

# PORTLAND MUSEUM™

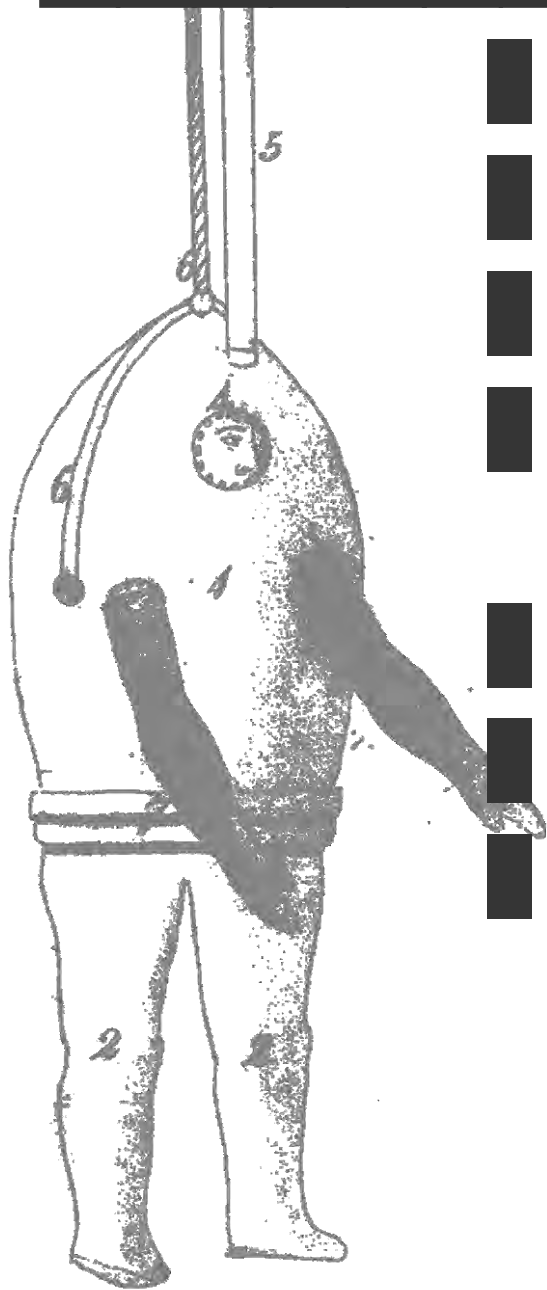
DIVING INTO THE DIGITAL ARCHIVES OF  
THE EARL OF ABERGAVENNY



CATALOGUING AND DIGITAL RECORDING  
IN MUSEUMS

MANUAL FOR VOLUNTEERS

# CONTENTS



INTRODUCTION

GLOSSARY

USEFUL LINKS

COLLECTION HANDLING  
AND STORAGE

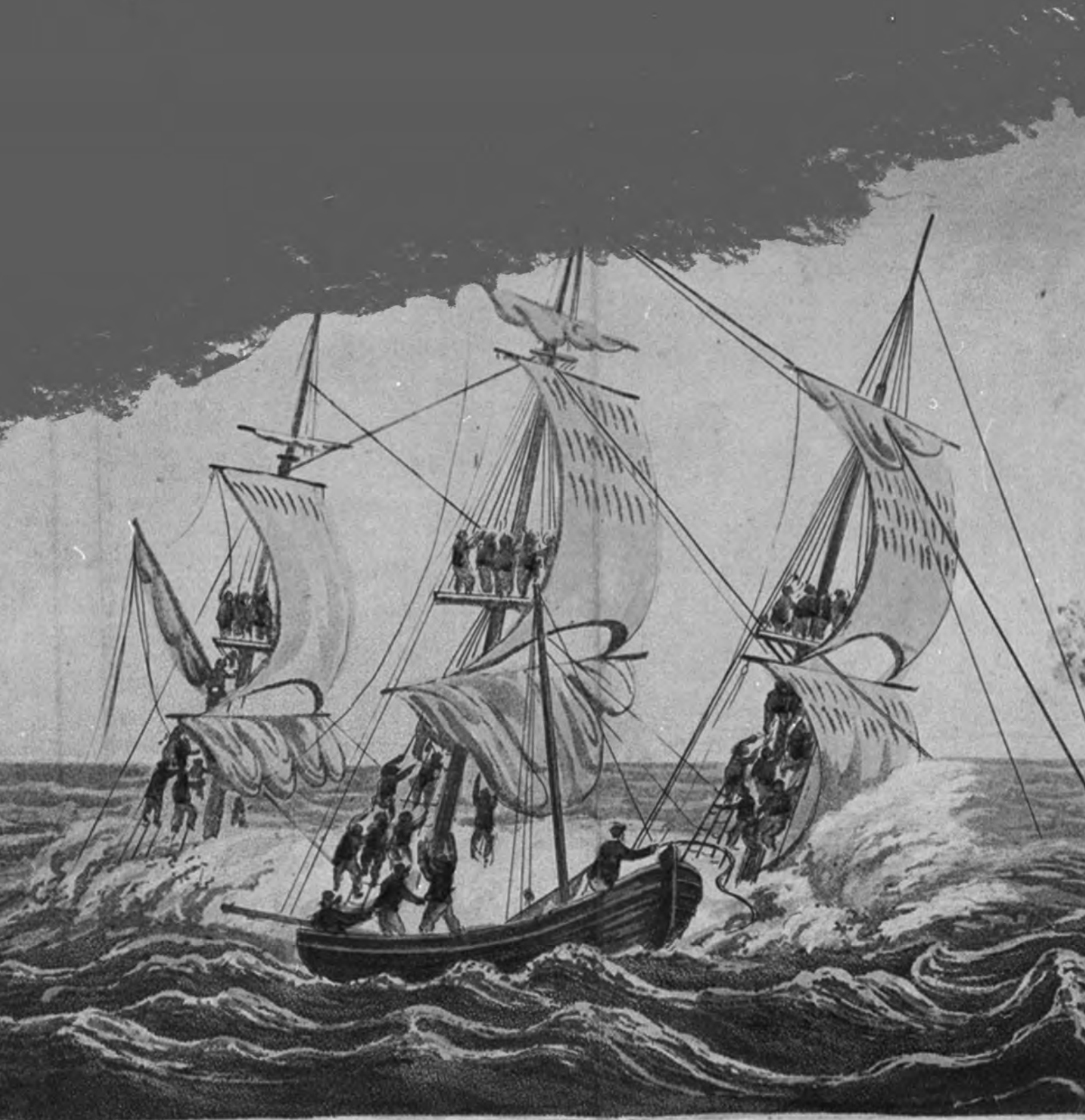
CATALOGUING OBJECTS

CONDITION ASSESSMENT

PHOTOGRAMMETRY AS A  
METHOD OF DIGITAL  
RECORDING

Portland Museum would like to say a big thank you to our volunteers, partners and funders for all their support throughout this project.

**The *Diving Into the Digital Archives of the Earl of Abergavenny* project has been made possible by the drive and dedication of our volunteers; the skill and expertise of our partners, MSDS Marine and the Nautical Archaeology Society; Ed Cumming, David Carter and all the divers that excavated the *Earl of Abergavenny*; Weymouth LUNAR (Land & Underwater Nautical Archaeological Research) Society who contributed £500 of match funding; and of course, all the National Lottery players out there whose funding has enabled us to shine a spotlight on this wonderful shipwreck collection.**



## INTRODUCTION

PART OF THE CREW OF THE ABERGAVENNY EAST INDIAMAN, DELIVERED FROM THEIR PERILOUS SITUATION  
HAND COLOURED AQUATINT FROM T. TEGG'S "ACCOUNTS OF SHIPWRECKS"  
COURTESY OF ROYAL MARITIME GREENWICH

## Project Summary

Find out more about Digital Skills for Heritage.

In November 2021, Portland Museum was awarded £59,014 from the National Lottery Heritage Fund to launch a digital volunteering initiative and help break down barriers to heritage. The funding is part of the National Lottery Heritage Fund's Digital Skills for Heritage initiative, which aims to raise digital skills and confidence across the whole UK heritage sector.



## Training in Digital Skills

The funding has enabled the museum to train and upskill volunteers in exciting new digital recording techniques. With help from training partners, MSDS Marine and the Nautical Archaeology Society (NAS), the *Diving into the Digital Archives of the Earl of Abergavenny* project volunteers have recorded the finds from the shipwreck in three different ways; finds have been digitally recorded as 3D models, electronically documented to the Modes collection management system; and finally their condition has been assessed and recorded.

## Training Manual

This training manual has been written for anyone wishing to digitally record collection items using the three methods detailed above. Used as a 'how to' by volunteers of the *Diving into the Digital Archives of the Earl of Abergavenny* project, the information will guide volunteers of similar projects in digitally recording their collections. Providing step-by-step instructions on how to record objects and share them via 3D content platform, Sketchfab, it is an adaptable guide for supporting heritage organisations with similar needs and aspirations.

This guide is based on Spectrum 5.1 standards and procedures and assumes that the museum already has the following policy in place:

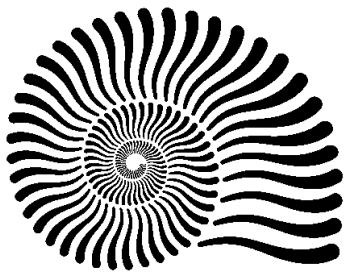
- Collection Management/Acquisition and Accessioning policy



Find out more about Spectrum standards.



VOLUNTEERS WORKING ON THE PROJECT.



**PORTLAND  
MUSEUM™**

This guide uses Modes for cataloguing, Polycam for digitising objects and Sketchfab for hosting 3D models.

We hope you find the manual useful for recording your collection.

Please do contact us at [portlandmuseum@gmail.com](mailto:portlandmuseum@gmail.com) if you have any further questions relating to this project or training manual.

**The Portland Museum Team**

THIS WORK IS LICENSED UNDER A CREATIVE COMMONS  
ATTRIBUTION 4.0 INTERNATIONAL LICENSE.



GLOSSARY

**Acquisition and accessioning policy:** a written document outlining the parameters and methodology under which the institution will legally accept ownership of items and include them in their collection.

**Artefact:** an object, made or altered by a human being, that is of cultural interest.

**Collection Management System:** a software programme used by cultural institutions to organise the metadata associated with their physical collection items.

**Collection:** in terms of a museum collection these are a group of items that are connected thematically, geographically or by ownership and are in the care of a museum.

**Condition assessment:** a visual and written inspection to establish the base level condition of an item on entry to the museum, and at regular intervals post entry, so that it can be referred to in the future to monitor any deterioration.

**Digital sharing platform:** an online system that allows files, photos and models to be shared publicly, for example, Sketchfab.

**DSLR:** Digital Single-Lens Reflex camera.

**Dissemination:** various methods of sharing information with a wide audience. Methods can include books, flyers, websites, podcasts, models, and TV programmes.

**Lightbox:** a cube, open at least at one end, allowing objects to be photographed with a solid background and uniform lighting.

**Metadata:** data about other information or items.

**Modes:** collection management software that creates a relational database that can manage a great range of information about historic items and can make this information searchable and easily retrievable.

**Multimedia:** images, videos, word documents and PDFs of associated information that can be attached to the Modes record.

**Museum wax:** a malleable product that can be moulded to fix an object to a base background so that edges, or sides, can be photographed.

**Nitrile gloves:** disposable gloves made of hard-wearing, synthetic rubber.

**Photogrammetry:** a technique which uses digital photos to create computer generated three-dimensional models of objects or landscapes that can be scaled and therefore measured.

**Polycam:** an application on a mobile phone or tablet that allows 3D models of items to be created by processing the images in the cloud.

**Polyethylene or Nitrile gloves:** loose fitting disposable gloves that provide basic protection.

**Polyethylene Glycol (PEG) wax:** preservative substance used to help conserve waterlogged wood.

**Receiver of Wreck:** government official who administers the law regarding maritime wrecks and salvage.

**Spectrum:** the UK collection management standard that is also used around the world.

**Termlist:** a lookup list of approved words

**Tyvek sheeting:** nonwoven fabric-like synthetic material used for its protective properties.



USEFUL LINKS



**ARCHAEOLOGICAL ARCHIVES: A GUIDE TO BEST PRACTICE IN  
CREATION, COMPILATION, TRANSFER AND CURATION**

[https://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-799-1/dissemination/pdf/AArchives\\_v2.pdf](https://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-799-1/dissemination/pdf/AArchives_v2.pdf)

**BRITISH ASSOCIATION FOR BIOLOGICAL ANTHROPOLOGY AND  
OSTEOARCHAEOLOGY (BABA0)**

BABA0 have a useful code of ethics for dealing with human remains.

