INTERNATIONAL TRAINING PROGRAMME

2022 ANNUAL PROGRAMME

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ITP Annual Programme e-Learning

Session guidelines

Conservation and Scientific Research

The British Museum

Conservation and Scientific Research

Session guidelines

Introduction

These departments are two of the oldest departments of conservation and scientific research in the world. Both are housed in the World Conservation and Exhibitions Centre (WCEC) with its state-of-the-art facilities.

Their principal aims are to preserve the collections for present and future generations and to enhance the presentation and understanding of the Museum's collection for the varied audiences. Both departments work to study and preserve objects for exhibitions, loans, storage and research, and their members take part in various excavation projects and other fieldwork, helping to look after cultural heritage artefacts, both in the UK and overseas.

To minimise loss of irreplaceable information, both non-interventive (passive) and interventive (active) methods are applied in the preservation of the collections. Non-interventive means providing the objects with the best possible ambient conditions on display or in storage to slow their deterioration processes. Interventive conservation treatments are also undertaken to make fragile and unstable objects stronger for handling, study and display as well as to address and control the causes of decay which increase the long-term stability of the objects. Conservation is also important in preparing for exhibitions and loans. Cleaning, reconstruction, and necessary restoration make the beauty and use of objects more apparent thus improving the visitor experience.

Scientific research and conservators work together to investigate object histories, explore the mechanisms by which objects deteriorate, identify methods for stabilisation and preservation and help to solve problems that arise during conservation work. They also assist in selecting the materials that are used in the storage and display of objects and the materials and techniques used in conservation treatments.

Scientific researchers undertake research that helps to elucidate the history, archaeology, provenance and authenticity of objects in the collection through their materials, technologies of manufacture and patterns of use. It allows us better to discover aspects that may have previously been unrecorded or even unnoticed. The breadth of the scientific expertise and techniques maintained by the Museum reflects the diversity and wealth of the collection.

Well-equipped laboratories are essential to the Museum's work and facilities include equipment for X-radiography, X-ray fluorescence, X-ray diffraction, scanning electron microscopy, Raman spectroscopy and gas chromatography-mass spectrometry.

For certain less frequently used techniques, time is purchased on sophisticated equipment housed in universities and other institutions or collaborative projects are initiated with other researchers who have access to these methods.

In 2014, the Museum opened new conservation studios and science laboratories in the World Conservation and Exhibition Centre (WCEC). These purpose-built, state-of-the-art facilities are transforming the way in which conservation and scientific research are conducted. Different activities now have dedicated rooms equipped specifically for conservation procedures or scientific techniques that will be conducted within them. For the first time in history, the overwhelming majority of the conservators and scientists are together in a single building with a shared library and documentary research spaces.

Under the British Museum Act (1963), the Trustees of the British Museum are responsible to Parliament for the safekeeping and care of the collection and for making them available to the public. The objects in the collection are preserved for the benefit of the public, present and future. The purpose of conservation is therefore to minimise the reduction of public benefit caused by deterioration or damage to the collection.

The Museum's conservation and science policy there focusses on four key principles - preventive conservation; conservation treatment; research and sustainability.

An introduction to Conservation will look at how conservation specialists preserve the Museum's Collection through a combination of preventive, interventive and analytical techniques. By understanding a wide range of materials found in archaeological, historical and contemporary works, and the mechanisms by which objects deteriorate, Conservation will demonstrate how they can address their stabilisation and long-term preservation. They use a combination of old and new techniques. Some conservation practice is grounded in long-standing tradition, and they also innovate and develop new conservation techniques and approaches.

An introduction to Scientific Research will look at how the opening of the World Conservation and Exhibition Centre in 2014 has provided an opportunity for the organisation to become an internationally recognised centre for scientific research by capitalising on the resources and collections which make it unique. Most recently, the Department of Science has focused its research in a number of key areas including, new approaches to organic artefacts and residues, research looking at ancient human health, diet and life histories, ancient materials and technologies and finally preserving and protecting the past.

