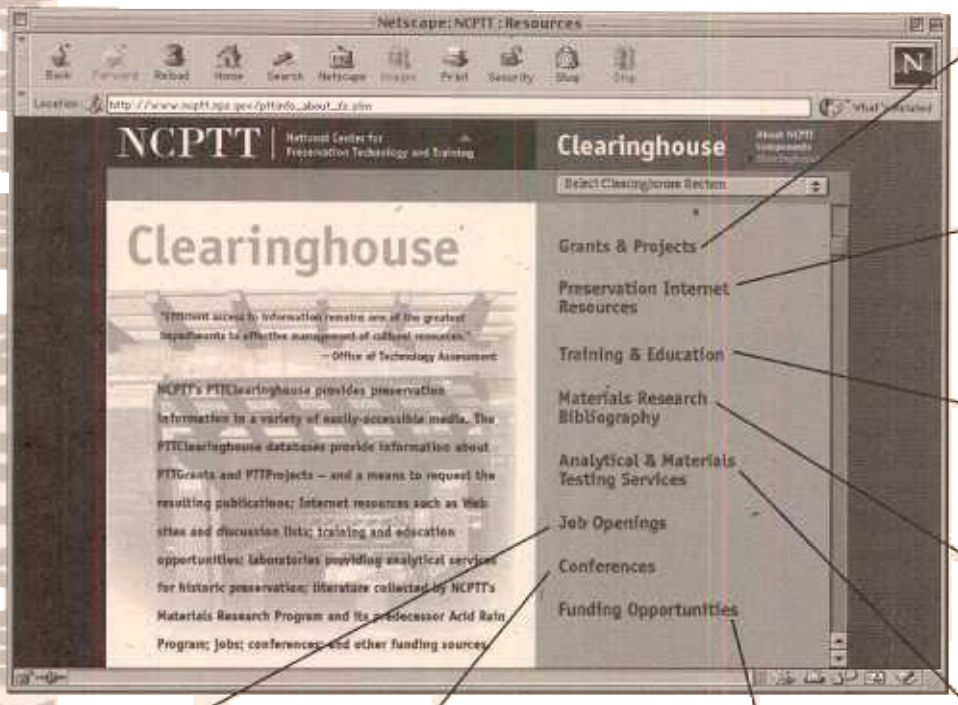
—Michele R. Derrick

Ms Derrick is a chemist and conservation scientist with over 20 years experience analyzing and characterizing materials. She currently works as a conservation scientist consultant for the Museum of Fine Arts, Boston.

PTTClearinghouse

www.ncptt.nps.gov/clearinghouse



Grants and Projects Catalog
www.ncptt.nps.gov/catalog
Information about grants and projects sponsored by NCPTT; requests for copies of publications or other project results can be submitted via the Web.

Preservation Internet Resources
www.ncptt.nps.gov/pir
World Wide Web sites, electronic discussion lists (usenet groups and listservs), and other online resources

Training and Education Opportunities
www.ncptt.nps.gov/teo
Degree and certificate programs, workshops, internships, fellowships, field schools

Materials Research Bibliography
www.ncptt.mps.gov/mrb
Literature collected by NCPTT's Materials Research Program and its predecessor, Acid Rain Program

Analytical and Materials Testing Services
www.ncptt.nps.gov/amts
Laboratories in the United States that provide analytical services in preservation

Job Openings
www.ncptt.nps.gov/jobs

Conferences
www.ncptt.nps.gov/conferences
Includes calls for papers

Funding Opportunities
www.ncptt.nps.gov/fundingopps
Sources of funding other than NCPTT

Core to NCPTT's World Wide Web site – and central to NCPTT's mission – is the Preservation Technology and Training Clearinghouse (PTTClearinghouse). The PTTClearinghouse is the database-driven section of NCPTT's Web site that was developed to fulfill one of the goals listed in NCPTT's Five-Year Plan: "Enhancement of NCPTT as a clearing house for historic preservation information." Designed to serve the preservation community, the clearinghouse is a complex, yet easy to use, database system of Internet resources, training and education opportunities, job openings, conference announcements, funding opportunities and – most important – all grants and projects sponsored or undertaken by NCPTT. The available products of grants and projects – including Web sites, printed reports, videos, CDs and downloadable software – are included. Online versions of publications are planned for the near future. Interdisciplinary in scope, the PTTClearinghouse encompasses archeology, historic architecture, historic landscapes, materials and objects conservation, and interpretation.