<https://www.babao.org.uk/publications/ethics-and-standards>

**CANADIAN CONSERVATION INSTITUTE (CCI)**

CCI Notes deal with topics of interest to those who care for cultural objects.

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

**COLLECTIONS TRUST**

<https://collectionstrust.org.uk>

**THE INSTITUTE OF CONSERVATION (ICON)**

Find a conservator <https://www.icon.org.uk>

**MODES**

<https://www.modes.org.uk>

**MUSEUM ACCREDITATION**

[https://www.artscouncil.org.uk/sites/default/files/download-file/Accreditation\\_Standard\\_Nov2018\\_0.pdf](https://www.artscouncil.org.uk/sites/default/files/download-file/Accreditation_Standard_Nov2018_0.pdf)

**MSDS MARINE**

<https://msdsmarine.com>

**NAUTICAL ARCHAEOLOGY SOCIETY (NAS)**

<https://www.nauticalarchaeologysociety.org>

**POLYCAM**

<https://poly.cam>

**PORTLAND MUSEUM**

<https://portlandmuseum.co.uk>

**REPORTING WRECK MATERIAL**

<https://www.gov.uk/report-wreck-material/reporting-wreck-material>

**SKETCHFAB**

<https://sketchfab.com>

**SOCIETY FOR MUSEUM ARCHAEOLOGY (SMA)**

The SMA have lots of resources, guides and reports available.

<http://socmusarch.org.uk>

**SOUTH-WEST MUSEUM DEVELOPMENT**

<https://southwestmuseums.org.uk>

**SPECTRUM**

<https://collectionstrust.org.uk/spectrum>

**THE NATIONAL LOTTERY HERITAGE FUND**

<https://www.heritagefund.org.uk>



COLLECTION HANDLING

AND STORAGE

Find out more about best practice for handling collections.

## Object Handling

Anyone working with historic items should receive basic guidance and training in how to handle them; a careful approach is always required. Consideration should be given to what equipment is needed for handling, for example, are gloves needed?

The Collections Trust gives detailed guidance on best practice for safe handling of collections.



Here are the basic tips for ensuring minimal damage occurs to your objects while you work with them:

- Wash your hands before you handle objects and regularly whilst working with them. This will minimise the natural oils in your hands causing damage to the objects.
- Follow the guidance of professionals on when to wear gloves and do not be afraid to ask if you are not sure. While wearing gloves can reduce the chance of natural oils from your hands getting on the objects, dirty well-worn gloves can be even worse for objects than dirty hands. Ill-fitting gloves can reduce your dexterity and potentially cause damage to objects. In the past, cotton gloves were commonly used for handling objects, however, they reduce your dexterity and are more likely to catch on pages of books. The accepted standard is now to use nitrile or polyethylene gloves. Gloves may also be necessary for your own protection, for example if you are handling lead or other toxic items.
- Handle objects as little as possible to avoid accidental breakage and/or damage to the surface material.
- Handles on historic objects can be their weakest point. Never pick up an object by the handles. Always support items carefully using both hands.
- Avoid moving objects unless necessary and definitely never carry objects in your hands around a room. Always put an object in appropriate packaging i.e. a box or tray before moving it any distance.
- When examining, recording or photographing objects from different angles, put them on a tray, board or foam and move that to see all sides, rather than moving the object.



A VOLUNTEER  
DIGITALLY  
RECORDING  
AN OBJECT.  
NOTE THE  
NITRILE  
GLOVES THAT  
WERE USED  
TO MOVE THE  
OBJECT ONTO  
THE  
TURNTABLE.

## Storage

Not all objects are on display in a museum. Some will always be kept in storage and others might spend part of their museum life there. No matter where the objects are kept, it is important for them to be in a stable environment and appropriately shielded from potential damage. By keeping objects in appropriate storage, it is possible to minimise decay and damage.

It is important to have an orderly, dust and pest-free, stable environment in which to keep objects. This does not necessarily need expensive complicated air-conditioning units, this can be achieved to a certain extent with basic equipment that can be bought or donated depending on available finances.

### Shelving systems

- The shelving system must be orderly and have a numbering system so that you can find objects on shelves or know where to put them back.
- The shelves should be numbered consistently, for example from left to right and top to bottom so that it is easy to locate items on the shelves.
- The shelving system must provide a dust and pest-free environment to ensure no damage is caused to the objects.
- It is important to try and place the shelving system within a stable environment as rapid changes in temperature and humidity can cause damage to objects as they can react badly with hot to cold or dry to wet changes.
- The shelving system should be metal not wood as untreated wood can release volatile organic compounds which may react with objects and cause deterioration.
- Preferably, it should have doors, although a layer of plastic or Tyvek sheeting over the face of the shelves can achieve a similar effect of keeping the dust out and contributing to a stable environment.

### Packing materials

The next step is to have appropriate storage materials to package objects in. The main purpose of packaging is to minimise wear and tear, reduce the risk of accidental damage and contribute to the stable environment whilst still keeping the object accessible for monitoring, research or further condition assessments.

- Ready-made or even bespoke archival boxes can be bought and are fantastic for providing a safe and secure home for objects. However, a similar effect can be achieved with lower cost solutions.
- Plastic boxes with well-fitted lids can be used to safely store objects and contribute to the stable environment.
- Acid-free tissue and/or foam can be used to create a safe barrier for the object. However, objects should never be wrapped tightly (i.e. like a present) long-term as the inevitable unwrapping and wrapping will cause wear and tear on the object. Instead, create a nest of foam or tissue for the object to sit in and have a protective leaf of tissue over the top.

Find out more about accreditation with Arts Council England.

- It can be difficult to maintain museum standards of storage for larger objects but it is not impossible. Larger objects should be stored in the most stable environment that is achievable.
- Portland Museum uses Spectrum standards to maintain its accreditation with Arts Council England.
- Objects should be stored by material type, for example, metal with metal and leather with leather. This will help prevent conservation issues arising when different materials cross contaminate each other. If possible, metals should be separated into type and stored with silica gel sachets and humidity indicator cards.
- Package objects for long-term storage so that they are not crowded and easily seen without needing to take them out of bags or boxes to identify them.



A METAL BADGE  
FROM THE EARL  
OF ABERGAVENNY  
STORED IN A BOX  
WITH PLENTY OF  
PADDING.  
THE OBJECTS  
OBJECT ENTRY  
NUMBER IS  
CLEARLY VISIBLE  
ON THE LABEL.

and Museum  
 Carter  
 No. 5  
 Address: \_\_\_\_\_  
 Tel No: \_\_\_\_\_

**REASON FOR ENTRY** (tick as applicable, and sign)  
 Gift - I offer to give the object(s) listed above to the museum's governing body  
 Sale - I offer to sell the object(s) listed above to the museum's governing body for a period of \_\_\_\_\_ months  
 Loan - I offer to loan the object(s) listed above for the use of the museum's governing body for a period of \_\_\_\_\_ months  
 Identification - I leave the object(s) listed above for identification & undertake to collect them no later than 4 weeks from today

I confirm that the information given on this form is correct to the best of my knowledge and belief, & that I accept the terms and conditions described overleaf.

**Signed:** \_\_\_\_\_ Date: \_\_\_\_\_  
**ADDITIONAL AGREEMENT (GIFT/SALES ONLY)** (tick as applicable, and sign)  
 I, the owner, confirm that I have undisturbed title to the object(s) listed above, with full power to dispose of the same and transfer such title to the museum's governing body (G)  
 I, the depositor acting on behalf of the owner(s), confirm that the owner(s) have undisturbed title to the object(s) listed above, with full power to dispose of the same and transfer such title to the museum's governing body, & that I am authorised by the owner(s) to do so on their behalf in that respect.

The title in the object(s) listed above, & subject to the conditions overleaf, is hereby transferred to the governing body of the museum.

**SIGNATORY** (tick as applicable, and sign)  
 \_\_\_\_\_ (owner's governing body)  
 \_\_\_\_\_ (depositor)  
 \_\_\_\_\_ (donor, loan or purchase of the object(s))

I, the return of the object(s) described above in a satisfactory condition  
 \_\_\_\_\_ (date of loan)  
 \_\_\_\_\_ (date of museum)

Date: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Date: \_\_\_\_\_

SHEET 1 (MUSEUM USE)  
 THE BRITISH MUSEUM  
 100, GREAT PORTLAND STREET, LONDON, W1A 6BT  
 TEL: 020 7323 2500 FAX: 020 7323 2501  
 EMAIL: MUSEUM@BM.BM.AC.UK



CATALOGUING OBJECTS

# Object Entry

PLEASE NOTE THAT THIS OBJECT ENTRY STAGE MAY NOT BE NECESSARY IF THE ITEM OR COLLECTION THAT IS BEING WORKED ON IS ALREADY PART OF THE ACCESSIONED MUSEUM COLLECTION. IF THAT IS THE CASE, SKIP TO THE CATALOGUING HISTORIC ITEMS SECTION.

When an object enters a museum, either temporarily or permanently, there must be a procedure in place to keep track of it and any associated information. It is not the place of this guide to fully define this procedure, but the procedure used by Portland Museum is detailed. Portland Museum procedures closely follow the Spectrum standards.

IF IN DOUBT, ASK THE MUSEUM CURATOR OR THE VOLUNTEER MANAGER ABOUT THE SYSTEM BEING USED.

Newly accessioned items should be placed in a specific area of the museum and may need to be placed in archival quality packaging while they are being processed. This is to ensure the safety and security of the item and its associated information.

Part of this process is completing an Object Entry form which is usually a triplicate form. Ensure that this form is completed with a pen on a hard surface so that the writing is recorded on all three layers.

- The first **WHITE** coloured copy is kept for museum records
- The second **YELLOW** coloured copy goes to the donor
- The third **BLUE** coloured copy stays with the object

Find out more about Spectrum standards.

It is essential to complete all relevant parts of the Object Entry form, including:

- Object Entry Number (the next consecutive number in the system)
- Donor information (name, address and phone number)
- Owner information (name, address and phone number)
- Description (manufacturing details, history and condition, and number of parts)
- Reason for the item entering the museum (potential acquisition, loan, research)
- Legal statement, in regard to ownership
- Museum representative signature and date
- Information about returning item (if necessary)



Start completing this form by writing the museum name and the form number - which should be the next consecutive number in the system. Record the details of the current owner of the item in the next boxes. This is particularly important in case any further clarification is required after the item is left at the museum.

Next complete the box requiring a description of the item. This should include information about the size and construction material/s of the item as well as its general condition. Details about the history and manufacture of the item can be included if known. Any information that the owner can tell you about the item should be recorded here. Finally, select the reason for the item entering the museum and make sure the appropriate sections are signed and dated.

<b>Museum name and address:</b> <i>Portland Museum</i> <i>217 Waksham, Easton, Portland,</i> <i>Dorset DT5 1HS</i>		<b>Form number:</b> /
<b>Depositor:</b> <i>Tery Dactyl</i> Address: <i>1 Prehistory Road</i> <i>Weymouth</i> Email: <i>Tery@DinosaurTelecom.co.uk</i> Tel: <i>01234 567 891</i>	<b>Owner (if different):</b> Address:  Email: Tel:	
<b>DESCRIPTION OF OBJECT/COLLECTION</b> (Briefly list the object(s), noting damage and recording information such as when, where, or how it was found or used. Continue on a new sheet if needed.)		<b>Total number of items:</b> /
<i>A copper rove and copper pin fragment which would have been used to attach the ship's outer and inner hull planks to its frame.</i>  <i>Clearly stamped on the pin shaft are the initials OW.</i>		
<b>Current location:</b> <i>Museum Store 1</i> (On the white copy only, note where the object(s) have been put initially. After that, update your movement records elsewhere as needed.)		
<b>REASON FOR ENTRY</b> (Tick as applicable and sign.)		
<input checked="" type="checkbox"/> <b>Gift</b> - I offer to give the object(s) listed above to the museum's governing body.		
<input type="checkbox"/> <b>Sale</b> - I offer to sell the object(s) listed above to the museum's governing body (price sought £.....).		
<input type="checkbox"/> <b>Loan</b> - I offer to loan the object(s) listed above for the use of the museum's governing body for a period of ..... months.		
<input type="checkbox"/> <b>Identification</b> - I leave the object(s) listed above for identification and undertake to collect them no later than 4 weeks from today.		
I confirm that the information given on this form is correct to the best of my knowledge and belief. I accept the terms and conditions described overleaf and have been made aware of the museum's privacy notice.		
<b>Signed:</b> <i>TDactyl</i>		<b>Date:</b> <i>1/1/2023</i>
<b>ADDITIONAL TRANSFER OF TITLE AGREEMENT (GIFT/SALE ONLY)</b> (Tick as applicable and sign.)		
<input type="checkbox"/> <b>I, the owner</b> , confirm that I have undisputed title to the object(s) listed above, with full power to dispose of the items and transfer such title to the museum's governing body, OR		
<input type="checkbox"/> <b>I, the depositor acting on behalf of the owner(s)</b> , confirm that the owner(s) have undisputed title to the object(s) listed above, with full power to dispose of the items and transfer such title to the museum's governing body, and that I am authorised by the owner(s) to act on their behalf to that effect.		
The title in the objects listed above, and subject to the conditions overleaf, is hereby transferred to the governing body of the museum.		
<b>Signed:</b>		<b>Date:</b>
<b>MUSEUM SIGNATORY</b> Receipt of the object(s) described above is hereby acknowledged.		
<b>Signed:</b> <i>Super Curator</i> On behalf of the museum's governing body.		<b>Date:</b> <i>1/1/2023</i>
<b>RETURN OF THE OBJECT TO OWNER</b> (Tick as applicable and sign.)		
I, the depositor/owner, acknowledge the return of the object(s) described above in a satisfactory condition following:		
<input type="checkbox"/> Identification <input type="checkbox"/> The end of the period of loan		
<input type="checkbox"/> The museum's governing body declining to accept the donation, loan or purchase of the object(s)		
<b>Signed:</b>		<b>Countersigned (for museum):</b>
		<b>Date:</b>



# Cataloguing Historic Items

PLEASE NOTE, THIS STAGE MAY NOT BE NECESSARY IF THE COLLECTION THAT IS BEING WORKED ON HAS ALREADY BEEN CATALOGUED. IF THAT IS THE CASE, PLEASE SKIP TO THE CONDITION ASSESSEMENT SECTION.

