

Open Science and Open Data: Twenty Years of Preserving the Bits at the Archaeology Data Service

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Archaeology Data Service
University of York

Open Science and the Humanities,
Barcelona, 21 June 2018

- Challenges for Open Science:
 - Digital Preservation
 - Resource Discovery and Interoperability – finding & joining up fragmented and diverse data sets
 - Political (& Economic) Context of Open Data
- Opportunities for the Humanities:
 - Digital dissemination & electronic publication
- Case Study: The Archaeology Data Service & *Internet Archaeology* – linking Open Data and Open Access Publication

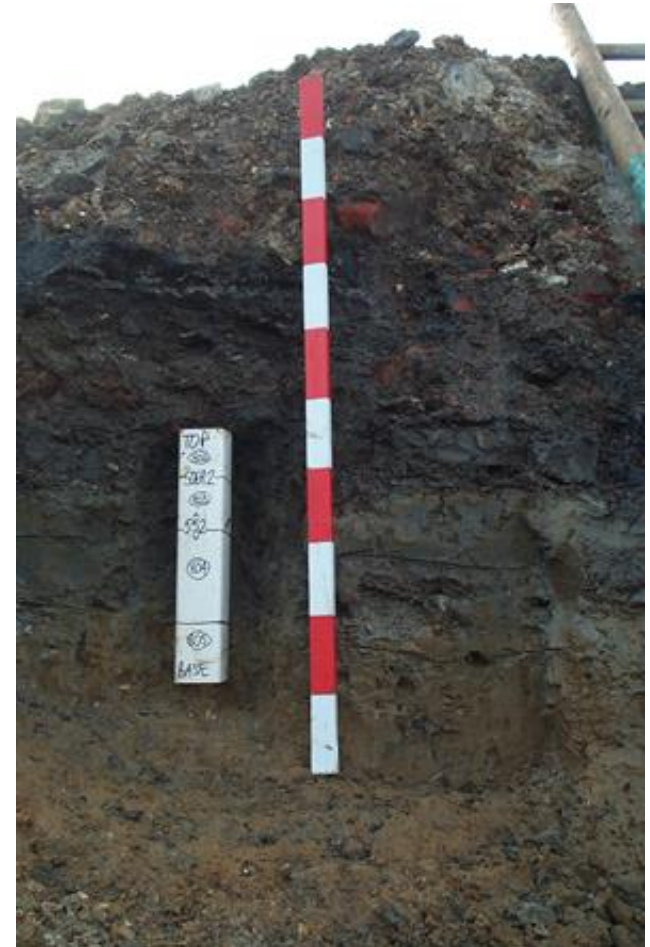
Digital Data Challenges

- Digital data are fragile
- They are often still archived as objects rather than computerised information
- Digital data standards
- What are the significant properties of our data?



Digital Data and Archaeology

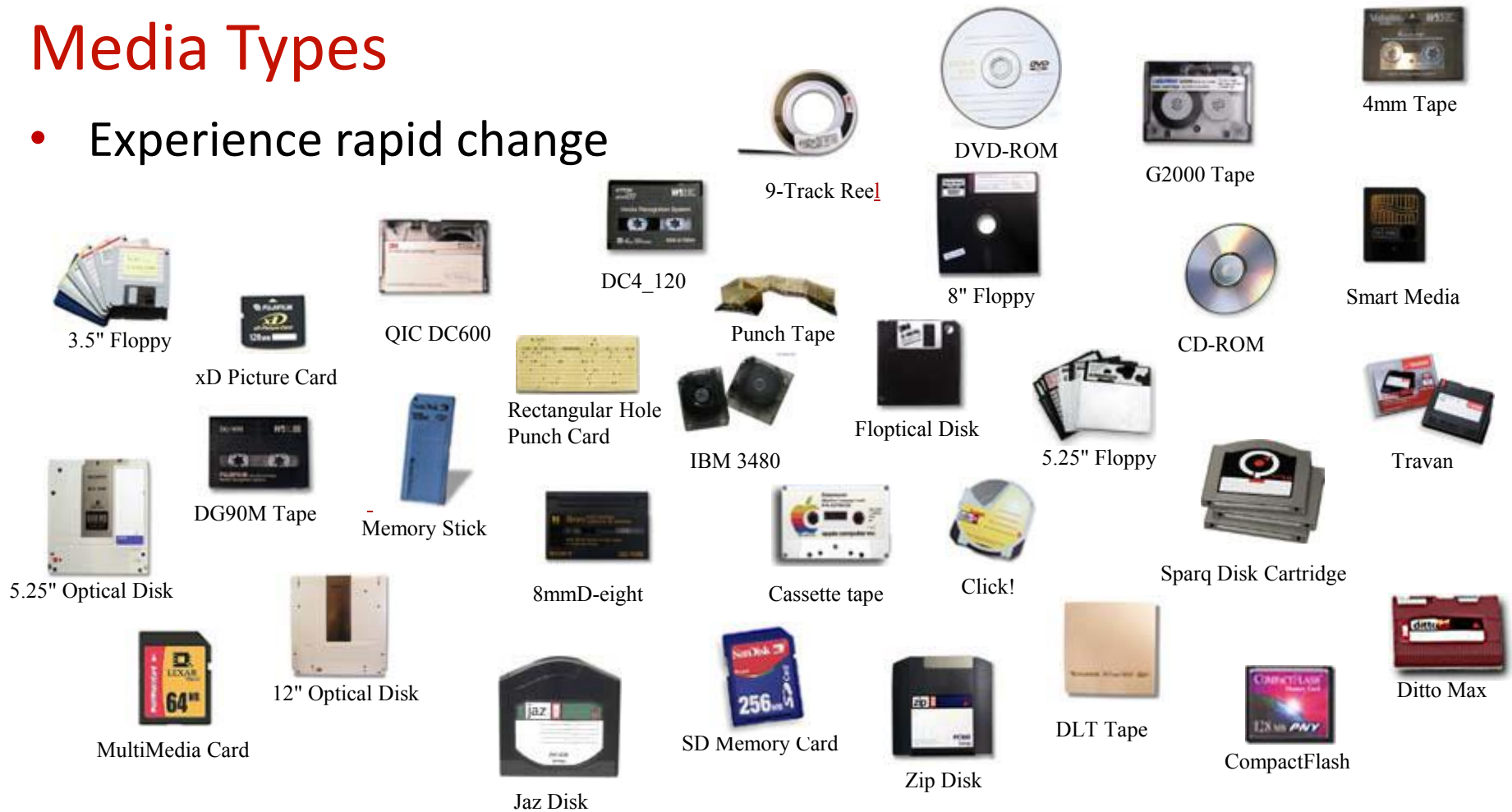
- Archaeology is **destructive**
- Comprehensive records of field work are imperative



