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Looking through a lens: preserving and presenting the past through digitisation

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Abstract

Kendal museum received Heritage Lottery Fund (HLF) funding to digitise three important collections - one herbarium and two mineral collections - in a two-year project. In the first year, the collections were digitised, preserving them for future generations. The second year of the project focused on sharing the collections in different ways, including a website, touring exhibition, family activities, art workshops, and lectures.

The main aim of the project was to make the collections accessible, recognising the value of Kendal museum as a library of information to study Cumbria's botanical biodiversity, as well as illustrating the mining industry and rich geology of Cumbria.

Keywords: digitisation, photography, herbarium, minerals, Metamorfoze

Introduction

This HLF-funded project at Kendal Museum (KEDLM) has digitised three fascinating collections: the herbarium and two mineral collections were selected for digitisation, as they have significant importance to Cumbria: the collectors were local men and there is a rich archive of material to illustrate their stories. Over 6000 images have been taken, making these previously unseen collections accessible to everyone.

The herbarium comprises over 4000 sheets, which are very fragile and therefore difficult to display. The collection was already well documented and cared for, but the problem was how to share it. Images are a very useful way to access a large collection easily. The collections were digitised in the first year of the project by producing high-resolution images, accurately preserving the collections for future generations and producing a digital resource that could be used to share the fragile specimens without risking damage to them. The second

year of the project has focused on sharing the collections, to inspire people to connect with nature.

The collections

Mineral collections

The mineral collection from the Lake District and the North of England is the largest and most extensive collection in Cumbria. Two dedicated collectors, Bill Shaw and John Hamer, collected rare minerals that provide a history of the mining industry in Cumbria.

John Hamer hailed from Ingleton, and he filled his house with mineral specimens. After his death, over 2000 finely preserved specimens were discovered in his house. The collection also contains spectacular crystals from around the world, including Brazil, India, and Mexico. The Hamer collection contains 1324 specimens of minerals, rocks, and fossils (Figure 1).



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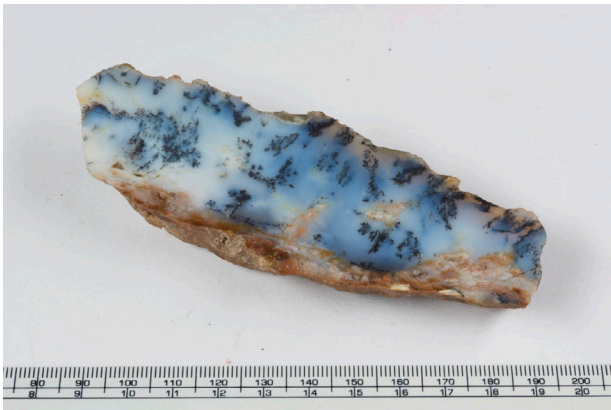


Figure 1: KEDLM-KMG2004.1.1364 Moss opal unknown locality. Hamer collection.

Herbarium collection

The Martindale herbarium collection contains over 4000 specimens of flowering plants, mosses, grasses, and ferns, collected locally in Cumbria, as well as specimens collected further afield in Germany, Hungary, and North America (Figure 2).



Figure 2. KEDLM-KMB1985.338.1447 *Dipeacus sylvestris* (Gurnard), Isle of White (27.8.1888).

Joseph Martindale was from Staveley, where he was a master at the local school (1859 – 1902). His main interests were flowering plants and lichens. He went to great lengths to collect and identify species from Cumbria. Martindale was an honorary curator of botany at Kendal Museum and was the president of the Kendal Natural History Society.

The herbarium has significant ecological importance, as it provides a record of the flora found in the Lake District in the late 19th century. The collection contains rare specimens such as the Lady's Slipper orchid, which was once widespread in Cumbria but is now absent from the area. The collection also has a significant local social history, as it documents the friendship between Martindale and local botanists who formed the 'Three Legged Society'. They would meet up to discuss their findings, and also politics. They often wrote letters to each other and interchanged specimens. Some of the letters are stored at Kendal Museum.

Digitisation

In September 2014, the Image Preservation Studio was set up from scratch in a space that was previously used as an archaeology store (Figure 3).

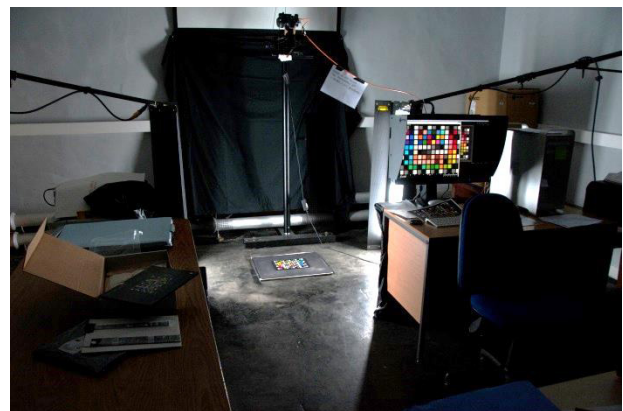


Figure 3. Image Preservation Studio at Kendal Museum.