Once the decision has been made to add items to the museum collection, they must be entered into the museum catalogue or Collections Management System (CMS). This catalogue must contain standard information about each item in the museum and must include the following information:

- Unique identification number
- Keywords
- Physical description of item including measurements, material types, number of items and condition assessment
- Historical associations
- Permanent location in museum and display location
- Conservation or handling notes
- Hazard warnings
- Method of acquisition and donor information
- Ownership and copyright information
- Photographs, drawings and 3D models
- Conservation reports

*Find out more about Modes.*



Details about each of these points above will be covered in more detail below.

## Modes

Modes is a Collections Management System that is used in many UK and overseas museums. It is the system that is used in this guide, and by Portland Museum, to catalogue objects.

This relational database can manage a great range of information about historic items and can make this information searchable and easily retrievable. Other Collections Management Systems are available.

## Using Modes

With a small amount of training, Modes is an intuitive management system that can direct the user to record the appropriate information for each object.

Modes is a program that is downloaded to a computer and accessed via unique login details for each individual. This allows catalogued records to be traced back to the person who entered the information in case of any queries or amendments.

Training, support and helpful user forums are available from Modes, along with a series of user guides.

## Getting Started

Access to Modes is via a licence that can be purchased. The person assigned by the museum to be Modes' Administrator will set up access for individuals. Each person using Modes should have their own unique login identity.

Read the Modes user guides (note you have to be logged in to access these!)

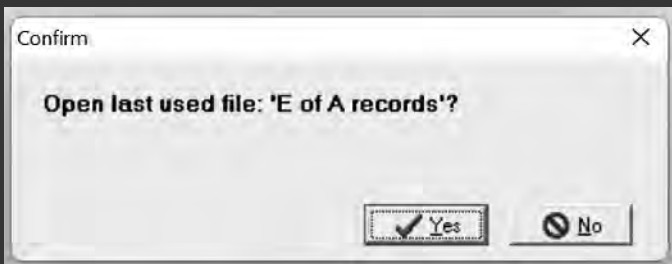
THE LOGIN PAGE  
ON MODES



Modes has a series of user guides to help with the recording process.

Within Modes it is possible to have up to nine separate catalogues (called data files) based around different collections you might have in the museum. Make sure that you are cataloguing in the correct data file.

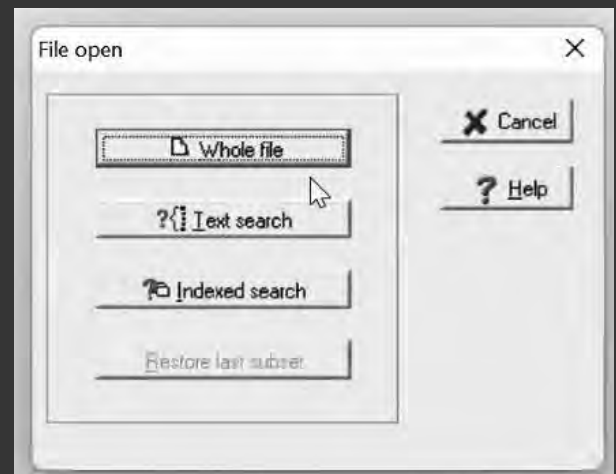
IN THE EARL OF ABERGAVENNY PROJECT, THE DATA FILE TO BE USED FOR CATALOGUING THE COLLECTION IS 'E OF A RECORDS'.



1. Select 'yes' to open the 'E of A' project file in Modes



2. Select 'Whole file' to open the project file.



3. The project files will open in a grid format that looks like this.



Object number	No of objects	Object name	Brief description	image	Current location	Date recorded
EOA:2022.4	27	handles	assorted handles, mostly cutlery. 12 wood, 15 metal		gallery 1 cabinet 13 storage	30.3.2022
EOA:2022.5	1	plank	section of outer hull planking with copper sheathing and nails.		msu unit shelf 1 box 1	30.3.2022
EOA:2022.6	1	copper disk	large copper disc		msu unit top box 8	30.3.2022
EOA:2022.7	4	copper disk	4 small copper discs		msu unit shelf 3 box 7	30.3.2022
EOA:2022.8	1	pipe (architectural)	lead pipe		msu unit shelf 3 box 7	30.3.2022
EOA:2022.9		gun flint	box of gun flints		msu unit shelf 3 box 7	30.3.2022
EOA:2022.10	5	whetstone	collection of whetstones		gallery 1 cabinet 13 storage	30.3.2022

## Pre-populated Templates

When cataloguing items from the same collection or same point of origin, it is recommended to use templates within Modes to pre-populate the item record with similar information to ensure uniformity of data and to speed up the cataloguing process.

THE EARL OF ABERGAVENNY PROJECT CREATED A TEMPLATE THAT PRE-POPULATED EACH ITEM RECORD WITH THE FOLLOWING INFORMATION AS IT WAS THE SAME FOR EACH ITEM:

- NAME OF WRECK FROM WHICH THE ITEM CAME
- LOCATION
- CONTEXT DATE
- DEPOSITOR

This pre-populated template for the *Earl of Abergavenny* collection has information about where the objects were found, by whom, when and their approximate age.

The screenshot shows the 'Modes Complete' application interface. The main window displays a record for 'Key EOA-2022 51'. The record is structured as follows:

STRUCTURE	DATA
ConditionCheck	
Condition	fair
Date	
Note	Check condition and water levels weekly. next water cha
Authority	
Ownership	
Organisation	owner Crown Estate
Acquisition	
Method	deposit
Person	acquired from Terry Dactyl
Date	5.2.2022
Conditions	Pending decision by Receiver of Wreck
Entry	
EntryNumber	
RelatedObject	
ObjectIdentity	
References	
Filename	C:\Users\admin\Desktop\E of A Condition Asses
SummaryText	
Filename	
SummaryText	
Filename	C:\Users\admin\Desktop\E of A Condition Asses
caption	
Filename	C:\Users\admin\Desktop\E of A Condition Asses
caption	
Filename	C:\Users\admin\Desktop\E of A Condition Asses
caption	
Filename	C:\Users\admin\Desktop\E of A Condition Asses
caption	
Filename	C:\Users\admin\Desktop\E of A Condition Asses
caption	
Recorder	Legge, PEG
Date	
Notes	

The status bar at the bottom indicates 'Editing Record 59 of 275' and '275 records'.

The template also includes further details about the object including how it entered the museum and who the donor is.

## Creating a Record

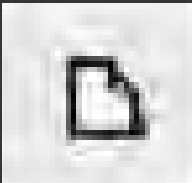
First click the button at the bottom left of the window to switch to 'editing' mode.

After creating the pre-populated template, it is time to create a unique record for an object or group of objects. Scroll to the bottom of the list of already catalogued items. Click on the 'create new record' button in the top control panel as shown below.

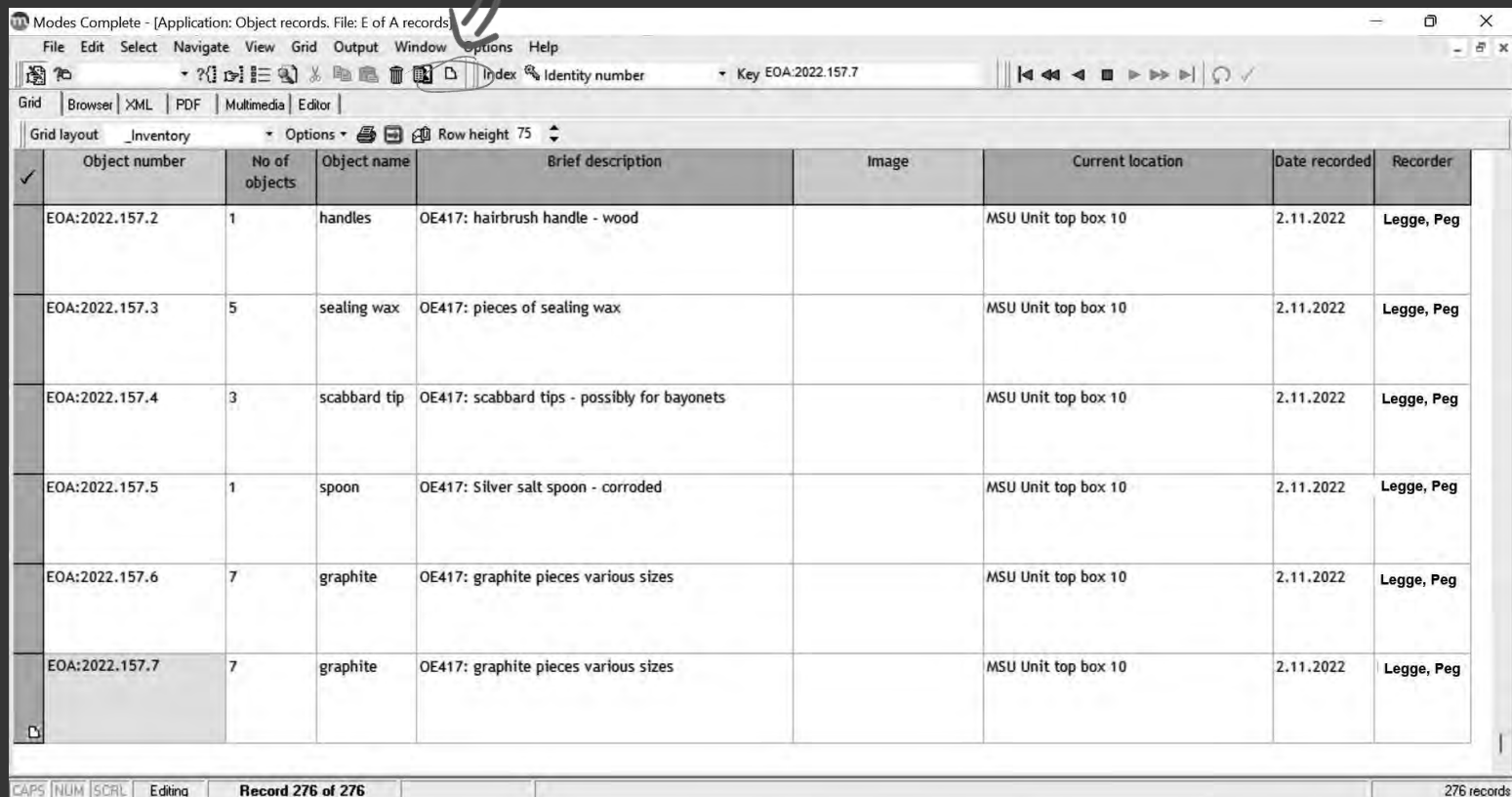
A menu will pop up. Select 'new record from template'. Finally, select 'E of A record template' and press ok. This will create a new record at the bottom of the file and will give it the next available number record ID.

At this stage you are in grid mode and need to switch to editor mode to be able to add information.

