

# Open Data

An academic perspective – based on a W.I.P.

Dr Ing. John Charles Betts

Department of Classics and Archaeology

Faculty of Arts

0 24

7 TOMBS

9 BURMARRAD

10 Foot of S. Pawl Milqi hill, Burmarrad

11 Albert Cachia

11 Simeone Sammut

12 1905

13 1

15 MAR 1905 p.2

16 CHRROM

17 Contents:2 Christian lamps, pottery items

0 25

7 TOMBS

9 RABAT

10 Rabat

11 Public Works

12 1905

13 many

14 single and family

14 few preserved

15 MAR 1905 p.2

17 map being prepared

17 some planned

# ARCHAEOLOGY AND OPEN DATA

These issues and opportunities can translate to other areas of research



# Open data

Open data is data that can be freely used, reused and redistributed by anyone – subject only, at most, to the requirement to attribute and sharealike.

Open Data Handbook

Horizon 2020 promoted open access to research data, and the right to access and reuse digital research data.

# Metadata



DJI\_0445 Properties

General Security Details Previous Versions

Property	Value
<b>Description</b>	
Title	DCIM\100MEDIA\DJI_0445...
Subject	DCIM\100MEDIA\DJI_0445...
Rating	☆☆☆☆☆
Tags	N
Comments	0.9.138
<b>Origin</b>	
Authors	
Date taken	30/07/2019 12:43
Program name	v01.25.5432
Date acquired	
Copyright	
<b>Image</b>	
Image ID	
Dimensions	4000 x 3000
Width	4000 pixels
Height	3000 pixels
Horizontal resolution	72 dpi
Vertical resolution	72 dpi

[Remove Properties and Personal Information](#)

OK Cancel Apply

# Archaeology embraces data (and metadata)

Archaeologists are familiar with:

The difficulties of recovering information from undocumented societies.

The curation and documentation of sites and objects – the documentation of data is one step away.

Material documentation can – and should – be integrated with the data management plan and OAD.



# In the beginning

1950s - Archaeologists start processing and storing data in 1958-1959.

1960s - data storage became more appreciated

1970s - first Archaeological Data Bank Conference held in 1971 at the University of Arkansas Museum.

1980s - increased access to computers further promotes the desirability of electronic data.

