

Science For Conservators Series Volume 2 Cleaning

This book provides practical information on the use of infrared (IR) spectroscopy for the analysis of materials found in cultural objects. Designed for scientists and students in the fields of archaeology, art conservation, microscopy, forensics, chemistry, and optics, the book discusses techniques for examining the microscopic amounts of complex, aged components in objects such as paintings, sculptures, and archaeological fragments. Chapters include the history of infrared spectroscopy, the basic parameters of infrared absorption theory, IR instrumentation, analysis methods, sample collection and preparation, and spectra interpretation. The authors cite several case studies, such as examinations of Chumash Indian paints and the Dead Sea Scrolls. The Institute's Tools for Conservation series provides practical scientific procedures and methodologies for the practice of conservation. The series is specifically directed to conservation scientists, conservators, and technical experts in related fields. For more than ten years, this series has been the key basic texts for conservators throughout the world. These introductory volumes

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provide non-scientists with the essential theoretical background to their work.

This volume presents the life work of the late Ruth Johnston-Feller, one of the nation's leading color scientists. It combines an overview of basic theoretical concepts with detailed, hands-on guidance for the professional conservator and conservation scientist. The author focuses on the application of color science to the solution of practical problems, providing a comprehensive discussion of the nondestructive spectrophotometric tools and techniques used to understand the color and appearance of materials during the technical examination of works of art. The book, which features numerous examples of reference reflectance spectra, can help prevent misinterpretation of color measurements and the erroneous conclusions that might result. Topics include spectrophotometry, colorimetry, colorant mixtures, analytical techniques, reflection, fluorescence, and the effects of extenders, fillers, and inerts.

Ethnoecology has blossomed in recent years into an important science because of the realization that the vast body of knowledge contained in both indigenous and folk cultures is being rapidly lost as natural

ecosystems and cultures are being destroyed by the encroachment of development. Ethnobotany and ethnozoology both began largely with direct observations about the ways in which people used plants and animals and consisted mainly of the compilation of lists. Recently, these subjects have adopted a much more scientific and quantitative methodology and have studied the ways in which people manage their environment and, as a consequence, have used a much more ecological approach. This manual of ethnobotanical methodology will become an essential tool for all ethnobiologists and ethnoecologists. It fills a significant gap in the literature and I only wish it had been available some years previously so that I could have given it to many of my students. I shall certainly recommend it to any future students who are interested in ethnoecology. I particularly like the sympathetic approach to local peoples which pervades this book. It is one which encourages the ethnobotanical work by both the local people themselves and by academically trained researchers. A study of this book will avoid many of the arrogant approaches of the past and encourage a fair deal for any group which is being studied. This manual promotes both the involvement of local people and the return to them

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of knowledge which has been studied by outsiders.

Volume 3: Adhesives and Coatings

Conservation Science 2E

History and Use

Fundamentals of Fluvial Geomorphology

Preventive Conservation in Museums

House Paints, 1900-1960

Conservation Treatment Methodology presents a systematic approach to decision-making for conservation treatments. The methodology is applicable to all cultural property, independent of object type or material, and its use will enable conservators to be more confident in their treatment decisions. Conservation Treatment Methodology is illustrated with numerous examples that emphasize the equal importance of the physical and cultural aspects of objects for decision-making. The book also explains how the history of an object and the meaning that it holds for its owner or custodian contribute to determining its treatment. Conservation Treatment Methodology is an essential text for conservators, historic preservation specialists, and restorers, as well as students. Since it is not a technical manual about how to carry out treatments, the book will also be of value to art historians and museum personnel who work with conservators. "This book is unique in its overarching, multidisciplinary approach. The writing is not only clear, but entertaining and engaging." Dan Kushel, Distinguished Teaching Professor, Art Conservation Department, Buffalo New York) State College Barbara Appelbaum is one of the premier objects conservators in the United States and the author of Guide to Environmental Protection of Collections. Practicing in New York, Appelbaum was trained at New York University and

began her career at The Brooklyn Museum. The author treats a wide range of object types. Projects of note have included George Washington's leather portfolio, a Marcel Duchamp urinal, and a Marilyn Monroe dress.