*If you get stuck Modes has lots of useful user guides (note you have to be logged in to access these!).*



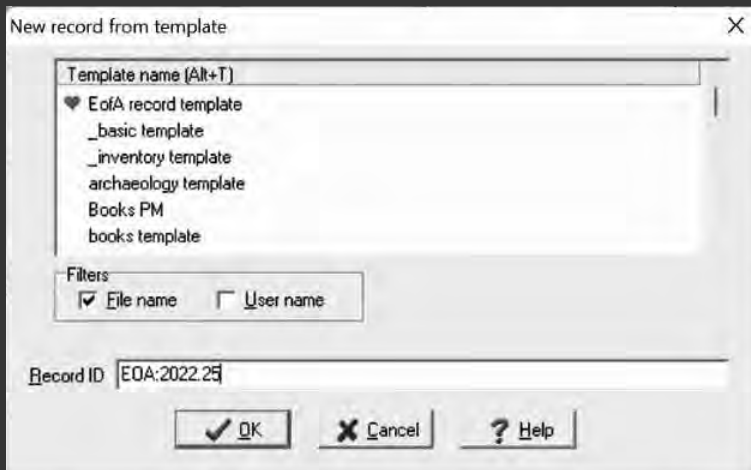
*2. Create new record*



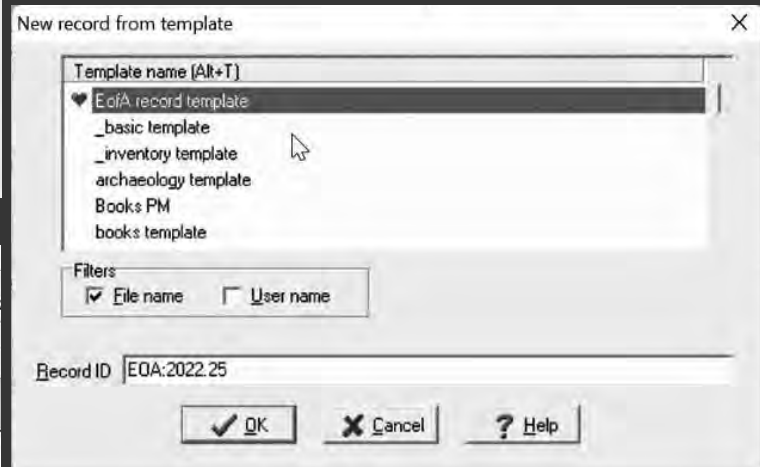
Object number	No of objects	Object name	Brief description	Image	Current location	Date recorded	Recorder
EOA:2022.157.2	1	handles	OE417: hairbrush handle - wood		MSU Unit top box 10	2.11.2022	Legge, Peg
EOA:2022.157.3	5	sealing wax	OE417: pieces of sealing wax		MSU Unit top box 10	2.11.2022	Legge, Peg
EOA:2022.157.4	3	scabbard tip	OE417: scabbard tips - possibly for bayonets		MSU Unit top box 10	2.11.2022	Legge, Peg
EOA:2022.157.5	1	spoon	OE417: Silver salt spoon - corroded		MSU Unit top box 10	2.11.2022	Legge, Peg
EOA:2022.157.6	7	graphite	OE417: graphite pieces various sizes		MSU Unit top box 10	2.11.2022	Legge, Peg
EOA:2022.157.7	7	graphite	OE417: graphite pieces various sizes		MSU Unit top box 10	2.11.2022	Legge, Peg



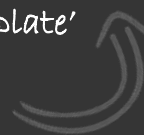
*1. Switch to editing mode*



3. From the pop up menu select 'New record from template'.



4. Select 'E of A record template' and press ok.



Modes Complete - [Application: Object records. File: E of A records]

File Edit Select Navigate View Grid Output Window Options Help

Index Identity number Key EOA2

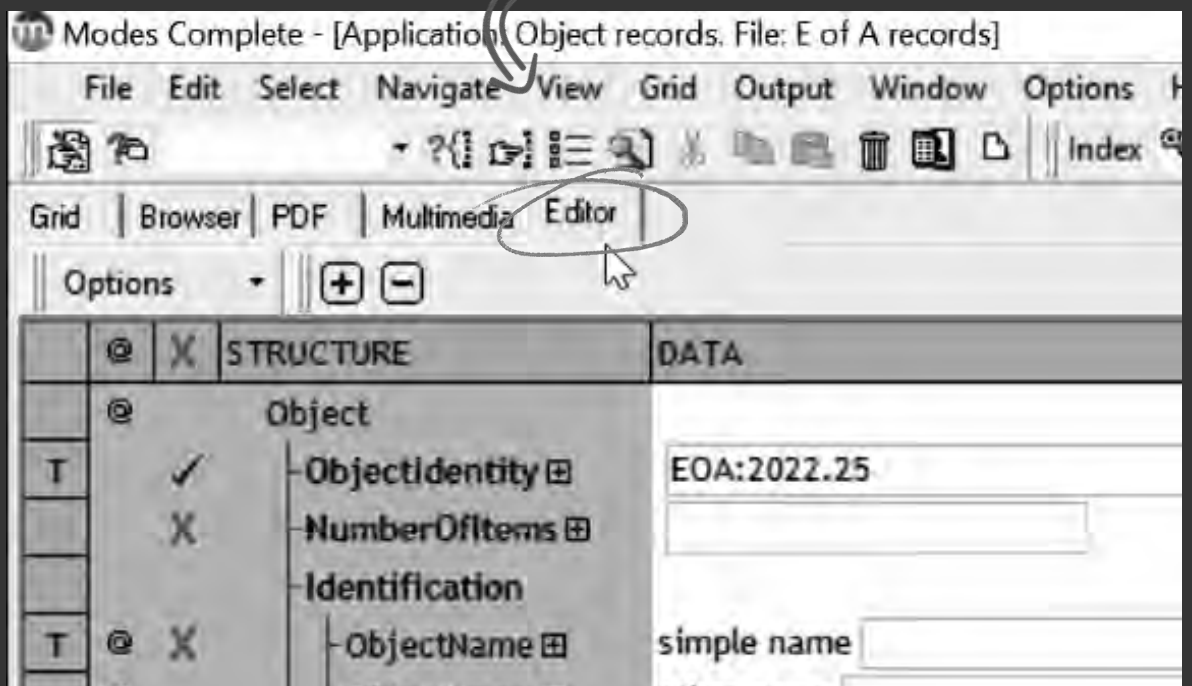
Grid | Browser | PDF | Multimedia | Editor

Grid layout \_Inventory Options Row height 75

Object number	No of objects	Object name	Brief description
EOA:2022.22	5	vessel	5 glass vessels with stoppers
EOA:2022.23.1	15	coin	15 loose biscuits
EOA:2022.23.2	5	coin	5 coins in separate poly cases
EOA:2022.23.3	1	coin	1 chinese coin
EOA:2022.24	1	ship	A thick ten. A wooden piece of the ship's rigging with a pulley wheel inside.
EOA:2022.25			



5. Your new record appears (see the green box) in grid mode.

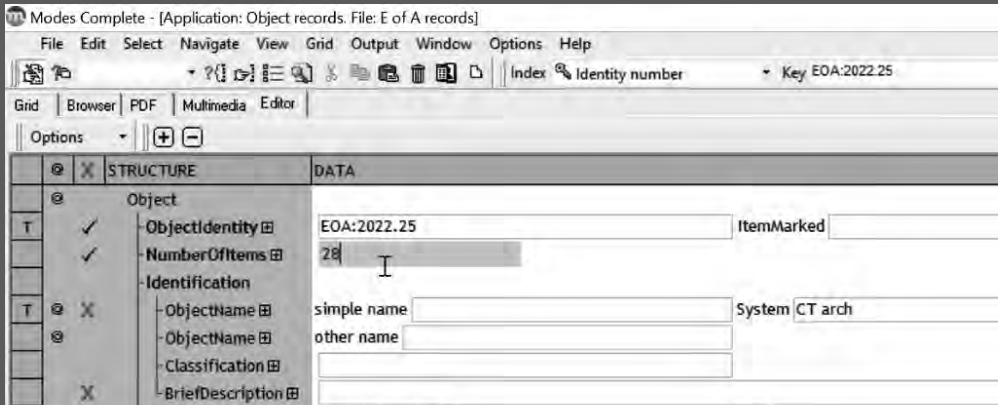


6. To start adding information switch to 'Editor' mode which is circled here.

## Object Identity

In Editor format, the 'Object Identity' field has already been populated with the next consecutive object number. There is also other information that has been pre-populated from the template, for example in the summary text and place name fields.

The next fields to be completed are the 'number of items' which will usually be '1' unless cataloguing a group of items.

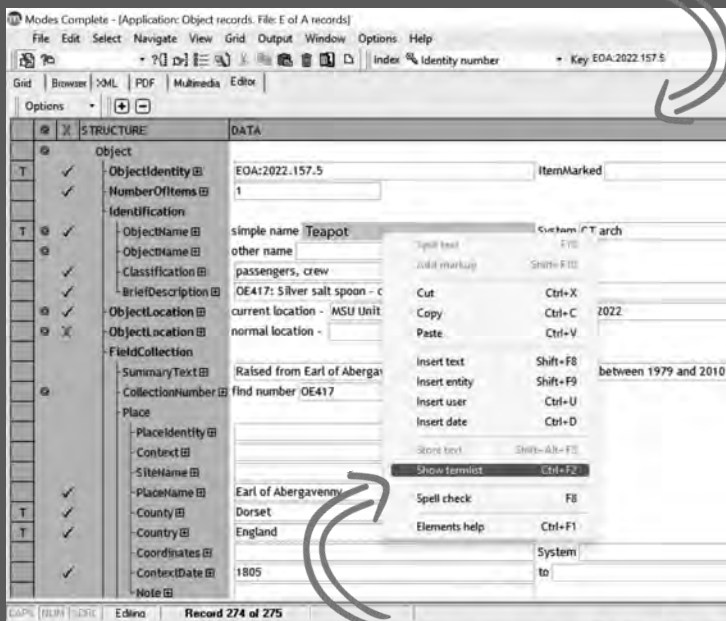


Number of items (see the pink box) will normally be 1 unless cataloguing a group of objects. In this example 28 objects were being catalogued.

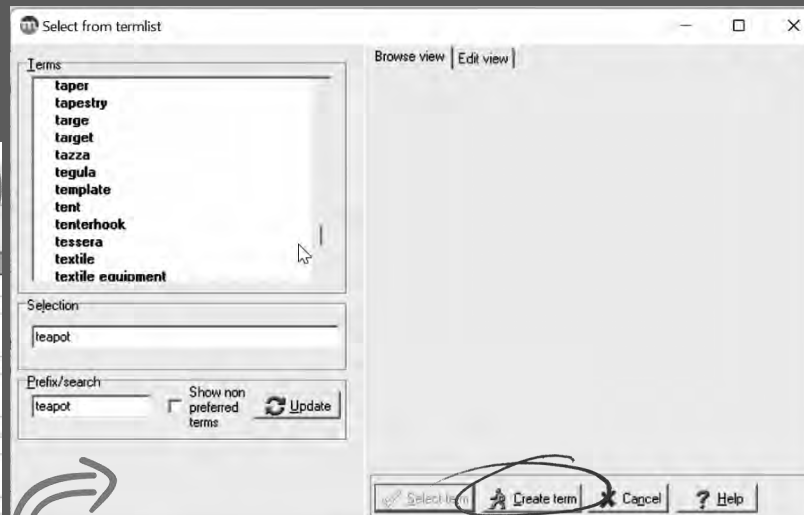
## Identification

The next important term after that is the 'simple name'. Enter one or two words providing a broad name for the item. To maintain consistency, it should be selected from the alphabetical list of approved terms that appears when you click on the box and scroll down to select 'Show termlist'. If a search term does not appear check if another approved term is a suitable name for the object. If not a new term can be added.