0 1

8 Egyptian antiquities

11 Lord Grenfell

13 many

15 MAR 1904 p.36

16 EGP

17 lamps, statuettes, stelae and other

0 2

8 Flint implements

9 EGYPT

10 Fayoum, Egypt

11 H.W. Seton-Karr

13 many

15 MAR 1904 p.36

0 3

8 Bronze fibulae

9 FRANCE

10 Dordogne, France

11 J. Bruyin Andrews

13 2

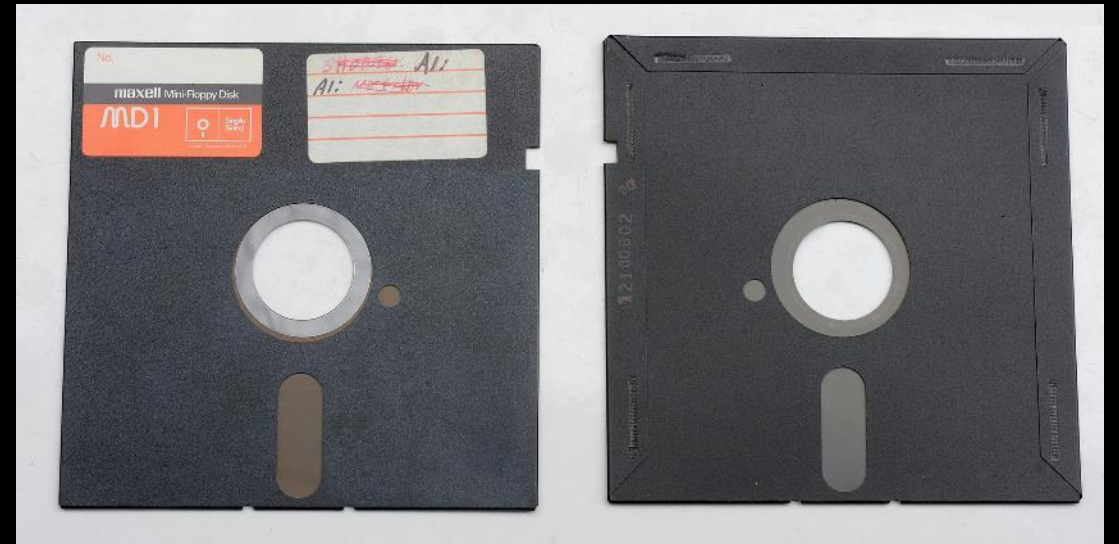
15 MAR 1904 p.36



# The Digital Dark Age

The pace of adoption of new digital technologies can outstrip the development of the infrastructure required for sustainable access to its outputs, ultimately leading to the loss of data.

Jeffrey, S., 2012. A new digital dark age? Collaborative web tools, social media and long-term preservation. *World Archaeology*, 44(4), pp.553-570.



# Dark-Aged Data

2000



2020





# Data repositories, archives, gateways, initiatives and standards

Archaeological Data Service (UK)

Data Archive and Networked Services (NL)

Mappa Open Data (IT)

Swedish Data Services (SE)

Arachne (DE)

Open Context (US)

Digital Archaeological Record (US)

Europeana (EU)

Ariadne plus (International)

CIDOC (International Community for Documentation) Conceptual Reference Model (CRM)



# Institutional Archives

British Museum records of  $4 \times 10^6$  objects are available online.

Images are published under the CC BY-NC-SA 4.0 license.

Free to download, edit and share as long as they are attributed and not used for commercial purposes.

Asset number

415269001

Description

Side

Hollow-cast copper alloy amuletic figure group consisting of a seated cat and two kittens; suspension ring in front.

© The Trustees of the British Museum



Late period, Egyptian.

# Open computational modelling

Computational models are also being made available online.

The MERCURY-MINERVA-SIMREC Computational Modelling in Roman Studies project, funded by EU H2020 and The Leverhulme Trust, compiles models, data, case studies and tutorials

Some models use the open-source language R.



Dor L: 09D2-386 B: 09D2-6974, 101-Dor PT16, Tel Dor Waiman Barak, Paula; 101-Dor PT16, The Levantine Ceramics Project, accessed on 22 February 2021, <https://www.levantineceramics.org/petrographics/4258-101-dor-pt16>

# MALTAPOT + CoFIPoMS OPEN DATA



Funded by the Marie Skłodowska-Curie  
actions of the European Union



# MaltaPot & Compiling Fabric Identity for Pottery from Maltese Sites (CoFIPoMS)

MaltaPot was a two-year research project on early Neolithic pottery fabrics found in the Maltese Islands completed in 2020.

Received funding from the Horizon 2020 research and innovation programme under a Marie Skłodowska-Curie grant agreement.

CoFIPoMS is funded by a UM research grant.



Funded by the Marie Skłodowska-Curie actions of the European Union

<https://www.um.edu.mt/projects/maltapot>

# Data – reports, procedures and tables

## 2. Purpose and scope

2.1. Manufacturing clay briquettes produced for laboratory-based controlled experimental firing, with the scope of supporting archaeological research including fabric characterization studies and experimental archaeology.