A digital workflow was planned to produce high-resolution RAW files to digitally preserve the collections. These files were then converted into TIFF and JPEG files, suitable for website display and presentation. A schedule was set out to digitise all three collections in 12 months.

Tony Riley was employed as the Digital Imaging Scientist. He had previously volunteered in the museum, and was an expert photographer with a particular interest in colour science and accurate image reproduction. Rachel Petts was employed for one year as the Collections Intern, working

closely with the Digital Imaging Scientist to assist with collections care and digitisation. Volunteers and students were also a key part of the digitisation process. Kendal Museum is a teaching department of Kendal College, and as such students from the Museum and Gallery Skills course have been very involved with many aspects of the project. George Platt, a previous student and photographer, was later employed to digitise the herbarium.

Collections management

As it would take thousands of images and many hours of work to digitise these collections, it was important to plan how and where to store the images. This was thought out at the grant application stage, to ensure the long-term management and security of the images.

The Collections Assistant Intern organised and prepared the collections for digitisation. This involved improving the storage and display of the collections, organising collections data, movement of objects, and collections care.

Collections data was stored in Microsoft Excel format, and was collated and imported into Modes Complete, the collections management database used at Kendal Museum. A low-resolution JPEG image was added to the records, providing museum staff with an excellent reference tool for the collections.

The herbarium is stored in its original mahogany cabinets, which were presented by the Kendal Literary and Scientific Institution in January 1855. The collection was well documented, as the herbarium sheets had been transcribed by volunteers over three years from 2005 – 2008. A unique number was added to the herbarium sheets to identify them and link with the image file. Storage was improved by creating new paper folders, and acid-free archival tissue paper was placed between each sheet to protect the specimens. The original folders were kept and stored in the cabinet with the collection.

Image capture

The herbarium and mineral collections posed different challenges for digitisation, requiring a different camera and lighting set up.

Geology Collections

Image capture began in October 2014, starting with the Hamer mineral collection. As minerals

are 3D objects that vary in size and aspect, the camera setup was made adjustable to take this into account. The minerals were digitised according to their locations in the store or display cabinets. Minerals were organised according to size for the most efficient photography workflow, minimising changes in the position of the camera. Only one image was taken per mineral due to the short, 12-month timeframe of the project. The minerals on display were the last to be digitised, in order to limit disruption to the public display.

Herbarium

The herbarium required a completely different setup. The camera was kept in a fixed position, and the collection was digitised to the Metamorfoze standard (van Dormolen, 2012). Metamorfoze is the national programme for the preservation of paper heritage in the Netherlands. It is set out by the National Library of the Netherlands. Metamorfoze standards provide a set of guidelines for producing preservation images of heritage artefacts. Following the Metamorfoze standard is a scientific process; it is designed to control the factors that affect image quality. The quality of the image is measured using the following criteria: colour space, white balance, exposure, noise, illumination, and colour accuracy. The Metamorfoze quality requirements enable the photographer to produce an image which has a very close relation to the original object, creating a snapshot in time before further deterioration occurs. Creating high quality preservation images will also reduce the need for handling of objects, as information can be gained from the digital image.

As part of the HLF funding, a consultant was hired to help the Image Preservation Studio achieve the stringent targets. Colin White, the former head of photography at the National Gallery in London, came to help set up the equipment and develop our understanding of the daily start-up process required to achieve the standard. The start-up process involves measuring colour and resolution targets as well as profiling equipment to control for errors.

Feedback from Colin White after his visit:

“It should not be underestimated, the achievement of pushing the (relatively) budget photographic equipment at the Kendal Museum to its practical limits and undertaking to match guidelines designed for equipment of far higher specification. It is a credit to the museum to undertake to use a system many large institutions find daunting and hard to implement.”

Digitisation outputs

Digitisation of all three collections was completed ahead of schedule, in August 2015. With an abundance of images available, the second year of the project focused on sharing the collections in different ways to engage with the community. Various projects and outreach activities also took place in the first year, during the digitisation process.

Website

One of the main methods of sharing the collections is a newly-developed, purpose-built website, which launched on the 4th December 2015. www.kendalmuseum.digital is an online platform with two main functions:

1. The front end of the website is visually stimulating and packed with information about the history of Kendal Museum, the collectors' stories, fascinating facts, the science behind the collections, and an events calendar.
2. The website has an online database of images and data for the mineral and herbarium collections.