The first in-depth reference to the field that combines scientific knowledge with philosophical inquiry, this encyclopedia brings together a team of leading scholars to provide nearly 150 entries on the essential concepts in the philosophy of science. The areas covered include biology, chemistry, epistemology and metaphysics, physics, psychology and mind, the social sciences, and key figures in the combined studies of science and philosophy. (Midwest).

Preventive Conservation in Museums makes available and comprehensible the diverse literature and ideas of preventive conservation to an audience with a limited scientific background, principally those studying museum studies or engaged in the museum profession. It bridges the gap between the basic museum generated literature and technical and detailed conservation literature. The area of preventative conservation has developed greatly in recent years and has adopted a far more holistic approach. The development of the concepts of risk analysis, management of conservation and how preventative conservation relates to the importance of traditional beliefs and approaches to artefacts have all made an impact on the subject in recent years along with the advance of instrumentation over the last thirty years. The next generation of ideas that will affect preventive conservation practice are just starting to emerge, including: detailed modelling of the environments of buildings and the sustainability of the artefactual and building heritage. Preventive Conservation in Museums highlights the wide variety of threats, develops the concept of an holistic appreciation of these threats, and too appreciates the need to prioritise the appropriate forms of response. It uses a careful balance of sources, some technical, some theoretical, some practical as well as case studies to explore threats and

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their mitigation. For all those people involved in preventive conservation, be they students or professionals, this volume will be an invaluable summary of the past, present and future of the discipline. ãee

The first of its kind, this series is devoted to the use of physical principles in the study and scientific conservation of objects with cultural heritage significance. It begins with a review of the modern museum, which discusses new techniques employed in the conservation of museum artifacts such as X-ray tomography and other techniques used to study Egyptian mummies, bones and mineralization of bones in the archaeological context, and the degradation of parchment. All of these topics and techniques are essential for the preservation of our history. This includes finding ways to preserve parchment documents and letters, which much of our written heritage is documented on, so that it can be used and understood for generations to come. This book is a must have for any museum as well as any university that teaches or employs the techniques discussed. Written in a style that is readily understandable by conservation scientists, archaeologists, museum curators, and students Provides an introduction to the advanced fields of synchrotron radiation science, neutron science, and computed tomography Outstanding review of the use of modern technology to study museum and archaeological artifacts Offers solutions through advanced scientific techniques to a wide range of problems facing museum staff

Organic Consolidants, Adhesives and Coatings

Advances in Aquaculture Hatchery Technology

Material Characterization Tests

Historical Perspectives on Preventive Conservation

Museum Lighting

Solvent Gels for the Cleaning of Works of Art

This is the sixth volume to appear in the Getty Conservation Institute's Readings in Conservation series, which gathers and publishes texts that have been influential in the development of thinking about the conservation of cultural heritage. The present volume provides a selection of more than sixty-five texts tracing the development of the field of preventive conservation from antiquity to the present day. The volume is divided into nine parts: Philosophies of Preventive Conservation, Keeping Things, Early Years of Conservation in Museums, Relative Humidity and Temperature, Light, Pests, Pollution, The Museum Environment and Risk Management, and Future Trends. Writings by such well-known figures as M. Vitruvius Pollio, John Ruskin, and Rachel Carson are complemented by selections from diverse sources including early housekeeping books, eighteenth-century archivist manuals, and Victorian novels. Other seminal texts include John Evelyn's seventeenth-century tract on air pollution in London and the founding manifesto of the Society for the Protection of Ancient Buildings by William Morris. There is also a wide-ranging representation of recent scholarship, including writings from non-Western traditions such as India and Japan. Each reading is introduced by short prefatory remarks explaining the rationale for its selection and the principal

matters covered. There is also a bibliography. Intended especially for students, this volume will also be of interest to conservators, museum curators, collection managers, and others involved in caring for collections and objects. For more than ten years, the Science for Conservators Series have been the key basic texts for conservators throughout the world. Scientific concepts are basic to the conservation of artefacts of every type, yet many conservators have little or no scientific training. These introductory volumes provide non-scientists with the essential theoretical background to their work.

