

NCPTT NOTES

National Center for Preservation Technology and Training

UNITED STATES DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE

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SUPPLEMENT
1999
NUMBER 34

Preservation Technology and Training Grants and Projects: 1994-1999 summary catalog

NCPTT prepares comprehensive reviews of its work as supplements to NCPTT Notes twice annually — a Spring Supplement review of Preservation Technology and Training Publications, and a Fall Supplement review of Preservation Technology and Training Grants and Preservation Technology and Training Projects.

This year's Fall Supplement complements NCPTT's Annual Report, which will be sent to Notes subscribers soon.

The National Park Service, the Preservation Technology and Training Board and NCPTT are pleased to present the fifth annual summary of work undertaken by NCPTT.

NCPTT's Preservation Technology and Training Grants program is NCPTT's most prominent means of encouraging and supporting new ideas in preservation and conservation technologies. But NCPTT recognizes that a rigorous competitive program such as PTTGrants may not address all of the preservation community's current needs nor allow important projects begun under the PTTGrants program to continue or expand. As a complement to the PTTGrants program, NCPTT's Preservation Technology and Training Projects program builds on the individual professional strengths of

NCPTT's staff and takes a long-range view towards developing the preservation community's technical capabilities and resources.

The value of PTTProjects and PTTGrants in fiscal years 1994-1999 totals over \$6 million — with an approximately even split overall between projects and grants.

In fiscal year 1999, the value of PTTProjects totaled approximately \$900,000.

In fiscal year 1999, the PTTGrants program received approximately 180 proposals, requesting approximately \$6.4 million. Twenty-seven PTTGrants were awarded, totaling over \$900,000.

A notice on page 2 of this edition of *Notes* announces the fiscal year 2000 PTTGrants program.

Partnerships with the preservation community and the tangible results of the PTTProjects and PTTGrants programs are important accomplishments for NCPTT. NCPTT invites participation in its work, and welcomes readers' review and comments on the direction of its PTTProjects and PTTGrants programs.

— **Katherine H. Stevenson**
Associate Director, Cultural Resource Stewardship and Partnerships

— **Dr. Elizabeth A. Lyon**
Chair, Preservation Technology and Training Board

— **John Robbins**
Executive Director, NCPTT



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2000
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about the 2000
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see page 2.

NCPTT NOTES

FALL SUPPLEMENT

1999

PTTPublications

No. 1999-30

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Image Credit

Cover image: Sculpture at decorative arts museum, Buenos Aires, Argentina (see entry 159)

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Send comments on NCPTT Notes or submit articles or notices for consideration to NCPTT Publications Manager Sarah B. Luster.



FY2000 PTTGrants Call for Proposals

The National Center for Preservation Technology and Training has issued the fiscal year 2000 call for proposals for NCPTT's Preservation Technology and Training Grants program. The PTTGrants program has awarded over \$500,000 each year since

1994 for innovative work in research, training and information management on technical issues in historic architecture, archeology, historic landscapes, objects and materials conservation, and interpretation. Grants are available in eight categories –

- Information management
- Training and education
- Applied/fundamental research
- Environmental effects
- Technology transfer
- Analytical facility support
- Conference support
- Publications support

Application deadlines are mid-December 1999, as specified in the call for proposals. *FY2000 PTTGrants Call for Proposals* is available via —

E-mail Send a blank message to <pttgrants@ncptt.nps.gov> and the call for proposals will return automatically.

Fax-on-demand Call 318/357-3214 and follow the recorded instructions to receive a catalog of documents that includes the call for proposals.

Web Visit <www.ncptt.nps.gov> and click on "Preservation Technology and Training Grants."

Brochure The printed brochure for the FY2000 PTTGrants program has been mailed to NCPTT Notes subscribers. Request a printed call for proposals by e-mail <ncptt@ncptt.nps.gov>, telephone (318/357-6464), or US mail (NCPTT, NSU Box 5682, Natchitoches, LA 71497).

1999 Preservation Technology and Training Grants and Projects

Information Management

1999 PTTGrants

*NCPTT Information Management
Coordinator Mary Carroll is responsible
for these projects.*

207. Hawaii Traditional Cultural Places Inventory Database

Hawaii State Historic Preservation Office, Kapolei, Hawaii
\$24,206

Project abstract: The Hawaii SHPO maintains a computerized database of approximately 20,000 historic properties. Underrepresented in this inventory are traditional cultural properties or places significant for their association with native Hawaiian traditions, beliefs and customs. The Hawaii SHPO will develop and test a database for traditional cultural properties that accommodates information extracted from diverse historical and ethnographic sources, uses traditional place names to link this information, and allows information to be retrieved despite uncertainties in the location of many traditional places.

Project significance: A thorough and effective database of traditional cultural properties or places will enhance both the understanding and the protection of these important Hawaiian resources. This project will address the need for readily retrievable information on traditional cultural properties and places so that they can be considered earlier and more effectively in the planning process.

206. JAIC Online

Foundation of the American Institute for Conservation, Washington, DC
\$37,016

Project abstract: The *Journal of the American Institute for Conservation* is a prominent international medium for disseminating peer-reviewed information on the conservation of prehistoric, historic and cultural works. This project will dramatically increase public access to this material by placing the *JAIC* online. Back issues (1977-1997) will be translated into XML, mounted on Conservation OnLine (CoOL), <palimpsest.stanford.edu>, and indexed with a search engine. HTML output will be browsable by issue, table of contents, abstracts and keywords.

Project significance: *JAIC* articles are an excellent resource of core knowledge on conservation research and practice. Online access to *JAIC* will benefit conservators interested in advanced technical issues in preservation and conservation, and the cultural resources in their care.

205. National Register District GIS Project

Ohio State Historic Preservation Office, Columbus, Ohio
\$39,083

Project abstract: The National Register District Geographic Information Systems Project will create a digital data layer of National Register districts and contributing properties within the state of Ohio. This data layer, accessible online, will allow users to query, present and analyze information on historic districts efficiently and comprehensively.

Project significance: Ready and widespread access to accurate information about historic districts and their resources will greatly assist practitioners at Federal, state and local levels in research and planning projects — including compliance, “tax act” and certified local government activities —, and greatly assist the preservation of historic districts throughout Ohio.

204. North American Database and Website of Archeological Geophysics (Phase 1 of three phases)

University of Arkansas, Fayetteville, Arkansas
\$34,501 (Phase 1)

Project abstract: The technology of archeological geophysics has advanced tremendously in the past decade, but developments and levels of use in North America have lagged far behind practices in Europe and Japan. The University of Arkansas will develop a database and Website to educate the professional community and the public in the utility and need for this technology, and will maintain a database archive of results. The centralized Website and database will include project data, imagery, annotated bibliographic citations, project reports, instrumentation data, links to practitioners, manufacturers and other geophysics sites, upcoming events links, and educational tutorials. Phase 1 will focus on basic Website development.

Project significance: With the large potential for geophysical prospecting methods in archeology, their growing importance in the discipline, and the increasing number of applications and practitioners, a central Website and database of North American results is vitally important. This project will promote education, awareness and the use geophysical survey methods in North American archeology.

203. Olmsted Research Guide Online (Phase 1 of three phases)

National Park Service-Frederick Law Olmsted National Historic Site,
Brookline, Massachusetts
\$35,523 (Phase 1)

Project abstract: The Frederick Law Olmsted National Historic Site will create an Internet-accessible database of information about the landscape designs of Frederick Law Olmsted Sr. and successor firms. Information about collections at various repositories — including over 750,000 project-related records in the Olmsted Archives and 375,000 records at the Library of Congress — will be available online. Phase 1 focuses on database design and data conversion.

This project was considered under the 1999 PTTGrants Special Topics in Historic Landscapes Research.

Project significance: Olmsted designs shaped major urban landscapes across the United States. Interest in the study of these landscapes has accelerated over the past several years resulting in a significant increase in research requests. The Olmsted research guide will assist researchers with advance searches of Olmsted collection information, which will streamline the overall research process and help researchers to make more informed requests for information.

Training and Education

1999 PTTGrants

*NCPTT Training Coordinator Frances
Gale is responsible for these projects.*

202. Distance Learning: Artifactual Conservation Treatment

The New York Public Library, Astor, Tilden and Lenox Foundations,
New York, New York
\$40,000

Project abstract: NYPL's Conservation Laboratory will develop, produce and distribute computer-based training modules on the conservation of books and paper. This distance learning project will include training in basic and advanced techniques for examining and treating paper-based materials.

Project significance: Well-designed computer-based training provides cost-effective, high quality instruction that is available when and where it is needed. Incorporating interactivity in computer-based training permits the user to replay, enlarge and access additional information at an individual rate. The proposed training will combine the treatment expertise developed by conservators and professionals in associated fields with the diverse treatment problems posed by NYPL collections.

201. Distance Learning: Conserving Historic Buildings

Washington State Historic Preservation Office, Olympia, Washington
\$29,469

Project abstract: The Washington SHPO will develop a distance education course on principles and techniques of conserving historic building systems and materials. Instructional materials for the course will include print, CD-ROM and a Web site, and the course will be available through the University of Victoria's Cultural Resource Management Program for academic credit, for transfer credit to other academic programs throughout North America, and for non-credit continuing professional education.

Project significance: Preservation practitioners need accessible technical training as part of continuing professional education. The Conserving Historic Buildings course will serve mid-career practitioners who manage and preserve historic buildings throughout North America. Because the course will be offered online, this project addresses potential difficulties in finding appropriate courses that are affordable and do not require extended periods away from the workplace.

200. Distance Learning: Paper Conservation (Phase 2 of two phases)

Northeast Document Conservation Center, Andover, Massachusetts
\$39,000 (Phase 2)

Project abstract: The 1998 PTTGrants program supported NEDCC's development of *Preservation 101*, an online course on paper conservation for staff of small historical organizations and private collectors. Project results for Phase 1 —

Northeast Document Conservation Center (K. Brown and K. O'Leary, authors). *Preservation 101* <www.nedcc.org/course.htm>. Andover, Massachusetts: Northeast Document Conservation Center. 1999. [PTTPublications No. 1999-27]

During the second year of support, NEDCC will refine the course, adding two additional conservation modules. A six-week online training course for 150 participants will be offered in Summer 2000.

See *NCPTT Notes* 33, page 4 for further discussion of this project.

Project significance: NEDCC's 1998 training course responded to a growing demand for information in electronic format. The second year this Internet course will include modules on disaster preparation and care of photographs, which will help to raise public awareness of threats to collections and to preserve collections through improved storage, handling and environment.

199. Distance Learning: Preserving Thin-Shell Concrete Structures (Phase 1 of two phases)

The Pennsylvania State University, University Park, Pennsylvania
\$40,000 (Phase 1)

Project abstract: The Pennsylvania State University will develop computer-based training on preserving thin-shell concrete structures. Three cohort-based, interactive distance learning modules for an audience of architects, engineers and other preservation professionals will address technical issues such as repairing and rehabilitating these structures. The modules will be offered as non-credit distance learning instruction through the university's World Campus.

Project significance: Thin-shell concrete structures represent an important contribution to building technology and design in the 1930s through the 1970s. This project addresses a national need for understanding the issues in preserving thin-shelled concrete structures and other historic buildings of the recent past.

198. Workshop: Recent Advances in Conserving Silver

Nebraska State Historic Preservation Office-Gerald R. Ford Conservation Center, Omaha, Nebraska

\$28,644

Project abstract: Working with the University of Delaware's Museum Studies Program, the Ford Center will offer a five-day workshop on conserving silver objects. Designed for objects conservators and scholars, the workshop will cover materials and techniques used in silver conservation, focusing on the results of recent research in silver conservation funded by NCPTT through the PTTGrants program (see entry 90).

Project significance: Found in art, cultural, historical, ethnographic, historic house and archeological collections in the US and throughout the world, silver is extremely sensitive to environmental pollutants. This workshop will tackle the care and protection of silver in collections and will address the national need for continuing education for practicing conservators.

1999 PTTGrants Applied/Fundamental Research

*NCPTT Research Coordinator Mark
Gilberg is responsible for these projects.*

197. Effects of Color Temperature and Intensity (Phase 2 of two phases)

City University of New York-Brooklyn College, Brooklyn, New York
\$39,968 (Phase 2)

Project abstract: The effects of color temperature and intensity on human perception of color discrimination, color appearance and aesthetic quality of illuminated museum objects are being investigated. This research seeks to determine how visual function — in particular, color appearance — is affected by the color temperature of background illumination within the range typically used in museum displays. Psychophysical testing will be conducted to determine how observers perceive color appearance, particularly the magnitude of hue and saturation.

See *NCPTT Notes* 32, page 2 for further discussion of this project.

Project significance: The illumination of museum objects must balance the need to minimize the amount of light-induced damage with the desire to optimize viewing conditions. Conventional museum standards for lighting, which are based principally on light intensity and duration, do not consider the color temperature of the light source, which has an enormous impact on the quality and brightness of a light source. By understanding the relationship between color temperature and light intensity and how they affect perception of illuminated museum objects, more objective lighting specifications can be developed that provide observers with an pleasing viewing experience without subjecting artworks to light-induced damage.

196. Exploring the Interface of Nature and Culture

Atlantic Center for the Environment, Ipswich, Massachusetts
\$40,000

Project abstract: Cultural landscapes present new challenges to managers faced with the need to integrate historic, cultural and natural resources. Existing guidelines do not adequately address all of these resources, while much emerging local-level experience is undocumented or generally inaccessible. This research project will identify and evaluate innovations in multidisciplinary cultural landscape programs and describe methodologies that successfully integrate natural resource and cultural landscape management. Case studies will provide the foundation for a resource manual that addresses technical issues as well as techniques for decision-making.

Environmental Effects

*NCPTT Materials Research Program
Manager Mary Striegel is responsible
for these projects.*

192. Building Stones of America (Phase 2 of three phases)

National Institute of Standards and Technology, Gaithersburg, Maryland
\$25,000 (Phase 2)

Project abstract: The NIST stone test wall was constructed in 1948 to study the performance of stone subjected to weathering. The wall contains 2,352 samples of stone — 2,032 domestic stones from 47 states and 320 imported stones. Unexposed specimens have been stored indoors for comparison with weathered samples.

Phase 1 of the project focused on photographic and descriptive documentation of the archived and exposed stone samples. In Phase 2, detailed petrologic studies of archival specimens and selected micro-core specimens will characterize their micro-texture and mineralogy.