Preventative Conservation will look at how it is essential to the Museum's core aim to care for the collection and to fully understand the mitigation of deterioration and damage. Through appropriate environmental conditions; handling and maintenance procedures for storage, exhibition, packing, transport; the creation and implementation of an integrated pest management system and a general preparedness for any emergency which might be detrimental to the objects, the Museum can ensure best collection management practice.

The ITP does not intend to teach you how to conserve or analyse objects, but it will give you an idea of the issues surrounding the preservation and examination of different objects and materials. It will also demonstrate the way the Museum organises its studios and the contributions made by science, conservation and new technologies to the Museum's research programme.

Objectives

- You will hear presentations from some of our Conservation and Science teams, which will help you understand how the departments work with the rest of the Museum's staff and collections.
- How do we ensure objects are fit for display?
- How do we protect and monitor objects while they are on permanent display?
- Gain an understanding of the different pressures on the scientific researchers and conservators at the BM, who assess objects for exhibitions, loans and storage as well as treating new acquisitions, UK Treasure finds and material from excavations.
- See how technology and scientific techniques can provide an invaluable aid to curatorial research, revealing more about how objects were made, used, repaired and posited.
- Learn more about the benefits and challenges of preventative conservation and pest management.
- A Conservation case study: Conservation for Exhibitions; Refurbishing the Money Gallery at the British Museum.
- A Scientific Research case study: Dyes along the Silk Roads – a focus on Dunhuang textiles

Course facilitators

Carl Heron, Director, Scientific Research

I took up the post in March 2016 after spending most of my career at the University of Bradford. I was head of the Department of Archaeological Sciences from 1999 – 2001 and 2010 – 2014 and Dean of Archaeological, Geographical and Environmental Sciences from 2001 – 2006.

I hold a Bachelor's degree in Archaeological Sciences, also from Bradford, a PhD from University College, Cardiff, and was a post-doctoral research fellow at the University of Liverpool.

In 2014 I was the recipient of a Humboldt Research Award, supporting a one-year research visit in Germany at the Graduate School 'Human Development in Landscapes', Christian-Albrechts-Universität zu Kiel, Kiel and the Centre for Baltic and Scandinavian Archaeology (ZBSA) of the Stiftung Schleswig-Holsteinische Landesmuseen.

More recently I was awarded a European Research Council Advanced Grant (2016 – 2021) on the innovation, dispersal and use of pottery vessels in northeastern Eurasia from the Urals to the Baltic.

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Louisa Burden, Head of Conservation, Collections Care Department

I joined the British Museum in April 2021 as Head of Conservation in the Collections Care Department. My responsibilities include leading and managing the Conservation Team of over 50 people, ensuring we work safely and provide appropriate standards of conservation for the collection.

I trained in ceramics and 3-dimensional objects conservation. I also take a very keen interest in the development of preventive conservation to provide holistic approaches for collections care.

Prior to working at the British Museum, I was the Head of Conservation and Collections Care at the Science Museum Group for over 11 years. As well as responsibility for preserving the collection I had a strong focus on managing hazards in collections.

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Fabiana Portoni, Preventive Conservator

I joined the British Museum's department of conservation in 2015. My role as a preventive conservator focuses on ensuring long term preservation of the collection. This is done through careful monitoring of the environment and mitigation of risks such as pests, pollutants and light.

One of my main interests is using science and engineering to improve the field of preventive conservation.

Prior to joining the British Museum, I participated in both object and preventive conservation projects in museums and heritage organisations in Mexico and the UK such as The Frida Kahlo Museum, the Archaeological Site of Templo Mayor in Mexico City, The Natural History Museum in London and The Science Museum in London.

I am currently completing an MRes in Heritage Science at UCL, Institute of Sustainable Heritage, where I use analytical chemistry to calculate emission rates of organic volatile pesticide residues in organic artefacts.