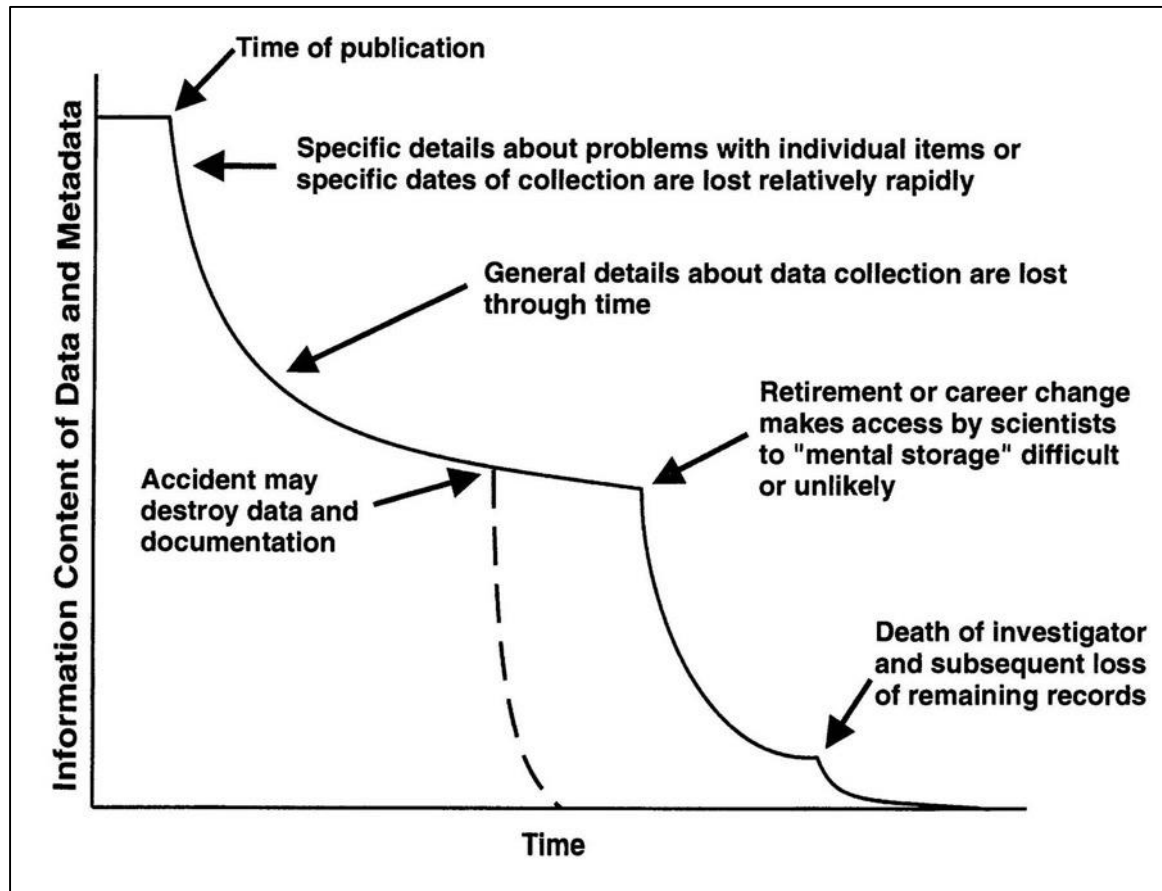
Losing things: Digital Preservation

Media Types

- Experience rapid change

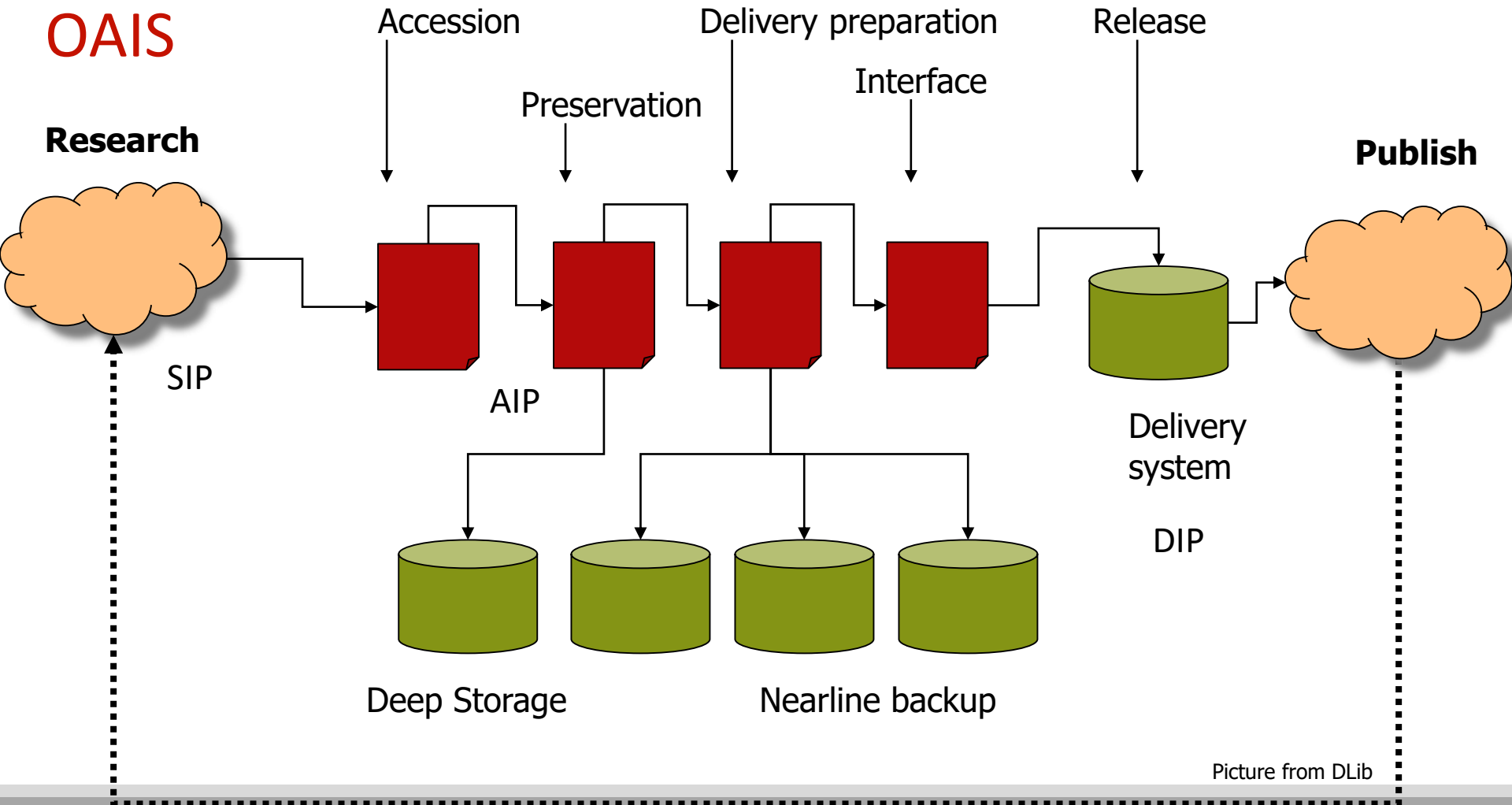


Information Entropy



Michener, W.K., Brunt, J.W., Helly, J.J., Kirchner, T.B. and Stafford, S.G. 1997. Nongeospatial Metadata for the Ecological Sciences. *Ecological Applications*. 7: 330-342.

Trusted Digital Repositories: NASA - Open Archival Information System

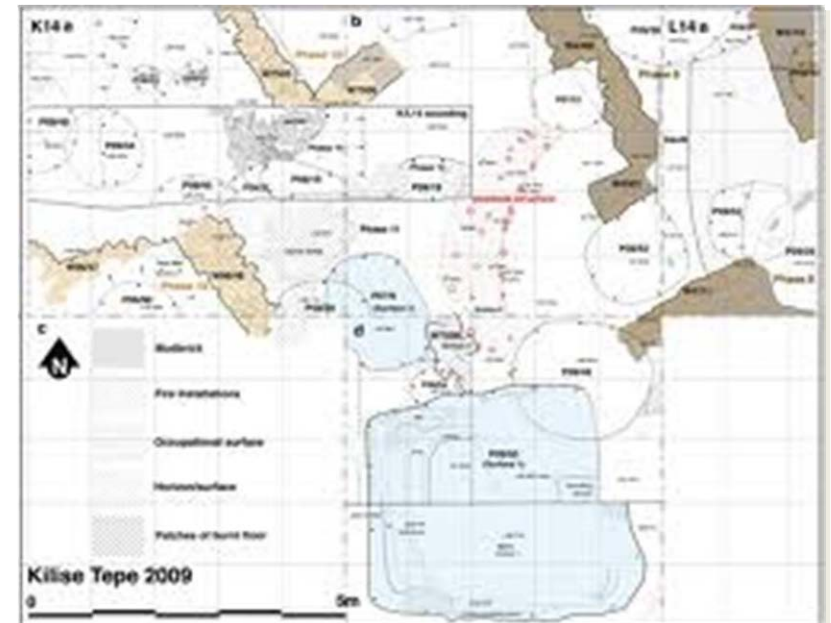
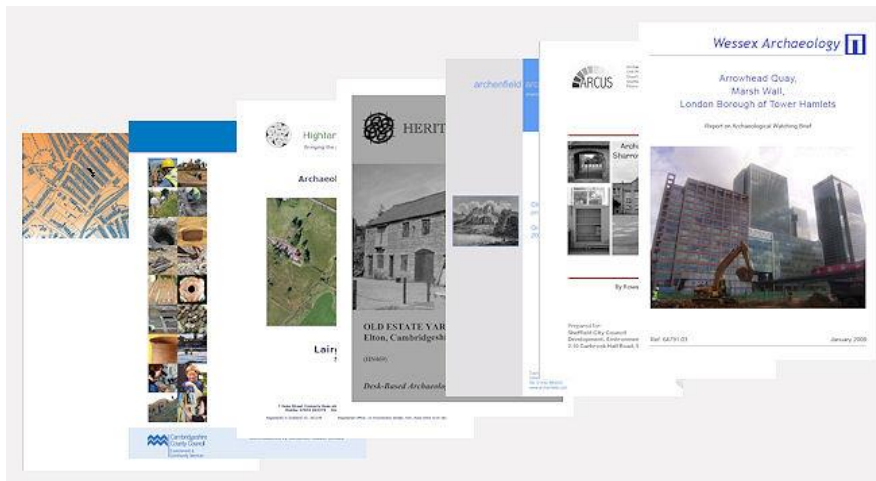


Picture from DLib

The Preservation and Re-use of Archaeological Data

Digital Data and Archaeology

- Published data are limited
- Majority of data recorded in grey literature
- Data are not easily searchable
- Access to data is difficult



G8 Open Data Charter 2013

Policy paper

G8 Open Data Charter and Technical Annex

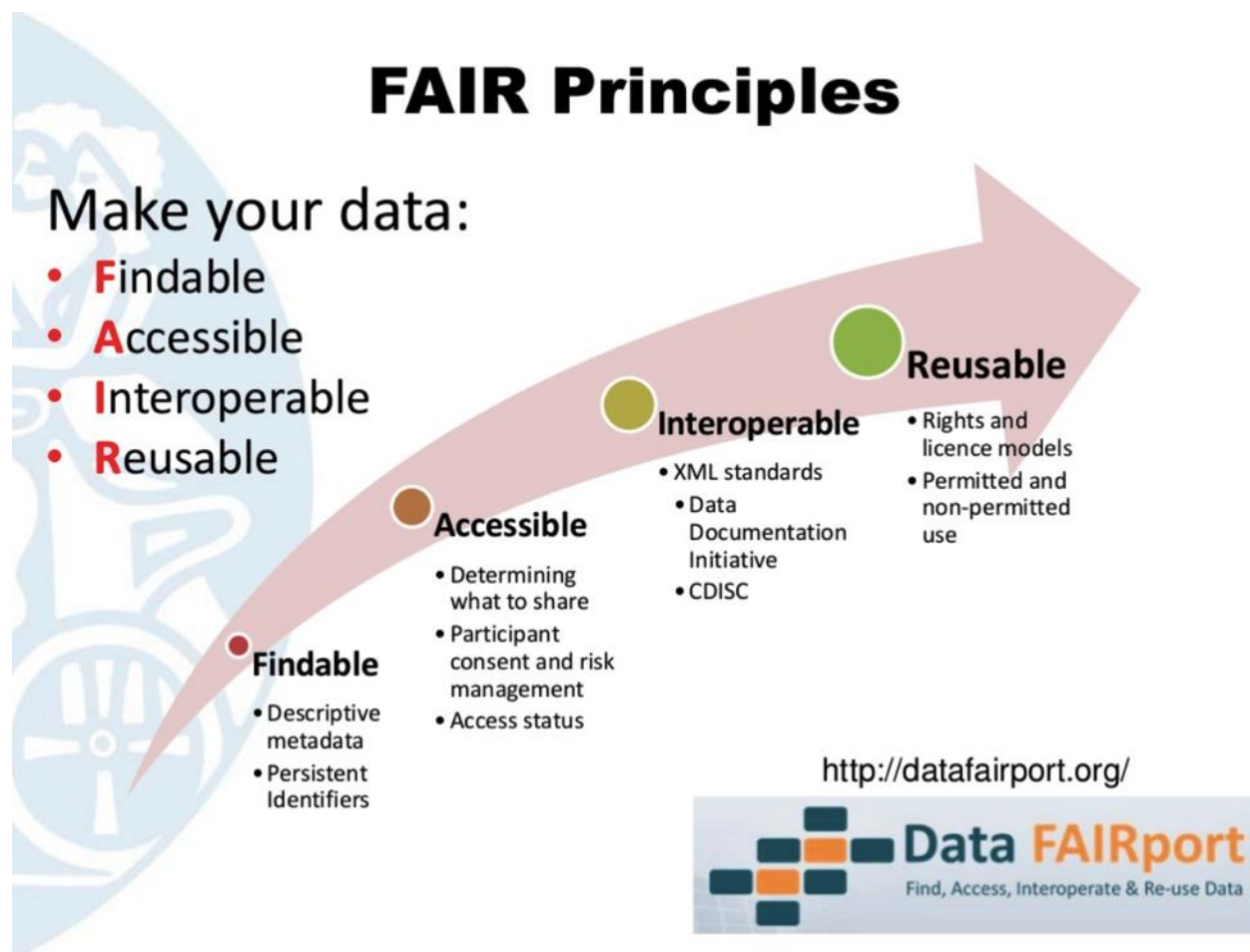
Published 18 June 2013

“a new era in which people can use open data to generate insights, ideas, and services to create a better world for all.”