The website has been designed for easy use by scientists, educators, and artists alike. Users can search several fields, such as scientific name, location, or mineral colour. The website enables users to see the collections in fine detail, as there is a zoom function on the images. Images can also be downloaded for non-commercial use under the Creative Commons Attribution Non-Commercial Licence (CC BY-NC).

Touring exhibition



Figure 4. The 'Looking Through a Lens' touring exhibition.

A touring exhibition was developed that promotes the digitised collections of Kendal Museum and encourages people to learn more by visiting the website (Figure 4). The touring exhibition is made up of pop-up banners designed by photographer George Samuel Platt using images of the mineral collections and herbarium, together with informative text about the project and collections. Also included

are banners designed by local artist Janette Philips. The exhibition has toured various venues in Cumbria throughout 2016, showcasing the collections. Venues include Kendal Leisure Centre, Kendal Library, Kendal Town Hall, Westmorland Shopping Centre, Carlisle Archive Centre, Wray Castle, The Beacon Museum Whitehaven, Carlisle, and the Ravenglass Steam Train Museum. The exhibition aimed to reach the widest possible audience, to encourage more people to engage with their heritage.



Figure 5. Touring exhibition introduction banner.

Kendal Museum Treasures

A free high quality publication has been produced, telling the story of the HLF project at Kendal Museum. It has been distributed to the general public and museums in the North West, as an advocacy tool for Kendal Museum. Please see the PDF, available here: http://www.natsca.org/sites/default/files/publications-full/Treasures_at_Kendal_Museum.pdf.

Redisplay of the Hamer mineral collection

Another aspect of the project was recruiting volunteers from the community to help redisplay the Hamer mineral collection. The entrance to the small new gallery has been designed to look like a mine entrance. Many more minerals and archival materials are now displayed.

In September 2015, a modern art installation titled 'A Weirid Aperture – and Weirid Echoes of Water, 2015', a digital video by Kate Morrell, opened at Kendal Museum. The exhibition had been commissioned by Legion TV, a contemporary arts organisation in London, in collaboration with Kendal Museum. The works resulted from a period of residency in Kendal Museum, in which the artist had the opportunity to research inside the Museum's stores and archives. The film takes the museum's digitisation project as its focus, examining questions about the implications and possibilities that arise when sharing digital collections. The film also documents the conservation, interpretation, and digital reproduction of the specimens. In the film, a male voice reads fragments from 'The Caves and Potholes of High Craven: Nature's Grottos by J. L. Hamer, July 1934'. The original text is one of six notebooks handwritten by John Hamer, which were donated to the museum along with the minerals. Hamer provides a vivid account of potholing and caving in Yorkshire and Cumbria, describing his solo, subterranean adventures.

'A Weirid Aperture' considers digitisation as a system for revisiting and highlighting objects, histories, and their collectors, from many different perspectives. The setup of the digitisation studio acts as an apparatus for extracting buried histories and background contexts, which surface in the process.

Student project displays

To complete the module 'Designs, Exhibitions and Display', Kendal College students on the Museum and Gallery Skills Level 3 course produced mini exhibits to make collections more visible and accessible in the museum. At the start of the project, only two herbarium sheets were on display. There are now over 20 herbarium sheets on display. To bring the herbarium to life for museum visitors, students have built planters with species from the herbarium collection. The planters are covered with boards displaying herbarium images designed by a Marketing and Social Media Apprentice. Herbarium images provide a great way to display the collections outside. A mini exhibit highlighting the digitisation process, comparing herbarium images with a real herbarium sheet, was also put together by students (Figure 6).

The mineral collections are on display in an upstairs gallery at Kendal Museum, which is unfortunately not accessible to everyone. Mini exhibits designed

by the students, displaying a selection of minerals and archive material, made the collections accessible in the ground floor gallery.



Figure 6. Martindale herbarium mini exhibit.

Photography workshop: George Platt

George Platt was the Digital Imaging Scientist employed to digitise the herbarium collections to the Metamorfoze standard. The project has generated a lot of interest from local photographers. A one-day workshop for adult amateur photographers was run by George to publicise the project and inform about the digitisation process, together with teaching photography skills. The workshop included presentations on basic photography and the project. Then, in the afternoon, there was a practical element to put learning into practice, which involved taking photographs around the gallery. George aims to establish a network of local photographers linked with the museum.

Lectures by local experts at Kendal Museum

Ian Hodkinson and Alan Steward produced a book about the Three Legged Society after carrying out extensive research using archive material at Kendal Museum. Ian Hodkinson is a retired Professor of Ecology and Entomology at Liverpool John Moores University. Allan Steward is Honorary Treasurer and a founding member of Levens Local History Group. Ian delivered an informative talk, 'Local Naturalists and the Early Kendal Museum Plant Collections'. Sharing the collections highlights the relatively unknown amateur botanists in Cumbria and their contributions to science.