Project significance: The project is a unique opportunity to study and compare the long-term performance of a wide range of building stones. Project results will be useful to preservation architects, architectural materials conservators, and design and construction professionals who study stone deterioration, and select stone for rehabilitating historic structures and for new construction.

191. Improved Sol-Gel Consolidants for Stone (Phase 1 of three phases)

Princeton University, Princeton, New Jersey
\$48,663 (Phase 1)

Project abstract: This project will develop new consolidants to correct two deficiencies of currently available consolidants: cracking of the consolidant from shrinkage, and poor match between properties — particularly modulus of elasticity and thermal expansion coefficient — of the consolidant and the stone. Both goals will be achieved by using sol-gel processing to incorporate a concentrated suspension of colloidal oxide particles into a gelling matrix. The particles will reduce shrinkage and cracking during drying, and their mechanical properties will be chosen to closely match the host stone. Resulting materials are expected to provide better protection against deterioration by environmental effects.

Project significance: The project will yield a family of consolidants with mechanical properties that match the properties of stones commonly encountered by the conservator. The new consolidants will circumvent problems of shrinkage and cracking associated with widely used consolidants such as alkoxysilanes.

190. A New Protocol for the Analysis of Deteriorated Historic Mortars and Plasters (Phase 2 of two phases)

University of Delaware, Newark, Delaware
\$32,250 (Phase 2)

Project abstract: This project concludes work begun with a 1998 PTTGrants award.

In Phase 1, an annotated bibliography was prepared of pertinent information from the cement chemistry and industrial literature. A standard protocol for analyzing historic mortars was developed based on the results of research. The tests include thin section analysis, SEM-EDS analysis, XRD analysis and others. Laboratory samples of 18 traditional mortar recipes were prepared for validating the protocol. Results of this work were presented at an international conference, "Characterization of Old Mortars with Respect to their Repair," held at the University of Paisley, Scotland in May 1999.

Phase 2 addresses the validation of the analysis protocol developed in Phase 1. Validation studies will include testing the effectiveness of the Phase 1 protocol on

laboratory-prepared specimens that have undergone accelerated aging, and analyzing naturally-deteriorated mortars with the Phase 1 protocol — to ensure that deterioration products from accelerated aging accurately represent natural aging effects. The protocol will be refined to ensure accurate characterization of the original laboratory-prepared mortars.

Project significance: With a reliable protocol for studying historic mortars and plasters, preservation practitioners could consistently evaluate these materials for a variety of purposes. In addition to use in developing preservation treatments, standardized mortar and plaster analysis will be useful in comparing and dating materials, and studying the development of building technologies.

189. Organic Coatings for Protecting Outdoor Bronze Sculpture (Phase 1 of three phases)

North Dakota State University, Fargo, North Dakota
\$50,000 (Phase 1)

Project abstract: Phase 1 of the project will use electrochemical characterization methods to evaluate coatings' corrosion protective performance under conditions that directly emulate exposure to polluted atmospheres. Coatings over bronze, copper and other substrates will be evaluated. The research builds on earlier work by the National Gallery of Art (see entry 141). The current project will incorporate cyclic exposure test protocols currently used in industrial and academic laboratories as well as new test protocols under development at NDSU. Phase 2 research will examine advances in topcoat technologies within the automotive and aerospace industries for potential improvement of protective coatings for outdoor sculpture and ornament. Phase 3 research will interpret test results, and develop a test protocol for analyzing new coatings for conservation treatments.

Project significance: This research will transfer technologies for assessing, designing and testing coatings for the protection of metals from academic and industrial uses to the field of conservation. The work will result in improved coatings for use on outdoor metal sculptures.

188. The Role of Microorganisms in Deterioration by Atmospheric Pollutants (Phase 3 of three phases)

Harvard University, Cambridge, Massachusetts
\$50,000 (Phase 3)

Project abstract: This project concludes work supported with PTTGrants awards in 1997 and 1998.

Microorganisms have been implicated in the degradation of stone by pollutants, but neither the mechanisms nor the importance of microbial processes in pollutant damage has been elucidated.

Phase 1 research identified the effects of sulfur dioxide, nitrogen oxides and hydrocarbons on microflora naturally occurring in and on limestone.

Phase 2 research evaluated the interaction of these pollutants and microflora for its deteriorating effects on limestone. Research results were presented at the International Biodeterioration Symposium, Washington, DC in July 1999.

Phase 3 research will study the responses of natural limestone microflora to atmospheric pollutants and identify the most corrosive organisms. Corrosion mechanisms and the effects of environmental conditions on the action of microorganisms on stone also will be investigated.

Project significance: Biological causes of stone deterioration may be a critical component of cultural resource decay, particularly in tropical and subtropical environments. While studies of biological decay have been undertaken, few researchers have looked at the effects of air pollution on microorganisms. This study will enhance our understanding of the role of microorganisms and their interaction with pollutants in the processes of stone deterioration. By better understanding the processes we can develop more effective remedial treatments to preserve stone exposed to air pollutants.

Technology Transfer

*NCPTT Materials Research Program
Manager Mary Striegel is responsible
for this project.*

187. Examination of Gilded Bronze Using Nondestructive Eddy Current Techniques

Freer Gallery of Art and Arthur M. Sackler Gallery, Washington, DC
\$17,200

Project abstract: This research will use eddy current analysis — used in the automotive, power and aerospace industries, among others — to determine techniques used to gild bronze objects from different cultures and time periods. In eddy current analysis, the interactions of metal and a probe form an electronic signal that is measured and correlated to properties of the metal. Applied to the field of conservation, the resulting information is vital to research on ancient metalworking and can answer questions of authentication. This nondestructive technique overcomes the limitations of current analytical techniques that require sampling.

Project significance: Eddy current analysis is convenient and inexpensive — and may provide a rapid and effective method for classifying, comparing and authenticating a large number of gilded bronze objects.

Analytical Facility Support

*NCPTT Research Coordinator Mark
Gilberg is responsible for these projects.*

186. Facility Support for Enhanced Analytical Services (Phase 3 of three phases)

Williamstown Art Conservation Center, Williamstown, Massachusetts
\$49,808 (Phase 3)

Project abstract: NCPTT support will allow Williamstown Art Conservation Center to increase the range of analytical services that are not commonly available to practitioners. The services will be available at reduced cost to conservators and nonprofit institutions.

In Phases 1 and 2, WACC upgraded its existing light microscope and FT-IR microscope and added a video microscopy/image analysis system and a new workstation for sample preparation. These new upgrades and new equipment substantially decreased the time and cost of analysis resulting in a reduced hourly rate charged to conservators and non-profit institutions. The number of conservators and non-profit institutions served also increased significantly.

In Phase 3, additional upgrades will be made to increase WACC capacity to provide a higher level of analytical service at a reduced cost through gains in efficiency.

Project results published —

Rust, C., "How to Heal a Masterpiece," *Discover* April 1999, 72-79.

Project significance: Light microscopy and FT-IR microscopy are two of the most widely used techniques for analyzing works of art and, moreover, are the principal techniques used for visual examination of layered samples and identification of organic and inorganic materials found in pigments, fibers, dyes, binders and coatings. Few conservation centers or conservators, however, are technically capable of undertaking such analyses. PTTGrants support will enhance the Williamstown Art Conservation Center's ability to provide timely and reliable chemical analysis at reasonable cost to the preservation and conservation community.

185. Upgrade X-Ray Diffraction Facilities

The Detroit Institute of Arts, Detroit, Michigan
\$23,085

Project abstract: The Detroit Institute of Arts will upgrade the Conservation Services Laboratory's X-ray diffraction system to allow computer-assisted analysis of digitized diffraction patterns, and will upgrade the existing photomicrography system to improve sample preparation, handling and examination.

Project significance: Laboratory equipment upgrades will allow unambiguous identification of pigments, corrosion products and other materials — analysis that is essential to developing treatment protocols as well as establishing provenance and authenticity. With improved equipment, the Conservation Services Laboratory can provide enhanced conservation services to the more than 30 museums and cultural institutions throughout Michigan and the US currently assisted by the laboratory.

Conference Support

*NCPTT Training Coordinator Frances
Gale is responsible for these projects.*

184. Symposium: Conservation and Preservation of Coquina

Florida State Historic Preservation Office, Tallahassee, Florida
\$7,856

Project abstract: Named for the shells of the small mollusks that it contains, coquina is a limestone conglomerate found in deposits along the Atlantic coast from South Carolina to Florida. Historic coquina structures gradually are deteriorating, and little is known about the effectiveness or long-term effects of conservation techniques. This symposium will bring together preservation professionals to discuss current scholarship, share field experience and determine the research needed to develop appropriate preservation treatments. Proceedings will be published and accessible online.

Project significance: The symposium will help to clarify current thought on appropriate preservation treatments for historic coquina structures, identify research needs and provide guidance for managing the preservation of these fragile cultural resources.

183. Symposium: Protective Shelter Needs for Archeological Sites in the Southwest

United States Committee/International Council on Monuments and Sites,
Washington, DC
\$14,974

Project abstract: This symposium will focus on protective shelters as a means of preserving archeological sites. Conservators, architects and site managers will present case studies and consider both positive and negative aspects of protective shelters. Site visits at Tumacacori National Monument will provide an opportunity for participants to inspect shelter installations.

Project significance: Stabilization of archeological sites presents a formidable challenge. Once exposed to the elements, excavated structures often deteriorate rapidly. This conference will bring together experts to consider questions related to designing and installing shelters to protect vulnerable archeological features.

1999 PTTGrants

Publications Support

*NCPTT Information Management
Coordinator Mary Carroll is responsible
for these projects.*

182. A Graphic Guide to Historic American Timber Joinery

Timber Framers Guild of North America, Washington, Massachusetts
\$18,370

Project abstract: The Timber Framers Guild of North America will catalog joint types traditionally found in the US by historical period and use, and prepare the information for publication.

Project significance: Preservation practitioners may irreparably damage timber framed buildings because they do not understand traditional wooden joinery techniques. This publication will provide a valuable reference for preserving and replicating historic American timber frame details. Also, accurate identification of joints in an existing frame will help investigators date structures and trace the history of the buildings and their builders.

181. The Interplay of Drawings and On-Site Decisions in Outdoor Theater Designs of the New Deal

University of California, Berkeley, California
\$19,979

Project abstract: The Civilian Conservation Corps and the Works Progress Administration constructed hundreds of outdoor theaters in parks and cities throughout the US. Although many of these historic theaters are rehabilitated to meet contemporary codes and uses, rehabilitation design usually relies on period drawings rather than evidence of on-site design. Contemporary rehabilitation often is not as successful as original construction in accommodating sites' unique landscape features. More subtle documentation and understanding of the role of on-site design is needed towards enhanced preservation of these significant historic landscape projects. UC-Berkeley will review and analyze the construction of outdoor theaters by the CCC and WPA, and prepare project findings as a publication.

Project significance: This publication will highlight how 1930s-era outdoor theaters were designed and constructed, and how these theaters are rehabilitated today. Disseminating information about on-site construction techniques that varied from design drawings in response to field conditions will assist today's preservation professionals to incorporate similar techniques into rehabilitation work.

Information Management

*NCPTT Information Management
Coordinator Mary Carroll is responsible
for these projects.*

180. Digitize Chaco Map Collection

Partner National Park Service-Chaco Culture National Historical
Park, New Mexico

Project initiated 1999; anticipated completion Fall 2000

Chaco Culture National Historical Park is digitizing an estimated 1,200 maps in its collection — many of which are original field maps produced by National Park Service projects over the past seven decades — in order to allow users to access the maps without damaging the originals. Information about available digital maps will be disseminated to resource managers, researchers and the

public, and policies and procedures for maintaining and distributing the digital maps will be developed.

179. National Trust Library

Partner University of Maryland, College Park, Maryland

Project initiated 1994, additional funding 1995 through 1999

NCPTT has contributed to supporting the National Trust Library — a special collection at the University of Maryland devoted to historic preservation materials. The National Trust Library acquires, accessions, catalogs and abstracts preservation publications, curates materials donated by the US Navy's Legacy program, and curates collections donated by prominent preservationists.

See the National Trust Library's Web site, <www.itd.umd.edu/UMS/UMCP/NTL/ntrl.html>, for further information about National Trust Library resources and services.

178. NCPTT's Preservation Technology and Training Internet Services

Project initiated 1994, continued funding 1995 through 1999

This project has evolved from a gopher-based system inaugurated in 1994 to today's advanced World Wide Web-based technology.

The current PTTInternet services project will enhance NCPTT's leadership in electronic dissemination of preservation information. A major focus of PTTInternet is the continuing development of NCPTT's Website to deliver preservation information and NCPTT project results to the preservation community. The project is proceeding in four phases —

Phase 1 — designing the graphical user interface and development of static site content, including descriptions of NCPTT, its mission, components, programs and advisory board — is completed.

Phase 2 — designing the databases that will replace the gopher-based Resources section and implementing one prototype database — is completed.

Phase 3 — implementing other databases in the system — is underway. Four databases — training and education opportunities, conferences, jobs and funding opportunities — are completed.

Phase 4 will add features to the Website and target a focused audience — a PTTCommunity.

177. Symposium: Delivering Archeological Information Electronically

Partners Society for American Archaeology, Washington, DC
Center for Study of Architecture-Archaeological Data
Archive Project, Bryn Mawr, Pennsylvania

Project initiated 1999

This symposium — co-chaired by NCPTT and ADAP and co-sponsored by NCPTT, ADAP and SAA's Publications Committee — took place in March 1999 at SAA's annual meeting in Chicago. Eleven panelists discussed information types and access systems towards assessing the utility of various electronic means for disseminating and using archeological data. Most of the papers presented will be included in a publication in preparation by NCPTT, SAA and ADAP.

176. Upgrade Chaco Project Electronic Databases and Publish Online

Partner National Park Service-Chaco Culture National Historical
Park, New Mexico

Project initiated 1999; anticipated completion Fall 2000

Chaco Culture National Historical Park is preserving and distributing electronic databases from National Park Service archeological research projects that took place at the park from 1970 to 1985. Data from these excavation and survey projects is either inaccessible or in danger of becoming inaccessible due to obsolete technology. Information about the upgraded data files will be available

via the park's Website so that resource managers and researchers can determine which information may be useful and how to obtain copies. Policy recommendations will be developed to address long-term preservation issues for the resulting data files.

Materials Research

NCPTT's Materials Research Program Manager Mary Striegel is responsible for these projects.