Queries can be submitted via a simple keyword search or by using combinations of more complex criteria.

Users are encouraged to suggest additions to each database or notify NCPTT of changes to current listings. Simply click on the *Suggest an addition or revision* link available at each query screen, complete the form and click on *Submit Suggestion*.

Lasers in Art Conservation

Since their invention in the early 1960s, lasers have found widespread application in metallurgy, medicine, telecommunications and entertainment. Less well known has been their application in the world of historic preservation, where lasers are just beginning to revolutionize the conservation of works of art.

The term "laser" is an acronym for "light amplification by stimulated emission of radiation." A laser is the device that produces a highly focused beam of light in the infrared, visible or ultraviolet region (depending upon the type of laser) of the spectrum. The laser beam can be focused by a lens that concentrates the power on a very small region of the target. Depending upon the intensity of the light, it may be used to cut metal or to selectively remove a thin film of material layer by layer. For example, in laser surgery the beam can be focused with enough lenses and other optics to provide a point of light so intense that it can burn through human tissue. Because the point of light that a laser can produce can be focused so small, the physician can cut very finely and reach places in the body that are otherwise difficult to touch.

This technology has great potential for the cleaning of art works. Many works of art have been subject to decades, if not centuries, of exposure to the elements, such as atmospheric pollution both inside and outside museums. This has led to a harmful accumulation of grime and other surface encrustations that obscure the underlying surface. Traditionally, art conservators have cleaned paintings and other works of art with scalpels, abrasives and solvents applied as swabs or poultices.

Laser cleaning of architectural stone.

Recent advances in laser technology have yielded new tools for selectively removing unsightly or harmful surface accretions while preserving the underlying surface. From a practical standpoint, the laser offers distinct advantages over traditional chemical cleaning methods: (1) greater selectivity in the removal of specific substances, (2) greater control over the amount of material to be removed, (3) increased ability to preserve surface relief or patinas, and (4) increased ability to focus on very small areas.

These intriguing properties of lasers, coupled with recent reductions in size and costs of many commercial laser systems, has led to an increased interest in the potential benefits of laser technology to art conservation. Today, laser systems are being used to clean works of art at a number of institutions in Great Britain and Europe. Already the field has its own conferences, specialist literature and adherents who are using lasers as one component of their arsenal of tools. However, the use of lasers has not been widely adopted in the United States, where it is approached with some caution by the conservation community.

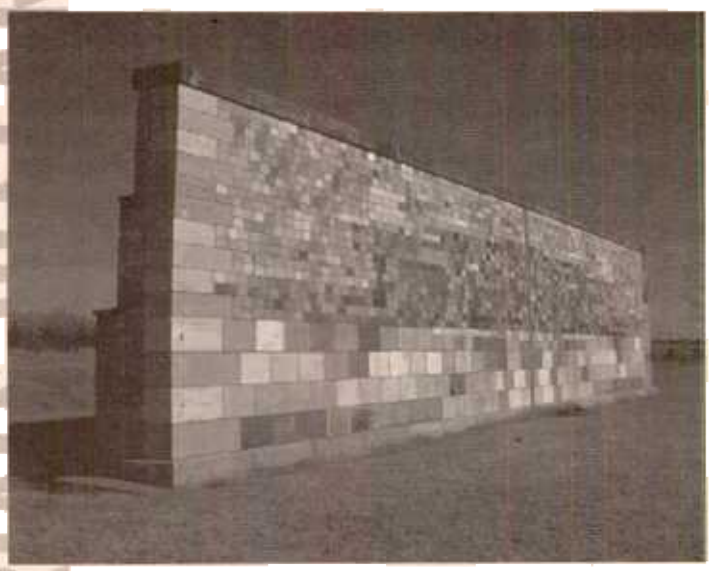
Much of their concern is about the long-term impact laser cleaning may have on works of art. Will the laser-cleaned surface corrode or tarnish more quickly? Will the underlying surface yellow or craze over time following laser cleaning? These are questions that need answering. There is little evidence to begin assessing the long-term impact of laser cleaning, except on architectural stonework. Studies of laser-cleaned stonework in Europe conducted over ten years ago are only now able to give us our first glimpse of how successful the technique can be. Still, it is almost obvious that stone should be fairly resistant to the effects of lasers; after all, one seldom sees rapid deterioration of stone sculptures under the influence of light alone. Thus one would expect that any damage caused by a laser would be the result of secondary effects such as localized heating or plasma formation rather than by exposure to light.