1. Open Data by Default
2. Increase Quality and Quantity for re-use
3. Usable by All
4. Releasing Data for improved Governance
5. Releasing Data for Innovation

FAIR principles

- 2014: Leiden workshop
- Sept 2017: endorsed by G7 Science Ministers, Turin



The Archaeology Data Service

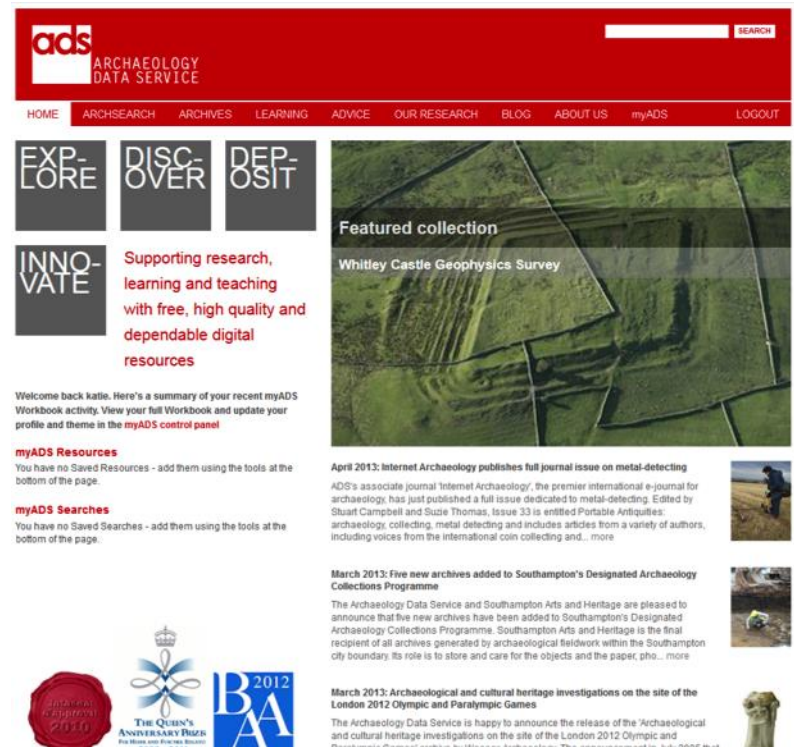
- Set up in 1996
- Based within the University of York
- 12 staff
- Business model based upon charging policy
- Trusted Digital Repository: Data Seal of Approval
- Received Digital Preservation Coalition's Decennial Award in 2012
- Oct 2016: 12Tb; 2,143,497 **files**; 21,327 recorded **processes**



The Archaeology Data Service

“Supporting research, learning and teaching with free, high quality and dependable digital resources”

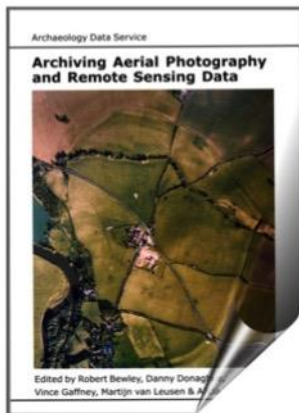
- Collects and preserves datasets
- Provides easy and free access to datasets
- Provides guidance and support to data creators



The screenshot shows the homepage of the Archaeology Data Service. At the top is a red navigation bar with the 'ads' logo and 'ARCHAEOLOGY DATA SERVICE' text. Below this is a search bar and a menu with links: HOME, ARCHSEARCH, ARCHIVES, LEARNING, ADVICE, OUR RESEARCH, BLOG, ABOUT US, myADS, and LOGOUT. The main content area features three large buttons: 'EXPLORE', 'DISCOVER', and 'DEPOSIT'. Below these are 'myADS Resources' and 'myADS Searches' sections, both indicating no saved items. A 'Featured collection' section highlights the 'Whitley Castle Geophysics Survey' with an aerial image. A news section on the right lists updates: 'April 2013: Internet Archaeology publishes full journal issue on metal-detecting archaeology', 'March 2013: Five new archives added to Southampton's Designated Archaeology Collections Programme', and 'March 2013: Archaeological and cultural heritage investigations on the site of the London 2012 Olympic and Paralympic Games'. At the bottom, there are logos for 'INTERNATIONAL ARCHAEOLOGICAL YEAR 2010', 'THE QUEEN'S ANNIVERSARY PRIZE FOR HISTORY AND HERITAGE', and 'BA 2012'.

Guides to Good Practice

- GIS
- CAD
- Geophysics
- AP and Remote Sensing
- Excavation and Fieldwork
- Virtual Reality



Archaeology Data Service / Digital Antiquity Guides to Good Practice

Log in

- Home
- Full Table of Contents
- **Digital Archiving**
 - About these Guidelines
 - How to use these Guides
 - What is Digital Archiving?
 - Archival Strategies
- **The Project Lifecycle**
 - Planning for the Creation of Digital Data
 - Project Documentation
 - Project Metadata
 - Data Selection: Preservation Intervention Points
 - The Project Archive: Storage and Dissemination
 - Copyright and Intellectual Property Rights
- **Basic Components**
 - Documents and Texts

This new and revised series of Guides to Good Practice have been produced as the result of a two-year collaborative project between the UK Archaeology Data Service and Digital Antiquity in the US. The project has encompassed important revisions of the existing six ADS Guides as well as the development of entirely new documents covering areas such as marine survey, laser scanning, close-range photogrammetry, digital audio and digital video. The project has involved previous Guides authors revising existing content alongside new authors, from both Europe and the US, also contributing to the development of the guides into new themes and areas.

The project has been undertaken in collaboration with the Digital Antiquity initiative, a US-based project with the aim of enhancing the preservation of and access to digital records of archaeological investigations. A major aim of the Guides is to provide the basis for archaeological project workflows that will create digital datasets that can be archived and shared effectively by Digital Antiquity's tDAR archive and repository in the US and by the Archaeology Data Service in the UK. The development of the Guides involves close collaboration with teams in the US at both the University of Arkansas and Arizona State University.

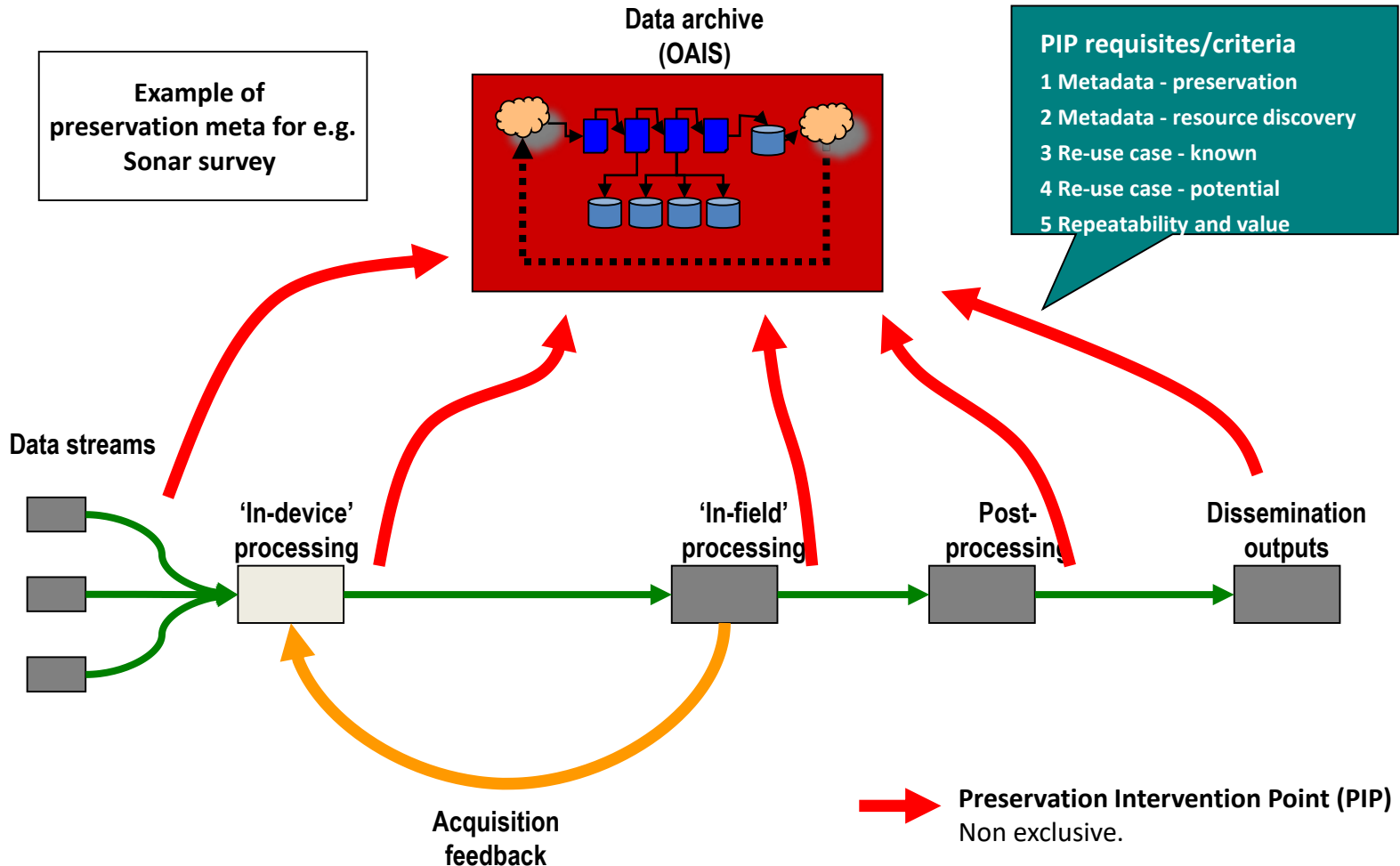
Other ADS projects have also fed into the revision and development of the Guides. ADS involvement in the European VENUS project has formed the basis of a guide focussed on marine survey. In addition, the incorporation of findings from the ADS Big Data project, together with the revision of the existing guide on aerial photography and remote sensing data, has seen a significant contribution to the guides from English Heritage funded projects.

Previous versions of the ADS/AHDS Guides to Good Practice have been archived and are still available on the old Guides to Good Practice page.

View the full new Guides to Good Practice Table of Contents



Preservation Intervention Point Schema



EXPLORE

DISCOVER

DEPOSIT

INNOVATE

Supporting research,
learning and teaching
with free, high quality and
dependable digital
resources

[About Us](#)

Welcome to the new ADS website. There are a number of new features of the website that will make it easier and more enjoyable to use. Please read the **'About'** this site section for more details. This site works best with the Firefox, Chrome and Safari browsers. Why not **register as a myADS** user to take full advantage of the additional features. On registration these personal myADS features become available.