The function of the painted wooden object ranges from the practical to the profound. These objects may perform utilitarian tasks, convey artistic whimsy, connote noble aspirations, and embody the highest spiritual expressions. This volume, illustrated in color throughout, presents the proceedings of a conference organized by the Wooden Artifacts Group of the American Institute for Conservation of Historic and Artistic Works (AIC) and held in November 1994 at the Colonial Williamsburg Foundation in Williamsburg, Virginia. The book includes 40 articles that explore the history and conservation of a wide range of painted wooden objects, from polychrome sculpture and altarpieces to carousel horses, tobacconist figures, Native American totems, Victorian garden furniture, French cabinets, architectural elements, and horse-drawn carriages.

Contributors include Ian C. Bristow, an architect and historic-building consultant in London; Myriam Serck-Dewaide, head of the Sculpture Workshop, Institut Royal du Patrimoine Artistique, Brussels; and Frances Gruber Safford, associate curator of American decorative arts at the Metropolitan Museum of Art in New York. A broad range of professionals—including art historians, curators, scientists, and conservators—will be interested in this volume and in the multidisciplinary nature of its articles.

*This volume is the first comprehensive collection of texts on the conservation of art and architecture to be published in the English language. Designed for students of art history as well as conservation, the book consists of forty-six texts, some never before translated into English and many originally published only in obscure or foreign journals. The thirty major art historians and scholars represented raise questions such as when to restore, what to preserve, and how to maintain aesthetic character. Excerpts have been selected from the following books and essays: John Ruskin, *The Seven Lamps of Architecture*; Bernard Berenson, *Aesthetics and History in the Visual Arts*; Clive Bell, *The Aesthetic Hypothesis*; Cesare Brandi, *Theory of Restoration*; Kenneth Clark, *Looking at Pictures*; Erwin Panofsky, *The History of Art as a Humanistic Discipline*; E. H. Gombrich, *Art and Illusion*; Marie Cl. Berducou, *The**

Conservation of Archaeology; and Paul Philippot, Restoration from the Perspective of the Social Sciences. The fully illustrated book also contains an annotated bibliography and an index.

An Introduction to Materials

Organic Chemistry of Museum Objects

Color Science in the Examination of Museum Objects

The Science For Conservators Series

Chemical Principles of Textile Conservation

Conservation Treatment Methodology

The series Topics in Current Chemistry Collections presents critical reviews from the journal Topics in Current Chemistry organized in topical volumes. The scope of coverage is all areas of chemical science including the interfaces with related disciplines such as biology, medicine and materials science. The goal of each thematic volume is to give the non-specialist reader, whether in academia or industry, a comprehensive insight into an area where new research is emerging which is of interest to a larger scientific audience. Each review within the volume critically surveys one aspect of that topic and places it within the context of the volume as a whole. The most significant developments of the last 5 to 10 years are presented using selected examples

to illustrate the principles discussed. The coverage is not intended to be an exhaustive summary of the field or include large quantities of data, but should rather be conceptual, concentrating on the methodological thinking that will allow the non-specialist reader to understand the information presented. Contributions also offer an outlook on potential future developments in the field.

Gives the readers effective solutions to the various problems encountered in the deterioration and treatment of paintings and to provide accounts of treatments in which those problems and some of their solutions are addressed. For more than ten years, The Science for Conservators Series has provided the key basic texts for conservators throughout the world. Scientific concepts are basic to the conservation of artefacts of every type, yet many conservators have little or no scientific training. These introductory volumes provide non-scientists with the essential theoretical background to their work.