1. Enter one or two words in the pink box for a simple name—in this case teapot.

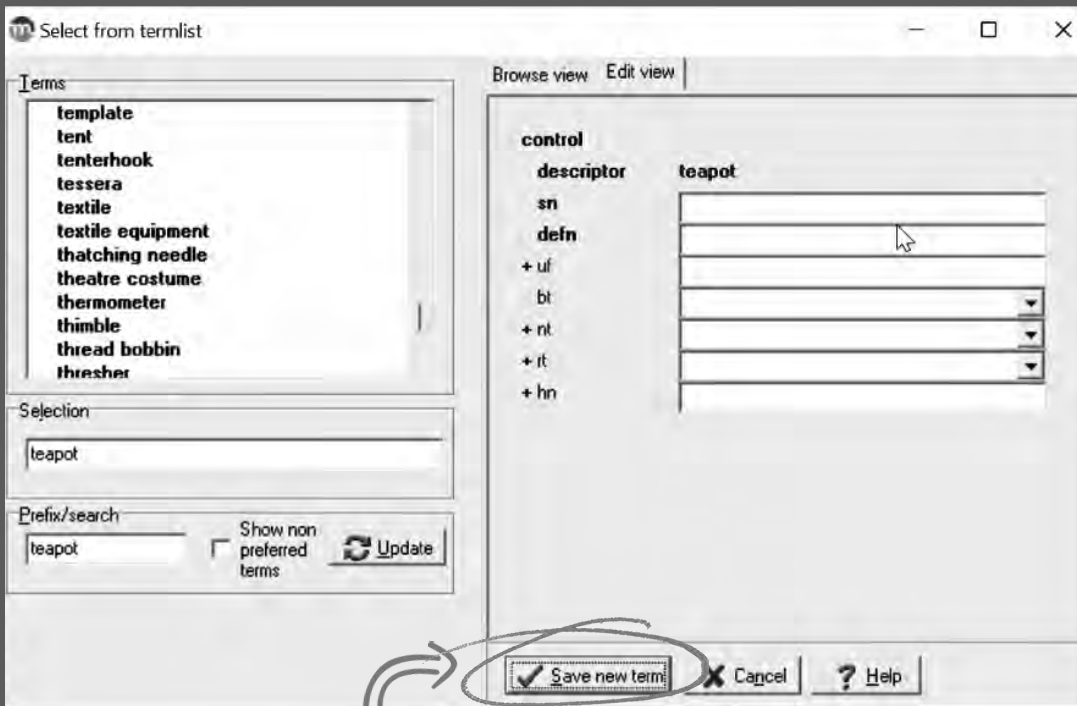


2. Select 'show termlist' from the pop up box.



3. A pop up box will appear showing options in the look up list. There is no teapot in this list but it can be added by selecting 'create term'.

Tip: First search the term list to see if there is another approved term that is a suitable name.



4. Select save new term to add it as a new term in the termlist.

Other fields you need to complete are:

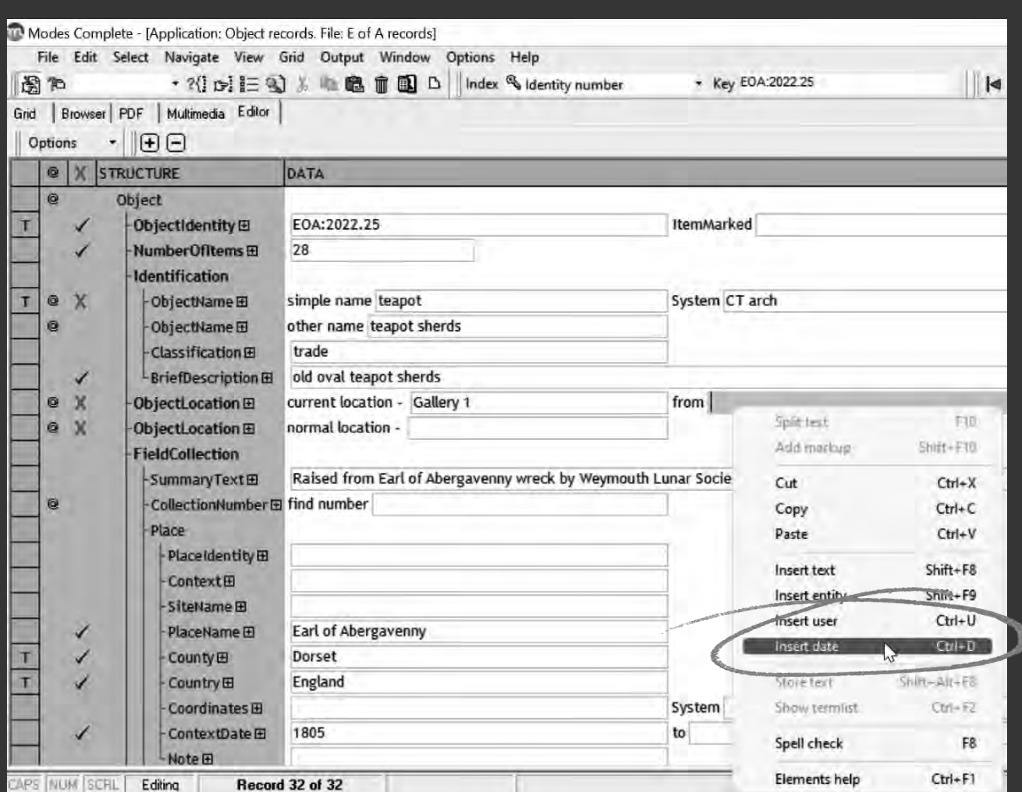
**Other name:** this is an important category that aids in search functions. This can be a more detailed or alternate name for the item.

**Classification:** This field helps group items into themes to help develop museum displays. The terms used in this field can be set by your museum team based on the themes within your museum or specific collections.

**Brief Description:** A short sentence to describe the object/s should be completed next. This should be quite brief and provide an overall description of the item/s, e.g. *OE368: Copper rove & copper pin fragment.*

## Object Location

Next, the physical location of the object is recorded for both its current location and their normal location - in case it is moved for display, conservation, research or loan. If the object is in its normal location (whether that be on display or in storage) both the 'normal location' and 'current location' fields should be filled with the same information. Neither field should ever be left blank.



Select the pink field to bring up the insert date pop up.

Some information in the field collection summary will be pre-populated from the template so will already be completed for you!

STRUCTURE	DATA
Object	
ObjectIdentity	EOA:2022.25
NumberOfItems	28
Identification	
ObjectName	simple name teapot
ObjectName	other name teapot sherds
Classification	trade
BriefDescription	old oval teapot sherds
ObjectLocation	current location - Gallery 1
ObjectLocation	normal location - Gallery 1
FieldCollection	
SummaryText	Raised from Earl of Abergavenny wreck by Weymouth Lunar Society between 1979 and 2010
CollectionNumber	find number
Place	
PlaceIdentity	
Context	
SiteName	
PlaceName	Earl of Abergavenny
County	Dorset
Country	England
Coordinates	
ContextDate	1805
Note	

## Field Collection

The summary text in this field is pre-populated from the template as all items were 'raised from Earl of Abergavenny wreck by Weymouth Lunar Society between 1979 and 2010.' The place name, county, country and date are also pre-populated.

## Description

**Summary Text:** This section begins with a free-form text box for the summary text which should include a short summary description of the item and its condition, e.g. *A copper rove and copper pin fragment which would have been used to attach the ship's outer and inner hull planks to its frame. Clearly stamped on the pin shaft are the initials OW.*

**Material:** The material type should be recorded in the next field. A look-up list will help ensure that terms stay consistent, this allows the records to be much easier to search or quantify in future.

**Measurements:** Adding measurements is easy too. Make sure you are consistent with the numbering system, for example, agree to always use millimetres, centimetres or meters depending on which is most appropriate to the collection you are working with and to the standards used by your museum.

**PORTLAND MUSEUM ALWAYS USES MILLIMETRES UNLESS THE OBJECT IS OVER A METRE.**

**Inscriptions:** If there are any inscriptions make sure to record them, what they are, and where they are found.

**Completeness:** The level of completeness is also key to record. There is a look up list to make sure the terms used are consistent.



## Condition Check

Upon entry to the museum or when cataloguing an item, a condition check must be undertaken.

See the **Condition Assessment** section below for more details. This is to establish the base level condition of the item on entry so that it can be compared to in the future to monitor any deterioration. This is also the section to record any handling requirements or information about hazards.

Modes has look up lists to ensure consistent terminology for the item's overall condition.

*Find out more about condition checks in helpful guides from the Collections Trust.*



*Helpful guides from South West Museum Development on collections care and management.*

The three options are defined as:

Good – physically stable with some signs of wear.

Fair - minor damage, some losses/deterioration.

Poor - wear, damage, deterioration and loss to a large proportion of the item.

There is also a look up list for the date of assessment function. It is important to include a note about when the item should next be condition checked. This will be a different length of time for each item depending on its material type and condition. Anyone can assess the condition of an object using guidance from museum resources.

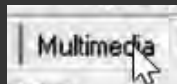
If you have any concerns about the state of an object you should refer it to museum staff to assess whether it should be seen by a professional conservator.

## Entry Number

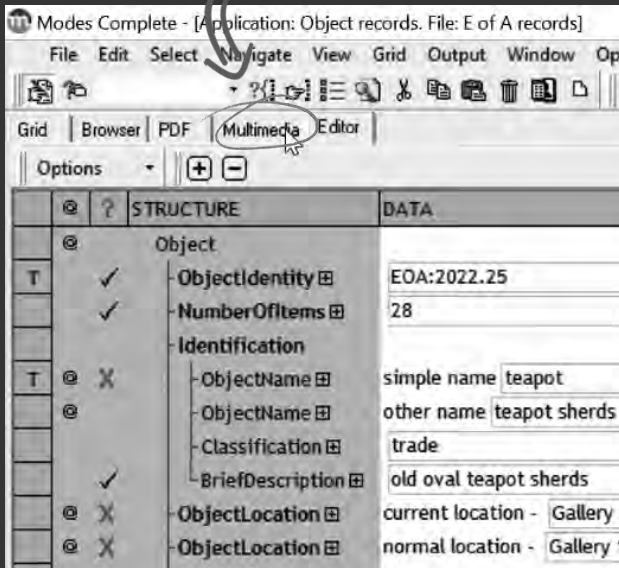
The next field is 'entry number' which will relate to the object entry form initially created when the item was brought into the collection.

## Adding Multimedia

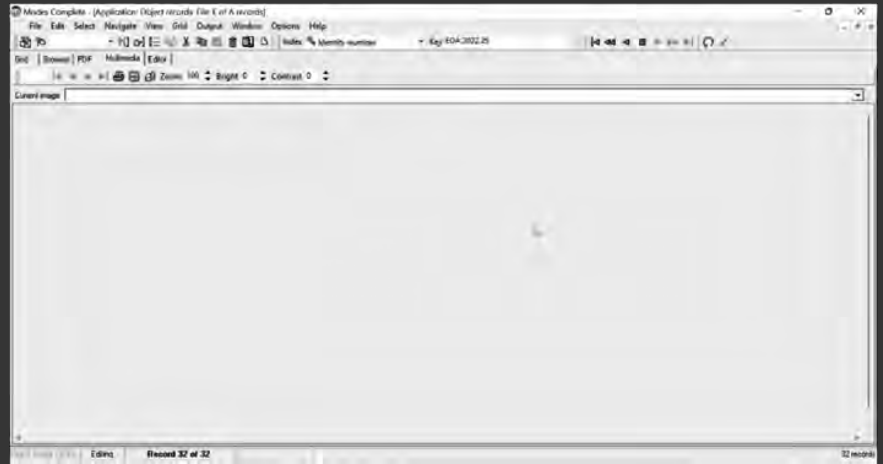
Adding images of the object to the record is the next step. The pictures below explain the process.



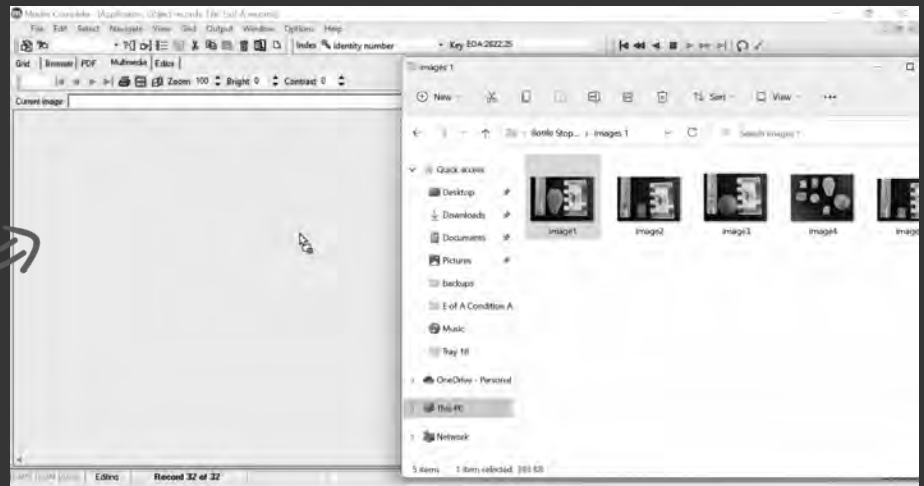
1. Select the multimedia tab here.



2. A new section of Modes that looks like this will appear.



3. Open file explorer and you can drag files across into the Modes multimedia area.



4. The images appear in this pop up within Modes.



5. Other file types can be added this way too, for example, you could upload a condition assessment report as a PDF.

Read the complete Modes guide to adding images and other multimedia.