175. Deposition Studies on Textured Stone

Partner University of Delaware, Newark, Delaware

Project initiated 1997, additional funding 1998 and 1999

This research seeks to understand how changes in surface texture affect the way sulfur dioxide is deposited on calcareous stone. Research results will be useful in evaluating cleaning methods used in conserving calcareous stone monuments, sculpture and buildings. Research design and an annotated bibliography are completed. Currently, laboratory results are being generated and analyzed.

174. Materials Characterization of Carbonate Stone

Partner University of Houston, Houston, Texas

Project initiated 1997, additional funding 1998 and 1999

NCPTT's Materials Research Program has a continuing need for materials characterization for a variety of research projects. University of Houston's Materials Characterization Facility will assist MRP with advanced analytical techniques that complement MRP's study of the effects of surface texture on the deposition of pollutants to calcareous stone. In addition, an MRP research fellowship position has been established at the University of Houston under this project.

173. Materials Research Program Archives

Project initiated 1997, continued funding 1998 and 1999; results published —

National Center for Preservation Technology and Training. *Explore the Materials Research Program - Acid Rain and Beyond* (CD-ROM). Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1999. [PTTPublications No. 1999-15]

In the transfer of the National Park Service's Acid Rain Program to NCPTT, the Materials Research Program inherited over ten years of files, photographs, slides, data, stone samples and other materials. For this information to be useful, a systematic approach to storage and retrieval is needed. Current archives work includes developing a slide image database and cataloging the MRP photographic resources.

See *NCPTT Notes* 33, page 1 for further discussion of this project.

172. Materials Research Program Literature Project

Project initiated 1996, continued funding 1997 through 1999

This project addresses the need to organize over 1,400 literature offprints collected by the National Park Service's Acid Rain Program and its successor Materials Research Program over a 13-year period. A completed HTML version is ready for installation on NCPTT's Website, and a network version of bibliographic software will allow in-house and off-site database updates.

171. NCPTT Laboratories

Project initiated 1996, continued funding 1997 through 1999

NCPTT includes two laboratories — an Environmental Exposure Facility and a Digital Research Laboratory — both established and managed by NCPTT's

Materials Research Program.

NCPTT's Environmental Exposure Facility was created in 1996 when laboratory equipment designed for Materials Research Program projects at US Geological Survey offices in Reston, Virginia was moved to NCPTT. The facility began with a custom-built recirculating exposure chamber capable of precise control of temperature, wind speed, relative humidity and pollutant concentration. The facility has expanded with the addition of new computers and software, a Dionex Ion Chromatograph, and equipment for preparing metallographic and petrographic samples for optical microscopy.

NCPTT's Digital Research Laboratory is designed to capture, manipulate and publish still and motion digital images. The laboratory includes a graphics workstation, a digital workstation, a stereo zoom microscope, and a polarized light research microscope. In collaboration with NCPTT's Training component, MRP has assisted in the development of a digital microscopy/videography system comprised of a digital workstation, professional digital video equipment and SPOT digital camera.

170. Preservation Treatment Guide on Tabby

Partner National Park Service-Southeast Regional Office, Atlanta, Georgia

Project initiated 1999

This project will produce a preservation treatment guide on tabby for use by preservation practitioners. Tabby is an historic building material made of shell, sand and lime found mainly along the southeastern US coast. The guide will provide technical assistance to resource management and maintenance personnel in making critical decisions concerning the stabilization, protection and preservation of tabby historic resources.

169. Soiling of Limestone Buildings

Partner Carnegie-Mellon University, Pittsburgh, Pennsylvania

Project initiated 1991, NCPTT assumed responsibility 1995; additional funding 1996 through 1999; results published —

Davidson, C.I., W. Tang, S. Finger, V. Etyemezian, M.F. Striegel, and S.I. Sherwood. "Soiling Patterns on a Tall Limestone Building: Changes over Sixty Years." *Environmental Science and Technology*. 1999 (submitted for publication)

———. "Vertical Gradients of Pollutant Concentrations and Deposition Fluxes on a Tall Limestone Building." *Journal of the American Institute for Conservation*. v. 37, No. 2, 1998, pp. 187-210.

Tang, W., C.I. Davidson, S. Finger, V. Etyemezian, M.F. Striegel, and S.I. Sherwood. "Changes of Soiling Patterns over Time on the Cathedral of Learning" (P. Brimblecombe, ed.). 1999. (submitted for publication)

NCPTT-wide

168. Developing Statewide Preservation Organizations

Partner National Trust for Historic Preservation, Washington, DC

Project initiated 1996, additional funding 1997 through 1999

NCPTT contributes to the National Trust's Statewide Partnerships program that encourages the creation and growth of capable nonprofit preservation organizations in each state.

NCPTT has two chief goals for this project — developing an important audience for NCPTT's work, and developing statewide organizations' understanding and capabilities in technical aspects of preservation.

In 1999, NCPTT funds supported five technical projects proposed by statewide organizations —

- *Preservation Trust of Vermont*: Strategies for wireless

telecommunications installations in historic structures

- *Georgia Trust for Historic Preservation*: Internet training for southeastern statewide organizations

- *New Hampshire Preservation Alliance, New Mexico Heritage Preservation Alliance and Maine Preservation*: Enhance public access to preservation information in each state.

In 1998, NCPTT funds supported four technical projects proposed by statewide organizations —

- *Montana Preservation Alliance*: Montana Community Team Project

- *Preservation New Jersey*: Internet training for statewide organizations throughout the northeastern US

- *Preservation Alliance of West Virginia*: Demonstration heritage education project

- *Louisiana Preservation Alliance*: Survey and evaluation of Louisiana's heritage education programs.

Research

1999 PTTProjects

NCPTT Research Coordinator Mark Gilberg is responsible for these projects.

167. Controlling Formosan Termites Using Toxic Baits

Partner City of New Orleans Mosquito and Termite Control Board, New Orleans, Louisiana

Project initiated 1997, additional funding 1998 and 1999; anticipated completion Fall 2000; results published —

“Insidious Insects Wage War on New Orleans.” *National Geographic* 193, No. 2 (February 1998).

Vivian, D., “More Than a Mere Past: Saving New Orleans from Formosan Termites,” *Historic Preservation Forum* 12, No. 4 (1998) 34-40.

Su, N-Y, E. Freytag, E.S. Bordes, and R. Dycus. “Control of Formosan Subterranean Termite Infestations in Historic Presbyterie and the Cabildo Using Baits Containing an Insect Growth Regulator,” *Studies in Conservation* 44 (1999) 1-9.

In cooperation with the University of Florida-Ft. Lauderdale Research Center and DowElanco, the City of New Orleans Mosquito and Termite Control Board is testing a new baiting system for controlling subterranean termites. Field trials in New Orleans began in 1997 with a city block of buildings bordering Jackson Square in the historic Vieux Carré. All publicly-owned buildings have been baited and are being monitored.

See entries 54 and 160 for other NCPTT work on this topic.

166. Cultural Landscape Field Techniques for Sustainable Earthworks Management

Partner National Park Service-Southeast Regional Office, Atlanta, Georgia

Project initiated 1999; anticipated completion Fall 2000

Earthworks management is a major resource concern in almost all historic military parks. Often the only visible remains of military occupation, these now fragile resources are subject to degradation. Field techniques for preserving earthworks will be tested and evaluated at National Park Service sites in the southeastern US.

165. Exhibit Conservation Guidelines

Partner National Park Service-Harpers Ferry Center Division of Conservation, Harpers Ferry, West Virginia

Project initiated 1999; project completed

With NCPTT support, Harpers Ferry Center's Division of Conservation has published a CD-ROM manual for incorporating conservation into museum exhibit planning, design and production —

National Park Service-Harpers Ferry Center-Division of Conservation. *Exhibit Conservation Guidelines Incorporating Conservation into Exhibit Planning, Design and Fabrication*. (CD-ROM). 1999.

164. Laser Cleaning Research Facility at LACMA

Partner Los Angeles County Museum of Art, Los Angeles, California

Project initiated 1999; anticipated completion Fall 2001

In collaboration with the Los Angeles County Museum of Art, NCPTT is developing a scientific facility to study the use of lasers to clean works of art. NCPTT's Research component and Materials Research Program are collaborating on this project.

This project continues NCPTT work initiated in 1996 (entry 68).

163. Protective Glazing on Stained Glass Windows

Partner Enermodal Engineering, Inc., Denver, Colorado

Project initiated 1997, continued funding 1998 and 1999; anticipated completion Winter 1999-2000

NCPTT and Enermodal Engineering, Inc. are studying the effects of protective glazing on the long-term preservation of stained glass windows. In 1997, Enermodal developed a computer model to calculate temperature distributions across externally-ventilated glazing systems of the type commonly found in stained glass window installations throughout the US. Data previously collected by Inspired Partnerships (see entry 15) was used to verify the model, which is presently undergoing further refinement to include computer analysis of internally-vented protective glazing. Additional data were collected by NCPTT during Summer 1999 for both internally—and externally—vented protective glazing systems.

162. Software for Calculating the Economic Impacts of Historic Preservation

Partner Rutgers University-Center for Urban Policy Research, New Brunswick, New Jersey

Project initiated 1999; anticipated completion Winter 1999-2000

Rutgers University's Center for Urban Policy Research is developing computer software that will calculate the total economic impact of four critical components of historic preservation: rehabilitation, tourism, Main Street investment and the operation of historic sites. Target users of this software include State Historic Preservation Offices, local historical commissions, state and local preservation advocacy groups, developers who rehabilitate historic buildings, and state and local tourist agencies.

This project continues NCPTT work described in entries 61 and 128.

161. Symposium: New Surveillance Technologies for Protecting Archeological Resources Against Looting and Vandalism

Partners University of West Florida, Pensacola, Florida

US Navy-Naval Surface Warfare Center-Coastal Systems Station, Panama City, Florida

Project initiated 1999; project completed

A two-day symposium to discuss new technologies for protecting remote archeological resources against vandalism and intrusion was held in Panama City, Florida in July 1999. The symposium brought together experts on new surveillance technologies for protecting remote cultural resources on land and

under water against vandalism and intrusion. A summary of discussions and findings will be published in an upcoming issue of *NCPTT Notes*. (NCPTT's Training and Research components collaborated on this project.)

160. Workshop: Control of Subterranean and Drywood Termites

Partner City of New Orleans Mosquito and Termite Control Board, New Orleans, Louisiana

Project initiated 1999

A workshop to discuss new technologies for controlling subterranean and drywood termite infestations in historic buildings and landscapes was held in New Orleans, Louisiana in September 1999. The workshop emphasized new baiting techniques and their effectiveness in suppressing or eliminating subterranean termite colonies without causing significant damage to the environment or historic fabric. Baiting systems installed in the Vieux Carré and Louis Armstrong Park served as case studies. Discussions included community-base strategies for integrating new termite control technologies into historic district management. (NCPTT's Training and Research components collaborated on this project.)

For other NCPTT work on this topic, see entries 54 and 167.

Training and Education

1999 PTTProjects

NCPTT Training Coordinator Frances Gale is responsible for these projects.

159. Collaborative Conservation Training

Partner Smithsonian Institution, Washington, DC

Project initiated 1999; project completed

During May and June 1999, NCPTT senior staff served as faculty in a training program for conservators working at museums in Argentina, Brazil and Chile. Sponsored by Fundacion Antorchas in Buenos Aires, Argentina, with assistance by the Smithsonian Institution, the training program focused on preventive conservation of artistic, historic, archeological, architectural and ethnographic collections. NCPTT's training sessions included conservation science, pest control, stone conservation, metals conservation and architectural conservation.

158. Conference: Architectural Terra Cotta

Partner New York Landmarks Conservancy, New York, New York

Project initiated 1999

New York Landmarks Conservancy will develop and present a conference on preserving architectural terra cotta, currently scheduled in Spring 2000.

157. Developing a Preservation Arts High School

Partner New Jersey Institute of Technology, Newark, New Jersey

Project initiated 1998, additional funding 1999

Project in progress; results published —

Ottavino, K.B., and E. Ehrenkrantz. *Preservation Week Report: The High School for the Preservation Arts Project*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-23]

In 1998, towards developing a preservation curriculum for high school students, NCPTT supported Preservation Week events at the High School of Arts and Business in Queens, New York. Working with the New York City Board of Education, the New Jersey Institute of Technology-Center for Architecture and Building Science Research documented the pilot project. Following Preservation Week, the project continued with students and selected teachers participating in

a summer internship that included hands-on training.

In 1999, the New Jersey Institute of Technology will create model historic preservation lesson plans for grades 9 through 12 at the High School of Arts and Business in New York, New York.

156. Distance Learning: Building Preservation Technology

Partner Texas A&M University, College Station, Texas

Project initiated 1999

A Web site on masonry materials conservation is Texas A&M University-Historic Resources Imaging Laboratory's first module of an online version of the course, *Building Preservation Technology*.

155. Dyea Townsite Remote Sensing Project

Partner National Park Service-Klondike Gold Rush National Historical Park, Dyea, Alaska

Project initiated 1999; project completed

Towards assisting the park in planning an archeological field school at the Dyea townsite in Summer 2000, a remote sensing project was conducted Summer 1999. This feasibility study included the use of ground-penetrating radar and metal detectors to complete an initial site survey.

154. Heritage Education Website

Partner Middle Tennessee State University-Center for Historic Preservation, Murfreesboro, Tennessee

Project initiated 1999; project completed

As follow-up to the report *Focus on 2000: A Heritage Education Perspective* (see entry 65), MTSU's Center for Historic Preservation developed *THEN*, a heritage education Website —

Middle Tennessee State University-Center for Historic Preservation. *The Heritage Education Network (THEN)* <www.mtsu.edu/~then>. Murfreesboro, Tennessee: Middle Tennessee State University. 1999. [PTTPublications No. 1999-25]

See *NCPTT Notes* 33, page 9 for further discussion of this project.

153. International Internships

Partner United States Committee/International Council on Monuments and Sites, Washington, DC

Project initiated 1995, additional funding 1996 through 1999

US/ICOMOS' International Summer Intern Program provides training for preservation professionals in exchanges among 46 nations. NCPTT has contributed support for interns and program administration, and has assisted US/ICOMOS in program and project documentation —

United States Committee/International Council on Monuments and Sites. *1995 & 1996 US/ICOMOS International Summer Intern Program Final Report*. Natchitoches, Louisiana: NCPTT. 1997. [PTTPublications No. 1997-24]

—. *1997 US/ICOMOS International Summer Intern Program Final Report*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-24].

152. NCPTT's Training Database

Project initiated 1995, with continued funding 1996 through 1999; results published —

National Center for Preservation Technology and Training, <www.ncptt.nps.gov/teo>. Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1999.