## 3. Definitions

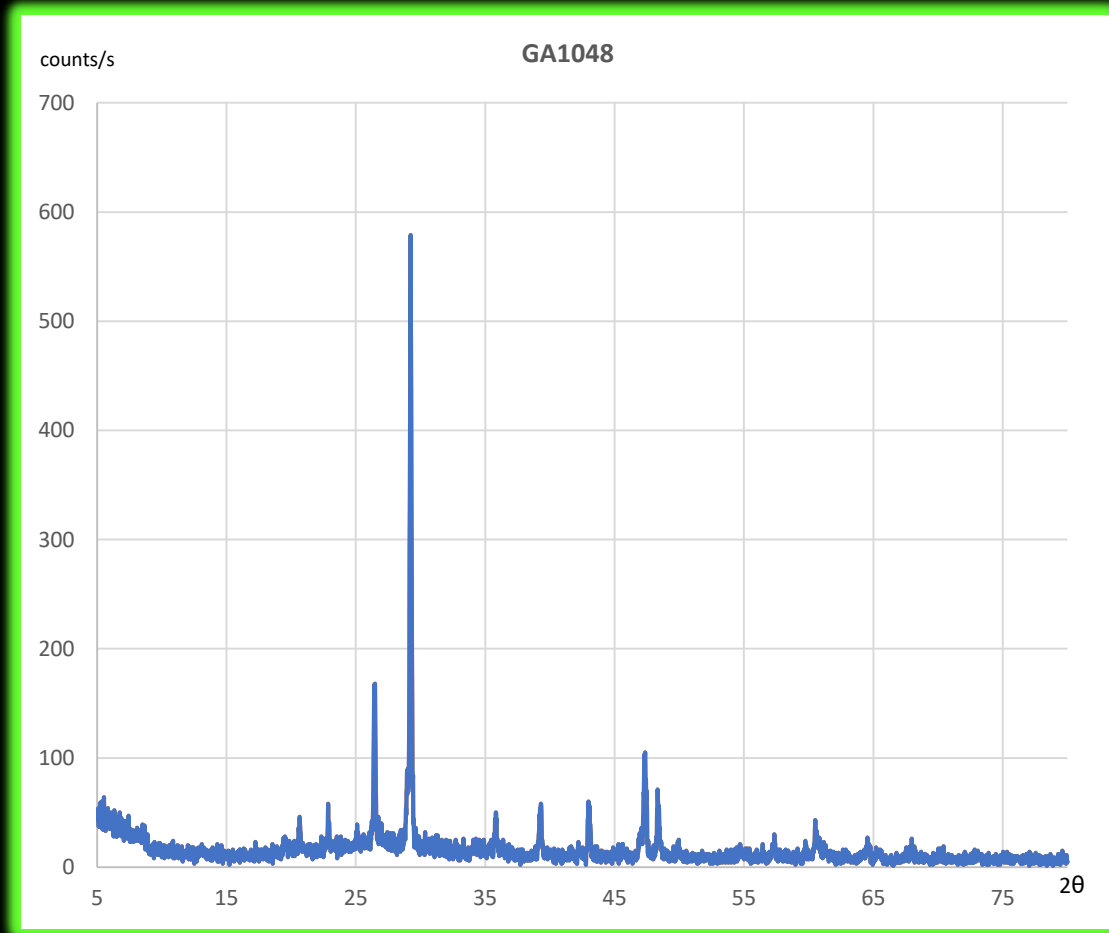
- 3.1. Clay: The term clay is here used to describe clay-rich sediments. This SOP adopts an archaeological perspective of clay defined as the raw material for pottery.
- 3.2. Slab and briquettes: A slab is formed in the mould (see below) with clay that has been blended with water and worked into a paste. One slab will then be divided into a number of briquettes (here 4 briquettes of 3cm) when it is fully dry. The slab length shall be greater than the gauge measurement of 10 cm used to measure shrinkage.
- 3.3. Hydroplasticity: 'property of a material that enables it to be shaped when wet and to hold this shape when the shaping force is removed' (Rice 2015, 460); 'Plasticity' is similarly used in this S.O.P.
- 3.4. Water of plasticity: 'amount (by weight) of water required to develop optimum plasticity in a dry clay' (Rice 2015, 67).

## 4. Responsibilities

- 4.1. It is the responsibility of staff and students carrying out manufacturing of briquettes with the Department of Classics and Archaeology of the University of Malta to read and follow this SOP.
- 4.2. It is the responsibility of the staff and students using the equipment to wash and store it properly after use according to the specific regulations established by the Department of Classics and Archaeology