Duygu Camurcuoglu, Conservator, Ceramics, Glass and Metals

I am an archaeological conservator, specialising on the conservation of inorganic artefacts at the British Museum. I completed my BA in Classical Archaeology at Istanbul University, Turkey, and pursued my education at the Institute of Archaeology, UCL, London, where I finished my MA and MSc in the Conservation for the Archaeology and Museums programme. Since then, I have worked on various BM projects as a ceramics/glass and metals conservator.

I have participated in excavations in Turkey, the UK and other countries as an archaeologist and conservator and completed my PhD at the Institute of Archaeology, UCL, in archaeology and material science.

My main interests are conservation and technical/scientific investigation of archaeological materials, preservation of archaeological sites and site presentation, interpretation and display of archaeological materials in the museum and the site context. I also take part in delivering various training programmes at the British Museum, i.e., Iraq Training Programme, International Training Programme.

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Diego Tamburini, Scientist: Polymeric and Modern Organic Materials

I am an analytical chemist by training and I obtained my PhD in Chemistry and Materials Science from the University of Pisa in 2015.

I joined the Department of Scientific Research of the British Museum in 2016 with an Andrew W. Mellon Postdoctoral Fellowship focusing on the application of liquid chromatography tandem mass spectrometry to the identification of natural dyes in historical and archaeological textiles. My main project focused on the palette of Asian dyes used in the Dunhuang textiles of the Aurel Stein collection.

In 2020, I moved to the Department of Conservation and Scientific Research of the Freer Gallery of Art and Arthur M. Sackler Gallery (National Museum of Asian Art, Smithsonian Institution) as a Smithsonian Postdoctoral Fellow with a project focused on the dye analysis of 19th-century ikat textiles.

After a 6-month Postdoctoral Fellowship at Northwestern University, focusing on the localisation of proteins in African sculptures, I joined the British Museum again in 2021 in the role of Scientist: Polymers and Modern Organic Materials. My main responsibility is to answer questions about the origin, technology and stability of natural and synthetic polymers as well as other organic materials in the collection mostly using mass spectrometric techniques.

https://www.youtube.com/watch?v=3yKQMmsVF-U&list=PL0LQM0SAx602PTJ1OHYsMnIybgkbNfPpv&ab_channel=TheBritishMuseum

Course resources

Details about the Departments of Conservation and Scientific Research details can be found on the British Museum website:
Scientific Research: https://www.britishmuseum.org/our-work/departments/scientific-research

Conservation: https://www.britishmuseum.org/our-work/departments/collection-care/conservation

The following resources are designed to enable you to access documentation and resources related to the content of the training programme at the British Museum. Hard-copy publications are mostly omitted in favour of online material, which is easily accessible and free to download.

Please note that many of the resources below are not authored by the British Museum, which cannot accept responsibility for any of the views expressed therein.

International organisations and associations

The International Institute for Conservation of Historic and Artistic Works (IIC)
www.iiconservation.org/ (within Regional Groups: Arabic Group)

International Council of Museums, Committee for Conservation (ICOM-CC)
www.icom-cc.org (and the Working Group pages)

International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) www.iccrom.org
Database of links and resources https://www.iccrom.org/resources/publications

The United Nations Educational, Scientific and Cultural Organisation (UNESCO)
www.unesco.org www.unesco.org/new/en/culture/
(in 'Themes A-Z' search for e.g., Movable Heritage and Museums)

International Association of Conservators for Archives, Libraries and Works of Art on Paper (IADA) cool.conservation-us.org/iada/index_e.html

The Institute of Conservation (ICON, UK) https://www.icon.org.uk/

The American Institute for Conservation of Historic and Artistic Works (AIC, USA)
https://www.culturalheritage.org/

The Society for the Preservation of Natural History Collections (SPNHC, USA)
https://spnhc.org/