1998 Preservation Technology and Training Grants and Projects

Information Management

1998 PTTGrants

*NCPTT Information Management
Coordinator Mary Carroll is responsible
for these projects.*

151. **Albumen WebSite: Science, Technology and Treatment of Albumen Photographs**

Monterey Museum of Art, Monterey, California

\$40,000

Project in progress; anticipated completion Winter 1999-2000

The Monterey Museum of Art is developing the Albumen WebSite on the technology, science and treatment of albumen photographs. The site will include existing literature, pictorial information — including video — and hyperlinks to historic texts and information on conservation science and treatments.

150. **Conservation Materials Database**

Museum of Fine Arts, Boston, Massachusetts

\$37,300

Project in progress; anticipated completion Winter 1999-2000

The Museum of Fine Arts is creating a digitized database of information on materials and processes used in making, treating and testing artistic and historic objects.

149. **Online Information for Preserving Religious Properties**

Partners for Sacred Places, Philadelphia, Pennsylvania

\$40,000

Project in progress; final stages of Web site in development; results published —

Partners for Sacred Places. *On-line Information for Preserving Religious Properties*. Philadelphia, Pennsylvania: Partners for Sacred Places. 1999. [PTTPublications No. 1999-29]

Partners for Sacred Places is preparing its Information Clearinghouse database and a selected set of documents — articles, how-to fact sheets and other technical materials — for Internet access by congregations and preservationists.

Training and Education

1998 PTTGrants

*NCPTT Training Coordinator Frances
Gale is responsible for these projects.*

148. **Distance Learning: NEPA for Preservationists**

National Preservation Institute, Alexandria, Virginia

\$39,300

Project in progress; anticipated completion Spring 2000

The National Preservation Institute will produce an interactive CD-ROM on the National Environmental Policy Act, a law requiring Federal agencies to consider the effects of their proposed actions on the environment. This project will create

an inexpensive learning and reference tool that will lead the user through the NEPA review process, and assist the user in analyzing preservation issues in terms of NEPA.

147. **Workshops: Ground Penetrating Radar**

University of Denver, Denver, Colorado

\$40,000

Project in progress; anticipated completion Spring 2000

The University of Denver's Department of Anthropology will conduct a series of workshops on using three-dimensional ground penetrating radar to locate and identify buried archeological features. The workshops will teach cultural resource professionals new techniques for evaluating buried sites using three-dimensional analysis of GPR data. With these techniques, sites can be intelligently managed and appropriately treated or avoided during construction and development projects. This workshop series developed from a successful 1996 PTTGrants research project (entry 84).

146. **Workshops: Harlem – Preserving an Historic Neighborhood**

Abyssinian Development Corporation, New York, New York

\$36,750

Project in progress; anticipated completion Spring 2000

Abyssinian Development Corporation will present a series of preservation workshops for Harlem's residential and commercial property owners and managers and construction professionals. The series provides an opportunity for Harlem residents and professionals to learn about current preservation strategies and technologies.

- **Distance Learning: Paper Conservation (Phase 1 of two phases)**

Northeast Document Conservation Center, Andover, Massachusetts

\$39,000 (Phase 1)

Project in progress; see entry 200 for project summary.

Applied/Fundamental Research

1998 PTTGrants

*NCPTT Research Coordinator Mark
Gilberg is responsible for these projects.*

145. **Draft Historic Building Code**

Association for Preservation Technology International, Williamsburg, Virginia

\$40,000

Project in progress; anticipated completion Winter 1999-2000

An Historic Building Code will be prepared as the first national code for historic buildings. The new code will be drafted by a team of building code and preservation experts, and will incorporate existing approaches to rehabilitation and recent advances in technology. The new code will be submitted for adoption by the International Code Council, which currently is preparing the *International Building Code* and the *International Existing Buildings Code*.

144. Modeling Simulated Archeological Features Using Advanced Geophysical Techniques

US Army Construction Engineering Research Laboratories, Champaign, Illinois

\$40,000

Project in progress; anticipated completion Winter 1999-2000

Through innovative data and image processing techniques — particularly inversion filtering — USACERL is developing methods of generating images from geophysical data that accurately depict the size and shape of buried archeological features. USACERL will conduct field trials at its Controlled Archaeological Test Site (see entries 59 and 113), which replicates a wide range of archeological features commonly encountered in North America. As a corollary study, new approaches to resistivity surveys also will be conducted at CATS.

143. Nondestructive Methods for the Structural Evaluation of Wood Floor Systems in Historic Buildings (Phase 2 of two phases)

Purdue University, West Lafayette, Indiana

\$40,000 (Phase 2)

Project in progress; anticipated completion Winter 1999-2000

The research continues work begun with a 1997 PTTGrants award.

This project investigates the potential for nondestructive techniques — including transverse vibration, ultrasonic and stress wave transmission — to assess and predict the residual performance of in-place, load bearing wood floors. Data sets of mechanical and physical properties of 17 in-place floor joists have been created.

In Phase 1 data sets for 15 green floor joists were created to analyze floor sections of similar in-place floor joists. Creating a first-approximation model of sections of the floor using the finite element method was attempted. Static modeling of floor sections has been accomplished but vibrational modeling has proven difficult.

Phase 2 will further investigate nondestructive techniques for evaluating wood floor systems in historic buildings, with emphasis on developing test procedures for assessing in-place floor systems.

- **Effects of Color Temperature and Intensity (Phase 1 of two phases)**

City University of New York-Brooklyn College, Brooklyn, New York

\$39,982 (Phase 1)

Project in progress; see entry 197 for project summary.

Environmental Effects

1998 PTTGrants

NCPTT Materials Research Program Manager Mary Striegel is responsible for these projects.

142. Masonry – 160 years of Indexed Bibliography

The Masonry Society, Boulder, Colorado

\$6,500

Project in progress; anticipated completion Fall 2000

This project is creating an indexed bibliography of nearly 6,000 trade and academic references to be distributed via The Masonry Society's Website. The

bibliography will include manufacturing, testing and use of brick, stone, terra cotta and lime-based mortars.

141. Protective Coating Systems for Outdoor Bronze Sculpture and Ornamentation (Phase 3 of three phases)

National Gallery of Art, Washington, DC

\$50,000 (Phase 3)

Project in progress; results published —

Brostoff, L.B., and E.R. de la Rie, "Chemical Characterization of Metal/Coating Interfaces from Model Samples for Outdoor Bronzes by Reflection-Absorption Infrared Spectroscopy and Attenuated Total Reflection Spectroscopy (ATR)," in W. Mourey, et al., ed. *ICOM CC Metals Working Group*, May 26-29, 1998, Draguigan, France (James & James, London), pp 320-328.

—. "Research into Protective Coatings Systems for Outdoor Bronze Sculpture and Ornamentation," in MacLeod, I., et al., ed., *Metal95 Proceedings of the International Conference on Metals Conservation*, ICOM CC metals Working Group, September 1997, Semur-en-Auxois, France, (James & James, London), pp 242-244.

National Gallery of Art. *Research into Protective Coating Systems for Outdoor Bronze Sculpture and Ornamentation. Phase II*. Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1999. [PTTPublications No. 1999-23]

This research addresses the need for new coating strategies to protect outdoor bronzes from the effects of polluted environments. The research goal is to form general hypotheses concerning how protective coatings work and fail on bronze surfaces when exposed to polluted urban environments. Phase 3 of this project continues characterization of physical properties of coating systems before and after weathering initiated in Phases 1 and 2. Results will lead to recommendations concerning protective coating options and practices for conserving outdoor bronze sculpture and ornamentation.

140. Removing Gypsum Crusts from Carbonate Rocks

Art2Facts, New York, New York

\$29,900

Project in progress

Water misting removes gypsum from calcareous stones due to the relative solubility of gypsum versus calcite — but not without risks. Deterioration — such as dislodging grains as calcite dissolves during continuous flow cleaning — and water conservation are serious considerations. Laboratory research continues to assess the damage by calcite dissolution and grain dislodgment on marble and limestone tiles using coarse and fine sprays and continuous and intermittent water flows. On-site testing has been initiated to study the cleaning efficiency of different spray protocols.

- **Building Stones of America (Phase 1 of three phases)**

National Institute of Standards and Technology, Gaithersburg, Maryland

\$25,000 (Phase 1)

Project in progress; see entry 192 for project summary.

- **A New Protocol for the Analysis of Deteriorated Historic Mortars and Plasters (Phase 1 of two phases)**

University of Delaware, Newark, Delaware

\$35,250 (Phase 1)

Project in progress; See entry 190 for project summary.

- **The Role of Microorganisms in Deterioration by Atmospheric Pollutants (Phase 2 of three phases)**

Harvard University, Cambridge, Massachusetts

\$50,000 (Phase 2)

Project in progress; see entry 188 for project summary.

Technology Transfer

1998 PTTGrants

NCPTT Research Coordinator Mark Gilberg is responsible for this project.

- 139. **Exploring Archeological Sites Using a Modified Magnetic Susceptibility Probe**

Southern Illinois University, Edwardsville, Illinois

\$14,525

Project in progress; anticipated completion Winter 1999-2000

Soil magnetic studies — including magnetic susceptibility measurements — can be used to identify archeological sites and features and to understand soil stratigraphy in relation to the archeological record. In this project, a commercial magnetic susceptibility probe will be modified to allow measuring magnetic susceptibility at varying depths in bore holes. The magnetic susceptibility probe then will be calibrated to calculate absolute susceptibility values and tested at a section of exposed soil at the Cahokia Mounds site in Illinois.

Analytical Facility Support

1998 PTTGrants

NCPTT Research Coordinator Mark Gilberg is responsible for this project.

- **Facility Support for Enhanced Analytical Services (Phase 2 of three phases)**

Williamstown Art Conservation Center, Williamstown, Massachusetts

\$49,936 (Phase 2)

See entry 186 for project summary.

Conference Support

1998 PTTGrants

- 138. **Conference: National Archeological Collections Management**

Society for Historical Archaeology, Tucson, Arizona

\$9,993

Project in progress; anticipated completion Winter 1999-2000

The National Archeological Collections Management Conference convened leaders in the fields of collections management, conservation and archives management to address issues that are central to the long-term care of archeological materials. Conference proceedings are being prepared.

NCPTT Information Management Coordinator Mary Carroll is responsible for this project.

- 137. **Conference: Preserving Historic Guastavino Tile Ceilings, Domes and Vaults**

New York Landmarks Conservancy, New York, New York

\$10,000

Project completed

The New York Landmarks Conservancy conducted a one-day conference on preserving Guastavino tile construction. Conference papers will be published in a special edition of *APT Bulletin* (in press).

NCPTT Training Coordinator Frances Gale is responsible for this project.

- 136. **Proceedings of the 11th Conference on Restoring Southern Gardens and Landscapes**

Old Salem, Inc., Winston-Salem, North Carolina

\$6,500

Project completed; results published —

Old Salem, Inc., *Breaking Ground: Examining the Vision and Practice of Historic Landscape Restoration*. Proceedings of the 11th Conference on Restoring Southern Gardens and Landscapes was held in Old Salem, Winston-Salem, North Carolina in October 1997. Winston-Salem, North Carolina: Old Salem, Inc. 1999. [PTTPublications No. 1999-28]

NCPTT Training Coordinator Frances Gale is responsible for this project.

Publications Support

1998 PTTGrants

- 135. **Research Priorities for Natural History Collections Conservation**

Society for the Preservation of Natural History Collections, Washington, DC

\$9,950

Project in progress; anticipated completion Winter 1999-2000

SPNHC is reviewing current priorities for research in the conservation of natural history specimens for a publication that will complement the American Institute for Conservation of Historic and Artistic Works' project, *Research Priorities in Arts and Architectural Conservation* (see entry 23).

NCPTT Information Management Coordinator Mary Carroll is responsible for this project.

- 134. **Salt Decay of Porous Materials – A Literature Review**

United States Committee/International Council on Monuments and Sites, Washington, DC

\$10,000

Project completed; manuscript submitted for publication

NCPTT Materials Research Program Manager Mary Striegel is responsible for this project.

Information Management

*NCPTT Information Management
Coordinator Mary Carroll is responsible
for these projects.*

- **National Trust Library**

Partner University of Maryland, College Park, Maryland
Project initiated 1994, additional funding 1995 through 1999
See entry 179 for project summary.

- **NCPTT's Preservation Technology and Training
Internet Services**

Project initiated 1994, continued funding 1995 through 1999
See entry 178 for project summary.

Materials Research

*NCPTT Materials Research Program
Manager Mary Striegel is responsible
for these projects.*

133. Carbonate Stone Decay Model and Materials Research Program Synthesis

Partner US Geological Survey, Menlo Park, California
Project initiated 1995, additional funding 1996 and 1998

This project reviews the work of NCPTT's Materials Research Program since its inception, and synthesizes essential data into a framework that describes stone deterioration caused by acid deposition. The framework attempts to define dominant processes contributing to stone deterioration, integrate research results, and identify topics that need further study.

132. Deposition Studies on Consolidated Stone

Project initiated 1996, continued funding 1997 and 1998

The project compares the effects of four consolidants — Conservare-H, Conservare-OH, an epoxy and an acrylic — on sulfur dioxide deposition on limestone and marble surfaces. A key research issue is the latent sulfate within the stone samples before exposure. If large quantities of sulfate are already present, the amount resulting from deposition cannot be determined. In initial work, a leaching program was developed to reduce existing sulfate to a baseline level. Additional stages in the project will determine sulfur dioxide deposition on untreated limestone and marble samples, treated samples, and treated and artificially aged samples.

131. Hiker Bronze Monograph

Partner University of Delaware, Newark, Delaware
Project initiated 1983; NCPTT assumed responsibility 1995; additional NCPTT funding 1996 through 1998; project completed 1998; results publication delayed

130. Using UV Photography to Document Water Flow Patterns

Partner Vernon Miller and Associates, Santa Barbara, California
Project initiated 1997, with additional funding in 1998
Project completed; results will be archived

This short-term study investigated photographic techniques to document water flow patterns over calcareous stone surfaces. The flow of water over surfaces is thought to be a key variable in the deterioration of stone and serves an important role in the integrated deterioration model being developed by the Materials Research Program. At present, the role of water flow is poorly documented and understood.

The research used fluorescent dyes and ultraviolet illumination to visualize the flow of water over surfaces. Tests of the fluorescent dye system in real rain events showed that the methodology was inadequate to provide the insights needed.