	GA1048	GA2005	GA2015	GB2006
	Skorba	Santa Verna	Santa Verna	Santa Verna
Formula	Concentration	Concentration	Concentration	Concentration
Al <sub>2</sub> O <sub>3</sub>	9.65	9.97	10.2	8.56
As <sub>2</sub> O <sub>3</sub>	0.0001	0	0	0
BaO	0.0091	0.0000	0	0
Bi <sub>2</sub> O <sub>3</sub>	0.0029	0.0020	0.0020	0.0021
Br	0.0013	0.0009	0.0009	0.0010
CaCO <sub>3</sub>	42.1	40.3	39.2	45.5
CdO	0.0019	0.0012	0.0008	0.0014
CeO <sub>2</sub>	0	0	0	0
Cl	0.317	0.253	0.269	0.240
CoO	0	0	0	0.0112
Cr <sub>2</sub> O <sub>3</sub>	0.0086	0.0098	0.0098	0.0045
Cs <sub>2</sub> O	0	0	0	0
CuO	0	0	0	0
Fe <sub>2</sub> O <sub>3</sub>	5.02	5.85	4.94	4.64
Ga <sub>2</sub> O <sub>3</sub>	0.0015	0.0017	0.0014	0.0023
GeO <sub>2</sub>	0	0.0002	0.0001	0.0007

# Data – charts and images



# Data – 3D models





# The Data Management Plan

A data management plan (DMP) is a written document that describes the data you expect to acquire or generate during the course of a research project, how you will manage, describe, analyse, and store those data, and what mechanisms you will use at the end of your project to share and preserve your data.

Digital Management of Science Data (in the Humanities)  
The Digitalisation of Research | Academic Alumni Forum  
University Leipzig 28th of November 2019  
Felix Rau and Patrick Helling

Letter	Site	Code	Sample	Island
A	Ta' Pinu		9	Gozo
B	Nuffara		5	Gozo
C	Nuffara		6	Gozo
D	Hillock		7	Gozo
E	Ta' Gordon		10	Gozo
F	Ramla Bay West		3 (2:2)	Gozo
G	Ramla Bay West		3 (1:2)	Gozo
H	Hillock		1	Gozo
I	Ramla Bay East		4	Gozo
J	Gnejna Bay	GNB00/A/7	17	Malta
K	St Leonard Fort	SLF00/B/02	5	Malta
L	Ras il-Hamrija	RIH00/B/1	42	Malta
M	Gnejna Bay	GNB00/A/4	14	Malta
N	East of Mansab	EMB00/A/1	57	Malta
O	Ras il-Hamrija	RIH00/C/1	45	Malta
P	Il-Mansab	MAN00/A/1	52	Malta

# The Data Management Plan

Keep it simple

Engage (with potential users) early  
and engage often

Address common fears and  
misunderstandings

Open Data Handbook

No plan survives contact with data.

(with apologies to Helmuth von Moltke the Elder)



# The Data Management Plan

## 1. Data Summary

Purpose of the data and its relation to the objectives of the project.

Types and formats of data

Expected size of the data

## 2. F.A.I.R. use of data

## 3. Allocation of resources

## 4. Data security

## 5. Ethical aspects



G1001MICROGR  
OUND



G1002MICROGR  
OUND



G1003MICROGR  
OUND



G1004MICROGR  
OUND



G1011MICROGR  
OUND



G1012MICROGR  
OUND



G1013MICROGR  
OUND



G1014MICROGR  
OUND



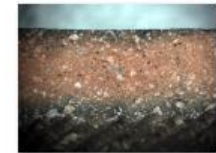
G1021MICROGR  
OUND



G1022MICROGR  
OUND



G1023MICROGR  
OUND



G1024MICROGR  
OUND

# Findable

Please use this identifier to cite or link to this item: <https://www.um.edu.mt/library/oar/handle/123456789/65434>

Title: MaltaPot low magnification unground sections photographs

Authors: [Brogan, Catriona](#)

Keywords: [Pottery, Ancient -- Malta](#)  
[Pottery, Prehistoric -- Malta](#)  
[Neolithic period -- Malta](#)

Issue Date: 2018

Publisher: University of Malta. Department of Classics & Archaeology

Abstract: These images show the edges of early Neolithic pot sherds from the Maltese Islands under low magnification, and show the appearance of the fabric before grinding was carried out to produce a flat surface for additional research. Image names starting with 'G' are of sherds from the Ghar Dalam phase; those starting with 'S' from the Skorba phase; and those starting with 'Z' are from the Zebbug phase.