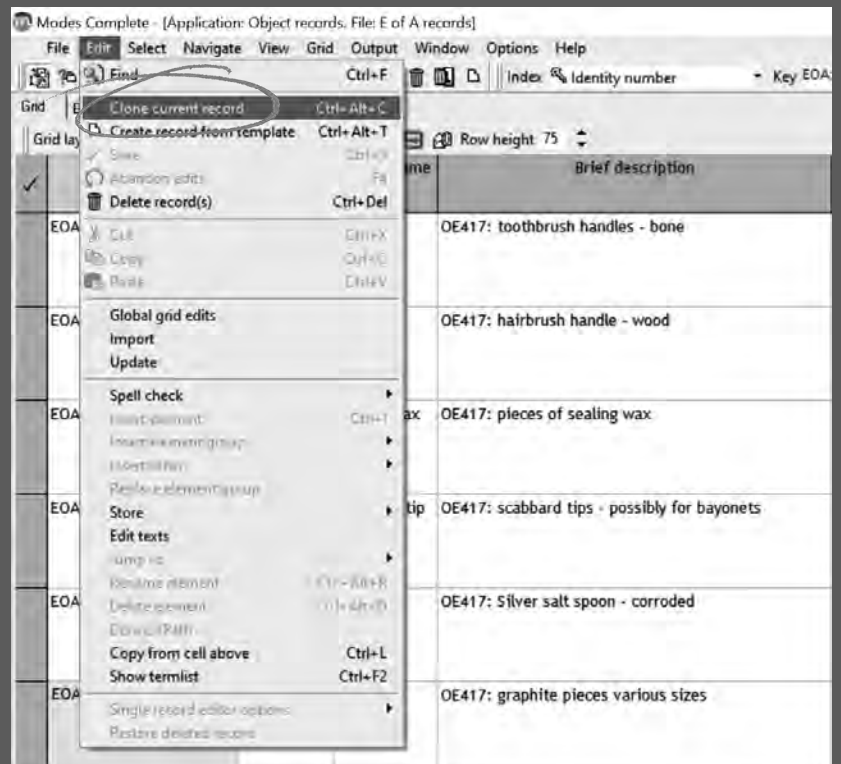
## Recorder

The final step in the process is to record your name on the record in the 'Recorder' field so that any future queries about the record can be directed to you. Make sure you add the date you created the record here too.

## Cloning (Duplicating) Records

Often, separate items can require similar information to be recorded in the catalogue. This could be because the overall item has multiple parts (for example, think of a tea set made up of lots of items) or it is broken into multiple parts. Or sometimes you might be cataloguing multiples of very similar items, for example, a collection of buttons. In these instances a Modes record can be cloned and then the details can be adjusted as relevant for each object, rather than starting a record from scratch.

1. Go to Edit, then select 'Clone current record'.



Object number	No of objects	Object name	Brief description	Image
EOA:2022.157.1	3	handles	OE417: toothbrush handles - bone	
EOA:2022.157.2	1	handles	OE417: hairbrush handle - wood	
EOA:2022.157.3	5	sealing wax	OE417: pieces of sealing wax	
EOA:2022.157.4	3	scabbard tip	OE417: scabbard tips - possibly for bayonets	
EOA:2022.157.5	1	spoon	OE417: Silver salt spoon - corroded	
EOA:2022.157.6		graphite	OE417: graphite pieces various sizes	

Unique record ID

EOA:2022.157.7

OK

Help

Cancel

2. A pop up box will appear. Adjust the unique number to the next in the sequence and then press ok. The new record will appear at the bottom of the inventory ready to be amended.

Tip: If you are unsure what the next number is look at the number in the green box for the previous number.



# CONDITION ASSESSMENT

Find out more about conservation and get help finding a conservator from ICON.

## Caring for the Collection

Condition assessments are a way to maintain the integrity of the museum collection and prioritise at-risk objects for intervention and conservation.

Condition assessments establish which objects are stable and can be kept on display or in storage for several years and which objects are fragile and need regular checking for further degradation and possible conservation intervention.

Objects should have a condition assessment when they enter the collection and then be reviewed at regular intervals. The frequency of which they are reviewed is determined by their main material type, their level of conservation and integrity, and where they are stored.

### Material Types

The material types of objects will have a great effect on their condition and how often they need to be assessed. If conservation advice is required, then the Institute of Conservation (ICON) can help you find a conservator. For mixed collections, such as the collection from the *Earl of Abergavenny*, there is no one stop shop for advice. It should be presumed that accessioned material will be dry but with marine collections there is always the chance that material is passed to the museum wet

**Glass:** When assessing glass objects, look for chips and cracks that are likely to expand in time. These should be measured regularly to monitor whether they are increasing in length or sections are breaking off. Often, historic glass can have a luminous rainbow appearance. This is due to delamination of the glass and can result in an unstable flaky surface.

**Ceramics/Pottery:** Similarly with ceramic items, they are most likely subject to cracks and chips and these should be monitored to see if they are increasing in size. Apart from that, ceramics tend to be quite stable.

**Iron:** If iron is exposed to water it turns orange, which is a sign of rust. When iron is underwater for a long time it reacts with the seawater and forms very distinct 'concretions' that can often preserve objects within them.

A MARINE CONCRETION IS SIMPLY A MASS OF CORROSION WHICH CAN INCLUDE SEDIMENT AND SHELLS AS WELL AS DIFFERENT OBJECTS THAT WERE NEAR IT ON THE SEABED AND HAVE COME PART OF THE CONCRETION.

When brought out of the water, iron objects need extensive conservation to take them to a relatively stable condition. They will then need to be kept in a stable, dry environment and will need ongoing regular monitoring. It should be noted that in order to understand a concretion and what is, or what was, inside it then it needs to be X-rayed by a conservator. Even empty voids within a concretion can reveal information and tell a story about items that are no longer physically here but have left their impression. Never attempt to remove concretion or break off parts.

**Bronze/Copper:** These objects tend to go green in colour as they corrode. The amount and vibrancy of the green needs to be monitored as this indicates how stable the item is. When brought out of the water, bronze objects will need some conservation to remove the salts.





**Lead:** Overall, lead is fairly stable but white powder on lead can indicate it is actively corroding and is dangerous to human health. Lead should always be treated with caution and always handled with gloves.

**Wood:** Wood that has been removed from an underwater environment should be impregnated with Polyethylene Glycol (PEG) wax by a conservator and then dried slowly or dried using a freeze dryer. Depending on the size of the item, this process can take years or even decades. Once conservation treatment has been completed it will need to be kept in a stable dry environment and monitored for change.

**Bone:** Bone surfaces can be marked easily. Bone objects should therefore be treated very carefully to prevent deterioration. Unless an expert has identified it as animal bone, there is the chance that it is from a human and therefore should be treated respectfully.

**Leather:** When leather is retrieved from a marine environment, like wood, it ideally needs to be conserved immediately. Depending on how successful that treatment was, the leather can still be subject to deterioration from environmental conditions. Therefore, it should be kept in a stable environment and monitored regularly. If it is wet, then keep it wet.



## What to record

The material type and current condition of an object will determine the amount of information recorded and how it is recorded, for example:

- A gold coin is made of a fairly stable material and usually requires minimal conservation after being removed from a marine environment. A written description with photos of both sides should suffice, along with instructions to check regularly at long intervals, every few years.
- A glass goblet is made of an intrinsically fragile material which is likely to break or delaminate easily. Photographs may not reveal the fine cracks or chips in glass and therefore it might be necessary to complete drawings of the condition of the goblet.
- In the right conditions, wood from the underwater environment can be very well preserved, and with the correct conservation treatment and storage environment, it can last a long time in a museum context. Depending on the level of detail preserved in the wood, a written description plus photos and drawings might be necessary, even if it is in good condition. Regular checking might be down to every five years.

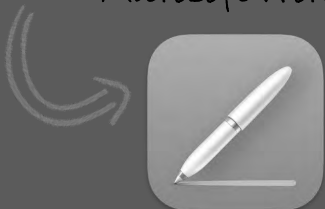
## Condition Assessment Form

Portland Museum uses a condition assessment form to collect standardised data about each object. The entire form is given on the next pages.

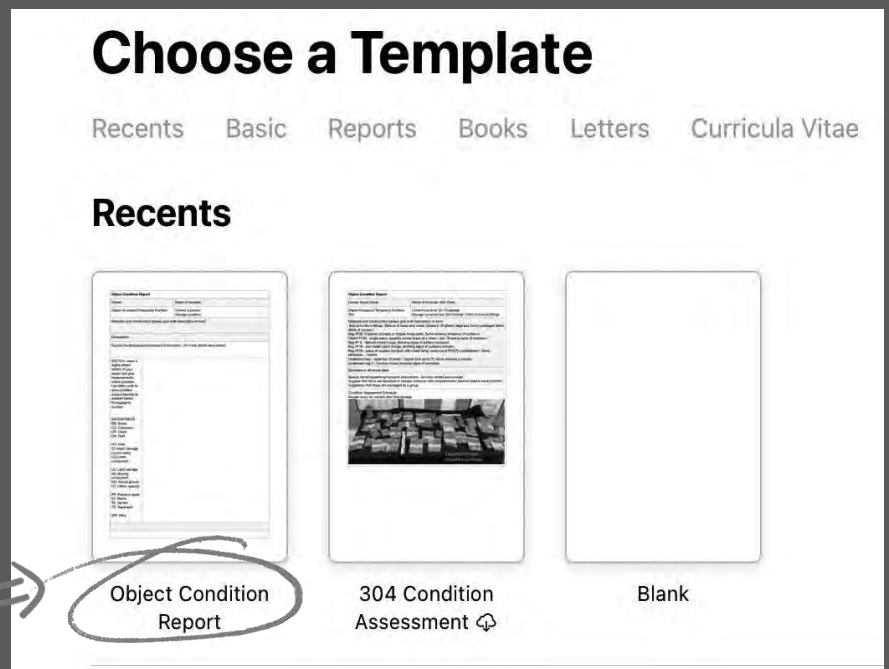
FOR THE EARL OF ABERGAVENNY PROJECT, THE FORMS HAVE BEEN PROVIDED ONLINE SO THAT THEY CAN BE EASILY ATTACHED TO THE MODES COMPUTER RECORD.

A TEMPLATE OF THE FORM IS AVAILABLE ON THE MUSEUM IPADS.

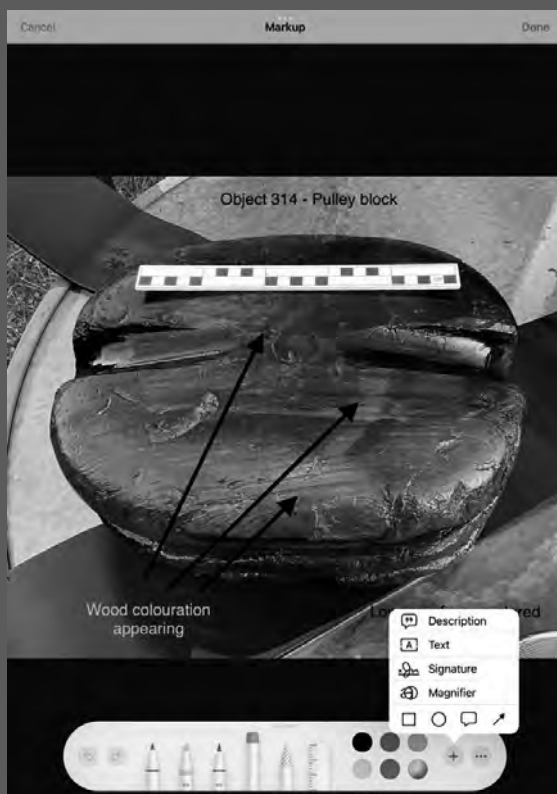
1. Open the Pages app on the iPad. Tip: For non-Mac users it's the Mac equivalent of Microsoft Word and looks like this.



2. To complete an object condition report on the museum iPads, select the object condition report from the template options.



3. Work through the template filling in all relevant fields: a completed example is given on the next page.



4. Images can be added into the report. Before adding images these can be annotated on the iPad. To do this go to 'Photos', select the image and press 'edit'. Select the relevant tool to add text, arrows or other annotations to explain the condition of the object on the photo. Annotate the photo with details of conservation issues to be aware of.

5. Finally, the object condition assessment should be saved as a PDF and dragged and dropped onto the Modes record for the object.

