

Research Areas



I. Treatment Development

PROJECT TOPIC	PROJECT ASPECTS
MOLD TREATMENT PROTOCOLS	Developing treatment protocols for mold degradation; Reversing effects of mold damage, e.g. , staining, loss of strength
PERFORMANCE OF COATINGS AND PAPER SIZING	Determination of differences in paper strength, opacity, and performance based on different types of sizing and different application methods; loss and alteration during treatment
REVERSIBILITY OF OLD TREATMENTS	Previous conservation treatments such as: lamination (retreatment and storage; particularly cellulose nitrate and cellulose acetate), silking, soluble nylon, leather dressings, insoluble adhesives (natural and synthetic)
CORROSIVE PIGMENTS	Identification and treatment development, e.g. Verdigris
EFFECTS OF SOLVENT TREATMENTS	Alcohol, toluene, acetone, etc. and their effects on paper
PAPER STRENGTHENING	Evaluation of treatments/technologies designed to strengthen brittle or damaged paper, including paper splitting, graft polymerization and consolidant treatments (e.g. parylene)
LEATHER STUDIES: CONSOLIDATION, CLEANING	Use of consolidants (e.g. Klucel-G or others); effects of ethanol cocktails, protective waxes (e.g. SC6000); methods of introducing consolidants; brittle leather issue & treatment possibilities
CRITERIA FOR SELECTING CONSERVATION REPAIR MATERIALS	Evaluation of factors in selecting a conservation quality repair material; developing strength tests; e.g. testing effects of oxalic acid retting of flax for a comparison of cotton and linen materials
INVESTIGATION OF RAYON AS A MATERIAL IN BOOK CONSERVATION	Modern book cloths , especially cloth made of Rayon, i.e., Japanese, present potential future problems. Also cloth with a natural finish present problems regarding water stains and abrasion and need further research
REPLACEMENT MATERIALS FOR HEAT SET TISSUE IN PAPER COLLECTIONS	Development of a commercially available re-moistenable tissue with suitable aging characteristics
CONSOLIDATION OF PIGMENTS	Material options & application methods; investigation of penetration depth
PARCHMENT AND VELLUM	Iron gall ink and verdigris corrosion on parchment; cold storage of vellum and parchment; forensic assessment of parchment

II. Characterization of Natural and Synthetic Materials

PROJECT TOPIC	PROJECT ASPECTS
"ARCHIVAL" MATERIALS	Testing of materials marketed as archival
EVALUATION OF NEW MATERIALS	Identification of conservation "friendly" materials; Predictions of future issues on product development (e.g. biopolymers)
ADHESIVES	Testing of commercially available adhesives including their reversibility, discoloration, separation, etc.
LEATHER PERFORMANCE	New leather standards for stability of conservation materials; comparative analysis of historic vs. modern leathers
DATING OF MATERIALS	Non-destructive dating of artifact elements e.g. inks applied to paper; radiocarbon dating of parchment, collagen, gelatin
INSTRUMENTATION FOR MATERIAL CHARACTERIZATION	Investigation of analytical methods for their use in conservation analysis
DEFINITION OF END OF LIFE	To be used in preservation planning, exhibition policy etc.

III. Testing and Aging Studies

PROJECT TOPIC	PROJECT ASPECTS
ACCELERATED AGING	Viability of using accelerated aging as a model for natural aging in research studies; more scientific methods for determining if a book is too brittle to be used
NON DESTRUCTIVE TESTING	Development of techniques and equipment
DEVELOPMENT OF NEW TESTS	Identifying types of analysis and applications; instrumental development; portable instrumentation
PREDICTED/ESTIMATED LIFE OF MATERIALS	Lifecycle studies for materials like: Leather, plastics, paper, modern materials
VOC EMISSIONS FROM PAPER	Paper degradation chemistry, may help characterize paper condition and life cycle stage
FUTURE MATERIAL DEVELOPMENT	New materials for conservation developed based on characteristics of those materials that have stood the test of time
FADING AND MICROFADING STUDIES	Rate of change; degradation caused by light
CHARACTERIZING PHOTOGRAPHIC DEGRADATION	Shifting of color; studies of the yellowing of paper base studies

IV. Specifications and Standards

PROJECT TOPIC	PROJECT ASPECTS
SURVEY TOOLS	Applications of risk assessment to item level treatment decisions; Integration in to general conservation policy; Risk analysis/efficiency modeling
STORAGE MATERIALS FOR COLD STORAGE	Material standards for enclosures and containers
STANDARDS FOR MEASURES OF TREATMENT SUCCESS	Levels of acceptable change, longevity of treatment; review of earlier treatments to determine success; metrics and models for successful treatments, parameters such as access, preservation, cost of treatment, etc.
MODELING OF PRESERVATION FINANCE	Comparing costs of re-housing, cold storage, treatment; Develop packages of grouped conservation treatments for funding applications; Cost benefit analysis; Priority models; Impact assessment for projects
DEFINITIONS OF ARTIFACTUAL VALUES	Define what material properties are intrinsic
BASELINE DOCUMENTATION OF OBJECTS	Standards to characterize the current state of objects as baseline evaluation of future deterioration
CLEAR DEFINITION OF TERMS	Development of a glossary of e.g. conservation science, value etc.

V. Research Communication Models

PROJECT TOPIC	PROJECT ASPECTS
EVALUATION OF EXISTING RESEARCH	Encapsulation; Iron Gall Ink; Deacidification (natural aging effects on Barrow treated materials); Foxing (causes and identification); Ink bleeding (Conditions for Ink solubility, reversal of bleeding)
COMMUNICATION BETWEEN DISCIPLINES	Investigating new avenues and tools; locations for publications that are accessible to the profession
STATISTICAL ANALYSIS	To determine accuracy and validity of studies

VI. Environmental Issues

PROJECT TOPIC	PROJECT ASPECTS
ANALYSIS OF VOC EMISSIONS	Replacing ODDY with MS, SPME etc.
ANOXIC OR HYPOXIC ENVIRONMENTS	Effects, applications and how to engineer
ENERGY COSTS AND SUSTAINABILITY MODELS	Analysis of green energy options; green methods in conservation; sustainable facilities and processes
ASPECTS OF ENVIRONMENTAL CONTROL	E.g. Air filters - are these beneficial?
ISSUES OF POLLUTANTS IN COLD STORAGE	E.g. Effects of ozone at low temperatures