'Chemical Principles of Textile Conservation' provides must-have knowledge for conservators who do not always have a scientific background. This vital book brings together from many sources the material science necessary to understand the properties, deterioration and investigation of textile artefacts. It also aids understanding of the chemical processes during various

treatments, such as: cleaning; humidification; drying; disinfestation; disinfection; and the use of adhesives and consolidants in conservation of historical textiles. Textile conservators will now have ready access to the necessary knowledge to understand the chemistry of the objects they are asked to treat and to make informed decisions about how to preserve textiles. The combination of a chemist and a conservator provides the perfect authorial team. It ensures a unique dual function of the text which provides textile conservators with vital chemical knowledge and gives scientists an understanding of textile conservation necessary to direct their research. The many practical examples and case studies illustrate the utility of the relatively large chemical introduction and the essential chemical information which is included. The case studies, many illustrated in colour, range from the treatment of the Ghandis' clothes, high-altitude flying suits and a Mary Quant raincoat, to the Hungarian Coronation Mantle.

Heritage Wood

Preservation

Paintings Conservation and the Birth of Modern Art History in Nineteenth-Century Europe

Museum Collections Management

Nanoscience for the Conservation of Works of Art

The Renaissance Restored

For the first time, the award-winning Education Department of the J. Paul Getty Museum is making one of its much-lauded K-12 curricula available nationwide in an attractive and inexpensive print format. Art & Science was developed by the Getty's expert educators, scientists, curators, and conservators, and tested by classroom teachers, and it connects to national and California state standards. Teachers and parents will find engaging lessons and activities divided into beginning, intermediate, and advanced levels for step-by-step learning. Art & Science mines the treasures of the Getty Museum to explore the many intersections of the visual arts with scientific disciplines. Full-color images of antiquities, decorative arts, drawings, manuscripts, painting, photography, and sculpture illuminate lesson plans about, for example: • The laws of physics that keep a bronze sculpture of a juggler from tipping over • The science that allows photographers to manipulate light and capture images on paper • The processes

of radiation and convection that turn clay into porcelain • Scientific observation of the natural world as the subject for art • How scientists removed 2,000 years of oxidation and encrustation to reveal a priceless ancient sculpture The curriculum also contains a trove of resources, including handouts, “Questions for Teaching,” a timeline, glossary, and list of print and web sources for further research. There are also links to additional related lessons and images available on the Getty website. The full-page color images and special “lay flat” binding of Art & Science make it ideal for use with a digital document reader.

Jean Paul Riopelle (1923-2002) was one of the most important Canadian artists of the twentieth century, yet he is relatively unknown in the U.S.. He began his career in Montreal in the 1940s, where he played a role in the influential Automatist movement, and established his reputation in the burgeoning art scene of postwar Paris, where his circle included Andr  Breton, Samuel Beckett, and Sam Francis. During his career, Riopelle produced over six thousand works, including more

than two thousand paintings. This volume, the second in the Artist's Materials series, grew out of a research project of the Canadian Conservation Institute. Initial chapters present an overview of Riopelle's life and situate his work within the context of twentieth-century art. Subsequent chapters address Riopelle's materials and techniques, focusing on his oil paintings and mixed media works, and on conservation issues. The preface is by Yseult Riopelle, the artist's eldest daughter and editor of his catalogue raisonné. This first book-length study of the artist in English will interest curators, conservators, conservation scientists, and general readers. First published by the Crafts Council in 1983.

Materials for Conservation: Organic Consolidants, Adhesives and Coatings provides an overview of one aspect of materials conservation treatment, particularly the properties of organic consolidants, adhesives, and coatings. The contents of the book are divided into two parts; these parts are background information and survey of polymers. The coverage of the first part includes polymer science and the uses and requirements

of applied polymers. The second part covers resins, vinyl, thermoplastics, fillers, and colorants. The text will be most useful to individuals involved in the management and conservation of historic materials, such as museum curators. Materials engineer and polymer chemists will also benefit from the book.