Description: Maltapot was funded by the European Union through H2020-MSCA-IF-2017 (Marie Skłodowska-Curie Individual Fellowships)

URI: <https://www.um.edu.mt/library/oar/handle/123456789/65434>

Appears in [Under MaltaPot low magnification unground sections photographs](#)  
Collections:



# Accessible

Making data openly accessible,  
free of cost and of copyright

Deposition of the data and  
associated metadata.

Data breaks the language  
accessibility barrier more easily  
than papers.



Or maybe not





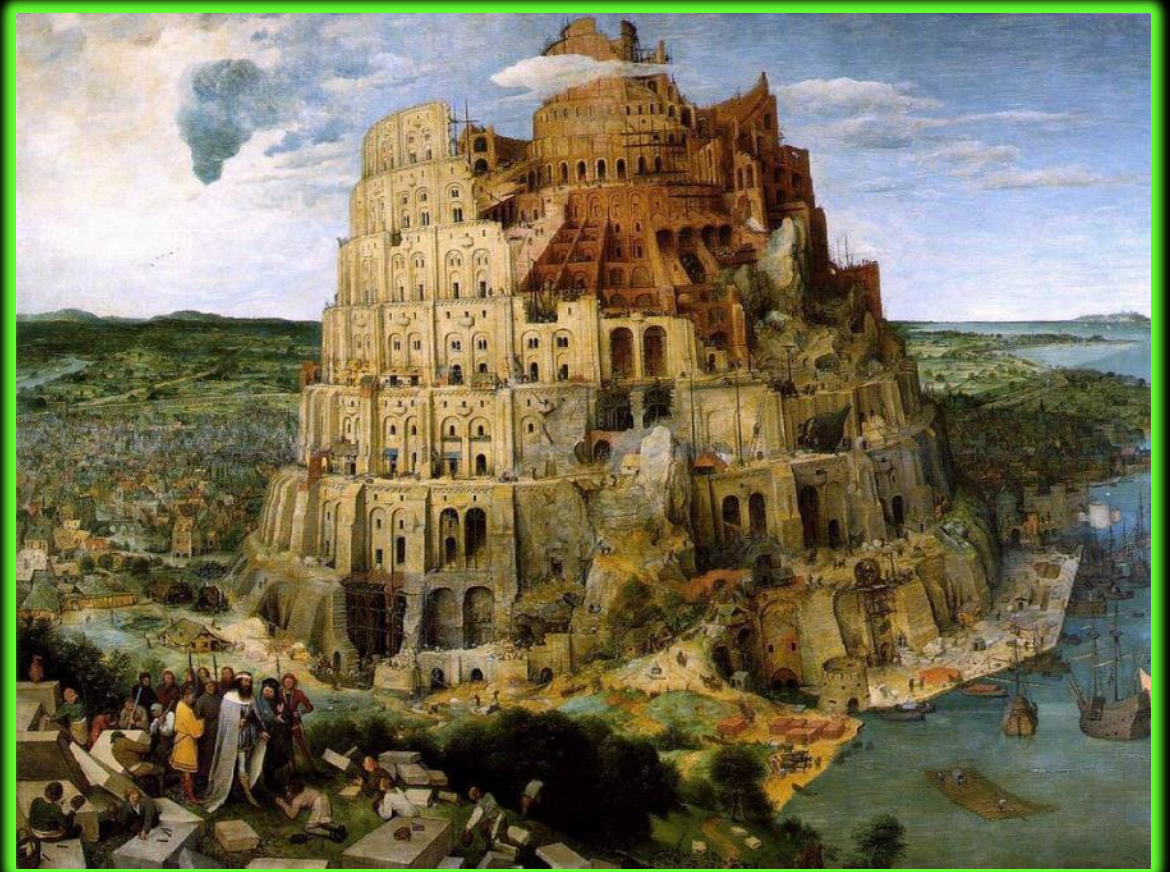
# Interoperable

Interoperability is the ability of diverse systems and organizations to work together.

Open Data Handbook

Use widely available formats and accessible software.