Workbook

Using the tools at the bottom of each page save your favourite resources and regular searches in the myADS Workbook.

History

Your recent exploration of the site and the archives is automatically saved in your myADS History.

Additional services

Registered ADS users can take advantage of a number of additional myADS services, such as tailored email alerts and download of configurable results sets.

Featured collection

Exeter Archaeology Archive Project



March 2016: Call for Papers - Preservation and Re-Use of Digital Archaeological Research Data with Open Archival Information Systems

The ADS, IANUS, and DANS are pleased to invite submissions for the CHNT session on the preservation and re-use of data in Archaeology. This session will focus on the services and duties of existing repositories and archives and the implementation of the OAIS model within their day-to-day business of data curation, preservation and dissemination. Talks will address different aspects of how to pres... more

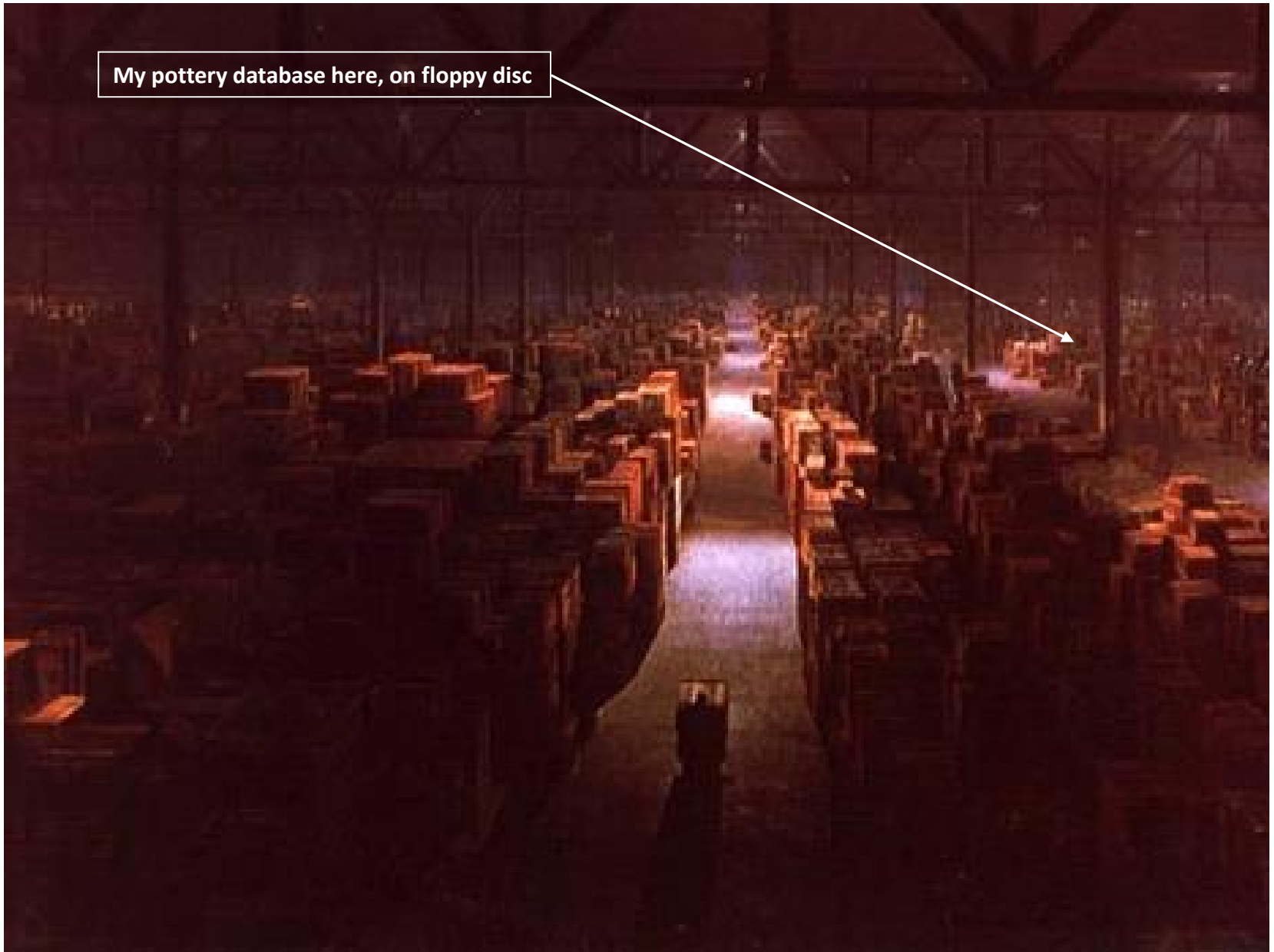


February 2016: A Unique Engraved Shale Pendant from the Site of Star Carr


Internet Archaeology is pleased to announce the publication of A Unique Engraved Shale Pendant from the Site of Star Carr: the oldest Mesolithic art in Britain by Nicky Milner et al. The artwork on the pendant is the earliest known Mesolithic art in Britain; the barbed line motif is comparable to styles on the Continent, particularly in Denmark. When it was first uncovered the lines were barely v... more



My pottery database here, on floppy disc



ArchSearch: Browse – 1.35m records

SEARCH

HOME ARCHSEARCH ARCHIVES DEPOSIT LEARNING ADVICE RESEARCH ABOUT US BLOG LOGIN

BROWSER BASIC RESET QUERY ADVANCED MAP


KEYWORD


SEARCH

1352437 Total results.

◀◀ 123... ▶▶


ABBAY FIELDS ABBEYMAD


 **Historic England NRHE Excavation Index for England**

 Followed by excavation 14/86 (Event 652905). Observation of sewer trench.

GLOUCESTERSHIRE


AINSBROOK SITE


 **Historic England NRHE Excavation Index for England**

 Evaluation and excavation of the site of a Viking period hoard recorded a disturbed burial with grave goods and a large Bronze Age enclosure. Metal detectorists had previously removed '7000' artefacts from the site, the location of which is kept secret.

NORTH YORKSHIRE

APPLEGARTH WEST OF ST ANDREWS CHURCHYARD

 **Historic England NRHE Excavation Index for England**

 Two small trial trenches in the garden of a 1960s bungalow adjacent to the churchyard boundary wall on the west side of St Andrew's Church revealed traces of the Roman road from the Mendips to the River Avon, possibly RR540. There were also indications of a possible Roman roadside settlement, as well as earlier medieval activity pre-dating the laying out of the market place.

BATH AND NORTH EAST SOMERSET

▼ WHAT

- ▶ Event 135966
- ▶ Evidence 258858
- ▶ Maritime 60455
- ▶ Monument Types 1162012
- ▶ Object Types 181295

▼ WHERE

- ▶ England 813033
- ▶ Northern Ireland 18468
- ▶ Scotland 348052
- ▶ Wales 151234
- ▶ Isle Of Man 1724

▼ WHEN

- ▶ Early Prehistoric 14014
- ▶ Later Prehistoric 96436
 - Roman 73553
 - Early Medieval 21190
- ▶ Medieval 143692
- ▶ Post Medieval 355801
- ▶ Modern 75766

Down to 48 records in 3 clicks

ads ARCHAEOLOGY DATA SERVICE

HOME ARCHSEARCH ARCHIVES DEPOSIT LEARNING ADVICE RESEARCH ABOUT US BLOG LOGIN

WHAT Funerary Site WHERE Nottinghamshire WHEN Early Medieval RESET QUERY

KEYWORD SEARCH 48 Total results. << 1 2 3 ... >>

BROWSER BASIC

- WHAT
 - Event 19
 - Evidence 32
 - Monument Types 48
 - Agriculture And Subsistence 7
 - Civil 2
 - Communications 1
 - Defence 6
 - Domestic 12
 - Industrial 2
 - Monument [By Form] 24
 - Religious Ritual And Funerary 41
 - Cross 1
 - Funerary Site 48**
 - Place Of Worship 10
 - Rock Art 2
 - Transport 3
 - Unassigned 14
 - Water Supply And Drainage 1
 - Object Types 23
- WHERE
 - England 48
 - Nottingham 2**

ADVANCED MAP

121 MILLGATE
Historic England NRHE Excavation Index for England
No description
NOTTINGHAMSHIRE

ALL SAINTS CHURCH COLLINGHAM
Historic England NRHE Excavation Index for England
No description
NOTTINGHAMSHIRE

An Archaeological Watching Brief Carried Out During Groundworks at the Rear of 5658 Goose Gate Nottingham
ADS Grey Literature Library
An Archaeological Watching Brief Carried Out During Groundworks at the Rear of 56-58 Goose Gate, Nottingham
NOTTINGHAMSHIRE

BARROWS HILL
Historic England National Inventory (NRHE)
Alleged Danish burial ground.
NOTTINGHAMSHIRE

Roman Amphorae: a digital resource

University of Southampton, 2005 (updated 2014)

Home
Introduction
Catalogue
Fabrics
Search
Reference
Metadata
Usage Statistics

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Arts & Humanities
Research Council

Primary contact

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Dept of Archaeology
University of Southampton
Avenue Campus
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Southampton
SO17 1BJ
England
Tel: 080 593032

[Send e-mail enquiry](#)

Catalogue of Amphora

Choose a letter from the list below.

[A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [K](#) | [L](#) | [M](#) | [O](#) | [P](#) | [R](#) | [S](#) | [T](#) | [U](#) | [V](#)

This is the catalogue of preferred terms; if the term you are looking for is not here, please search the [alternative classifications](#).

Amphora types beginning with **A**.

Use the [i](#) link to view the more details of the type, including photos, drawings, thin sections, petrology and bibliographic information.