A Handbook

Conservation of Wood Artifacts

The Residue Question

Painted Wood

Infrared Spectroscopy in Conservation Science

History and Conservation

Rivers are significant geomorphological agents, they show an amazing diversity of form and behaviour and transfer water and sediment from the land surface to the oceans. This book examines how river systems respond to environmental change and why this understanding is needed for successful river management. Highly dynamic in nature, river channels adjust and evolve over timescales that range from hours to tens of thousands of years or more, and are found in a wide range of environments. This book provides a comprehensive overview of recent

developments in river channel management, clearly illustrating why an understanding of fluvial geomorphology is vital in channel preservation, environmentally sensitive design and the restoration of degraded river channels. It covers: flow and sediment regimes: flow generation; flow regimes; sediment sources, transfer and yield channel processes: flow characteristics; processes of erosion and sediment transport; interactions between flow and the channel boundary; deposition channel form and behaviour: controls on channel form; channel adjustments; floodplain development; form and behaviour of alluvial and bedrock channels response to change: how channels have responded to past environmental change; impacts of human activity; reconstructing past changes river management: the fluvial hydrosystem; environmental degradation; environmentally sensitive engineering techniques; river restoration; the role of the fluvial geomorphologist. Fundamentals of Fluvial Geomorphology is an indispensable text for undergraduate students. It provides straightforward explanations for important concepts and mathematical formulae, backed up with conceptual diagrams and appropriate examples from around the world to show what they actually mean and why they are important. A colour plate section also shows spectacular examples of fluvial diversity. The impetus for this book was the desire to systematically organize the extant literature on the conservation of cultural property made of wood, from its

beginnings before the Christian Era to the year 2000. Various published reviews and monographs, including Holzkonserverung (Wood Conservation) published by the senior author in 1988, have appeared over the years, especially in English and in German. They have provided exemplary treatment of individual areas or aspects of wood conservation, but a comprehensive, up-to-date exposition of historic and current developments has been lacking. The diverse professional fields of the authors, as well as their insights into methods of conservation and restoration of wood artifacts in Europe, North America, and Asia provided a solid basis for the success of this undertaking. One of the goals during the examination of the literature was that not only well-known conservators and scientists from countries that are leaders in wood conservation should be represented, but that less well-known, often not as readily accessible contributions should also be included. Only in this manner was it possible to draw a comprehensive picture of the national and international state of wood conservation. The Art and Archaeology Technical Abstracts (AATA) of the Getty Institute were very helpful in our efforts to evaluate as many publications as possible.

This landmark publication is the first to draw together all aspects of museum collections management in one handbook. It is designed for anyone with responsibility for a cultural collection and covers everything a collections

manager needs to know. It describes professional practice in managing cultural objects and works of art, whatever the size and nature of the collection. The book includes essential information on: Legal aspects of collections Ethical issues such as due diligence and immunity from seizure Up to date concerns such as sustainability, crossing borders and financial constraints Loans, acquisitions, inventory and movement. The book describes all collections management procedures in a simple step-by-step process and is clear and easy to use with all procedures based on international museum practice. Examples of real forms, policies and documents drawn from major museums are included throughout the text and act as guides for any transaction. Readership: Packed full of practical information, advice and good practice, this will be essential reading for all museum professionals, curators of private collections and museum studies students.

Preservation: Issues and Planning provides a definitive and authoritative analysis of how to plan for and ensure the long-term health of an institution's collection in this digital age.

The Artist's Materials

For Objects of Art and Archaeology

Historical and Philosophical Issues in the Conservation of Cultural Heritage

Investigation and Conservation of Art on Wood

Adhesives and Coatings

A Curriculum for K–12 Teachers from the J. Paul Getty Museum

'The Organic Chemistry of Museum Objects' makes available in a single volume, a survey of the chemical composition, properties and analysis of the whole range of organic materials incorporated into objects and artworks found in museum collections. The authors cover the fundamental chemistry of the bulk materials such as wood, paper, natural fibres and skin products, as well as that of the relatively minor components incorporated as paint, media, varnishes, adhesives and dyes. This expanded second edition, now in paperback, follows the structure of the first, though it has been extensively updated. In addition to chapters on basic organic chemistry, analytical methods, analytical findings and fundamental aspects of deterioration, the subject matter is grouped as far as possible by broad chemical class - oils and fats, waxes, bitumens, carbohydrates, proteins, natural resins, dyestuffs and synthetic polymers. This is an essential purchase for all practising and student conservators, restorers, museum scientists, curators and organic chemists.