With careful control over the process, many of these secondary effects can be significantly moderated. But the potential of light to directly damage or alter other materials, especially organic materials, is well known. And while light damage is often seen in the immediate effects of bleaching, fading or yellowing of materials, the long-term effects, especially the breaking of chemical bonds, may not be easy to detect. Careful study of these factors is essential to build confidence in the feasibility of using lasers in art conservation.

NCPTT has recently established a research facility at the Los Angeles County Museum of Art to explore the use of laser technology in art. The Laser Research Facility also is an educational resource to introduce practicing conservators and the museum community in general to the potential benefits of laser technology. One of the first of its kind in the United States, this facility will be a shared resource open to the conservation community. Already a consortium of research institutions, including the Getty Conservation Institute and the Canadian Conservation Institute, has been formed with high hopes for stimulating and raising interest in laser technology.

— Meg Abraham and Mark Gilberg

Meg Abraham is a research scientist in the Conservation Department at the Los Angeles County Museum of Art.



Stone wall at the NIST Gaithersburg site, Fall 1992.

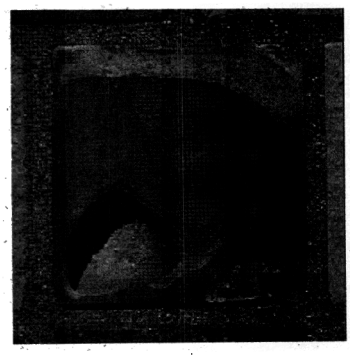
Building Stones of America: 50 Years of the NIST Stone Test Wall

In 1880 the Census Office and the National Museum in Washington, DC conducted a study of building stones of the United States and collected a set of reference specimens from working quarries. This collection was merged with the Centennial Collection of US Building Stones that was first displayed at the 1876 Centennial Exhibition in Philadelphia. Descriptions of producing quarries, commercial building stones, and their use in construction across the country were compiled and reported in the 10th census of the United States in 1880.[1] This collection of stones, now augmented with building stones from other countries, was placed on display in the Smithsonian Institution.

Archived Ohio Sandstone

In 1942, a committee was appointed to consider whether any worthwhile use could be made of the collection. It was decided that a study of actual weathering on such a great variety of stone would yield valuable information. A plan was developed for building a test wall at the National Bureau of Standards (NBS) as a cooperative study between NBS and ASTM Committee C-18 on Building Stone. Subsequently, in 1948 a test wall was constructed at the NBS site in Washington DC.[2]

The move of NBS in the middle 1960s and the occupancy of the old NBS site by the University of the District of Columbia placed the wall in jeopardy. It was moved intact in May 1977 to its present site at NBS, now the National Institute of Standards and Technology (NIST) in Gaithersburg, Maryland.



Same stone in wall.

The purpose of the stone test wall is to study the performance of stone subjected to weathering. It contains 2,352 individual samples of stone, 2,032 of which are domestic stone from 47 states, and 320 are from 16 foreign countries. The wall is constructed in a mirror-image pattern with the left-wall stone set in lime mortar and the right-wall stone set in portland cement mortar. Over 30 distinct types of stones are represented, some of which are not commonly used for building purposes. There are many varieties of the common types used in building such as marble, limestone, sandstone, and granite.