- | | |
|----------------------------------------------------|------------------------------------------------------|
| i Africana 1 Piccolo | i Almagro 51C |
| i Africana 2A Grande | i Almagro 51C Variant |
| i Africana 2B Grande | i Almagro 54 |
| i Africana 2B Pseudo-Tripolitanian | i AM72 |
| i Africana 2C Grande | i Amphorae Saumure d'Espagne |
| i Africana 2D Grande | i Amphore de Pamphylie |
| i Africana 3A | i Amphore Égyptienne 1 |
| i Africana 3B | i Amphore Égyptienne 2 |
| i Africana 3C | i Amphore Égyptienne Bitronconique 3 |
| i Agora F65-66 | i Amrit amphora |
| i Agora G199 | i Ancient Tripolitanian Amphora |
| i Agora K109 | i Aquincum 78 |
| i Agora M54 | |



Africana 1 Piccolo

The Rural Settlement of Roman Britain: an online resource

Martyn Allen, Nathan Blick, Tom Brindle, [Tim Evans](#), Michael Fulford, Neil Holbrook, [Julian D Richards](#), Alex Smith, 2015

Introduction

[Query](#)

[Map](#)

[Metadata](#)

[Usage Statistics](#)

[Feedback questionnaire](#)

Data copyright © University of Reading unless otherwise stated



Primary contact

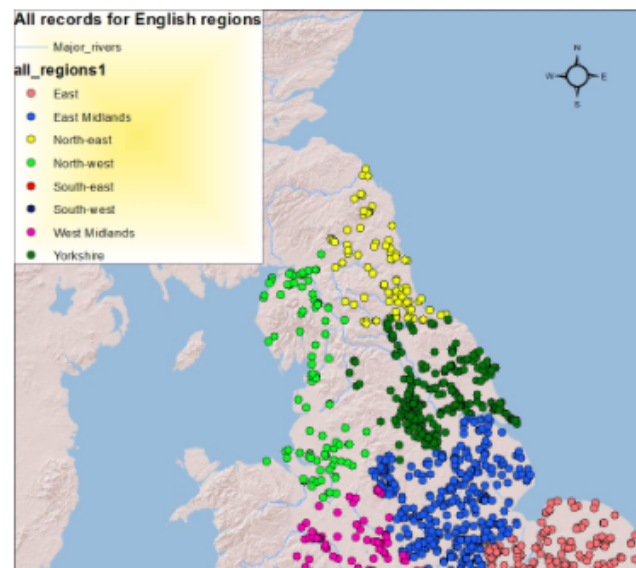
Prof Michael Fulford
Professor of Archaeology
School of Archaeology, Geography and
Environmental Science
University of Reading
Whiteknights
PO Box 218
Reading
RG6 6AA

Introduction

This resource brings together the excavated evidence for the rural settlement of Roman Britain with the overarching aim to inform a comprehensive reassessment of the countryside of Roman Britain. It includes both traditionally published reports and 'grey literature' reports from developer-funded excavations since 1990.

The project arose from pilot projects undertaken by Cotswold Archaeology¹ and funded by Historic England and it began in 2012. It is funded by grants from the Leverhulme Trust to the Universities of Reading and York (ADS)² and from Historic England to Cotswold Archaeology.³

Phase 1 (April 2015) publishes the settlement evidence from Roman England. Subsequent phases will add Roman Wales (by December 2015) and the related finds, environmental and burial data (by 1st April 2017). These will be used alongside the specific site data in a series of integrative studies on rural settlement, economy, people and ritual to be published by the Society for the Promotion of Roman Studies as Britannia Monographs between 2016 and 2018.



Ipswich 1974-1990 Excavation Archive

Suffolk County Council Archaeological Service, 2015

- [Introduction](#)
- [Overview](#)
- [Site List](#)
- [Interactive Map](#)
- [Query](#)
- [Downloads](#)
- [Metadata](#)
- [Usage Statistics](#)

Data copyright © Suffolk County Council Archaeological Service unless otherwise stated



ENGLISH HERITAGE

Primary contact

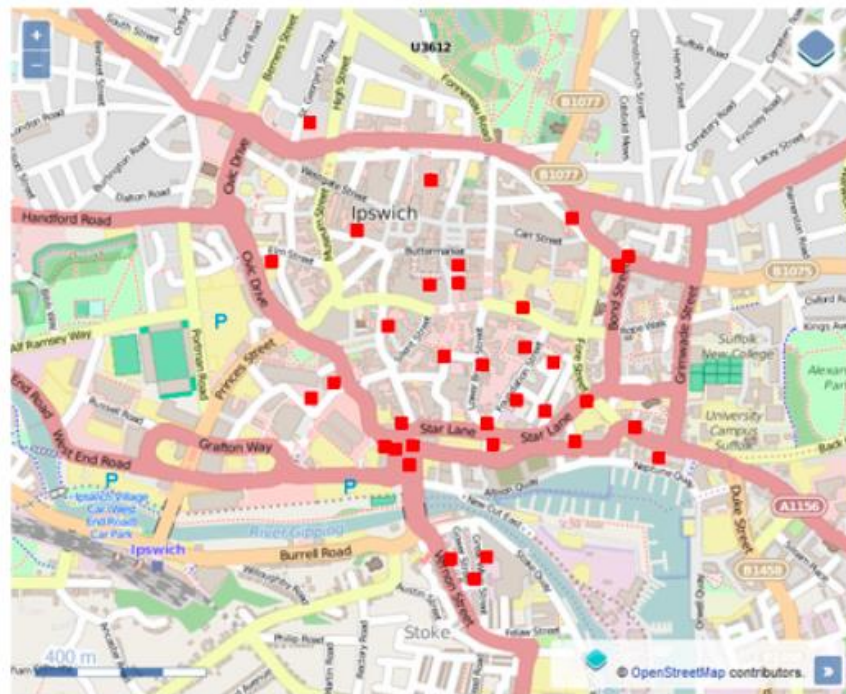
Suffolk County Council Archaeological Service
9-10 Churchyard
Bury St Edmunds

Introduction

The modern town centre of Ipswich, centred at Ordnance Survey grid point TM 1590 4060, lies on the site of its Middle Saxon predecessor (Gippeswic).

Despite the recognition of the town's early foundation in the 1950s, little opportunity was taken to undertake archaeological excavation within the historic core until the 1970s. The recognition at this time that Middle Saxon Ipswich was one of only a handful of trading settlements displaying urban characteristics (emporia / wics) elevated the town's archaeological status to one of international importance.

Between 1974 and 1990 the 36 excavations on 34 sites archived here were carried out by the Suffolk Archaeological Unit (subsequently Suffolk County Council Archaeological Service) under the direction of Keith Wade. Much analysis had been done but further work towards publication was delayed and deferred



Elm Street, Ipswich - IAS3902

Suffolk County Council Archaeological Service, 2015

[Introduction](#)
[Overview](#)
[Downloads](#)
[Metadata](#)
[Usage Statistics](#)

[Ipswich 1974-1990 Excavation Archive](#)

Data copyright © Suffolk County Council Archaeological Service unless otherwise stated



Primary contact

Suffolk County Council Archaeological Service
 9-10 Churchyard
 Bury St Edmunds
 Ipswich
 IP33 1RX

[Send e-mail enquiry](#)

Resource identifiers

ADS Collection: 1916
 DOI: <https://doi.org/10.5284/1034350>

Downloads

[Reports](#) | [Images](#) | [GIS](#)

Images

Select from the options below to see the various images related to this site.

[Plan Drawings](#) | [Section Drawings](#) | [Site Photos](#) | [Finds Images](#) | [Finds X-rays](#)

Plan Drawings

Records 1 - 8 of 8

	IAS 3902 0505	JPG	1.63 Mb
	IAS 3902 SC001 level 2	JPG	765 Kb
	IAS 3902 SC002	JPG	913 Kb
	IAS 3902 SC003 level 1	JPG	584 Kb

Library of Unpublished Fieldwork Reports

[Introduction](#)
[Browse by contractor](#)
[Contractors A-Z](#)
[Search reports](#)



Primary contact
 Archaeology Data Service
 Dept. of Archaeology
 The King's Manor
 University of York
 YO1 7EP
 UK
 Tel: 01904 433954
 Fax: 01904 433939

[Send e-mail enquiry](#)

Resource identifiers

ADS Collection: 1093

Introduction

The aim of this resource is to make available unpublished fieldwork reports in an easily retrievable fashion. There are **currently 45953 reports available** and this number is increasing steadily through the OASIS project in England and Scotland.



The grey literature here is now searchable alongside other archaeological publications in the **ADS Library**. These pages now search the reports stored in the ADS library and link through to the record details pages there.

Through this resource it is possible to list the reports by contractor, using the [browse by contractor](#) option and also to do a more advanced search filtering these reports by period, monument/artefact type and location using the [search](#) option. These unpublished reports cover archaeological interventions such as: watching briefs, excavation reports and building surveys. Desk-based assessments and specialist analysis are also included.



Unpublished Fieldwork Reports (Grey Literature Library)

Introduction

[Browse by contractor](#)

[Search reports](#)



Primary contact

Archaeology Data Service



King's Manor

Exhibition Square

York

YO1 7EP

England

Tel:  01904 323954 

Fax: 01904 323939

[Send e-mail enquiry](#)

Resource identifiers

doi:10.5284/1000746

[How to cite using this DOI](#)

Details of Document

Bibliographic Reference and files

Blythe, K. (2005) *'The Limes, Ribchester'*, 2004-5/334. Oxford Archaeology North: Lancaster

Click on a button to open a file, or right click and use file --> save as from your browser menu to save the file to your computer. Alternatively, if the report is available online, click on the link to open the resource in a new window:

oxfordar2-35728_1.pdf

PDF

1013
Kb

[<< display document details >>](#)

Site details

Location

Site name The Limes, Ribchester
Parish RIBCHESTER
District RIBBLE VALLEY
County LANCASHIRE
Country ENGLAND
Grid reference SD 65861 35410 (point)

Monuments and Finds

Other details

Description A4 Document
Associated identifier oxfordar2-35728



Start a new search...