The Organic Chemistry of Museum Objects provides an account of the composition, chemistry, and analysis of the organic materials which enter into the structures of objects in museum collections. This book is not intended to duplicate

the information available in existing handbooks on the materials and techniques of art and conservation but rather to convey the state of knowledge of the chemical composition of such materials and so provide a framework for a general understanding of their properties. The book begins with a review of basic organic chemistry, covering hydrocarbons and compounds with functional groups. It then describes spectrometry and separation methods. This is followed by discussions of the chemistry and composition of oils and fats, natural waxes, bituminous materials, carbohydrates, proteins, and natural resins and lacquers. Subsequent chapters deal with synthetic materials, i.e., high molecular weight polymers of a wholly synthetic nature; and natural and synthetic dyestuffs. Also discussed are the deterioration and other changes in organic materials resulting from both free radical and ionic reactions; and the application of analytical methods to identify the organic materials of actual museum objects. This book is intended for both chemists and nonchemists.

With contributions by scientists working in the museum and heritage sector, this textbook provides an overview of the analytical techniques and data processing methods used in modern conservation science. Each chapter deals with one of the common types of conservation materials in turn and provides case study examples of the techniques employed. It will interest students, scientists involved in

conservation, and conservators who want to develop their understanding of their collections at a material level.

Aquaculture is the fastest-growing food production sector in the world. With demand for seafood increasing at astonishing rates, the optimization of production methods is vital. One of the primary restrictions to continued growth is the supply of juveniles from hatcheries. Addressing these constraints, Advances in aquaculture hatchery technology provides a comprehensive, systematic guide to the use of current and emerging technologies in enhancing hatchery production. Part one reviews reproduction and larval rearing. Aquaculture hatchery water supply and treatment systems, principles of finfish broodstock management, genome preservation, and varied aspects of nutrition and feeding are discussed in addition to larval health management and microbial management for bacterial pathogen control. Closing the life-cycle and overcoming challenges in hatchery production for selected invertebrate species are the focus of part two, and advances in hatchery technology for spiny lobsters, shrimp, blue mussel, sea cucumbers and cephalopods are all discussed. Part three concentrates on challenges and successes in closing the life-cycle and hatchery production for selected fish species, including tuna, striped catfish, meagre, and yellowtail kingfish. Finally, part four explores aquaculture hatcheries for conservation and education. With its distinguished editors and

international team of expert contributors, Advances in aquaculture hatchery technology is an authoritative review of the field for hatchery operators, scientists, marine conservators and educators. Provides a comprehensive guide to the use of technologies in enhancing hatchery production Examines reproduction and larval rearing, including genetic improvement and microdiets Discusses challenges in hatchery production of specific species

Jean Paul Riopelle

Analytical Chemistry for Cultural Heritage

The Science for Conservators Series

Conservation of Paintings

The Organic Chemistry of Museum Objects

This volume highlights recent research efforts in the conservation and investigation of works of art on wood. Through eleven case studies it showcases different experimental methods ranging from X-ray analysis of objects to the study of cross-sections made from micro-samples. New research focusing on the technical study, treatment and assessment of works of art on wood in its many forms is featured in this edited volume.