Canadian Association for Conservation (CCI, Canada)
https://www.cac-accr.ca/

The Getty (USA) https://www.getty.edu/
The Getty Conservation Institute (USA) https://www.getty.edu/conservation/
http://www.getty.edu/conservation/about/science/
www.getty.edu/conservation/research_resources/
The Getty Research Institute (USA) https://www.getty.edu/research/
Canadian Conservation Institute (CCI, Canada) https://www.canada.ca/en/conservation-institute.html
The Smithsonian Institution, Museum Conservation Institute (MCI, USA)
https://www.si.edu/mci/

European Confederation of Conservator-Restorers' Organisations (E.C.C.O.)
http://www.ecco-eu.org/

Restauradores Sin Fronteras-Organización de cooperación al desarrollo para la salvaguarda del Patrimonio Cultural (A-RSF, SPAIN) www.a-rsf.org/

Northeast Document Conservation Center (USA) www.nedcc.org/home.php

Portals, forums, groups and mailing lists
UNESCO ICOMOS Documentation Centre
https://www.icomos.org/en/documentation-center
icomosdocumentationcentre.blogspot.com/

Cultural Heritage Search Engine Preservation and conservation database
www.culturalheritage.net/

Conservation Online, Resources for Conservation Professionals COOL
cool.conservation-us.org/

Conservation DistList cool.conservation-us.org/byform/mailing-lists/cdl/

Web resources, documentation, and publications

Studies in Conservation www.iiconservation.org/publications/sic/sic.php

E-Conservation Magazine http://e-conservation.org/

Western Association of Art Conservation Newsletter (USA)
https://cool.culturalheritage.org/waac/wn/

Canadian Conservation Institute, CCI Conservation Resource Centre (Canada)
Conservation information database https://www.canada.ca/en/conservation-institute.html including:

Environmental Guidelines for Museums, Temperature and Relative Humidity (RH) https://www.canada.ca/en/conservation-institute/services/preventive-conservation/environmental-guidelines-museums.html

Five Steps to Safe Shipment https://www.canada.ca/en/conservation-institute/services/conservation-preservation-publications/canadian-conservation-institute-notes/five-steps-safe-shipment.html

Ten Agents of Deterioration https://www.canada.ca/en/conservation-institute/services/agents-deterioration.html

Recognizing Metals and their Corrosion Products https://www.canada.ca/en/conservation-institute/services/care-objects/metals/basic-care-recognizing-metals-corrosion-products.html

Electronic Media Collections Care for Small Museums and Archives https://www.canada.ca/en/conservation-institute/services/care-objects/electronic-media/electronic-media-collections-small-museums-archives.html

Mould Outbreak, An Immediate Response https://www.canada.ca/en/conservation-institute/services/preventive-conservation/mould-outbreak-immediate-response.html

CCI notes https://www.canada.ca/en/conservation-institute/services/conservation-preservation-publications/canadian-conservation-institute-notes.html

Preservation framework online https://www.canada.ca/en/services/culture/history-heritage/museology-conservation/preservation-conservation.html

https://www.bac-lac.gc.ca/eng/about-us/preservation/Pages/preservation.aspx

National Park Service Conserve-O-Grams (USA)

www.nps.gov/museum/publications/conserveogram/cons_toc.html

English Heritage Publications (UK) https://historicengland.org.uk/images-books/publications/

Abstracts of International Conservation Literature (AATA Online)
https://www.getty.edu/conservation/publications_resources/aata/index.html

Conservation & Art Material Encyclopaedia Online, CAMEO, the Museum of Fine Arts, Boston
http://cameo.mfa.org/

The Bibliographic Database of the Conservation Information Network (BCIN)
https://www.bcin.ca/

Scientific Research Methods and Preventive Conservation
International organisations and associations
The International Institute for Conservation of Historic and Artistic Works (IIC)
https://www.iiconservation.org/ (within Regional Groups: Arabic Group)