The wall provides a rare opportunity to study the effects of weathering on different types of stones, as the climatic conditions are the same for all stones. It offers a comparative study of the durability of many common building stones that have been used in monuments, commercial and government buildings. Also, the wall has preserved a valuable collection of building stone and should be useful as a reference for builders in identifying the kinds of stone that may be locally available. As the wall passes half a century in age, interesting degradation features have been observed.[3]

In 1998, the Inorganic Building Materials Research Group of the Building and Fire Research Laboratory (BFRL) in NIST started a project to evaluate and document the changes due to 50 years of weathering. The project is supported by a 1998 Preservation Technology and Training Grant.

This study involves three distinct tasks: 1) development of a methodology to image and describe degradation features of stone and mortar, application of the methodology in creation of a database containing

Continued on Page 9 ►

[1] G.W. Hawes, "The Building Stones of the United States and Statistics of the Quarry Industry," in Report of the 10th Census of the United States, Vol. 10, 1880, 399 pp.

[2] D.W. Kessler and R.E. Anderson, "Stone Exposure Test Wall," Building Materials and Structures Report 125, 1951, National Bureau of Standards.

[3] P.E. Stutzman and J.R. Clifton, "Stone Exposure Test Wall at NIST," in, Proceedings of Degradation of Natural Stone, J.F. Labuz, ed., American Society of Civil Engineers Annual meeting, Minneapolis, MN, 1997.

1857 cast iron girder, Farmers & Mechanics Bank, Philadelphia, PA. (Image courtesy Keast & Hood Co.)

Preservation Training for Engineers

Working with PTTBoard member Nicholas Gianopulos, NCPTT organized a colloquium in March to discuss ways to promote excellence in preservation engineering by improving training and education. The Association for Preservation Technology co-sponsored the Philadelphia meeting, which was attended by representatives of private engineering firms, engineering and preservation professional organizations and university engineering departments.

In his opening remarks Gianopulos introduced issues to be addressed: Do engineers need preservation training? Should they have formal preservation training? When and where should this training take place? What can NCPTT do to promote preservation engineering?

While the need for academic preservation training for engineers was widely acknowledged, everyone also recognized the value of "seasoning." Engineers at the workshop had largely acquired preservation knowledge through reading, discussion with experts, seminars and on-the-job training. Internships and co-op experiences must remain a key element in engineering education.

Participants discussed ways to engage the interest of practicing engineers, professors and students. The preservation aspect of engineering might have a wider audience if it were connected to such topics as building diagnostics, building failures, decaying infrastructures and forensic engineering. Engineers are problem-solvers. Preservation philosophy and theory will enable them to define preservation problems and to find solutions that satisfy both engineering and preservation requirements.

Other discussion focused on where this training should occur: whether it could be fully incorporated into existing course work for undergraduates, or simply introduced to them and emphasized at the graduate level. European schools may offer a model for preservation training for engineers. Preservation-related continuing education courses could be developed for practicing engineers.

The group also discussed alternatives to standard classroom training. Distance learning and other innovations will influence the way preservation education and training will be delivered to engineers.

Regardless of where the training occurs, participants felt that engineering students must learn their discipline's history and something about great engineers, such as Gustav Eiffel and George Washington. An understanding of that history is vital to the successful treatment of historic buildings. Unfortunately, technical courses are replacing engineering history and related courses in undergraduate curricula.

After a presentation by Michael Lynch about the Association for Preservation Technology, the participants broke into groups to discuss the issues developed during the morning session. The issues included competencies for preservation engineers, incorporating historic preservation principles into engineering training and linking historic preservation training to broader engineering issues and potential funding sources.

Develop Competencies

The competencies fell into seven broad categories: disciplines of engineering (structural, civil, mechanical, geotechnical, electrical, materials, and building envelope); engineering history (European and American), encompassing architecture, materials (design and use), codes, and the design and use of archaic materials; preservation philosophy; testing, which includes non-destructive, in-situ, methodology, relationship to codes; problem definition (reading the building, listening, understanding failure and distress); communication skills (written, verbal, graphic); and documentation, including process, tests, observations, results.