Technical studies include the attribution and investigations of a triptych by Hans Memling and a sculpture from workshop of Michel and Gregor Erhart, decorated Syrian rooms, and investigations of finely carved Gothic wooden objects. Synchrotron-based methods are presented for studying the alteration of 19th c. verdigris in Norway, and multi-analytical methods are employed for the investigations of 16th to 19th c. East Asian lacquer from the Kunsthistorisches Museum in Vienna. Novel methods for the cleaning of gilded surfaces using gels and emulsions are shown, as are innovative strategies for the consolidation for waterlogged wood, providing key data for the assessment of risks and benefits of new methods, and the short and long-term effects on gilding layers and archaeological wood. The book clearly shows how collaboration between engineers, physicists, biologists and chemists and conservators of different types of materials can lead to new research in conservation science. This book is crucial reading for conservators and conservation scientists, as well as for technical art historians, providing key methodological case studies of polychromy from different temporal and geographical

contexts.

The cleaning of a work of art often involves removing not only dirt and grime but also unwanted layers of varnish, gilding, and paint from the work's surface. The challenge for conservators lies in finding a cleaning agent that will act on one layer without affecting the layer being preserved and without leaving any harmful residues on the cleaned work. This book, which examines gel cleaning in the treatment of paintings and painted works of art, presents the methodologies, data, and results of a collaborative project of the Getty Conservation Institute and Winterthur Museum. Among the issues covered are the theory and application of gel cleaning systems, the detection of residues left on the surfaces of objects cleaned with these systems, research into solvent-gel and solvent residues, stability of surfactants during natural and artificial aging, and recommendations for formulating gels for specific cleaning tasks.

Author David Saunders, former keeper of conservation and scientific research at the British Museum, explores how to balance the conflicting goals of visibility and preservation

under a variety of conditions. Beginning with the science of how light, color, and vision function and interact, he proceeds to offer detailed studies of the impact of light on a wide range of objects, including paintings, manuscripts, textiles, bone, leather, and plastics. With analyses of the effects of light on visibility and deterioration, *Museum Lighting* provides practical information to assist curators, conservators, and other museum professionals in making critical decisions about the display and preservation of objects in their collections.

Stone is one of the oldest building materials, and its conservation ranks as one of the most challenging in the field. The use of alkoxysilanes in the conservation of stone can be traced as far back as 1861, when A. W. von Hoffman suggested their use for the deteriorating limestone on the Houses of Parliament in London. Alkoxysilane-based formulations have since become the material of choice for the consolidation of stone outdoors. This volume, the first to cover comprehensively alkoxysilanes in stone consolidation, synthesizes the subject's vast and extensive literature, which ranges from production of alkoxysilanes in the nineteenth century to the extensive

contributions from sol-gel science in the 1980s and 90s. Included are a historical overview, an annotated bibliography, and discussions of the following topics: the chemistry and physics of alkoxysilanes and their gels; the influence of stone type; commercial and noncommercial formulations; practice; lab and field evaluation of service life; and recent developments. This book is designed for conservators, scientists, and preservation architects in the field of stone conservation and will also serve as an indispensable introduction to the subject for students of art conservation and historic preservation.

The Philosophy of Science

Judgement, Method and Decision Making

Materials for Conservation

Issues and Planning

Physical Techniques in the Study of Art, Archaeology and

Cultural Heritage

Conservation Skills

This handsomely illustrated volume traces the intersections of art history and paintings restoration in nineteenth-century Europe. Repairing works of art and writing about

them—the practices that became art conservation and art history—share a common ancestry. By the nineteenth century the two fields had become inseparably linked. While the art historical scholarship of this period has been widely studied, its restoration practices have received less scrutiny—until now. This book charts the intersections between art history and conservation in the treatment of Italian Renaissance paintings in nineteenth-century Europe. Initial chapters discuss the restoration of works by Giotto and Titian framed by the contemporary scholarship of art historians such as Jacob Burckhardt, G. B. Cavalcaselle, and Joseph Crowe that was redefining the earlier age. Subsequent chapters recount how paintings conservation was integrated into museum settings. The narrative uses period texts, unpublished archival materials, and historical photographs in probing how paintings looked at a time when scholars were writing the foundational texts of art history, and how contemporary restorers were negotiating the appearances of these works. The book proposes a model for a new