## Object Condition Assessment Form

2022v2

<b>Owner:</b> Tery Dactyl	<b>Name of Recorder:</b> Peg Legge	<b>Date of Assessment :</b> 06/12/2022
---------------------------	---------------------------------------	---

Artefact Reference Number( Modes / object entry form number) : obj 314

Current Location: Portland Museum

Storage Location: LH Outside Garden Store

Reason for Condition assessment ( tick as appropriate)

<i>Initial assessment</i>	<i>Scheduled</i> ✓	<i>Change of storage</i>	<i>Display</i>	<i>L o a n</i>	<i>Return</i>	<i>Other (specify)</i>
---------------------------	-----------------------	--------------------------	----------------	--------------------	---------------	------------------------

**Material and construction of artefact(s):**

Large pulley block, mixed wood, metal construction. Partial conservation work carried out. Following advice from Nancy Grace and Bournemouth Uni Maritime Archaeology Dept, object has been placed in water for passive conservation.

Recommended that a monthly CA is carried out and water changed

**Number of artefacts in record:**

1

**Dimensions** (if more than one artefact in collection give approximate dimension of largest and smallest pieces)

See original condition assessment

**Condition assessment: tick as appropriate**

<i>Stable</i>	<i>unstable</i>	<i>Active degradation</i>	<i>In need of conservation</i> ✓
---------------	-----------------	---------------------------	-------------------------------------

**If active infestation suspected – quarantine ( give dates)**

<i>Isolated</i>	<i>Packed</i>	<i>Treated</i>	<i>Cleaned</i>
-----------------	---------------	----------------	----------------

**Recommended schedule for next assessment (tick as necessary)**

<i>Quarterly</i>	<i>Six monthly</i>	<i>Annually</i>	<i>Specify period</i> <i>Monthly</i>
------------------	------------------------	-----------------	---

**Current Packaging and storage**

Object is in large rigid plastic box, submerged in water. Protected by strips of plastazote for handling .



**Recommended packaging**

Maintain submergence in water, change water on a monthly basis.

Record photos of water before and after change.

Water to be sieved to monitor physical degradation.

Any significant sediment or remains, after sieving, to be weighed.

**Handling recommendations ( list potential hazards as well)**

Object is heavy, water to be removed before lifting out of box.

Gloves to be worn

**Recommended storage conditions**

**Light exposure**

80-100 lux

**Relative humidity**

40% - 70%

**Temperature**

10-20 degrees

Celsius

**Packing**

Plastic storage

container

Underwater

**Handling**

Care needed lifting. Object to be kept wet.

**Condition Photographs taken at time of assessment. (Annotate to highlight concerns) one photograph per cell**





PHOTOGRAMMETRY AS A METHOD  
OF DIGITAL RECORDING

## Digitising Collections

It is becoming increasingly common for museums to digitise their collections both for archival and public engagement purposes. The historic items, their material type and construction, and the skills and budget of the museum will all help determine how a collection is digitised.

One of the most common methods of digitising collections is through photogrammetry. Evolving technology and low-cost solutions means this is now within reach of most organisations with a little bit of guidance.

## Photogrammetry

Photogrammetry is a technique which uses digital photos to create computer generated three-dimensional models of objects or landscapes that can be scaled and therefore, in some cases, measured. The models can provide access to both sites and objects for a wide audience irrespective of their location.

There are many ways to achieve photogrammetry models using different equipment and programs:

- Digital SLR cameras and computer programmes
- Tablets with apps
- Phones with apps

Whatever the system or process that is used for photogrammetry, the end result is a series of scaled digital 3D models of individual objects or collections of objects. No one approach fits all applications and the approach outlined here was specifically developed by the project team for application by the *Earl of Abergavenny* project volunteers. It provides a low-cost solution that can be easily achieved by anyone and does not assume a high level of technical starting ability. The results achieved have exceeded expectations and are a credit to those volunteering on the project.



A VOLUNTEER PHOTOGRAPHING AN OBJECT IN A LIGHTBOX TO ENSURE UNIFORM LIGHTING.

### Setting up your environment

The success of your 3D model depends significantly on the environment in which the images are captured. Here are the recommendations for successful image capture irrespective of the equipment and software used.

**Lighting:** Soft, diffused lighting minimises shadows, glare, and high contrasts which can interfere with the photo capture process. When photographing indoors, it is recommended to light the object from at least two sides or by using a lightbox. When outdoors, overcast days are best to avoid shadow.

Diffused lighting is especially important when recording shiny surfaces which can be challenging to record.

**Background:** To improve the quality of the photos, set up a uniform background or use a greenscreen. This will have the added benefit of making object masking easier later in the process. Ensure that if the object is lightly coloured that the background is dark and vice versa.

**Stable platform:** Either set up the iPad on a stable platform, like a tripod or a stand, or have it on a steady arm to move around the object.

**Positioning the object:** You will need to digitally record every side of the object to create a complete 3D model. In the first instance you can turn the object over on each side, but there might be some aspects of the object that require you to use supports or museum wax to ensure that you can clearly photograph the whole object.



THE IPAD SET UP ON A STEADY STAND WITH THE OBJECT ON A TURNTABLE.

MUSEUM WAX IS A MALLEABLE PRODUCT THAT CAN BE MOULDED TO FIX AN OBJECT TO A BASE BACKGROUND SO THAT EDGES OR SIDES CAN BE PHOTOGRAPHED. BE CAREFUL NOT TO PUT WAX ON AN OBJECT WHERE THERE ARE INDENTS OR GROOVES WHERE THE WAX MIGHT GET TRAPPED OR WHERE SURFACES ARE FLAKING.

Refresh your memory on how to safely work with these objects by referring to the **Object Handling** section.

### Photo capture process

To create a 3D image of the object, you need to take photos around the object in an igloo shape, totally and evenly surrounding the object. This can be achieved by either moving the camera or moving the object.

Ensure that for your first 360° path around the object, the entire object is in the frame of the camera. For later circular paths around the object, it is possible to go closer to the object to make sure all detail is captured.

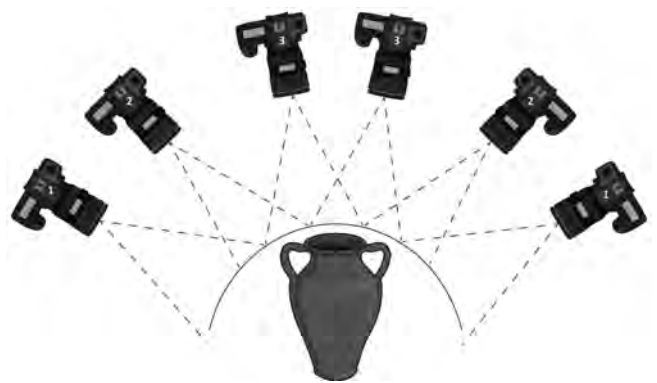


A VOLUNTEER DIGITALLY RECORDING AN OBJECT USING PHOTOGRAMMETRY (LEFT) AND THE RESULTING MODEL (RIGHT).

## PHOTOGRAMMETRY PROCESS



1. Set up your camera/iPad.
2. Place your object on a clean plain and stable surface, ideally with a uniform background.
3. Take an initial bird's-eye view photo of the object.
4. Fill the frame with the object (and maintain this throughout the photo capture process).
5. Keep an even distance from the subject.
6. Take your photos in a continuous sequence around the subject.
7. When you complete a 360-degree rotation, move your photo capture device up or down and repeat.
8. Take photos with 50-60% overlap.
9. If in doubt – take more photos, but beware, the more photos you take the longer the model will take to process.



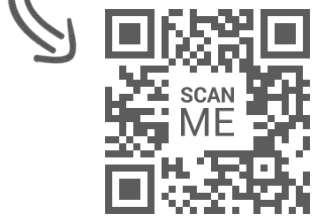
DIAGRAMS SHOWING HOW  
TO POSITION A CAMERA  
TO GET GOOD COVERAGE  
OF AN OBJECT DURING  
THE PHOTOGRAMMETRY  
PROCESS.

# Polycam App

FOR THE EARL OF ABERGAVENNY PROJECT, SEVERAL DIGITISING PROGRAMMES WERE EXAMINED TO FIND THE MOST APPROPRIATE SYSTEM FOR THIS PARTICULAR MUSEUM. THE POLYCAM APP WAS CHOSEN AS THE MOST APPROPRIATE. OTHER APPS ARE AVAILABLE AND MAY OFFER MORE APPROPRIATE RESULTS FOR OTHER COLLECTIONS.

Polycam is a 3D capture application, available on Apple and Android products, that uses 3D scans and LIDAR (Light Detection and Ranging) to create 3D models of objects or places. The app is user-friendly and has help videos for every stage to help simplify the process or provide help if the user is unsure how to proceed.

*Find out more and download Polycam.*



*Get help from Polycam.*

*Watch Polycam tutorials on YouTube.*



The Polycam app uses the iPad or tablet's camera to capture up to 250 images which are then processed in the app to create a 3D model. There are various processing and editing tools to refine the model and methods to upload and share the finished model online.

To complete a model, a minimum of 20 photos, and a maximum of 250 photos, are required.

Polycam can use both 3D photo scanning or LiDAR. There are pros and cons of both methods dependent on what you are recording.

## 3D Photo Scanning

- Best for creating models of objects less than 2m.
- Photos can be captured automatically at a regular rate set by you or you can take a photo whenever you wish.

## LiDAR

- Best for creating models of large spaces/objects over 2m .
- Camera/iPad must be 2m away from the surface being scanned.

## Polycam features explained

The app has four main pages that are explained in this guide, but using the app is intuitive and we would encourage users to get stuck in and have a go.

The Polycam help pages and YouTube videos are extremely helpful if you get stuck.

## STAGE 1: OPENING THE APP AND THE MODEL CATALOGUE

The Polycam app icon looks like this.



1. Open the app and the entry page will appear. This lets you see all the models that you have finished.



2. The + symbol takes you to the next screen which allows images or scans to be captured to start a new model.

3. Use these buttons to move between your captures and albums and to explore models that have been created by other Polycam users.

## STAGE 2: IMAGE CAPTURE

Exit image capture mode.

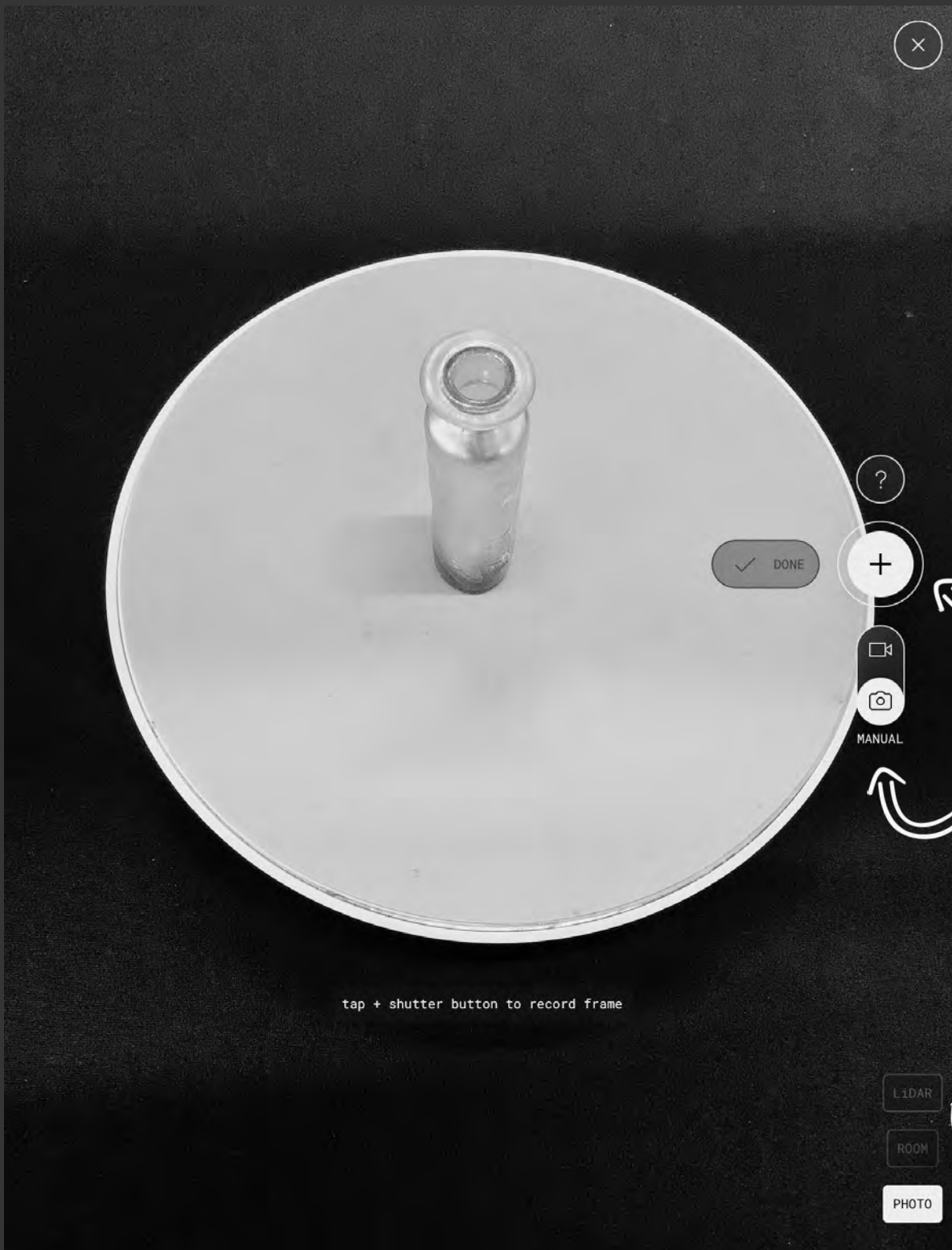


Image capture button.