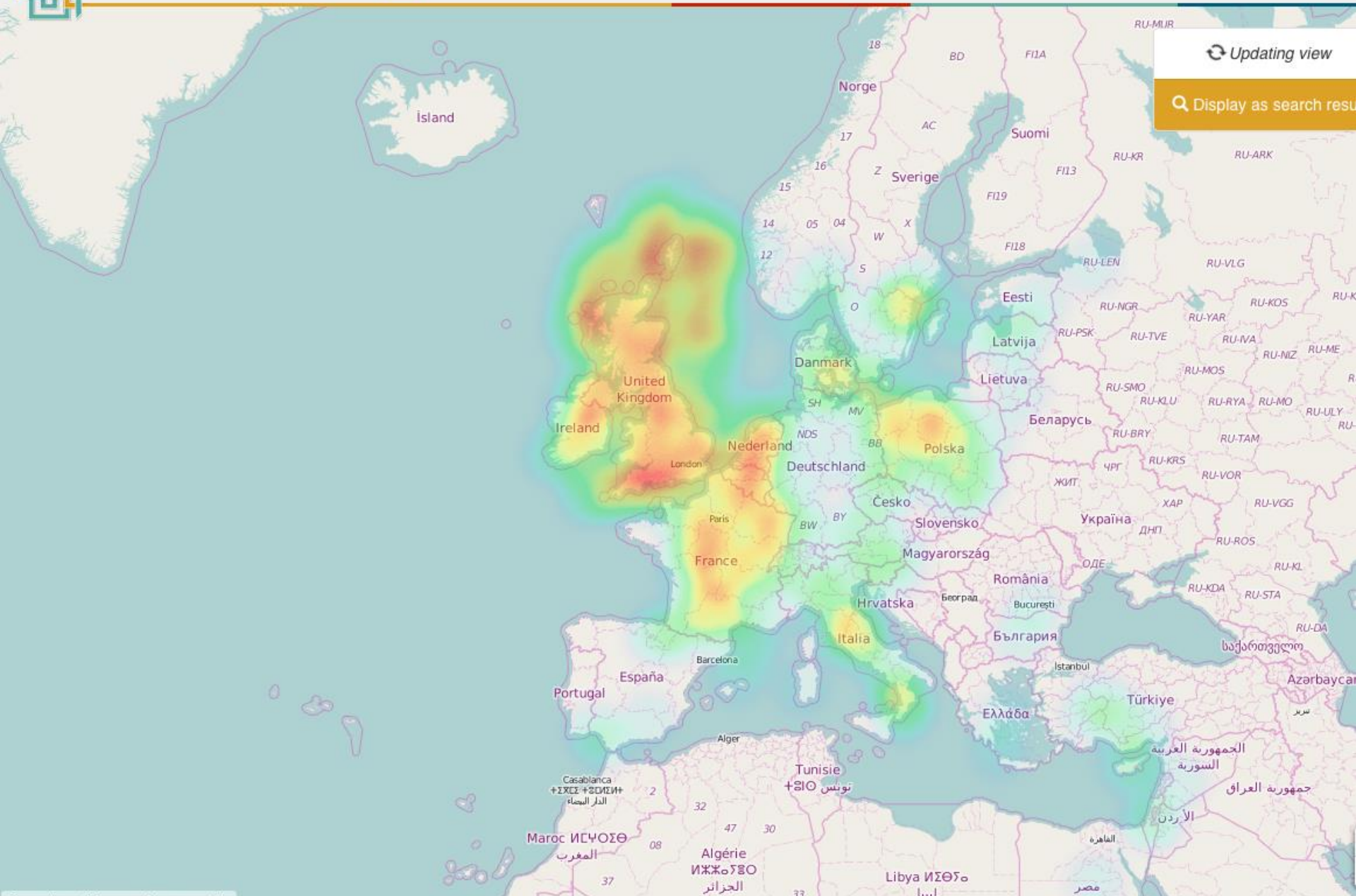


 Catalog

 Services

 Experiments

 About



 Updating view

 Display as search results

[← Back to search results](#)

Number 1 Poultry (ONE 94)

[Access resource on the web](#)

The site of 1 Poultry is located near the Bank of England, in the heart of the City of London. During the 1990s, one of the largest excavations in the City recovered a remarkable archaeological sequence from the 1st to the 20th century AD. This was augmented by findings from nearby sites at Bucklersbury, Lothbury, Lombard Street, 72-75 Cheapside, 76-80 Cheapside, 36-37 King Street and Mansion House. 1 Poultry lies immediately west of the point where the main east-west road through Roman London bridged the Walbrook stream and uncovered an unparalleled sequence of buildings, roads, and open spaces. A timber drain of AD 47 beneath the main road is the earliest, securely dated structure yet known from Londinium, and a pottery shop, destroyed in the Boudican revolt, gives a snapshot of life in AD 60/61. A 2nd-century AD writing tablet preserves the only evidence for the sale of a slave found in Britain to date, while the 3rd- and 4th-century AD buildings on the site provide a rare demonstration of the continuities and changes that occurred in Roman urban life.

[Read more](#)

[Early Medieval](#) [Medieval](#) [Post Medieval](#) [Roman](#)

[World, Europe, United Kingdom, England, Greater London, London, City of London \[7011798\]](#)

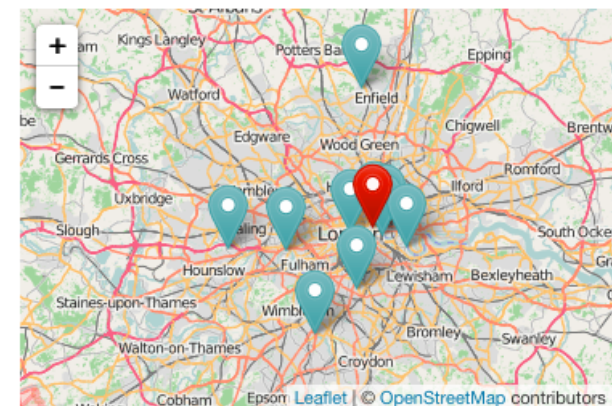
Metadata

Identifier	19138479
Language	English
Resource type	Fieldwork archives
Type	Collection
Publisher	Archaeology Data Service <i>[Organization]</i>
Issued	2013
Contributor	Museum of London Archaeology <i>[Organization]</i>

License information

Access Rights	ADS Terms and Conditions
Access Policy	http://archaeologydataservice.ac.uk/advice/termsOfUseAndAccess

Geographically similar



Current resource

Similar resource

Thematically similar

- [Maltings Lane, Witham, Essex Archaeological Excavation](#)
- [The evolution of Rome's maritime facade: archaeology and geomorphology at Castelporziano](#)
- [Framework Archaeology Heathrow Terminal 5 Excavation Archive](#)
- [Mill Close, Grantham, Lincolnshire. Archaeological Watching Brief](#)
- [Mersham ARC MSH 98](#)
- [Archaeological and cultural heritage investigations on the site of the London 2012 Olympic and Paralympic Games](#)
- [Roman Piercebridae](#)

Number 1 Poultry (ONE 94)

Museum of London Archaeology, 2013

Introduction

Overview

Downloads

Metadata

Usage Statistics

Data copyright © Museum of London
Archaeology unless otherwise stated



ENGLISH HERITAGE

Introduction

The site of 1 Poultry is located near the Bank of England, in the heart of the City of London. During the 1990s, one of the largest excavations in the City recovered a remarkable archaeological sequence from the 1st to the 20th century AD. This was augmented by findings from nearby sites at Bucklersbury, Lothbury, Lombard Street, 72-75 Cheapside, 76-80 Cheapside, 36-37 King Street and Mansion House.

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Number 1 Poultry (ONE 94)

Museum of London Archaeology, 2013

- [Introduction](#)
- [Overview](#)
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- [Metadata](#)
- [Usage Statistics](#)

Data copyright © Museum of London Archaeology unless otherwise stated



ENGLISH HERITAGE

Primary contact

Julian Hill
Post-Excavation Project Manager
Museum of London Archaeology
Mortimer Wheeler House
46 Eagle Wharf Road
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Downloads

The downloads are split into separate sections for each site (see [overview](#) for details). Please note that each site has separate file metadata, however conventions and codes for CAD and spreadsheet files are common to all sites and are presented as overarching metadata below. The concordance document gives further details of the relationships between ONE94 and the satellite sites.

Concordance document	PDF	623 Kb
MoLA CAD layer conventions	PDF	78 Kb
Spreadsheet conventions	CSV	40 Kb

[ONE94](#) | [BOL94](#) | [BUC87](#) | [CID90](#) | [DOC87](#) | [LOM88](#) | [BRD88](#) | [KNG85](#) | [LHY88](#) | [SON85](#) | [MHO92](#) | [PLY87](#)

ONE 94 (1 Poultry)

File Metadata ONE94	TXT	11 Kb
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Spreadsheet files

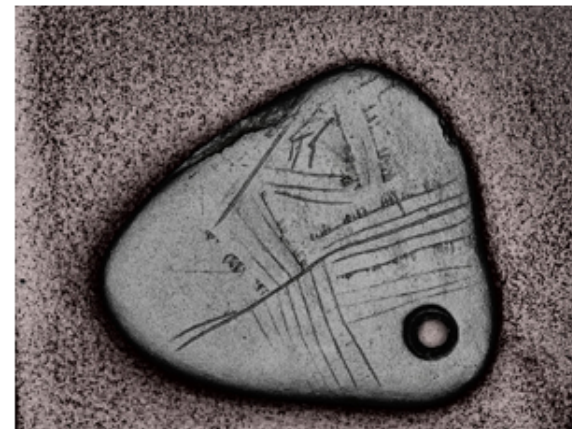
ONE94 abonedata01	CSV	1.25 Mb
ONE94 anbntab07	CSV	1.29 Mb
ONE94 anbntab08	CSV	39 Kb
ONE94 anbntab09	CSV	852 Kb
ONE94 anbntab10	CSV	874 Kb
ONE94 biblio01	CSV	6 Kb
ONE94 bmdata01	CSV	213 Kb
ONE94 botdata01	CSV	49 Kb
ONE94 botrentab02	CSV	13 Kb

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A Unique Engraved Shale Pendant from the Site of Star Carr: the oldest Mesolithic art in Britain

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Laura C. Fitton⁴, Becky Knight¹, Roland Kröger², Aimée Little¹, Andy Needham¹,
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Summary

In 2015 an engraved shale pendant was found during excavations at the Early Mesolithic site of Star Carr, UK. Engraved motifs on Mesolithic pendants are extremely rare, with the exception of amber pendants from southern Scandinavia. The artwork on the pendant is the earliest known Mesolithic art in Britain; the 'barbed line' motif is comparable to styles on the Continent, particularly in Denmark. When it was first uncovered the lines were barely visible but using a range of digital imaging techniques it has been possible to examine them in detail and determine the



Star Carr Archives Project

Nicky Milner, Hayley Saul, Ben Elliott, 2013

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Introduction

Star Carr is an internationally renowned, Early Mesolithic site in the Vale of Pickering, North Yorkshire. It was first discovered by a local amateur archaeologist, John Moore, but became known worldwide after the excavations of Professor Grahame Clark, 1949-1951, due to the well preserved, rare artefacts which were uncovered. More recent excavations by the Vale of Pickering Research Trust (in the 1980s and since 2004), have led to further important discoveries such as a timber platform (the earliest evidence of carpentry in Europe) and a structure (the earliest known "house" in Britain).



One of the biggest stumbling blocks to conducting further research is access to the archive from the earlier excavations. Moore's paper archive is missing. There is no known paper archive from Clark's excavations and it is thought that all records must have been destroyed once the monograph (Clark 1954) had been published. The only surviving records are some of the photographic slides which are held in the Museum of Archaeology and Anthropology, Cambridge (MAA) and a small number held by Scarborough Archaeology and Historical Society. In addition, Clark's excavated assemblage has been dispersed across many museums and there is no over-arching catalogue. The paper archive for the Vale of Pickering Research

making the LEAP: linking electronic archives and publications



Arts & Humanities
Research Council



Strategy Programme.

The aim of the project is to investigate novel ways in which electronic publication over the Internet can provide broad access to research findings in the arts and humanities, and can also make underlying data available in such a way so that readers are enabled to 'drill down' seamlessly into online archives to test interpretations and develop their own conclusions.



Winner of the **British Archaeological Awards** - Best Archaeological Innovation 2008.