Incorporate Historic Preservation Into Engineering Training

The group determined six avenues: undergraduate courses/projects, summer institutes, regional centers, professional development, workshops at conferences and meetings, and distance learning.

It was suggested that, at the undergraduate level, preservation case studies related to basic principles of engineering (structures, materials and mechanics) be developed. Offering history of engineering lectures and encouraging preservation themes for senior capstone projects were also mentioned.

Summer institutes could work in two ways. The institute could create an entity to offer summer workshops for faculty development and to work with the National Science Foundation to get an initiative launched.

Regional centers could undertake preservation-engineering research and promote training for engineers. Similarly, workshops could be provided at conferences and meetings.

Professional development could foster preservation training opportunities for engineering practitioners. Courses should cover historic preservation theory and history, preservation terminology, standards and philosophy, and archival research.

A comprehensive series of courses could be developed online or through other distance learning media. Continuing Education Units could be available, and a certification course could be developed.

Regardless of the type of training, available courses should be promoted. A coordinator is needed to organize courses, get speakers, pay expenses and foster relationships with relevant organizations such as Accreditation Board for Engineering and Technology, Association for Preservation Technology, American Society of Civil Engineers, National Trust and Structural Engineers Association. This group proposed funding a partnership of practitioners and academics to examine available courses and develop more.

Create a Large Audience

Linking historic preservation training to broader engineering issues and potential funding sources is important. To create a larger audience for preservation engineering, the group suggested that three topics be investigated: case studies for classes and professional societies, major programs for certification or degrees, and funding sources through private foundations and manufacturers.

The Next Steps

The daylong discussion resulted in the following strategies for promoting excellence in preservation engineering:

- Publish articles about this meeting and its proceedings
- Work with professional and educational institutions to develop a comprehensive program (competencies and professional development)
- Make presentations or conduct workshops at already established professional conferences of engineers such as ASTM, ASCE's Structural Engineers Institute, Civil Engineers Standards Committee on Assessment of Existing Buildings and Structures, Sub-committee on Building Envelopes.
- Research the numbers of engineers who are currently involved in preservation and project future needs. Determine total yearly construction expenditure (new construction vs. existing or historic buildings). It is important to define the market in order to sell the concept to educational institutions, to the engineering profession and to potential funding sources.
- Establish an Internet listserv for meeting participants to discuss preservation training for engineers.

NCPTT plans to work with this group in the coming months on the strategies identified at the Philadelphia colloquium and now hosts "EngineeringHP," a listserv for exchanging ideas about engineers and preservation training. Contact Andy Ferrell, NCPTT Assistant Training Director, for additional information.

This article was developed from notes compiled by Lucia Bragan, National Park Service Employment Development Specialist, who facilitated the colloquium.

Building Stones of America

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detailed descriptions of the wall and archived stone specimens, and making that database publicly available through digital media and Internet access; 2) detailed petrologic studies of the archival and selected wall microcore specimens to characterize them with respect to their texture and mineralogy; and 3) correlation of mineralogical and microstructural features with stone performance, and comparison to performance of similar stones from the same producer that have been used in building construction.

The project consists of creating an archive of images of both the actual stone in the wall and all the archive specimens that have been stored indoors. Development of a database allows organization of the images and stone descriptions and easy access to the data. This database will be updated as new data become available, i.e. microscopic investigation of the stone texture and mineralogy, photographs of buildings constructed with these particular stones, and any other research related to the stones.

Approximately two-thirds of the stones in the wall have an archival companion specimen that has been imaged and added to the database. The database allows users to search for the different stones using several categories: state or foreign country, the stone type, or a specific stone number. It is also easy to browse around the wall just by clicking on the wall's picture; the user gets a display of all the database information and two images, one of the indoor specimen and one of the specific archival stone in the wall. The database will be accessible through the Internet in a few months.

Previous studies of the stone collection provide a brief description of rock type and source of the stones used in the wall but not images and descriptions of their mineralogical, textural, or surface characteristics. The detailed stone descriptions and images will serve as a baseline from which to evalu-

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PRESERVATION CALENDAR

August-October 2000

NCPTT welcomes calendar items, but only items with a minimum two-month lead will be considered for publication. A more extensive listing of conferences, training and other preservation events is available in the Clearinghouse section of NCPTT's Web site <www.ncptt.nps.gov>.