- **Deposition Studies on Textured Stone**

Partner University of Delaware, Newark, Delaware
Project initiated 1997, additional funding 1998 and 1999
See entry 175 for project summary.

- **Materials Characterization of Carbonate Stone**

Partner University of Houston, Houston, Texas
Project initiated 1997, additional funding 1998 and 1999
See entry 174 for project summary.

- **Materials Research Program Archives**

Project initiated 1997, continued funding 1998 and 1999
See entry 173 for project summary.

- **Materials Research Program Literature Project**

Project initiated 1996, continued funding 1997 through 1999
See entry 172 for project summary.

- **NCPTT Laboratories**

Project initiated 1996, continued funding 1997 through 1999
See entry 171 for project summary.

- **Soiling of Limestone Buildings**

Partner Carnegie Mellon University, Pittsburgh, Pennsylvania
Project initiated 1991; NCPTT assumed responsibility 1995; additional funding 1996 through 1999
See entry 169 for project results.

NCPTT-wide

- **Statewide Preservation Organizations**

Partner National Trust for Historic Preservation, Washington, DC
Project initiated 1996, additional funding 1997 through 1999
See entry 168 for project summary.

Research

1998 PTTProjects

NCPTT Research Coordinator Mark Gilberg is responsible for these projects.

129. Identifying Pigments in Colored Pencils

Partners Kress Foundation, New York, New York
American Society for Testing and Materials-Institute for Standards Research, West Conshohocken, Pennsylvania
Colored Pencil Society of America, Washington, DC
The University of North Carolina at Greensboro, Greensboro, North Carolina

Project initiated 1998; project in progress; anticipated completion Winter 1999-2000

The Kress Foundation and NCPTT are sharing the cost of a research project on identifying pigments in colored pencils. The research goal is to improve light-fastness of fine art drawings made with colored pencils and to develop an ASTM standard on the light-fastness of these widely used products. The research will be undertaken by ASTM subcommittee D01.57 on Artist's Paints and Related Materials in collaboration with the Colored Pencil Society of America.

See *NCPTT Notes 32*, page 2 for further discussion of this and related projects.

128. Symposium: Conducting Economic Impact Studies in Historic Preservation

Partner Rutgers University-Center for Urban Policy Research, New Brunswick, New Jersey

Project initiated 1998; project completed 1998

In partnership with Rutgers University's Center for Urban Policy Research, NCPTT sponsored a symposium on appropriate methodologies for conducting studies on the economic impacts of historic preservation and interpreting study results. Symposium collaborators include Harvard University's Department of Urban Planning and Design and the Brookings Institution's Center on Urban and Metropolitan Policy. The symposium was held at The Brookings Institution, Washington, DC in October 1998; a symposium report is in preparation.

See entries 61 and 162 for other NCPTT work on this topic; see *NCPTT Notes 29*, page 6 for further discussion of this project.

127. Symposium: Research Priorities in Historic Landscapes

Partner University of Oregon, Eugene Oregon

Project initiated 1998; project completed 1998

In partnership with the University of Oregon's College of Architecture and Allied Arts-Department of Landscape Architecture, NCPTT sponsored a one-

day symposium to identify research priorities in the field of historic landscapes. The seminar was held in Chicago, Illinois in June 1998, with leading landscape scholars and practitioners as participants. Symposium findings and recommendations were summarized in *NCPTT Notes 26*, pages 1 and 3.

• Controlling Formosan Termites Using Toxic Baits

Partner City of New Orleans Mosquito and Termite Control Board, New Orleans, Louisiana

Project initiated 1997, additional funding 1998 and 1999

See entry 167 for project summary.

• Protective Glazing on Stained Glass Windows

Partner Enermodal Engineering, Inc., Denver, Colorado

Project initiated 1997, continued funding in 1998 and 1999; anticipated completion Winter 1999-2000

See entry 163 for project summary.

1998 PTTProjects

Training and Education

NCPTT Training Coordinator Frances Gale is responsible for these projects.

• Developing a Preservation Arts High School

Partner New Jersey Institute of Technology, Newark, New Jersey

Project initiated 1998, additional funding 1999

See entry 157 for project summary.

• International Internships

Partner United States Committee/International Council on Monuments and Sites, Washington, DC

Project initiated 1995, additional funding 1996 through 1999

See entry 153 for project summary.

• NCPTT's Training Database

Project initiated 1995, continued funding 1996 through 1999

See entry 152 for project summary.

1997 Preservation Technology and Training Grants and Projects

Information Management

1997 PTTGrants

*NCPTT Information Management
Coordinator Mary Carroll is responsible
for these projects.*

126. Advancing SHPO Geographic Information Systems in the Western United States

New Mexico State Historic Preservation Office, Santa Fe, New Mexico
Wyoming State Historic Preservation Office, Cheyenne, Wyoming
\$36,243

Project completed; results published —

New Mexico State Historic Preservation Office (T. J. Seaman, author). *Advancing State Historic Preservation Office Geographic Information Systems in the Western United States*. Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1999. [PTTPublications No. 1999-08] See *NCPTT Notes* 33 page 6 for further discussion of this project.

125. Digitization of Primary Documents Pertaining to Archeological Collections from California and Nevada in the Phoebe Hearst Museum of Anthropology

University of California-Phoebe Hearst Museum of Anthropology, Berkeley, California
\$23,001

Project completed; results published —

The finding aid is available through the Phoebe Hearst Museum of Anthropology <www.qal.berkeley.edu/~hearst/archmanu.htm> and the Online Archive of California <sunsite2.berkeley.edu/oac>. [PTTPublications No. 1999-19]

124. Michigan Historic Sites Database Online

Michigan State Historic Preservation Office, Lansing, Michigan
\$32,977

Project completed; results published —

Michigan State Historic Preservation Office. *Michigan's Historic Sites Online*. <www.sos.state.mi.us/history/preserve>. 1999. [PTTPublications No. 1999-24]

Training and Education

1997 PTTGrants

*NCPTT Training Coordinator Frances
Gale is responsible for these projects.*

123. Distance Learning: Preservation TrainNet

Goucher College, Towson, Maryland
\$38,350

Project completed; results published —

Goucher College-Center for Graduate and Continuing Education. *Preservation TrainNet*. Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1999. [PTTPublications No. 1999-22]

122. Video: Applying the Secretary of the Interior's Standards to Historic Districts

Oregon State Historic Preservation Office, Salem, Oregon
\$23,640

Project delayed

The Oregon State Historic Preservation Office will prepare a video to educate local decision-makers about applying The Secretary of the Interior's Standards for the Treatment of Historic Properties to historic districts. The video will highlight context issues and groupings of "background" properties — the classification category for a significant percentage of historic district properties.

121. Workshops: Lead Paint and Historic Preservation

Illinois State Historic Preservation Office, Springfield, Illinois
\$40,000

Project in progress; final report in preparation

Two two-day workshops on lead paint and historic buildings were conducted by the Illinois State Historic Preservation Office in Springfield, Illinois in July 1998. Two additional two-day workshops were held in Chicago, Illinois in November 1998. Topics included regulations and design procedures for making historic buildings lead safe and field techniques for safe and cost effective work.

120. Workshop: Techniques for Restoring and Conserving Three-Dimensional and Stained Glass Objects

Nebraska State Historic Preservation Office-Gerald R. Ford Conservation Center, Omaha, Nebraska
\$17,563

Project completed; results published —

Gerald R. Ford Conservation Center. *Glass and Stained Glass Conservation Workshop* (workbook). July 27-31, 1998. Omaha, Nebraska: Gerald R. Ford Conservation Center. 1998. [PTTPublications No. 1998-29]

Higgins, Mary Clerkin. *Glass & Stained Glass Conservation Workshop*. Gerald R. Ford Conservation Center, Omaha, Nebraska, July 1998. (video). Omaha, Nebraska: Nebraska State Historical Society. 1998. [PTTPublications No. 1998-28]

See *NCPTT Notes* 29, page 1 for further discussion of this project.

Applied/Fundamental Research

1997 PTTGrants

*NCPTT Research Coordinator Mark
Gilberg is responsible for these projects.*

119. Museum Lighting Protocol

Rensselaer Polytechnic Institute, Troy, New York
\$35,359

Project completed; results published —

Rensselaer Polytechnic Institute. *Museum Lighting Protocol Project*. Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1998. [PTTPublications No. 1998-31]
See *NCPTT Notes 32*, page 3 for further discussion of this project.

118. **Nondestructive Method for Evaluating the Hardness of Pointing Mortars**

Rocky Mountain Masonry Institute, Denver, Colorado
\$39,765

Project in progress; results published —

Rocky Mountain Masonry Institute. *Nondestructive Method for Hardness Evaluation of Mortars*. Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1999. [PTTPublications No. 1999-02]
See *NCPTT Notes 30*, page 5 for further discussion of this project.

- **Nondestructive Methods for the Structural Evaluation of Wood Floor Systems in Historic Buildings (Phase 1 of two phases)**

Purdue University, West Lafayette, Indiana
\$40,000 (Phase 1)

See entry 143 for project summary.

Environmental Effects

1997 PTTGrants

NCPTT Materials Research Program Manager Mary Striegel is responsible for these projects.

- **Protective Coating Systems for Outdoor Bronze Sculpture and Ornamentation (Phase 2 of three phases)**

National Gallery of Art, Washington, DC
\$50,000 (Phase 2)

See entry 141 for project summary.

- **The Role of Microorganisms in the Deterioration by Atmospheric Pollutants (Phase 1 of three phases)**

Harvard University, Cambridge, Massachusetts
\$48,631 (Phase 1)

See entry 188 for project summary.

Technology Transfer

1997 PTTGrants

117. **Coordinate Measurement of Ships and Smallcraft**

Mystic Seaport Museum, Inc., Mystic, Connecticut
\$15,000

Project completed; results published —

Mystic Seaport Museum, Inc. *Ships and Smallcraft Measurement Project*. <mysticseaport.org/public/collections/shipyard/sokkia.web.pages/sokkia.total.station.html>. 1999.

Mystic Seaport Museum, Inc. *Coordinate Measurement of Ships and Smallcraft*. Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1999. [PTTPublications No. 1999-06]
See *NCPTT Notes 32*, page 5 for further discussion of this project.

NCPTT Training Coordinator Frances Gale is responsible for this project.

116. **Digital Image Enhancements and Compositing of Plan View Geophysical Data Sets**

Boston University, Boston, Massachusetts
\$11,499

Project in progress; anticipated completion Winter 1999-2000

Boston University is exploring the use of computer processing and imaging techniques for analyzing data collected from a single archeological site using three complementary remote sensing methods: conductivity, electrical resistivity, and magnetic gradiometry. Survey work at Whistling Elk, South Dakota, an 11-acre Plains village, is completed. The densely sampled geophysical data is presently undergoing intensive processing and analysis to increase the potential for discovering cultural features in the subsurface record.

NCPTT Research Coordinator Mark Gilberg is responsible for this project.

115. **Digital Videographic Imaging of Archeological Data**

Anne Arundel County Trust for Preservation, Inc., Annapolis, Maryland
\$15,000

Project completed; results published —

Anne Arundel County Trust for Preservation, Inc. (J. D. Moser, J. G. Gibb, and T. Corder, authors) and Anne Arundel County Department of Planning and Zoning. *Digital Videography: Recording, Preserving, and Disseminating Archeological Data*. Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1999. [PTTPublications No. 1999-18]

See *NCPTT Notes 30*, page 6 for further discussion of this project.

NCPTT Materials Research Program Manager Mary Striegel is responsible for this project.

114. **Non-Linear Documentation Strategies for Incorporating Computerized Solid Modeling in Historic Building Surveys**

Texas A&M University, College Station, Texas
\$15,000

Project completed; results published —

Texas A&M University (R.B. Warden, author). *Development of Nonlinear Documentation Strategies for Incorporating Computerized Solid Modeling in Historical Building Survey*. Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1999. [PTTPublications No. 1999-04]

——. Models and Images for “Development of Nonlinear Documentation Strategies for Incorporating Computerized Solid Modeling in Historical Building Survey.” (CD-ROM). Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1999. [PTTPublications No. 1999-05]

NCPTT Information Management Coordinator Mary Carroll is responsible for this project.

113. Subsurface Acoustical Imaging Technology – Ground Penetrating Sonar

Scripps Institution of Oceanography, San Diego, California
\$14,901

Project in progress; anticipated completion Winter 2000

Scripps Institution of Oceanography is testing an improved technology for geophysical prospecting using an acoustic transmitting and receiving transducer that can rapidly collect data along the ground surface in a manner analogous to ground penetrating radar. To date, laboratory trials have yielded promising results indicating that Rayleigh or surface waves are the optimal mode of propagation for seismo-acoustic energy for imaging in shallow soil. Field trials presently are underway at the Controlled Archeological Test Site in Champaign, Illinois (see entries 59 and 144), where known features will be mapped using ground penetrating radar. The use of acoustic and radar imaging technologies for identifying buried cultural resources will be compared and evaluated in light of field trial results.

NCPTT Research Coordinator Mark Gilberg is responsible for this project.

Analytical Facility Support

- **Facility Support for Enhanced Analytical Services (Phase 1 of three phases)**

Williamstown Art Conservation Center, Williamstown, Massachusetts
\$49,942

See entry 186 for project summary.

Conference Support

112. Symposium: Care and Preservation of Historic Vehicles

The Museums at Stony Brook, Stony Brook, New York
\$12,591

Project completed; results published —

The Museums at Stony Brook. *Carriage Care and Preservation* (3 videos). [Proceedings of 1998 Carriage Care and Preservation symposium, September 7-8, 1998, Stony Brook, New York] Stony Brook, New York: The Museums at Stony Brook. 1999. [PTTPublications No. 1999-26]

NCPTT Training Coordinator Frances Gale is responsible for this project.

111. Symposium: Conservation and Preservation of Tabby

Georgia State Historic Preservation Office, Atlanta, Georgia
\$10,580

Project completed; results published —

Georgia State Historic Preservation Office. *The Conservation and Preservation of Tabby*. <www.ganet.org/dnr/histpres>. Atlanta, Georgia: Georgia Department of Natural Resources-Historic Preservation Division. 1998. [PTTPublications No. 1998-37]

See NCPTT Notes 32, page 6 and NCPTT Notes 25, page 7 for further discussion of this and related projects.

NCPTT Materials Research Program Manager Mary Striegel is responsible for this project.

110. Symposium: Teaching with Historic Places

National Park Service-National Register of Historic Places, Washington, DC
\$11,460

Project in progress; final report in preparation

The *Teaching with Historic Places* symposium was held in Washington, DC in July 1998. A summary of recommendations will be available.