Highly Commended in **The Association of Learned and Professional Society Publishers Awards** - Publishing Innovation 2009.

"Making the LEAP" is funded by the Arts and Humanities Research Council (AHRC) under the ICT

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The Urban Landscapes of Ancient Merv, Turkmenistan

Tim Williams, Sjoerd van der Linde, 2008

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doi:10.5284/1000164
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THE UNIVERSITY of York

The landscapes of Islamic Merv, Turkmenistan: Where to draw the line?

Tim Williams

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Summary

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This article outlines approaches for interpreting the Islamic city of Sultan Kala (Merv), c. 8th–13th centuries AD, based upon aerial photographic and satellite imagery. Hierarchies of assumptions (identification of individual wall lines; which frame spaces, rooms and courtyards; which are grouped as parts of specific buildings; which are part of urban blocks) and ontologies (information about these assumptions and the variable confidence of interpretation, from the position of lines to spatial function) provide a dynamic structure for the presentation of data, interpretation and theory.

The article establishes procedures and protocols within two sample areas (selected to represent the diverse features of the urban and suburban landscapes) to:

Explore the theory and methodology of documenting interpretation (and uncertainty) in the transcription of aerial photographic and satellite imagery
Develop ontological approaches to structuring interpretations and assumptions, within a hermeneutic model.
Provide a textual and graphic narrative of the development of the areas.
Establish an online forum (weblog) to contribute to the long-term project.
Explore the use of other forms of electronic archive material, in particular, how imagery and audio files can be used to develop the discussion of landscapes and buildings.



Preparation of this electronic publication and associated [archive](#) was assisted by a [grant](#) from the AHRC under the ICT Strategy programme.

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Features

This article will appeal to: those interested in the presentation of data, interpretation and theory
Keywords: Merv; Silk Route; Turkmenistan; interpretation; uncertainty; aerial photographs; satellite
Find more publications on [the Silk Route](#) in the British and Irish Archaeological Bibliography (BIAB)

NEXT CONTENTS HOME COMMENTS

© Internet Archaeology/Author(s) URL: http://intarch.ac.uk/journal/issue25/merv_index.html
Last updated: Wed Apr 02 2008

Introduction

Ancient Merv, in Turkmenistan, is one of the most complex and well-preserved urban centres on the Silk Roads of Central Asia. A succession of major cities at Merv started in the 6th century BC and continued until the Mongol sack of 1221AD, although Mongol occupation, a resurgent Timurid city of the 15th century, and expansion in the 19th century continues the urban sequence. Together the walled urban areas covered more than 1000 ha.

The Institute of Archaeology, University College London, has had a long collaboration with the Turkmenistan Ministry of Culture, focused on archaeological research and approaches to the conservation and management of the Ancient Merv Archaeological Park, which since 1999 has been a World Heritage Site.

The collection of monument photographs (dating from 1890 onwards) was first compiled by Georgina Hermann, former director of the International Merv Project, who published some of them in 'Monuments

of Merv. Traditional Buildings of the Karakum'¹. In 2002 an expanded version of the photographic collection was published in 'The Monuments of Merv - A scanned archive of photographs and plans'², which included a CD-ROM with low resolution digital versions of the photographs. Since 2001 the Ancient Merv Project has added new images of the monuments, showing their current condition and conservation work, and more detailed metadata for the photographs has been assembled. More information on the Ancient Merv Project can be found at the [UCL website](#).

This digital archive was undertaken in conjunction with an electronic publication through the Linking Electronic Archives and Publications (LEAP) project. The corresponding article is 'The urban landscapes of Ancient Merv, Turkmenistan: Where to draw the line?' by Tim Williams & Sjoerd van der Linde, which can be found in [Internet Archaeology 25](#).

¹Hermann, G. 1999. *Monuments of Merv. Traditional Buildings of the Karakum*. London: Society of Antiquaries London

²Hermann, G. Coffey H., Laidlaw S. and K. Kurbanakhatov 2002. *The Monuments of Merv - A scanned archive of photographs and plans*. London: University College London and British Institute of Persian Studies



The Urban Landscapes of Ancient Merv, Turkmenistan

Tim Williams, Sjoerd van der Linde, 2008

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Resource identifiers

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 doi: 10.5284/1000164
 How to cite using this DOI



Image files | GIS files | Documents | Movies | Oral Interviews

Downloads

This section contains the shapefiles and aerial photos of the GIS as well as documentation. The aerial photos are very large so previews have been provided of a common area of the images to offer a comparison of quality and processing employed.

GIS files

Documentation:

GIS Layers	PDF	71 Kb
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Raster and World Files:

The raster images here are very large and may take a considerable time to download for some users with slower internet connections. Use the preview of the image on the left to see the quality and processing effects to determine if the image is desired before downloading. The complete TIFF and World File are zipped up and can be downloaded by clicking on the ZIP box on the right. Information on the images and the processing used can also be found in the 'GIS Layers' documentation above.

	AP Dom-Joined and enhanced	ZIP	80 Mb
	ikonos	ZIP	45 Mb
	AP Ceri-Joined	ZIP	64 Mb
	Russian map	ZIP	4 Mb
	AP Dom-Joined	ZIP	86 Mb
	AP Ceri-cut contrasted	ZIP	25 Mb

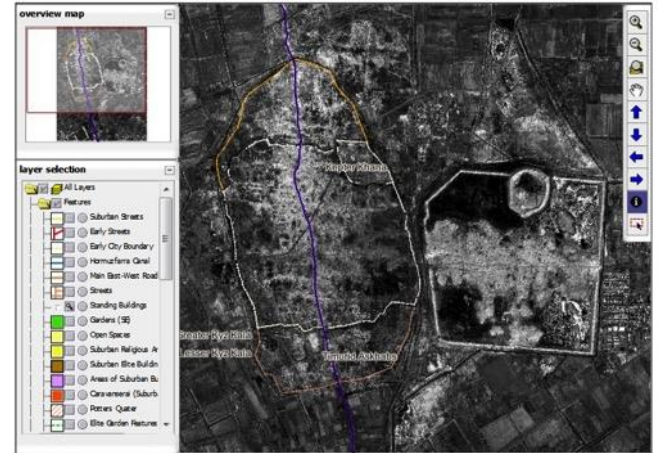
3. A short introduction to the city of Sultan Kala

With the coming of Islam, in the 7th century AD, Merv became the capital of Khurasan (the 'eastern land') (for an overview of the history see Kennedy [1999](#); Williams [forthcoming](#)). In the 740s the 'Abbasid revolution began here, and while Baghdad was established as the capital of the new empire, Merv's status grew, as the capital of Khurasan, from east of the Great Desert to the frontiers of India. In the same decade, the governor, Abu Muslim, commissioned a mosque to be built alongside the Madjan Canal, which flowed about a kilometre to the west of the old city of Gaur Kala. Thus began the new city of Marv al-Shahijan (Merv the great: today Sultan Kala) ([Fig. 7](#) - opens GIS). It is tempting to see the mosque as part of the planning for the heart of the new city, and by the 9th century it lay at the centre of a thriving metropolis. The city was planned, with a street system and a carefully managed water supply with numerous canals and reservoirs in each district (Williams [forthcoming](#)). It seems likely that the new status of Merv, coupled with new ideas and beliefs that identified the need for public

Figure 6: A short introductory film about Merv



Switch to the [Turkmen](#) version



Heathrow Terminal 5 Excavation Archive (Data Paper)

Framework Archaeology (comp) Re-use potential

Wessex Archaeology, Portway House, Old Sarum Park

Cite this as: Framework Archaeology (2014). Heathrow Terminal 5 Excavation Archive (Data Paper). Internet Archaeology, (36). <http://dx.doi.org/10.11141/ia.36.8>

Dataset Location

The dataset has been deposited with the ADS

Referee

[Referee statement](#) by Nicholas J. Cooper

Dataset Content

The digital archive for excavations at Heathrow Terminal 5 was created for the purposes of the archive it has been assumed necessary to reconstruct a working geographical context for the phases of excavation on the project from the 1950s to the present day. As a result the archaeological stratigraphy has been digitised into the GIS shapfiles as described in the [Stratigraphic Record](#).

The dataset was constructed with two main approaches to re-use in mind:

- Supportive: in that it provides the detailed raw data to support both the interpretations arrived at by Framework Archaeology and those of others wishing to re-interpret the history of the landscape at Heathrow.
- Comparative: as far as possible Framework Archaeology attempts to structure all its digital archives identically so that data from Heathrow (Framework Archaeology) and data recovered from Stansted (Framework Archaeology) can be compared. This approach possible allows the data to be re-worked to support comparisons with data derived from other sites.

Referee Statement

Nicholas J. Cooper, University of Leicester Archaeological Services LE1 7RH

Cite this as: Cooper, N.J. 'Referee Statement' in Framework Archaeology (2014). Heathrow Terminal 5 Excavation Archive (Data Paper). Internet Archaeology, (36). <http://dx.doi.org/10.11141/ia.36.8>

This data paper flags up the publication of the third level of information relating to the Terminal 5 excavations undertaken by Framework Archaeology at Heathrow and joins their other major archived projects at Stansted. The publication of the full digital archive provides an opportunity to explore the entire and updated record of the excavations that was previously only partially available on the Free Viewer CDs accompanying the two published site narrative volumes in 2006 and 2010.

Framework Archaeology was founded on the principle of undertaking 'academically-driven projects within the commercial environment' which place the previous inhabitants at the heart of the story; ditches did not continue in an easterly direction on their own but, instead, were dug by people who, as a community, made choices about living in a landscape, which consequently evolved around them over time. The mechanism driving this principle was to develop a hand-held on-site recording system that would allow interpretation to evolve in an informed way during the excavation itself and right through the post-excavation phase. At the heart of the digital archive is therefore a GIS package accompanied by stratigraphic, finds and environmental datasets, allowing the user to reconstruct the excavation of the site and potentially re-interpret it. Considerable time has therefore been devoted to making the system work effectively and this greatly enhances its usability.



Framework Archaeology Heathrow Terminal 5 Excavation Archive (Data Paper)

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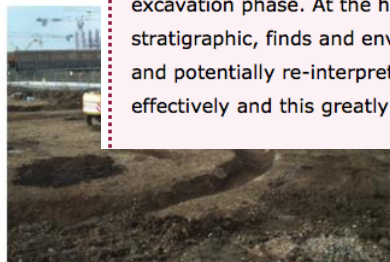
Primary contact
Wessex Archaeology
Portway House
Old Sarum Park

Open "archaeologydataservice.ac.uk" in a new tab

Introduction

Framework Archaeology is a Joint Venture agreement between Wessex Archaeology (WA) to provide archaeological services to BAA. On major projects, the joint venture enables Framework Archaeology to draw on the expertise of WA, including site staff, specialist managers, administrative support and a combination of resources (totalling over 300 staff) considerably more than provides Framework Archaeology with a wider skills base.