August

4-6 **Pittsburgh Forum 2000 conference and workshops** in Pittsburgh, Pennsylvania, sponsored by the National Alliance of Preservation Commissions. For information, contact National Alliance of Preservation Commissions, PO Box 1605, Athens, GA 30603; telephone 706/542-4731, facsimile 706/542-4485, e-mail <napc@uga.edu>, Web <www.arches.uga.edu/~napc>.

15-16 **Critical Issues in History Education** in Harpers Ferry, West Virginia, sponsored by National Park Service. For information, contact Stephen T. Mather Training Center, National Park Service, PO Box 77, Harpers Ferry, WV 25425-0077; telephone 304/535-6178.

17-19 **NAGPRA's Evolving Legacy workshop** in Newton, Massachusetts, sponsored by University of Nevada-Reno. For information, contact Division of Continuing Education, University of Nevada, Reno, NV 89557; telephone 800/233-8928, facsimile 775/784-4062, Web <www.unr.edu>.

17-20 **Pecos 2000 conference** in Mesa Verde, Colorado, sponsored by Crow Canyon Archaeological Center, Colorado Archaeological Society, and BLM-Anasazi Heritage Center. For information, contact <linda_towle@nps.gov>.

22-26 **CIDOC/CHIN 2000 conference** in Ottawa, Canada, sponsored by ICOM/CIDOC. For information, contact Kati Geber, International Committee for Documentation of the International Council of Museums; e-mail <kgeber@chin.gc.ca>, Web <www.chin.gc.ca/cidoc>.

September

2-7 **Tourism 2000 conference** in Sheffield, United Kingdom, sponsored by University of Northumbria at Newcastle and Sheffield Hallam University. For information, contact Dr. Mike Robinson, Centre for Travel & Tourism, University of Northumbria, Loonghirst, Morpeth, Northumberland NE61 3LL, UK; telephone 011440167/079-5064, facsimile 011440167/079-5063, e-mail <mike.robinson@unn.ac.uk>.

5-Nov 24 **Re-Imagining Museums for the Future workshop** in Victoria, BC, Canada, sponsored by University of Victoria. For information, contact Cultural Resource Management Programs, University of Victoria, PO Box 3030 STN CSC, Victoria, BC V8W 3N6, Canada; telephone 250/721-8462, facsimile 250/721-8774, e-mail <bweatherston@ uvcs.uvic.ca>, Web <www.uvcs.uvic.ca/crmp/ha-488g-3.htm>.

6-9 **Museum Computer Network conference** in Las Vegas, Nevada, sponsored by Museum Computer Network. For information, contact Museum Computer Network; Web <www.mcn.edu/mcn2k/index.htm>.

7 **Long-Term Preservation and Cyclical Maintenance of Historic Buildings workshop** in San Antonio, Texas, sponsored by National Preservation Institute. For information, contact Jere Gibber, National Preservation Institute, PO Box 1702, Alexandria, Virginia 22313; telephone 703/765-0100, e-mail <info@npi.org>, Web <www.npi.org>.

7-9 **Restoration & Renovation conference** in San Antonio, Texas, sponsored by EGI Exhibitions, Inc. For information, contact EGI Exhibitions, Inc.; Web <www.egiexhib.com>.

11-15 **Clicks & Mortar: Building Cultural Spaces for the 21st Century conference** in Newcastle, United Kingdom. For information, contact Frances Bycroft, Museum Documentation Association, Oxford, UK; telephone +44 (0) 1223 315760, Web <www.mda.org.uk>.

12-14 **Consulting with Native American Groups workshop** in Phoenix, Arizona, sponsored by University of Nevada-Reno. For information, see August 17-19 entry.

12-16 **European Association of Archaeologists meeting** in Lisbon, Portugal, sponsored by European Association of Archaeologists. For information, contact e-mail <eaa2000@ipa.min-cultura.pt>, Web <www.e-a-a.org/europe2.htm>.