NCPTT Training Coordinator Frances Gale is responsible for this project.

Publications Support

109. Conservation of Historic Brick Structures

New York University-Institute of Fine Arts, New York, New York
\$15,000

Project completed; results published —

Baer, N.S., S. Fitz, and R.A. Livingston, editors. *Conservation of Historic Brick Structures: Case Studies and Reports of Research*. Dorset, United Kingdom: Donhead Publishing, Ltd., 1998.

See NCPTT Notes 29, page 8 and NCPTT Notes 23, page 5 for further discussion of this project.

NCPTT Materials Research Program Manager Mary Striegel was responsible for this project.

108. Recent Advances in GIS Applications for Archeology

University of Chicago, Chicago, Illinois
\$15,000

Project completed; manuscripts submitted for publication

NCPTT Information Management Coordinator Mary Carroll is responsible for this project.

107. Rock Art Conservation – Theory and Practice

American Rock Art Research Association, Tucson, Arizona
\$8,700

Project in progress; anticipated completion Winter 1999-2000

NCPTT Information Management Coordinator Mary Carroll is responsible for this project.

106. US Policy for Protecting Submerged Cultural Resources Beyond the Three-Mile Limit

Boston University, Boston, Massachusetts
\$14,935

Project completed; manuscripts submitted for publication

NCPTT Information Management Coordinator Mary Carroll is responsible for this project.

Information Management

1997 PTTProjects
NCPTT Information Management
Coordinator Mary Carroll is responsible
for these projects.

105. Creating, Maintaining and Sharing Historic Resource Surveys on the Internet

Partner University of Houston, Houston, Texas
Project initiated 1997
Project completed; results published —

University of Houston-Gerald D. Hines College of Architecture-Center for Historic Architecture. *Historic Resource Surveys and the Internet* <www.arch.uh.edu/research/chpar/survey>. 1999. [PTTPublications No. 1999-10]

- **National Trust Library**

Partner University of Maryland, College Park, Maryland
Project initiated 1994, additional funding 1995 through 1999
See entry 179 for project summary.

- **NCPTT's Preservation Technology and Training Internet Services**

Project initiated 1994, continued funding 1995 through 1999
See entry 178 for project summary.

Materials Research

1997 PTTProjects
NCPTT Materials Research Manager
Mary Striegel is responsible for these
projects.

104. Image Analysis Software

Partners A. Raouf Eldeeb, San Jose, California
US Geological Survey, Menlo Park, California
Project initiated 1997; project delayed; results published —

US Geological Survey. *EDGE 1.0* (computer software). Natchitoches, Louisiana: NCPTT. 1995. [PTTPublications No. 1995-03]

——. *POREDEMO 1.0* (computer software). Natchitoches, Louisiana: NCPTT. 1995. [PTTPublications No. 1995-04]

——. *SHOWPIX 1.0* (computer software). Natchitoches, Louisiana: NCPTT. 1995. [PTTPublications No. 1995-05]

A series of computer software programs, collectively titled *MORPH*, is being developed as analytical tools for characterizing the surfaces of stone. These programs calculate a fractal dimension of a surface as documented in a digitized electron micrograph image. The software initially was designed to operate on an OS/2 computer operating system; this project modified the software for PCs with MS-DOS operating systems. Additional software modifications allow the program to recognize GIF-formatted images and files in other digital formats.

103. Statistical Analysis of NAPAP Chemical/Physical Data

Partner Terry J. Reedy, Newark, Delaware
Project initiated 1997; project in progress; results published —
Reedy, T. J. *Description and Analysis of NAPAP Briquette Surface Chemistry Files*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-30]

Analytical tests — including color and recession measurements, weight change, and chemical analyses — were performed on limestone and marble samples at field test sites over a decade. This project inventories existing data from those tests and evaluates data quality. Data will be documented and placed in a standardized format. Correlations between chemical/physical data and valid aerometric data will be attempted.

102. Statistical Analysis of NAPAP Meteorological Data

Partner Terry J. Reedy, Newark, Delaware
Project initiated 1996, additional funding 1997; project completed; results published —
Reedy, T. J. *Evaluation of NAPAP Aerometric Data*. Natchitoches, Louisiana: NCPTT. 1996. [PTTPublications No. 1996-21]

- **Deposition Studies on Consolidated Stone**

Project initiated 1996, additional funding 1997 and 1998
See entry 132 for project summary.

- **Deposition Studies on Textured Stone**

Partner University of Delaware, Newark, Delaware
Project initiated 1997, additional funding 1998 and 1999
See entry 175 for project summary.

- **Hiker Bronze Monograph**

Partner University of Delaware, Newark, Delaware
Project initiated 1983; NCPTT assumed responsibility 1995; additional NCPTT funding 1996 through 1998
See entry 131 for project summary.

- **Materials Characterization of Carbonate Stone**

Partner University of Houston, Houston, Texas
Project initiated 1997, additional funding 1998 and 1999
Project in progress
See entry 174 for project summary.

- **Materials Research Program Archives**

Project initiated 1997, continued funding 1998 and 1999
See entry 173 for project summary.

- **Materials Research Program Literature Project**

Project initiated 1996, continued funding 1997 through 1999
See entry 172 for project summary.

- **NCPTT Laboratories**

Project initiated 1996, continued funding 1997 through 1999
See entry 171 for project summary.

- **Soiling of Limestone Buildings**

Partner Carnegie Mellon University, Pittsburgh, Pennsylvania
Project initiated 1991; NCPTT assumed responsibility 1995; additional NCPTT funding 1996 through 1999
See entry 169 for project summary.

- **Using UV Photography to Document Water Flow Patterns**

Partner Vernon Miller and Associates, Santa Barbara, California
Project initiated 1997, additional funding in 1998
See entry 130 for project summary.

NCPTT-wide

1997 PTTProjects

- **Statewide Preservation Organizations**

Partner National Trust for Historic Preservation, Washington, DC
Project initiated 1996, additional funding 1997 through 1999
See entry 168 for project summary.

Research

1997 PTTProjects

NCPTT Research Coordinator Mark Gilberg is responsible for these projects.

101. Historic Dirt Surfaces

Partner Los Alamitos Foundation, Long Beach, California
Project initiated 1997; anticipated completion Winter 1999-2000
Los Alamitos Foundation is evaluating existing methods and materials used to simulate historic dirt surfaces such as roads, paths and parking areas associated with historic sites. Performance standards and test procedures for proposed surface treatments also will be evaluated.

100. Preserving Cultural Landscapes along Historic Trails

Partner National Park Service-Denver Service Center, Denver, Colorado
Project initiated 1997; anticipated completion Winter 1999-2000
The National Park Service's Denver Service Center is testing a new ecosystem approach to identifying, evaluating and preserving cultural landscapes along historic trails. This approach incorporates models for ecosystem management such as the ecoregion concept, a process of delineating and classifying ecologically distinctive areas of the earth's surface. To date, the model has been applied to historic trails in the Wyoming basin and to portions of the Oregon Trail.

99. Using Submeter GPS to Survey Archeological Sites

Partner University of Northern Colorado Research Corporation, Greeley, Colorado
Project initiated 1997; project completed; results published —
Brunswig, Jr., R.H. *An Evaluation of Archaeological Applications of Mapping Grade Global Positioning Systems: Field Tests in Northeastern*

Colorado's Plains and Mountains. Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1999. [PTTPublications No. 1999-03]

See *NCPTT Notes* 33, page 3 for further discussion of this project.

- **Controlling Formosan Termites Using Toxic Baits**

Partner City of New Orleans Mosquito and Termite Control Board, New Orleans, Louisiana
Project initiated 1997, additional funding 1998 and 1999
See entry 167 for project summary.

- **Protective Glazing on Stained Glass Windows**

Partner Enermodal Engineering, Inc., Denver, Colorado
Project initiated 1997, continued funding 1998 and 1999
See entry 163 for project summary.

Training and Education

1997 PTTProjects

NCPTT Training Coordinator Frances Gale is responsible for these projects.

98. Symposium: The Conservation of Outdoor and Indoor Sculpture and Monuments

Partners Brookgreen Gardens, Murrells Inlet, South Carolina
Save Outdoor Sculpture!, Washington, DC
Southeastern Museums Conference, Baton Rouge, Louisiana
North Carolina Museums Council, Raleigh, North Carolina
South Carolina Federation of Museums, Columbia, South Carolina
Association for the Preservation of Historic Natchitoches, Natchitoches, Louisiana

Project initiated 1997; project completed; results published —
Brostoff, L., and R. de la Rie. "Conservation Treatments: Methods, Options and Research, paper presented to *The Conservation of Outdoor and Indoor Sculpture and Monuments-Through a Conservator's Eye* workshop, Brookgreen Gardens, Murrells Inlet, South Carolina, August 21-23, 1997.

- **International Internships**

Partner United States Committee/International Council on Monuments and Sites, Washington, DC
Project initiated 1995, additional funding 1996 through 1999
See entry 153 for project summary.

- **NCPTT's Training Database**

Project initiated 1995, continued funding 1996 through 1999
See entry 152 for project summary.

1996 Preservation Technology and Training Grants and Projects

Information Management

1996 PTTGrants

*NCPTT Information Management
Coordinator Mary Carroll is responsible
for these projects.*

97. Arizona's Cultural Resource Database – Developing a Master Plan

Arizona State Museum, Tucson, Arizona
\$34,547

Project completed; results published —

Grindell, B. and R. Karl. *Computerizing Arizona's Cultural Resource Files: Implementation Plan*. Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1997. [PTTPublications No. 1997-11] (For information about the overall AZSITE project, of which this PTTGrants project is a part, see <archaeology.la.asu.edu/azsite >.)

96. Computerizing Maryland's Historic Site Records

Maryland State Historic Preservation Office, Crownsville, Maryland
\$39,820

Project completed; results published —

Maryland Historical Trust. <www.ari.net/mdshpo/gisncptt.html> 1998. [PTTPublications No. 1998-21]

95. A Creole Heritage Preservation Guide

St. Augustine Historical Society, Natchitoches, Louisiana
\$30,040

Project completed; results published —

Colson, J. "Getting it Out of the Attic" — *A Creole Preservation Guide*. Natchitoches, Louisiana: NCPTT. 1997. [PTTPublications No. 1997-10]

94. Internet Access to State-by-State Preservation Law

National Council of State Historic Preservation Officers, Washington, DC
National Conference of State Legislatures, Denver, Colorado
\$40,000

Project completed; results published —

National Conference of State Historic Preservation Officers and National Conference of State Legislatures. <www.ncsl.org/programs/arts/statehist_intro.htm>. 1998. [PTTPublications No. 1998-13]

Shrimpton, J. *State Historic Preservation Legislation Database*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-13]

93. Maritime Cultural Resources – Developing and Sharing an Expandable Online Database

Ohio State Historic Preservation Office, Columbus, Ohio
\$40,000

Project completed; results published —

Ohio Historical Society and North American Maritime Consortium, Inc. *Standardization in Historical Information and Interpretation System*. <www.zone-2.com/namc/shiipsInfo.html>. 1998. [PTTPublications No. 1998-10]

Martin, J.C. *Standardization in Historical Information and Interpretation System Demonstration Project*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-10]

92. Providing Public Access to Hawaii's Preservation Information via World Wide Web

Hawaii State Historic Preservation Office, Honolulu, Hawaii
\$9,500

Project completed; results published —

Komori, E. <mano.icsd.hawaii.gov/~ckomoe> 1998. [PTTPublications No. 1998-12]

91. UVa Law Library Collection – Developing an Internet Database for Preservation Law

University of Virginia Law School Foundation, Charlottesville, Virginia
\$27,937

Project in progress

An additional partner — University of Georgia — has joined the project.

Research

1996 PTTGrants

*NCPTT Research Coordinator Mark
Gilberg is responsible for these projects*

90. Developing Comprehensive Testing Protocols for Protective Coatings for Silver Objects in Museum Collections

Corrosion and Materials Research Institute, Newark, Delaware
\$39,844

Project completed; results published —

Reedy, C., R.A. Corbett, and M. Burke, "Electrochemical Tests as Alternatives to Current Methods for Assessing Effects of Exhibition Materials on Metal Artifacts," *Studies in Conservation* 43 (1998) 183-196.

See entry 198 for other NCPTT work on this topic.

89. Developing Models for Parking and Pedestrian Circulation Design in Historic Downtowns

University of Kentucky, Lexington, Kentucky
\$14,301

Project completed

88. Developing a Prototypical Historic Fire Risk Index to Evaluate Fire Safety in Historic Buildings

Fire Safety Institute, Middlebury, Vermont
\$38,496

Project completed; results published —

Kaplan, M.E. and J.M. Watts. "A Prototypical Historic Fire Risk Index to Evaluate Fire Safety in Historic Buildings," *APT Bulletin*, Vol. XXX, No. 2-3 (1999) 49-55.

Watts, J.M. "Analysis of the NFPA fire safety evaluation system for business occupancies," *Fire Technology* 33 (1997). [PTTPublications No. 1997-09]

———. "Fire Risk Index for Heritage Buildings," *Fire Technology* 33, No.3 (1997) 276-282.

———, and M.E. Kaplan. *Performance-based Approaches to Protecting Our Heritage*. Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1997. [PTTPublications No. 1997-12]

———. *Development of a Prototypical Historic Fire Risk Index to Evaluate Fire Safety in Historic Buildings*. Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1998. [PTTPublications No. 1998-08]

87. Developing Standards and Procedures for Recording Courthouses Using Customized Digital Technologies

University of Texas, San Antonio, Texas

\$39,754

Project completed; results published —

Texas A&M University (T.W. Komas, M. Valentine and T. Gardner, developers). *EDIFIS. The Building Essential DATA and IMAGE Flexible Information System. Historic Building Documentation Process and Database* (CD-ROM). Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1998. [PTTPublications No. 1998-32]

86. A New Technique for Accurately Dating Prehistoric Rock Paintings

Texas A&M University, College Station, Texas

\$39,954

Project completed; results published —

Armitage, R.A., M. Hyman, J. Southon, and M.W. Rowe. "Rock art image in Fern Cave, Lava Beds National Monument, California: not the A.D. 1054 (Crab Nebula) supernova," *Antiquity* 71 (1997) 715-720. [PTTPublications No. 1997-13]

Armitage, R.A., B. David, M. Hyman, M.W. Rowe, C. Tuniz, E. Lawson, G. Jacobsen and Q. Hua. "Radiocarbon determinations on Chillagoe rock paintings: Small sample accelerator mass spectrometry," *Records of the Australian Museum* 50 (1998) 285-292.