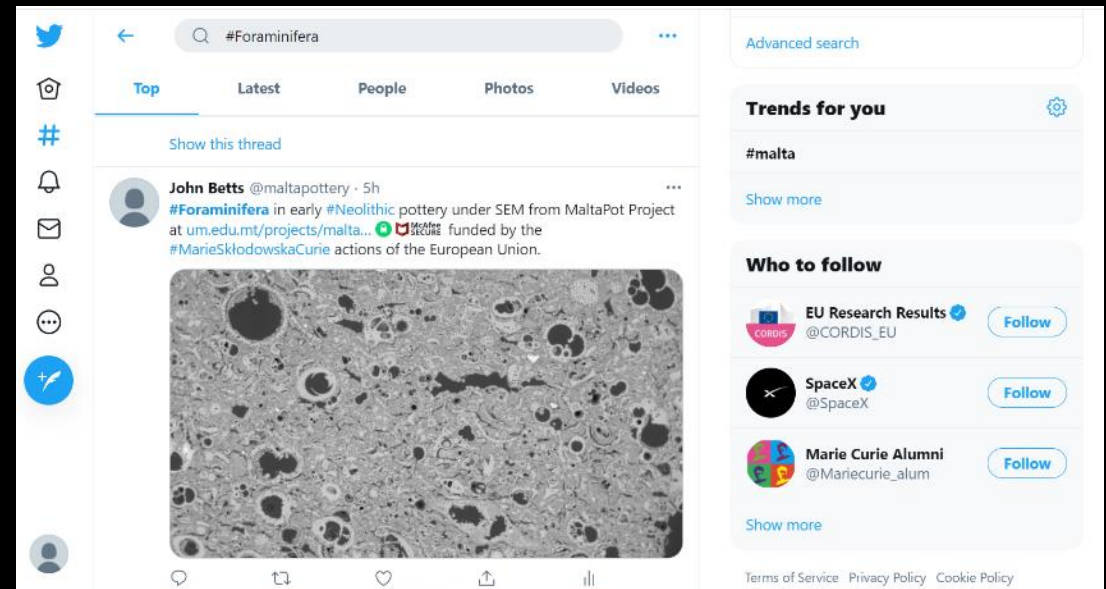
Share software and programmes e.g. programmes in R.



# Reusable

Increase data re-use through clarifying licences, such as the Creative Commons CCO Waiver or CC-BY Licence for open access to data, for maximum reusability and interoperability.

Overlapping principles:  
Interoperability and Reusability -  
avoid silo science.