International Council of Museums, Committee for Conservation (ICOM-CC)
www.icom-cc.org (and the Working Group pages)

International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) https://www.iccrom.org/

The United Nations Educational, Scientific and Cultural Organisation (UNESCO)
www.unesco.org
www.unesco.org/new/en/culture/
(in 'Themes A-Z' search for e.g.: Movable Heritage and Museums)

The Institute of Conservation (ICON, UK), https://www.icon.org.uk/

The American Institute for Conservation of Historic and Artistic Works (AIC, USA)
https://www.culturalheritage.org/

Canadian Association for Conservation https://www.cac-accr.ca/

The Getty (USA) https://www.getty.edu/
The Getty Conservation Institute (USA)
www.getty.edu/conservation/

http://www.getty.edu/conservation/about/science/
http://www.getty.edu/conservation/publications_resources/index.html
The Getty Research Institute (USA) https://www.getty.edu/research/

Canadian Conservation Institute (CCI, Canada) https://www.canada.ca/en/conservation-institute.html

The Smithsonian Institution Museum Conservation Institute (MCI, USA)
www.si.edu/mci/

The Society for Archaeological Sciences (SAS, USA) www.socarchsci.org/

Association for Environmental Archaeology (AEA, UK) www.envarch.net

Research Laboratory for Archaeology & the History of Art, University of Oxford (UK)
https://www.arch.ox.ac.uk/research-lab-archaeology-and-history-art

Environmental Monitoring at the British Museum
https://worldhistorylab.britishmuseum.org/environmental-monitoring/

Object Handling and Awareness
Why aren't you wearing gloves? The conservators' guide to object handling in the British Museum
https://youtu.be/VAzLunt6Lr0

Pollutants: Dust
What lurks under the microscope? Dust detective work https://blog.britishmuseum.org/what-lurks-under-the-microscope-dust-detective-work/

Integrated Pest Management (IPM)

https://museumpests.net/ - A comprehensive source of information and support for those implementing integrated pest management policies and procedures in collections-holding and cultural heritage institutions. Available in English [https://museumpests.net]and Spanish [https://es.museumpests.net]

Are we really integrating pest management? Reducing pest risk at a large national museum- Paper presented at the 4th International Conference on Integrated Pest Management (IPM) for Cultural Heritage in Stockholm (See Preventative Conservation module materials on e-Learning course)

What's eating your collection? website with useful information to help ID insects common in museum and heritage institutions
https://www.whatseatingyourcollection.com

Indoor Air Quality in Museums and Archives iaq.dk/

CHARISMA (Cultural Heritage Advanced Research Infrastructures: Synergy for a Multidisciplinary Approach to Conservation/Restoration)
https://cordis.europa.eu/project/id/228330

National Heritage Science Strategy (NHSS) (UK) https://www.heritagescienceforum.org.uk/what-we-do/national-heritage-science-strategy

Archaeological Sciences Resources, Department of Archaeological Sciences, University of Bradford (UK) https://www.bradford.ac.uk/archaeological-forensic-sciences/

Scientific Research methods

Dating research including radiocarbon analysis (Oxcal), luminescence dating, tephrochronology
https://c14.arch.ox.ac.uk/dating.html

c14.arch.ox.ac.uk/

Radiocarbon Accelerator Unit: https://c14.arch.ox.ac.uk/

Radiocarbon Analysis (OxCal): https://c14.arch.ox.ac.uk/oxcal.html

Tephrochronology: https://www.arch.ox.ac.uk/tephrochronology-and-electron-microprobe-commercial-services

Stable isotope analysis https://www.arch.ox.ac.uk/bioarchaeology

Q&A

At the end of a session, if you have any questions or need any further clarification on an issue or topic discussed, please e-mail the ITP team at itp@britishmuseum.org and we will do our best to provide you with the additional information you need.