Toggle between manual capture or automatically taking photos at a set rate.

Switch from photography to LIDAR using these buttons.

1. Use the image capture button to take the required photos.
2. Click the X at the top of the screen to go to the next page to start getting the images ready for processing.



# STAGE 3: PROCESSING IMAGES AND CREATING A

## 3D MODEL

This camera icon allows you to take more images to fill in any blanks if needed.

You can scroll through the images taken and delete any errors.

The buttons in this section allow you to make choices about the quality of image processing which will determine the time it takes to process the model as well as the quality of the end model.

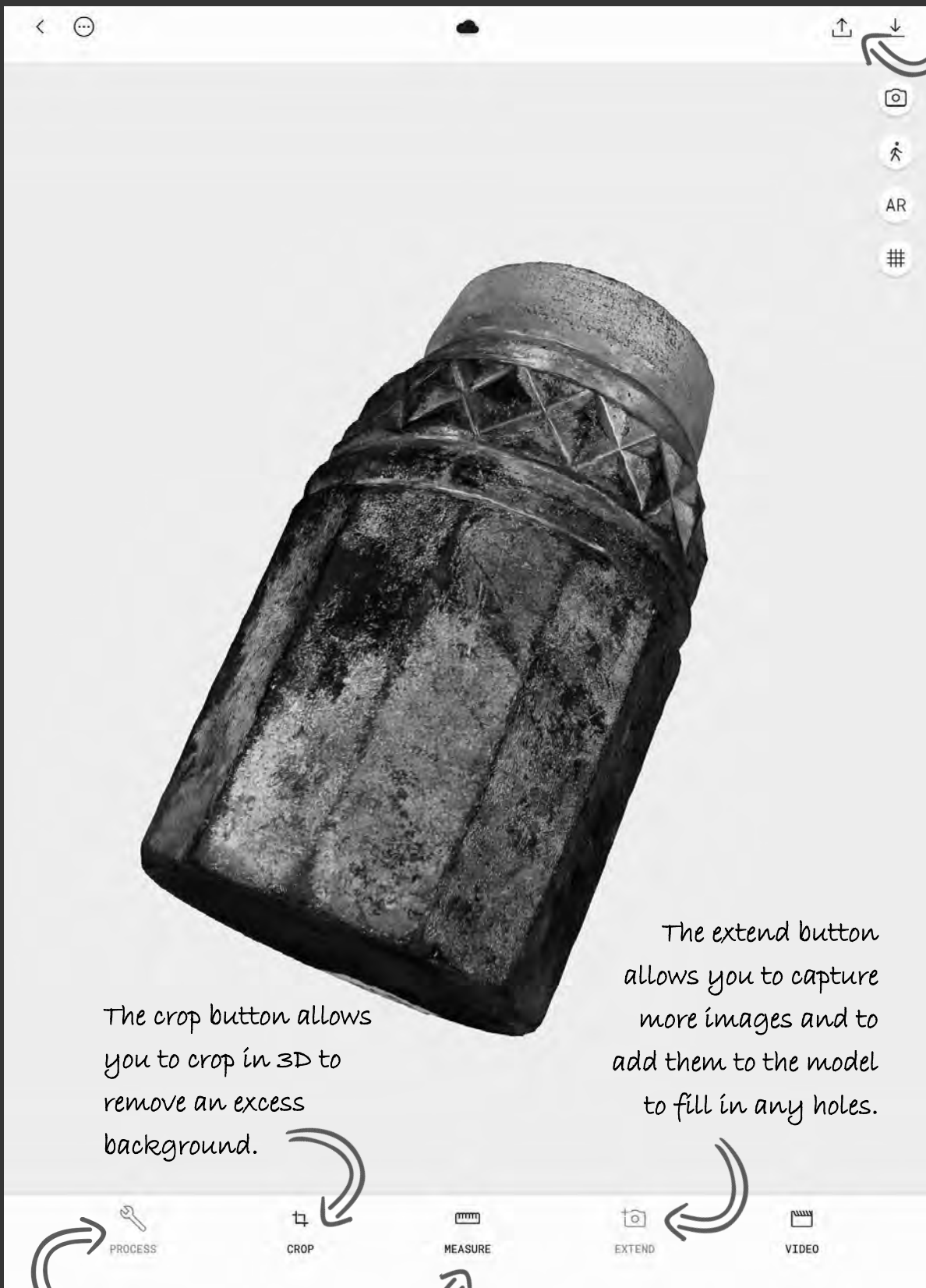
The screenshot shows a mobile application interface for reprocessing images. At the top, there's a back arrow, the word 'reprocess', and a camera icon. Below this, a progress bar indicates '36/150 photo captures left' and 'resets on 14 Dec'. A row of 11 image thumbnails is labeled 'IMAGES (184)'. Underneath is a 'DETAIL' section with four tabs: 'OPTIMIZED', 'MEDIUM', 'FULL', and 'RAW'. An information icon and the text 'Which detail setting should I use?' are present. The 'OBJECT MASKING' section has a toggle switch for 'Use Object Masking' which is currently turned on. Below this, a note says 'Object Masking can be helpful when processing detailed, small objects. Learn more'. At the bottom, there's a status bar showing '175.9 MB upload' and 'Photo Mode BETA'. Two buttons are visible: 'UPLOAD & PROCESS' and 'UPLOAD LATER'.

This button uploads your images and starts the processing process when you are ready!

Object masking toggle button. This is helpful when processing small, detailed objects. If you moved the object either by rotating it and/or turning it upside down to record the underside - switch the object masking on. If the object remains stationary for the entire image capture, leave it off.

## STAGE 4: EDITING AND EXPORTING

Export the finished model.



The crop button allows you to crop in 3D to remove an excess background.

The extend button allows you to capture more images and to add them to the model to fill in any holes.

The process button allows you to reprocess the images if you have added more to fill in any gaps.

The measure tool allows you to measure parts of your model using a virtual tape measure.

# Digitising process for *Earl of Abergavenny* objects

The Portland Museum team use the Polycam application installed on iPad Pros to capture images of objects from the *Earl of Abergavenny* and process these into 3D models to be shared on Sketchfab. The process of how to achieve this is outlined below.

## PHOTOGRAPHY

### TIPS

Take close-up photos of decorations, markings or other details.

Take close-up photos on thin parts of the object such as coin edges.

Take between 20 and 250 photos of the object at a uniform distance.

1. Use light boxes and backdrops to establish a uniform background.
2. Use a turntable to rotate small objects and keep the iPad stationary.
3. If the object is larger, then keep the object still and move the camera.
4. Rotate objects roughly 15° per photo to ensure adequate overlap and attempt at least three revolutions per side at different heights around the object.
5. Once one face of the object is complete, rotate or flip the object to capture the obverse side (repeating the three revolutions at 15° intervals).
6. Press the + button to capture images and watch the bar at the bottom to keep track of how many images out of 250 you've taken.
7. Press 'done' when finished.

## Model processing

Once you are happy that you have a sufficient number of photos to create a model, select the appropriate option for the level of detail the model will be created at. The following table can be used for guidance on deciding what processing option is best. If in doubt talk to your manager about what the end model will be used for.

Processing	Use	Description
Optimised	Best for game engines and web apps	Optimised detail is best for fast loading and real-time rendering environments
Medium	Best for game engines and mobile apps	Medium detail provides a good balance of high resolution and usability
Full	Best for rendering and visual effects (VFX)	Processing a capture at full detail is recommended for very high-definition image and video rendering
Raw	Best for professional workflows	Processing a capture at raw detail is recommended when you want high detail and no PBR maps

## Object Masking

If you moved the object either by rotating it and/or turning it upside down to record the underside, switch the object masking on. If the object remains stationary for the entire image capture, leave it off.

Including a scale bar makes masking difficult and is not required.

## Image Processing

Once the processing options have been selected, press 'upload and process' and wait.

The app uploads the photos onto the Polycam servers which stitches the photos together and processes them into a model. The iPad needs to be connected to the internet and you need to be sure that processing the data on external servers is not a breach of museum policy. In addition, ensure the iPad is sufficiently charged so that it remains on throughout the upload.

Here is a table showing the approximate processing times of small, medium and large objects. Processing times will also depend on the internet bandwidth speeds.

Processing	Size	Average photos	Average processing time using medium setting
Small	c.0.2m - 0.5m	60-100	3-15 minutes
Medium	c.0.5 - 1.0m	100-200	5-20 minutes
Large	<1.0m	220-250	5-25 minutes

When first starting to use the app, a lot of trial and error will be involved. It is unlikely that the first few models will be successful and it is possible you will make some models that are unsuccessful. If the model is unsuccessful, you can try to improve it by adding more images. The 'extend' button allows you to capture more images and add them to the model to fill in any holes.

If you are happy with the result, you can export it to share with the public as explained in the next section.



A SUCCESSFUL MODEL PROCESSED IN POLYCAM (LEFT) AND A UNSUCCESSFUL MODEL WITH GAPS AND BLURRED FEATURES (RIGHT).



View Earl of Abergavenny models on Sketchfab

## Public Engagement

Successful models can be exported in a number of different file types using the Pro (paid for) version of the Polycam app. Most 3D models will be exported as a .obj format file. The .obj file format is open source and stores information on 3D geometry, colour, and texture information. The *Earl of Abergavenny* project chose to store and display the catalogue of 3D objects on the 3D web platform Sketchfab.



## Sketchfab

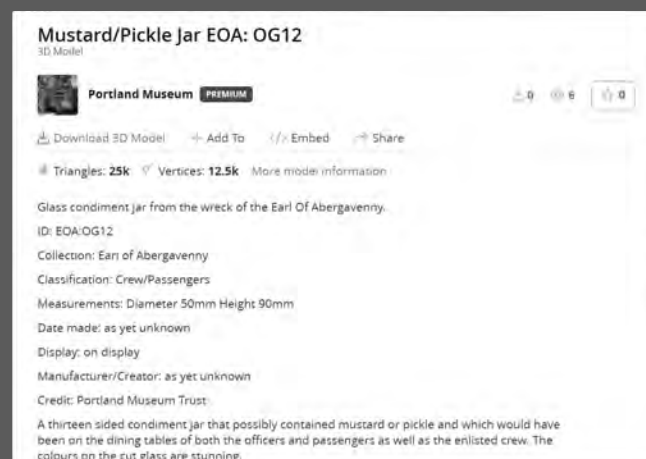
Sketchfab allows users to publish, share, and discover 3D content. It is possible to use the website for free, but it has more capabilities and storage space through a paid Pro account. Charities, such as museums, can often get a Pro account for free.

## Adding Content

After creating an account and logging in it is possible to upload content to your account. Polycam can be linked with your Sketchfab account to streamline the upload process. Once in the Polycam app, it is possible to login to your Sketchfab account and link accounts. Use the export arrow in the top right corner to export your model to Sketchfab.

Follow the prompts to upload the model to Sketchfab. The following information, often referred to as metadata, should be included:

- Title
- Description
- Copyright licence
- Tags to make the model visible in searches and to connect it to other similar models



A 3D MODEL OF A MUSTARD OR PICKLE JAR UPLOADED TO SKETCHFAB (LEFT). SOME OF THE INFORMATION, OR METADATA, ASSOCIATED WITH THE MODEL IN SKETCHFAB (RIGHT).

## Sharing Content

Sketchfab can be used to create an online version of your museum by sharing 3D interactive models of your objects. This allows your objects to be enjoyed and explored for free by a worldwide audience. In addition, users can help unlock the research potential of objects through their own research. Sketchfab allows people to comment and ask questions about your objects.



[portlandmuseum.co.uk](http://portlandmuseum.co.uk)