Evans, M. "How Old are those Paintings, Anyway? Ask a Chemist..." *Advance/Quality of Life-Research at Texas A&M University* (1998) 13.

Hyman, M., and M.W. Rowe. "Plasma extraction and AMS 14C dating of rock paintings," *Techné* 1997 (1997) 61-70. [PTTPublications No. 1997-14]

———. "Plasma-chemical extraction and AMS radiocarbon dating of rock paintings," *American Indian Rock Art* 23 (1997) 1-9.

Mawk, E.J., and M.W. Rowe. "Effect of Water on Lower Pecos River Rock Paintings in Texas," *Rock Art Research* 1998 15, No.1 (1998) 12-16. [PTTPublications No. 1998-22]

Pace, M.F.N., M. Hyman, M.W. Rowe, and J.R. Southon, "Chemical Pretreatment on Plasma Extraction for C14 Dating of Pecos River Genre Rock Paintings," *American Indian Rock Art* 28 (1999) (in press).

85. Using Aerial Photography to Document and Monitor the Condition of Prehistoric Earthen Structures

Society for American Archaeology, Washington, DC

\$40,000

Project in progress; anticipated completion Winter 1999-2000

This project explores using aerial photography as a quick, inexpensive means of recording changes over time in prehistoric earthen structures. Existing vertical and oblique aerial photographs are being used to document the state of

preservation of known prehistoric earthen structures in the lower Mississippi River valley. As a consequence of intensive agriculture, however, most of the earthen structures examined do not possess sufficient topographical expression to yield useful results. Alternative analytical techniques are being explored.

84. Using Three-Dimensional Ground Penetrating Radar to Locate and Identify Buried Archeological Features

University of Colorado, Boulder, Colorado

\$39,860

Project completed; results published —

Conyers, L.B. "Acquisition, Processing and Interpretation Techniques for Ground Penetrating Radar Mapping of Buried Archaeological Sites," paper presented at *Seventh International Conference on Ground-Penetrating Radar*, University of Kansas, Lawrence, Kansas, May 27-30, 1998.

———. "GPR testing the American Southwest," paper presented at *Annual Meeting of Colorado Council of Professional Archaeologists*, Pueblo, Colorado, April 1998.

———, and C. M. Cameron. *Finding and Mapping Buried Archaeological Features in the American Southwest: New Ground-Penetrating Radar Techniques and Three-dimensional Computer Mapping*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-04]

———. "Ground-penetrating Radar Techniques and Three-dimensional Computer Mapping in the American Southwest," *Journal of Field Archaeology* 25, No. 4 (Winter 1998) 417-430. [PTTPublications No. 1998-36]

Conyers, L. B. and D. Goodman, "Archaeology Looks to New Depths," *Discovering Archaeology* Jan/Feb 1999, 70-77.

Hall, A. "Slices of the past," Scientific American Exhibit: Radar Archaeology, June 22, 1998. (Also available at <www.sciam.com/exhibit/062298radar/index.html>)

See entry 147 for further NCPTT work on this topic.

1996 PTTGrants Training and Education

NCPTT Training Coordinator Frances Gale is responsible for these projects.

83. Building Code Issues in Rehabilitation – Solutions and Precedents

California Preservation Foundation, Oakland, California

\$38,178

Project in progress; anticipated completion Winter 1999-2000

California Preservation Foundation is compiling case studies that illustrate alternative building regulations and standards to facilitate restoration and rehabilitation of historic buildings, for online dissemination.

82. Distance Learning: Preserving Mechanical Systems

Belmont Technical College, St. Clairsville, Ohio

\$37,920

Project completed; results published —

Belmont Technical College. *Mechanical Systems in Historic Buildings* (CD-ROM). St. Clairsville, Ohio: Belmont Technical College. 1998. [PTTPublications No. 1998-20]

See *NCPTT Notes* 29, page 3 for further discussion of this project.

81. Video: Restoring Dry-Stone Walls and Fences

Kentucky Heritage Council, Frankfort, Kentucky

\$24,082

Project completed; results published —

Kentucky Heritage Council (R. Tufnell, producer). *Walls of Stone: How to Build Drystone Walls and Rock Fences* (video). Lexington, Kentucky: The Drystone Masonry Institute of America, Inc. 1996. [PTTPublications No. 1996-01]

80. Workshop: Cultural Resources Protection for Northern Nevada Tribes

Washoe Tribe of Nevada and California, Gardnerville, Nevada

\$40,000

Project in progress; final report in preparation

Protection and preservation of Native American cultural heritage were the subjects of a workshop conducted by the Washoe Tribe in Carson City, Nevada in May 1998. A follow-up seminar was held in Carson City in September 1998.

79. Workshop: Historic Landscapes

The Alliance for Historic Landscape Preservation, New York, New York

\$37,100

Project completed; a compilation of workshop proceedings is in press

78. Workshop: Historic Preservation Short Course for Planning and Preservation Commissioners

University of Georgia, Athens, Georgia

\$28,270

Project completed

University of Georgia's Office of Preservation Services and the National Alliance of Preservation Commissions developed a model Historic Preservation Short Course for historic preservation and planning commissions, which was presented in Lafayette, Louisiana in September 1997.

77. Workshop and Technical Field Guide – Hazards in Conservation Materials and Processes

RESTORE, New York, New York

\$40,000

Project completed; results published —

Rossol, M. *RESTORE Technical Field Guide on the Health and Environmental Hazards Inherent in Architectural Restoration Materials and Processes*. New York, New York: RESTORE. 1998. [PTTPublications No. 1998-05]

1 9 9 6 P T T P r o j e c t s

The following 1996 PTTProjects are completed or ongoing. See NCPTT Notes 28 for project summaries; recent information about these projects is noted below.

Information Management

NCPTT Training Coordinator Mary Carroll is responsible for these projects.

76. Internet Communications Survey

Partner

Louisiana State University, Baton Rouge, Louisiana

Project completed

• **National Trust Library**

Partner

University of Maryland, College Park, Maryland

Project initiated 1994, additional funding 1995 through 1999

See entry 179 for project summary.

• **NCPTT's Preservation Technology and Training Internet Services**

Project initiated 1994, continued funding 1995 through 1999

See entry 178 for project summary.

Materials Research

NCPTT Materials Research Program Manager Mary Striegel is responsible for these projects.

75. Chamber Study of Pollutant Deposition to Stone Surfaces

Partner

US Geological Survey, Reston, Virginia

Project initiated 1984; project and equipment transferred to NCPTT 1996; see entries 171 and 175 for summaries of current projects.

74. Electrochemical Materials Testing

Partner

National Park Service-Harpers Ferry Center-Division of Conservation, Harpers Ferry, West Virginia

Project completed

This project funded acquisition of electrochemical testing equipment as part of a technology transfer study.

73. Researching Bronze Corrosion in Marine Environments

Partner

Urban Art, Inc., Los Angeles, California

Anticipated completion Summer 2000

This project investigates the role of chlorides in the development of cuprite

corrosion on bronze sculpture and ornaments in marine environments. Initial research will document unusually thick, well-adhered black corrosion observed by conservators working in tropical and subtropical climates. To date, samples have been collected, an analytical procedure has been established and a literature review of cuprite corrosion and chlorides is underway.

72. State-of-the-Art Literature Review on Acid Deposition and Stone Deterioration

Partner United States Committee/International Council on Monuments and Sites, Washington, DC

Project in progress; results published —

Charola, A.E. *Review of the Literature on the Topic of Acidic Deposition on Stone*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-09]

71. Stone Field Test Site Exposure

Partner Argonne National Laboratory, Argonne, Illinois

Project initiated 1983; NCPTT assumed responsibility 1995; additional funding 1996; project completed 1996; results will be archived

• Carbonate Stone Decay Model and Materials Research Program Synthesis

Partner US Geological Survey, Menlo Park, California

Project initiated 1995, additional funding 1996 and 1998

See entry 133 for project summary.

• Deposition Studies on Consolidated Stone

Project initiated 1996, continued funding 1997 and 1998

See entry 132 for project summary.

• Hiker Bronze Monograph

Partner University of Delaware, Newark, Delaware

Project initiated 1983; NCPTT assumed responsibility 1995; additional NCPTT funding 1996 through 1998

See entry 131 for project summary.

• Materials Research Program Literature Project

Project initiated 1996, continued funding 1997 through 1999

See entry 172 for project summary.

• NCPTT Laboratories

Project initiated 1996, continued funding 1997 through 1999

See entry 171 for project summary.

• Soiling of Limestone Buildings

Partner Carnegie Mellon University, Pittsburgh, Pennsylvania

Project initiated 1991; NCPTT assumed responsibility 1995; additional NCPTT funding 1996 through 1999

See entry 169 for project summary.

• Statistical Analysis of NAPAP Meteorological Data

Partner Terry J. Reedy, Newark, Delaware

Project initiated 1996, additional funding 1997

See entry 102 for project summary.

NCPTT-Wide 1996 PTTProjects

• Statewide Preservation Organizations

Partner National Trust for Historic Preservation, Washington, DC

Project initiated 1996, additional funding 1997 through 1999

See entry 168 for project summary.

Research 1996 PTTProjects

NCPTT Research Coordinator Mark Gilberg was responsible for these projects.

70. Camp Ruston Oral History Project

Partner The Camp Ruston Foundation, Inc.

Project completed

69. Electronic Marker Systems for Locating Re-Buried Archeological Sites

Partner Washington State Historic Preservation Office, Olympia, Washington

Project completed

68. Investigating the Use of Lasers for the Preservation of Cultural Materials

Partner Los Angeles County Museum of Art, Los Angeles, California

Project completed

See entry 164 for further NCPTT work on this topic.

67. Second International Conference on Wood Protection with Diffusible Preservatives

Partner Forest Products Society, Madison, Wisconsin

Project completed

Training and Education 1996 PTTProjects

NCPTT Training Coordinator Frances Gale was responsible for these projects.

• International Internships

Partner United States Committee/International Council on Monuments and Sites, Washington, DC

Project initiated 1995, additional funding 1996 through 1999

See entry 153 for project summary.

• **NCPTT's Training Database**

Project initiated 1995, additional funding 1996 through 1999
See entry 152 for project summary.

66. Conference: Preserving the Past and Building the Future

Partners American Institute of Architects-Historic Resources
Committee and American Institute for Conservation of
Historic and Artistic Works-Architecture Specialty Group,
Washington, DC

Project completed

65. Heritage Education Survey

Partner Middle Tennessee State University-The Center for Historic
Preservation, Murfreesboro, Tennessee

Project completed

See entry 154 for further NCPTT work on this topic.

64. Preservation Leadership Training

Partners National Trust for Historic Preservation, Washington, DC
Association for the Preservation of Historic Natchitoches,
Natchitoches Historic Foundation, and Main Street
Natchitoches, Natchitoches, Louisiana

Project completed

63. Preservation Weekends

Partners Texas Historical Foundation, Texas State Historic
Preservation Office and University of Texas, Austin, Texas
Colorado Preservation, Inc., Denver, Colorado

Project completed

62. Workshop: Saving Historic Architecture and Antiques

Partners National Park Service-Natchez National Historical Park,
Natchez, Mississippi
Association for the Preservation of Historic Natchitoches,
Natchitoches, Louisiana

Project completed

1995 Preservation Technology and Training Grants and Projects

The following 1995 PTTGrants and PTTProjects are completed or ongoing. See NCPTT Notes 28, page 24 for project summaries; recent information about these projects is noted below.

Research

1995 PTTGrants

*NCPTT Research Coordinator Mark
Gilberg was responsible for these
projects.*

61. Analyzing the Economic Impact of Historic Preservation in Our Nation's Most Densely Populated State

New Jersey Historic Trust, Trenton, New Jersey

See entries 128 and 162 for other NCPTT work on this topic.

60. Analyzing the Effect of an Indoor Pollutant on Traditional Easel Paintings

Indiana University Art Museum, Bloomington, Indiana

59. Designing a Controlled Archeological Test Site for Evaluating Non-Invasive Technologies for Archeological Site Assessment

US Army Construction Engineering Research Laboratories, Champaign,
Illinois

See entries 113 and 144 for other NCPTT work on this topic.

58. Developing a Conservation Inventory of Frank Lloyd Wright Structures

Frank Lloyd Wright Building Conservancy, River Forest, Illinois

57. Developing Agent-Based Computer Simulations for Identifying and Interpreting Archeological Sites

Washington State University, Pullman, Washington

Results published in addition to publications cited in *NCPTT Notes 28* —

Kohler, T.A., and Eric Carr. "Swarm-based Modeling of Prehistoric Settlement Systems in Southwestern North America," In *Proceedings of Colloquium II, UISPP, XIIIth Congress, Forli, Italy, September 1996* (edited by I. Johnson and M. North). Sydney University Archaeological Methods Series 5. Sydney, Australia: Archaeology (P & H) 1997.

Kohler, T.A., J. Kresl, C. Van West, E. Carr, and R. Wilshusen. "Be There Then: A Modeling Approach to Settlement Determinants and Spatial Efficiency Among Late Ancestral Pueblo Populations of the Mesa Verde Region, U.S. Southwest," in *Dynamics in Human and Primate Societies: Agent-Based Modeling of Social and Spatial Processes* (edited by T. Kohler and G. Gumerman) Santa Fe Institute and Oxford University Press (1999) 145-178.

Kohler, T.A., C. R. Van West, E. P. Carr, and C.G. Langton. "Agent-Based Modeling of Prehistoric Settlement Systems in the Northern American Southwest," *Proceedings of the Third International Conference Integrating GIS and Environmental Modeling*, Santa Fe, New Mexico, January 1996. Santa Barbara: National Center for Geographic Information and Analysis, Web <www.ncgia.ucsb.edu/conf/SANTA_FE_CD-ROM/sf_papers/kohler_tim/kohler.html>. 1996.

56. Documenting the Movement of Historic Objects Using Advanced Computer Simulation Technologies

National Preservation Institute, Washington, DC

55. Evaluating the Impact of Revegetation on the Preservation of Archeological Sites

University of Mississippi, University, Mississippi

54. Field Testing a Non-Invasive, Non-Toxic Baiting System for Protecting Historic Structures from Subterranean Termites

University of Florida, Fort Lauderdale, Florida

Results published in addition to publications cited in *NCPTT Notes 28* —

Su, N.-Y., J.D. Thomas and R. H. Scheffrahn. "Elimination of Subterranean Termite Populations from the Statue of Liberty National Monument using a Bait Matrix Containing an Insect Growth Regulator, Hexaflumuron," *Journal of the American Institute for Conservation* 37 (1998) 282-292.