conservation history, object-focused yet enriched by consideration of a wider cultural horizon. Understanding the chemistry behind works of art and heritage materials presents an opportunity to apply scientific techniques to their conservation and restoration. Manipulation of materials at the nanoscale affords greater accuracy and minimal disturbance to the original work, while efficiently combating the affects of time and environment. This book meets the growing demand for an all-encompassing handbook to instruct on the use of today's science on mankind's cultural heritage. The editors have pioneered modern techniques in art conservation over the last four decades, and have brought together expertise from across the globe. Each chapter presents the theoretical background to the topic in question, followed by practical information on its application and relevant case studies. Introductory chapters present the science behind the physical composition of art materials. Four chapters explore various cleaning techniques now, followed by four chapters describing the

application of inorganic nanomaterials. Each chapter is fully referenced to the primary literature and offers suggestions for further reading. Professional conservators and scientists alike will find this essential reading, as will postgraduate students in the fields of materials and colloid science, art restoration and nanoscience.

*Conservation Skills provides an overview of the issues facing conservators of historic and artistic works. It not only describes the nature of conservation but also provides an ethical framework to which the conservation of objects can be related. Drawing on case studies of well-known objects such as the body of Lindow Man and the Statue of Liberty it addresses the following issues: * perception, judgement and learning * reasons for preserving the past * the nature and history of conservation * conservation ethics * recording, investigating, cleaning objects * stabilisation and restoration * preventive conservation * decision making and responsibilities.*

Scientific concepts are basic to the conservation or

artefacts of every type, yet many conservators have little or no scientific training. These introductory volumes provide non-scientists with an essential theoretical background to their work. For more than ten years, The Science for Conservators Series has provided the key basic texts for conservators throughout the world. Scientific concepts are basic to the conservation of artefacts of every type, yet many conservators have little or no scientific training. These introductory volumes provide non-scientists with the essential theoretical background to their work.

Research and Innovations

Volume 2: Cleaning

A methods manual

Cleaning

Alkoxysilanes and the Consolidation of Stone

Nondestructive Procedures

The first edition of this book was welcomed not only by the conservation profession but also by those working in archaeology and museums who need to know from what materials objects are made, the compounds that are associated with them or

the characteristics of the materials used to package or store them. This second edition (reprint) includes modifications to several of the procedures described - tests for metals, inorganic compounds, organic and synthetic materials as well as several tests that help to characterize materials. The tests are applicable to a wide range of object classes including metal, textile, leather, paper, plastics and architectural materials. In addition to presenting the detailed methodology for carrying out each test, the authors have evaluated the effectiveness of each test in order to assist the reader in selecting the most applicable test and interpreting the results.

The versatility of modern commercial house paints has ensured their use in a broad range of applications, including the protection and decoration of historic buildings, the coating of toys and furniture, and the creation of works of art. Historically, house paints were based on naturally occurring oils, gums, resins, and proteins, but in the early twentieth century, the introduction of synthetic resins revolutionized the industry. Good quality ready-mixed products became available and were used by artists worldwide. While the ubiquity of commercial paints means that conservators are increasingly called upon to preserve them, such paints pose unique challenges including establishing exactly which materials are present. This book traces the history of the household paint industry in the United States and United Kingdom

over the first half of the twentieth century. It includes chapters on the artistic use of commercial paints and the development of ready-mixed paints and synthetic resins; oil paints, oleoresinous gloss and enamel paints, water paints, nitrocellulose lacquers, oil-modified alkyds, and emulsion paints; and the conservation implications of these materials. The book will be of interest to conservators and conservation scientists working on a broad range of painted surfaces, as well as curators, art historians, and historians of architectural paint.

An Introduction to Materials Psychology Press

For more than ten years, the Science for Conservators series has been the key basic texts for conservators throughout the world. Scientific concepts are basic to the conservation of artefacts of every type, yet many conservators have little or no scientific training. These introductory volumes provide non-scientists with the essential theoretical background to their work.

A Guide for Conservators and Curators

Ethnobotany

Art & Science

Volume 1: An Introduction to Materials