14-16 **A Balancing Act: Management of the Historic House Museum and Its Collections workshop** in Mount Carroll, Illinois, sponsored by National Preservation Institute. For information see September 7 entry.

17-24 **Heritage 2000: 5th International Congress on the Restoration of Architectural Heritage** in Florence, Italy, sponsored by Universita Degli Studi tli Firenze. For information, contact Departamento Processi e Metodi della Produzione Edilizia, Via San Niccolo 89/a, 50125 Firenze, Italy.

18-19 **Management of University Museums conference** in Paris, France, sponsored by Institutional Management in Higher Education - Organization for Economic Co-operation and Development. For information, contact Web <www.oeed.org//els/edu/imhe/meetings.htm>.

18-20 **School for Scanning conference** in Seattle, Washington, sponsored by National Park Service and University of Washington. For information, contact Jamie Doyle; e-mail <jdoyle@nedcc.org>, Web <www.nedcc.org>.

18-23 **Museums at the Crossroads workshop** at Victoria, BC, Canada, sponsored by University of Victoria. For information, see September 5 entry.

19-21 **Archaeological Curation, Conservation, and Collections Management workshop** in Alexandria, Virginia, sponsored by National Preservation Institute. For information, see September 7 entry.

20-23 **2000 AASLH & LAM Annual meeting** in New Orleans, Louisiana, sponsored by the American Association for State and Local History and the Louisiana Association of Museums. For information, contact AASLH, 1717 Church Street, Nashville, TN 37203-2991; telephone 615/320-3203, facsimile 615/327-9013, e-mail <history@aaslh.org>, Web <www.aaslh.org/annualme.htm>.

20-24 **Frank Lloyd Wright Building Conservancy annual conference** in Minneapolis, Minnesota, sponsored by Frank Lloyd Wright Building Conservancy, 4657-B North Ravenswood Avenue, Chicago, Illinois 60640-4509; telephone 773/784-7334, facsimile 773/784-7862, e-mail <preservation@savewright.org>, Web <www.swcp.com/FLW/flwcallforpapers.html>.

21-22 **Preservation Administration Maintenance workshop** in Andover, Massachusetts, sponsored by the Northeast Document Conservation Center, one of a series of "Managing Preservation" workshops. For information, contact Steve Dalton, Northeast Document Conservation Center, 100 Brickstone Square, Andover, MA 01810-1494; telephone 978/470-1010, facsimile 978/475-6021, e-mail <dalton@nedcc.org>, Web <www.nedcc.org/coord.htm>.

25-26 **Identification and Management of Traditional Cultural Places workshop** in San Francisco, California, sponsored by National Preservation Institute. For information, see September 7 entry.

26-30 **Africanisms in America: Places of Cultural Memory conference** in New Orleans, Louisiana, sponsored by National Park Service. For information, contact National Park Service, 1849 C St. NW, Washington, DC; telephone 888/358-8388.

October

2 **Accessibility and Historic Integrity workshop** in Alexandria, Virginia, sponsored by National Preservation Institute. For information, see September 7 entry.

4-6 **VSMM 2000 conference** in Gifu, Japan, sponsored by International Society on Virtual Systems and MultiMedia. For information, contact International Society on Virtual Systems and MultiMedia; Web <www.vsmm.org/vsmm2000>.

5-6 **Ecure 2000: Preservation and Access for Electronic College and University Records conference** in Tempe, Arizona, sponsored by Arizona State University. For information, contact Lillie Johnson, Arizona State University, University Libraries, PO Box 871006, Tempe, AZ 85287-1006; telephone 480/965-3417, facsimile 480/965-0422, e-mail <Lillie.Johnson@asu.edu>, Web <www.asu.edu/it/events/ecure>.

8-10 **Twentieth-Century Museum Buildings: Conservation and Collections conference** in Philadelphia, Pennsylvania, sponsored by Association for Preservation Technology International. For information, contact Dr. Thomas H. Taylor, Jr., APT/AIC Symposium on Museums in Historic Buildings; facsimile 757/220-7787, e-mail <ttaylor@widomaker.com>.