Mike Dewey is a member of Westmorland Geological Society and Cumbria GeoConservation. He has carried out extensive geological mapping in Cumbria, and his knowledge helped with

cataloguing the Hamer mineral collection. He gave a talk about the mining industries carried out in Cumbria since the reign of Queen Elizabeth I in the 16th century. It was also an opportunity to handle collections and learn about the digitisation project.

Collections Trust: Digital Isn't Different

A talk promoting the digitisation project was delivered at the Collections Trust's 'Digital Isn't Different' workshop in Manchester, held in February 2016. The presentation shared our experiences and detailed how, as a small museum, we managed to digitise the collections and share our collections in different ways.

Arts Award

As part of the project, there was funding for a Museum and Gallery Skills student to undertake Arts Award 'Discover and Explore' training. This is a creative approach to encouraging children and young people to appreciate and interact with museum collections.

Our Education Officer and students developed the content of the Arts Award programme to promote the digital collections, delivering sessions in local primary schools to Year 3 classes (age 7-8 years, Key Stage 2). The children had an introductory lesson about museums and collecting. Children found out about the minerals of Cumbria and their importance. At the museum, there was a geology workshop where children could discover the secrets hidden in rock patterns, and learn how the formation of rocks makes different patterns. Children also created artwork in response to the visit (Figure 7).

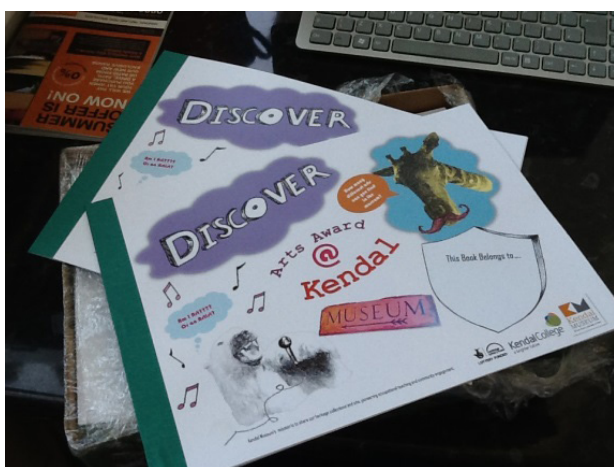


Figure 7. Arts Award educational material for primary school children.

This has continued into year two of the project.

Two more students have undertaken the Arts Award training, and continued the relationship with local primary schools to run more Arts Award sessions.

Young Archaeologist club at Kendal Museum

There is a well-established, very popular Young Archaeologist Club at Kendal Museum. Two sessions about the digitisation project and the mineral and herbarium collections were incorporated into the programme. One session, titled 'The Natural Elements in Archaeology', investigated how plants are used in archaeology. Children did practical activities such as creating their own flower presses and planting seeds, and examined pressed mosses and flower books from the collections.

There was also a session titled 'Be a Miner Day', where the Young Archaeologists learnt about the types of rock and minerals in the Lake District. Children could write a diary excerpt as a miner and take part in a quiz.

More Outreach activities

There have been many activities in year two of the project to engage the local community with the project and the fascinating collections held at Kendal museum. To encourage community participation there has been a seed planting event at the local shopping centre in Kendal.

There was also a one-day artist workshop for people to come and be creative using the plants and minerals as inspiration. The workshop was led by a local artist and student on the Museum and Gallery Skills course. Participants explored natural dyes made from plants and minerals and studied plant fibres used in textile construction. Activities included weaving, printing, and card making.

Alzheimer's and Dementia workshop sessions took place in residential homes in Kendal, using herbarium images, pressed flowers from the museum garden, and mixed media to create collages. The workshop was put together by Museum and Gallery Skills students after attending a 'Dementia and The Arts' awareness day organised by Prism Arts and held by the lake in Keswick.

Conclusion

The first year of the project was successful: both the herbarium and mineral collections were digitised ahead of schedule. Preservation images have been

created that digitally record the collections, with reference images securely stored. All images are available on the website and can be downloaded. It is a fantastic reference tool for researchers, artists, and educators. Collections have been shared in lots of ways, including a touring exhibition to venues in Cumbria. The collections have been used as a source of inspiration for family activities, lectures, artist and photography workshops. The two-year project has combined the different skills of museum and Kendal College staff, students, and volunteers, to make this ambitious project a success.

As the project comes to an end, Kendal Museum will continue to work with local groups in the community. The website will be a long-term resource, which will be continually updated with new information. There is ongoing sustainability for the image preservation studio, as it is run as a freelance business by George Platt, offering services such as digitisation of museum collections, image restoration, and consultation.

Acknowledgements

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