See entries 160 and 167 for other NCPTT work on this topic.

53. Field Testing Remote Sensing Systems for the Protection of Historic and Prehistoric Sites and Monuments from Vandalism

University of California, Riverside, California

52. Investigating Relationships between Heritage Preservation and Economic Development in Rural Areas Using the Bayou Teche Heritage Corridor as a Model

Louisiana State University, Baton Rouge, Louisiana

51. Investigating the Biogeochemical Relationship between Prehistoric Rock Paints and Natural Rock Accretions

Newberry College, Newberry, South Carolina

Results published in addition to publications cited in *NCPTT Notes 28* —

Edwards, H.G.M., L. Drummond and J. Russ. "Fourier Transform Raman Spectroscopic Study of Prehistoric Rock Paintings from the Big Bend Region, Texas." *Journal of Raman Spectroscopy* 30 (1999) 421-428. [PTTPublications No. 1999-14]

Russ, J., W.D. Kaluarachchi, L. Drummond, and H.G.M. Edwards, "The Nature of Whewellite-Rich Rock Crust Associated with Pictographs in Southern Texas," *Studies in Conservation* 44 (1999) 91-103. [PTTPublications No. 1999-17]

50. Investigating the Use of Silicones for the Treatment of Wet or Waterlogged Organic Materials

Texas A&M University, College Station, Texas

Results published in addition to publications cited in *NCPTT Notes 28* —

N.P. and R.L. "Chaining Treasures, New Chemistry Saves and Preserves Artifacts," *Discovering Archaeology* March/April (1999) 7.

49. Investigating the Use of Turn-of-the-Century Whitewares as Economic Indicators for Evaluating Sites for National Register Eligibility

Ohio State Historic Preservation Office, Columbus, Ohio

48. Preparing a Directory of Chemical Spot Tests for Materials Characterization

University of Arizona, Tucson, Arizona

47. Researching the Use of Oral Histories to Interpret African-American Theaters in the South

City of Macon, Macon, Georgia

Project completed 1998

• **Protective Coating Systems for Outdoor Bronze Sculpture and Ornamentation (Phase 1 of three phases)**

National Gallery of Art, Washington, DC

See Phases 2 and 3 under Environmental Effects in 1997 and 1998; see entry 141 for project summary.

1995 PTT Grants Training and Education

NCPTT Training Coordinator Frances Gale was responsible for these projects.

46. Construction Technology Manual for Historic Buildings in Puerto Rico and the Caribbean

Caribbean Heritage, Guaynabo, Puerto Rico

45. Distance Learning: A Multimedia Approach to Training Staff in Simple Book Repair

Dartmouth College, Hanover, New Hampshire

44. Heritage Education Teacher's Manual Using Historic Landscapes

Morgan County Landmarks Society, Madison, Georgia

Project completed; results published —

Morgan County Landmarks Society. *A Heritage of Fine Gardens* (videotape). Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1999. [PTTPublications No. 1999-21]

Morgan County Landmarks Society and Georgia Trust for Historic Preservation, Inc. *Amendment to Teacher's Heritage Resource Guide, Morgan County, Vol. II*. Natchitoches, Louisiana: National Center for Preservation Technology and Training. 1999. [PTTPublications No. 1999-20]

43. Seminar: Landscaping for Historic Properties

Southern Cultural Heritage Foundation, Vicksburg, Mississippi

42. Training for Instructor's Certificate in the Building Trades

University of Vermont, Burlington, Vermont

41. Video: Culture Shock: Fire Protection for Historic and Cultural Property

Boston University, Boston, Massachusetts

40. Video: Lead-Based Paint Abatement in Historic Structures

Maryland State Historic Preservation Office, Crownsville, Maryland

39. Workshop: American Indian Voices in Preservation

Crow Canyon Archaeological Center, Cortez, Colorado

38. Workshop: Diagnosing Moisture in Historic Buildings

The Friends of Meridian Hill, Washington, DC

37. Workshop: Investing in the Past – Informed Decision Making for Historic Preservation in the Private Sector

Wilkinson County Museum, Woodville, Mississippi

36. Workshops: Preservation Skills Training

Historic Windsor, Inc., Windsor, Vermont

35. Workshops: Preservation Training for Local Governments

Georgia Department of Archives and History, Atlanta, Georgia

34. Workshops: Preserving Our Endangered Past

Slater Mill Historic Site, Pawtucket, Rhode Island

33. Workshop and Training Manual: Three-Dimensional Coordinate Measurement of Historic Artifacts

Mystic Seaport Museum Inc., Mystic, Connecticut

32. Youth Training in Vernacular Earthen Architecture and Associated Cultural Traditions

Cornerstones Community Partnerships, Santa Fe, New Mexico

Information Management

*NCPTT Information Management
Coordinator Mary Carroll is responsible
for these projects.*

• **National Trust Library**

Partner University of Maryland, College Park, Maryland

Project initiated 1994, additional funding 1995 through 1999

See entry 179 for project summary.

• **NCPTT's Preservation Technology and Training Internet Services**

Project initiated 1994, continued funding 1995 through 1999

See entry 178 for project summary.

Materials Research

With the creation of NCPTT's Materials Research Program in 1995, NCPTT assumed responsibility for the following projects. See NCPTT Notes 28, page 9 for project summaries; recent information about these projects is noted below.

*NCPTT Materials Program Manager
Mary Striegel is responsible for these
projects.*

31. Characterization of the Decay Found on Marble and Limestone Buildings

Partner US Geological Survey, Reston, Virginia

Project initiated 1984; NCPTT assumed responsibility 1995; project ended 1996.

30. Cost Benefit Analysis of Bridge Degradation

Partner Carnegie Mellon University, Pittsburgh, Pennsylvania

Project initiated 1993; NCPTT assumed responsibility 1995; project completed 1995; results published –

McNeil, S. *Cost Benefit Analysis of Bridge Degradation*. Natchitoches, Louisiana: NCPTT. 1995. [PTTPublications No. 1995-15]

29. Field Studies of Carbonate Stone Dissolution

Partner US Geological Survey, Denver, Colorado

Project initiated 1983; NCPTT assumed responsibility 1995; project ended 1995.

28. In-Situ Monitoring of Cultural Resources

Partner Illinois State Water Survey, Champaign, Illinois

Project initiated 1986; NCPTT assumed responsibility in 1995; project ended in 1995.

• **Carbonate Stone Decay Model and Materials Research Program Synthesis**

Partner US Geological Survey, Menlo Park, California

Project initiated 1995, additional funding 1996 and 1998

See entry 133 for project summary.

• **Chamber Study of Pollutant Deposition to Stone Surfaces**

Partner US Geological Survey, Reston, Virginia

Project initiated 1984; NCPTT assumed responsibility 1995; project and equipment transferred to NCPTT 1996

See entry 75 for further NCPTT work on this topic.

• **Hiker Bronze Monograph**

Partner University of Delaware, Newark, Delaware

Project initiated 1983; NCPTT assumed responsibility 1995; additional NCPTT funding 1996 through 1998; project completed 1998; results publication delayed

See entry 131 for project summary.

- **Soiling of Limestone Buildings**

Partner Carnegie Mellon University, Pittsburgh, Pennsylvania
Project initiated 1991; NCPTT assumed responsibility 1995; additional NCPTT funding 1996 through 1999
See entry 169 for project summary.

- **Stone Field Test Site Exposure**

Partner Argonne National Laboratory, Argonne, Illinois
Project initiated 1983; NCPTT assumed responsibility 1995; additional NCPTT funding 1996
See entry 71 for project summary.

NCPTT-wide

1995 PTTProjects

- 27. **Save Outdoor Sculpture! – Louisiana Survey**

Partner Louisiana State University, Baton Rouge, Louisiana
Project initiated 1994, additional funding 1995; project completed; results published –

Louisiana State University. <www.sos.lsu.edu>. Baton Rouge, Louisiana: Louisiana State University. 1995.

Smithsonian Institution. *Inventory of American Sculpture*. <www.siris.si.edu>. Washington, DC: Smithsonian Institution.

Research

1995 PTTProjects

NCPTT Research Coordinator Mark Gilberg was responsible for these projects.

- 26. **Analytical Services in Support of Historic Preservation**

Partner Frank Preusser and Associates, Los Angeles, California

- 25. **Conservation Design for an Independence Hall Exhibit**

Partner National Park Service–Harpers Ferry Center, Harpers Ferry, West Virginia

- 24. **Investigating Low-Altitude Remote Sensing**

Partner National Park Service–Denver Service Center, Denver, Colorado

- 23. **Research Priorities in Art and Architectural Conservation**

Partner American Institute for Conservation of Historic and Artistic Works, Washington, DC

- 22. **Workshop: Museum Exhibit Lighting – Conservation Lighting Design and Current Technology**

Partners Washington Conservation Guild, Freer Gallery of Art and Arthur M. Sackler Gallery Washington, DC
National Park Service–Harpers Ferry Center Division of Conservation, Harpers Ferry, West Virginia

See *NCPTT Notes* 32, page 1 for further discussion of this and related NCPTT projects.

Training and Education

1995 PTTProjects

NCPTT Training Coordinator Frances Gale was responsible for these projects.

- **International Internships**

Partner United States Committee/International Council on Monuments and Sites, Washington, DC

Project initiated 1995, additional funding 1996 through 1999

See entry 153 for project summary.

- **NCPTT's Training Database**

Project initiated 1995, continued funding 1996 through 1999

See entry 152 for project summary.

- 21. **Workshop: Archeology for Managers**

Partner National Park Service–Archeology and Ethnography, Washington, DC

- 20. **Workshop: Heritage Areas**

Partner Northwestern State University of Louisiana, Natchitoches, Louisiana

- 19. **Workshop: NAGPRA**

Partner National Park Service–Archeology and Ethnography, Washington, DC

- 18. **Workshop: Soils and Archeology**

Partner Northeast Louisiana University, Monroe, Louisiana

- 17. **Workshop: Timber Framing**

Partners Timber Framers Guild of North America, Bellingham, Washington
Texas Department of Parks and Wildlife, Austin, Texas

1994 Preservation Technology and Training Grants and Projects

The following 1994 PTTGrants and PTTProjects are completed or ongoing. See NCPTT Notes 28 for project summaries; recent information about these projects is noted below.

Research

1994 PTTGrants

NCPTT Research Coordinator Mark Gilberg was responsible for these projects.

16. **A Database for the Study of 20th Century Building Materials**

National Council for Preservation Education, Ithaca, New York

15. **Effectiveness of Protective Glazing for Historic Stained Glass Windows**

Inspired Partnerships, Chicago, Illinois

See entry 163 for further NCPTT work on this topic.

14. **Efficient Techniques for Analyzing Blood Residues on Tools from Archeological Sites**

Smithsonian Institution-Conservation Analytical Laboratory, Washington, DC

13. **Guidelines for Allowable Temperature Fluctuations in Museums and Historic Properties**

Smithsonian Institution-Conservation Analytical Laboratory, Washington, DC

12. **Improvements of Existing Heating and Air Conditioning Systems in Historic Structures**

New York State Historic Preservation Office, Waterford, New York

11. **Low-Cost Photogrammetric Data Archival System**

University of Arkansas, Fayetteville, Arkansas

10. **Methods and Technologies for Preserving Woody Plants in Historic Landscapes**

Harvard University-Arnold Arboretum, Cambridge, Massachusetts

9. **Preserving Historic Carved Sandstone Buildings in Marine Environments**

Historic Preservation Commission, Monterey, California

8. **Testing the Energy Performance of Historic Windows in Cold Climates**

Vermont State Historic Preservation Office, Montpelier, Vermont

Training and Education

1994 PTTGrants

NCPTT Training Coordinator Frances Gale was responsible for these projects.

7. **Interactive Multimedia Training for Advanced Mapping Technologies**

Bureau of Land Management, Phoenix, Arizona

Project completion is delayed

6. **Preservation Resource Guide for Public Works Managers**

American Public Works Association, Kansas City, Missouri

5. **Proceedings of *The Techniques and Uses of Garden Archaeology Conference***

United States Committee/International Council on Monuments and Sites, Washington, DC

4. **Video: *Connections: Preserving America's Landscape Legacy***

American Society of Landscape Architects, Washington, DC

3. **Workshop: Methods of Archeological Site Discovery and Evaluation**

Society for American Archaeology, Washington, DC

National Park Service-Archeology and Ethnography, Washington, DC

2. **Workshop: Native Americans and Archeology**

Arizona Archaeological Council, Kykotsmovi, Arizona

NCPTT-wide

1994 PTTProjects

1. NCPTT Headquarters Rehabilitation

Partner Northwestern State University of Louisiana, Natchitoches, Louisiana

Project initiated 1994; project delayed

Under a \$3.35 million contract between the National Park Service and NSU – with Federal funds appropriated in 1994 —, NSU shall renovate a circa 1926 gymnasium listed on the National Register of Historic Places as NCPTT headquarters. Groundbreaking for the project was in August 1997. A major fire in November 1997 destroyed the gymnasium interior and roof. The project currently is scheduled for completion in January 2001.

- **Save Outdoor Sculpture! – Louisiana Survey**

Partner Louisiana State University, Baton Rouge, Louisiana

Project initiated 1994, additional funding 1995

See entry 27 for project summary.

Information Management

1994 PTTProjects

NCPTT Information Management Coordinator Mary Carroll is responsible for these projects.

- **National Trust Library**

Partner University of Maryland, College Park, Maryland

Project initiated 1994, additional funding 1995 through 1999

See entry 179 for project summary.

- **NCPTT's Preservation Technology and Training Internet Services**

Project initiated 1994, continued funding 1995 through 1999

See entry 178 for project summary.

Our Mission

United States Department of the Interior

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and to honor our trust responsibilities to tribes.

National Park Service

The National Park Service preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education and inspiration of this and future generations. The Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

National Center for Preservation Technology and Training

The National Center for Preservation Technology and Training promotes and enhances the preservation of prehistoric and historic resources in the United States for present and future generations through the advancement and dissemination of preservation technology and training.

NCPTT, created by Congress, is an interdisciplinary effort by the National Park Service to advance the art, craft and science of historic preservation in the fields of archeology, historic architecture, historic landscapes, objects and materials conservation, and interpretation. NCPTT serves public and private practitioners through research, education and information management.

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