10-14 **IIC Congress 2000 - Traditions and Innovation conference** in Melbourne, Australia, sponsored by International Institute for Conservation of Historic and Artistic Works. For information, contact International Institute for Conservation of Historic and Artistic Works; Web <www.natmus.min.dk/cons/iic/conferences/melbrn/melbrn.html>.

11-13 **Preserving the Recent Past II conference** in Philadelphia, Pennsylvania, sponsored by National Park Service Cultural Resources Training Initiative, For information, contact telephone 202/343-6011, Web <www2.cr.nps.gov/tps/recentpast2.htm>.

15-21 **Rome 2000: 15th World Conference on Non-Destructive Testing** in Rome, Italy, sponsored by Italian Society for Non-Destructive Testing. For information, contact Italian Society for Non-Destructive Testing, Monitoring Diagnostics, Via A. Foresti, 5, 25127 Brescia, Italy; telephone +39 030/373-9173, facsimile +39 030/373-9176, e-mail <aipnd@mail.protos.it>, Web <www.aipnd.it>.

17-19 **Preserving Historic Trails conference** in Bar Harbor, Maine, sponsored by Olmsted Center for Landscape Preservation - National Park Service, Acadia National Park, and Friends of Acadia, Inc. For information, contact Margie Coffin, OCLP; 6th Floor, National Park Service, 15 State Street, Boston, MA 02109; telephone 617/223-5115, facsimile 617/223-5195, e-mail <margie_coffin@nps.gov>.

23-28 **Planning for Community Cultural Stewardship workshop** in Victoria, BC, Canada, sponsored by University of Victoria. For information, see September 5 entry.

24-26 **International Conference on Conservation: CRACOW 2000**, in Cracow, Poland, sponsored by Cracow University of Technology. For information, contact Cracow University of Technology, e-mail <c2000@usk.pk.edu.pl>, Web <a1.arch.pk.edu.pl/c2000/en/frames.html>.

28-30 **American Society of Landscape Architects (ASLA) annual meeting** in St. Louis, Missouri, sponsored by ASLA. For information, contact Diane L. Scheu, American Society of Landscape Architects, 636 Eye Street NW, Washington, DC 20001-3736; telephone 202/216-2358, facsimile 202/898-1185, e-mail <dscheu@asla.org>, Web <www.asla.org>.

28-Nov 18 **Seminar for Historical Administration** in Williamsburg, Virginia, sponsored by American Association of Museums. For information, contact American Association of Museums, 1575 Eye Street NW, Washington, DC 20005; telephone 202/289-9114, facsimile 202/289-6578, e-mail <seminars@aam-us.org>, Web <www.aam-us.org/profed.htm>.

30-31 **Eastern Analytical Symposium's Conservation Science conference** in Atlantic City, New Jersey, sponsored by Eastern Analytical Symposium and others. For information, contact Eastern Analytical Symposium, PO Box 633, Montchanin, DE 19710-0633; telephone 610/485-4633, facsimile 610/485-9467, e-mail <easinfo@aol.com>, Web <www.nycf.org/eas.html>.

Building Stones of America

Continued from page 9

ate their resistance to weathering in subsequent studies. Additionally, the database will assist preservation specialists, stone conservators and historic preservation architects with an interest in stone, weathering effects, and historical collections to access image and descriptive data of a large number of specimens, while providing detailed images, stereoscopic image sets and descriptive text detail not previously possible. In subsequent studies, petrologic analysis will improve our understanding of the influence of the various weathering agents upon a wide variety of stone, our understanding of the stone degradation processes and our selection of appropriate preservation measures.

—Paul E. Stutzman and Jaime Raz

Mr. Stutzman operates the Building and Fire Research Laboratory's microstructure laboratory at the National Institute of Standards and Technology. His research interests include the microstructural characterization of cement clinker, high performance concrete, mortar and dimension stone.

Mr. Raz is a Research and Project Manager at Israel Atomic Commission, Nuclear Research Center, Negev. Presently he is a Guest Researcher on a sabbatical leave at NIST, Gaithersburg, Maryland.

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