# Opening up

Choose the data

Apply an open license

Make the data available

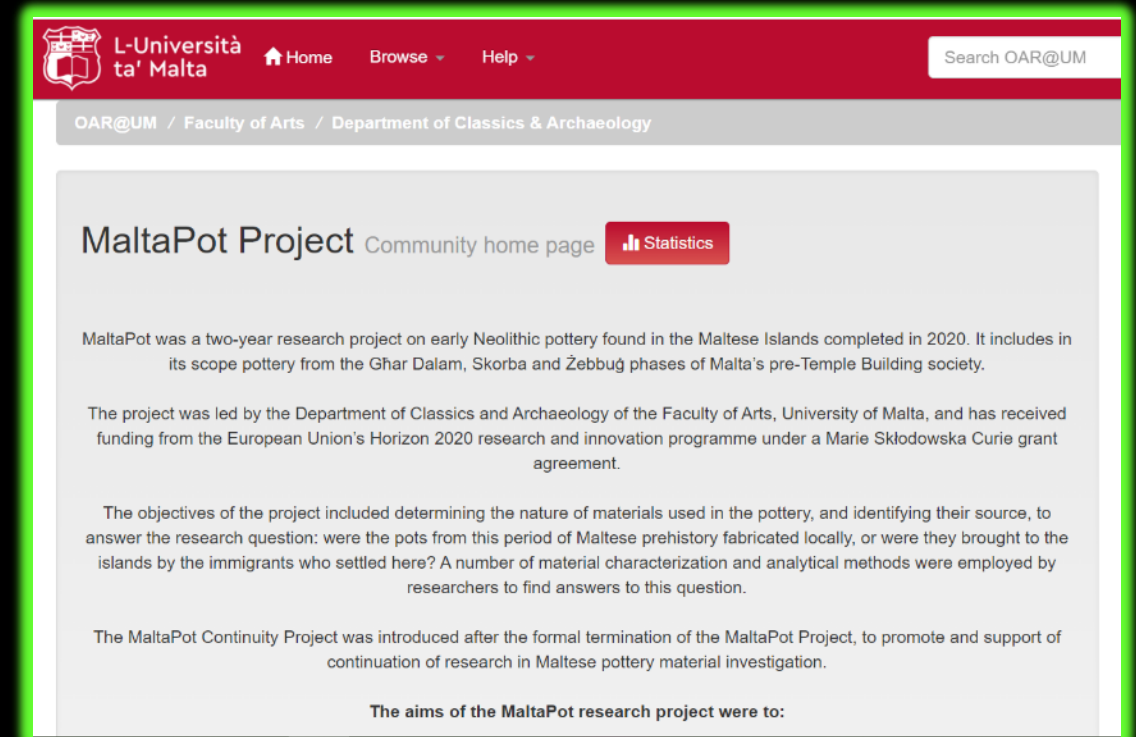
Make the data discoverable

Open Data Handbook

All that remains is to choose the repository suitable to your requirements.

zenodo

Digital  
Humanities  
Cultural Heritage



The screenshot shows the Zenodo page for the MaltaPot Project. The page header includes the University of Malta logo and navigation links for Home, Browse, and Help. A search bar is located in the top right corner. The main content area features the project title 'MaltaPot Project' with a 'Community home page' label and a 'Statistics' button. Below the title, there are three paragraphs of text describing the project's scope, funding, and objectives. The first paragraph states that the project was completed in 2020 and covers early Neolithic pottery from the Ghar Dalam, Skorba, and Żebbuġ phases. The second paragraph mentions the project was led by the Department of Classics and Archaeology and funded by the European Union's Horizon 2020 programme. The third paragraph details the project's objectives, including determining the nature and source of materials used in the pottery. The final paragraph introduces the MaltaPot Continuity Project, which aims to support research in Maltese pottery material investigation.

OAR@UM / Faculty of Arts / Department of Classics & Archaeology

## MaltaPot Project Community home page Statistics

MaltaPot was a two-year research project on early Neolithic pottery found in the Maltese Islands completed in 2020. It includes in its scope pottery from the Ghar Dalam, Skorba and Żebbuġ phases of Malta's pre-Temple Building society.

The project was led by the Department of Classics and Archaeology of the Faculty of Arts, University of Malta, and has received funding from the European Union's Horizon 2020 research and innovation programme under a Marie Skłodowska Curie grant agreement.

The objectives of the project included determining the nature of materials used in the pottery, and identifying their source, to answer the research question: were the pots from this period of Maltese prehistory fabricated locally, or were they brought to the islands by the immigrants who settled here? A number of material characterization and analytical methods were employed by researchers to find answers to this question.

The MaltaPot Continuity Project was introduced after the formal termination of the MaltaPot Project, to promote and support of continuation of research in Maltese pottery material investigation.

**The aims of the MaltaPot research project were to:**



# Why open?

The screenshot shows the OpenAIRE website interface. At the top, a dark blue navigation bar contains the following items: a home icon, 'EXPLORE', 'PROVIDE', 'CONNECT', 'MONITOR', and 'DEVELOP'. Below this, a secondary navigation bar includes 'SERVICES', 'SUPPORT', 'OPEN SCIENCE IN EUROPE', 'ABOUT', a search icon, and 'SIGN IN'. The main content area features the OpenAIRE logo (a blue circle with a white plus sign) and the text 'OpenAIRE for COVID-19'. Below the title is a sub-headline: 'Activities to help researchers combat the epidemic and understand its aftermath.' A blue button with white text reads 'FIND OUT MORE'. To the right of the main text is a large white arrow pointing right. At the bottom of the banner, there are five small circles, with the fourth one filled in blue, indicating the current slide in a sequence. The background of the banner is a blue and yellow abstract design with circular images of people.

OpenAIRE

SERVICES SUPPORT OPEN SCIENCE IN EUROPE ABOUT  SIGN IN

## < OpenAIRE for COVID-19

Activities to help researchers combat the epidemic and understand its aftermath.

FIND OUT MORE

>

○ ○ ○ ● ○ ○