Framework Archaeology is committed to a particular archaeological philosophy developed by BAA's archaeological consultants, Gill Andrews and John Barrett. This is concerned with understanding how people inhabited past landscapes: archaeology as a study of people rather than deposits or objects. This approach is at the heart of the Archaeological Policy adopted by the BAA Main Board. Framework Archaeology projects are thus academically driven but undertaken within a commercial environment. In order to fulfil the approach a Framework Archaeology recording system has been developed and is now in operation on all Framework Projects. It places great emphasis on interpretation in addition to recording, and developing a historical narrative as the site is excavated (Andrews, Barrett & Lewis 2000).





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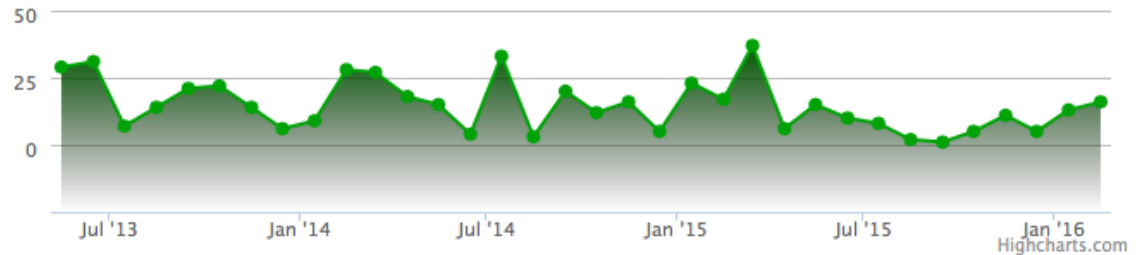
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ADS Collection: 1335
Collection doi: 10.5284/1019856
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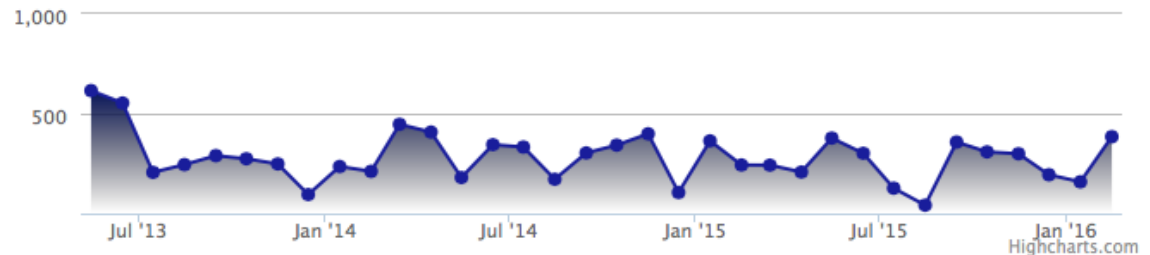
Click and drag in the plot area to zoom in



A download is a click on a link to something other than a web page, file extensions include: csv, doc, docx, gif, jar, jpg, jpeg, mp3, mp4, mov, odb, odt, pdf, png, ppt, pptx, txt, wav, wma, wmv, wpd, xls, xlsx, xml, zip but this is not an exhaustive list.

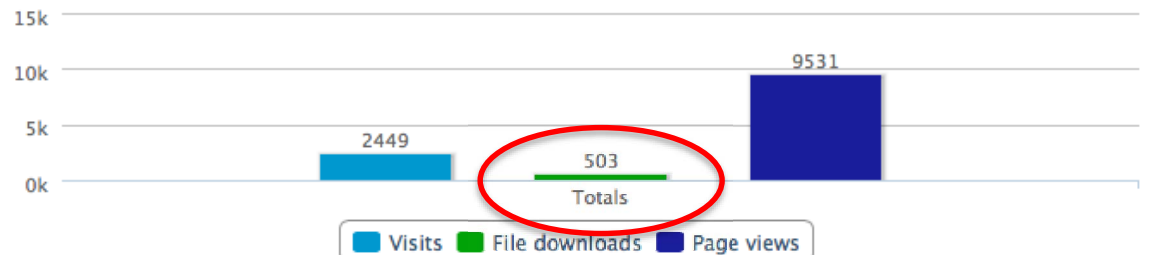
Page views within the archive

Click and drag in the plot area to zoom in



Pages viewed is the number of HTML pages or scripts that visitors have looked at. A "page" is a hit that is not an image, JavaScript or CSS file and which was not loaded by a search engine robot.

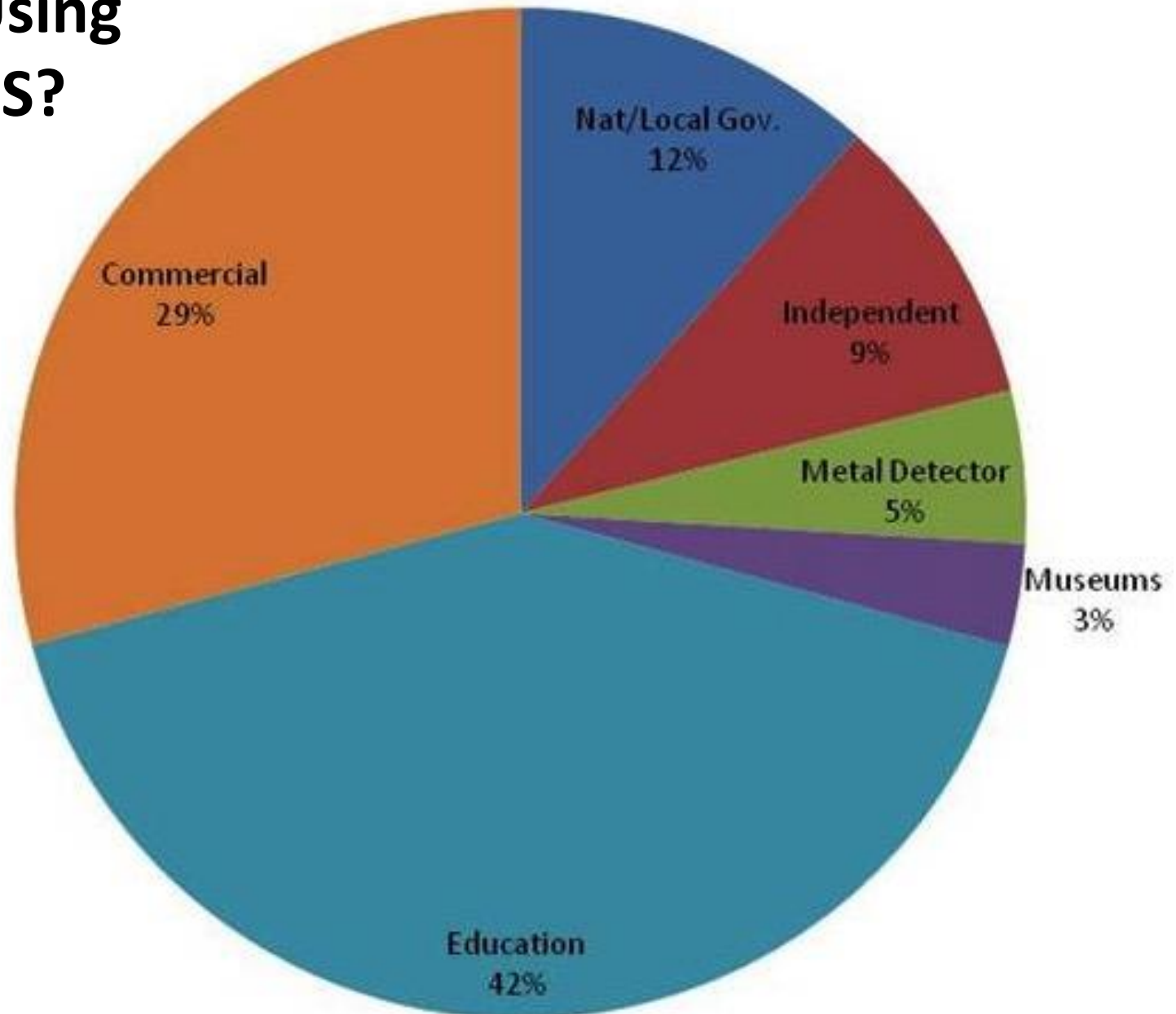
Totals since May 2013



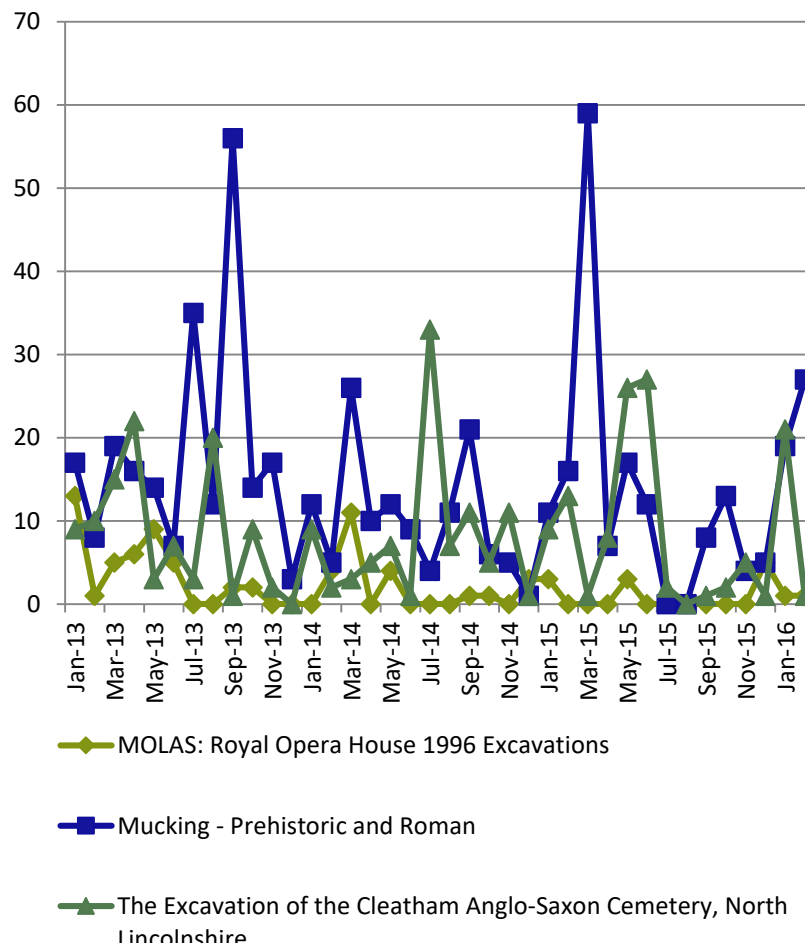
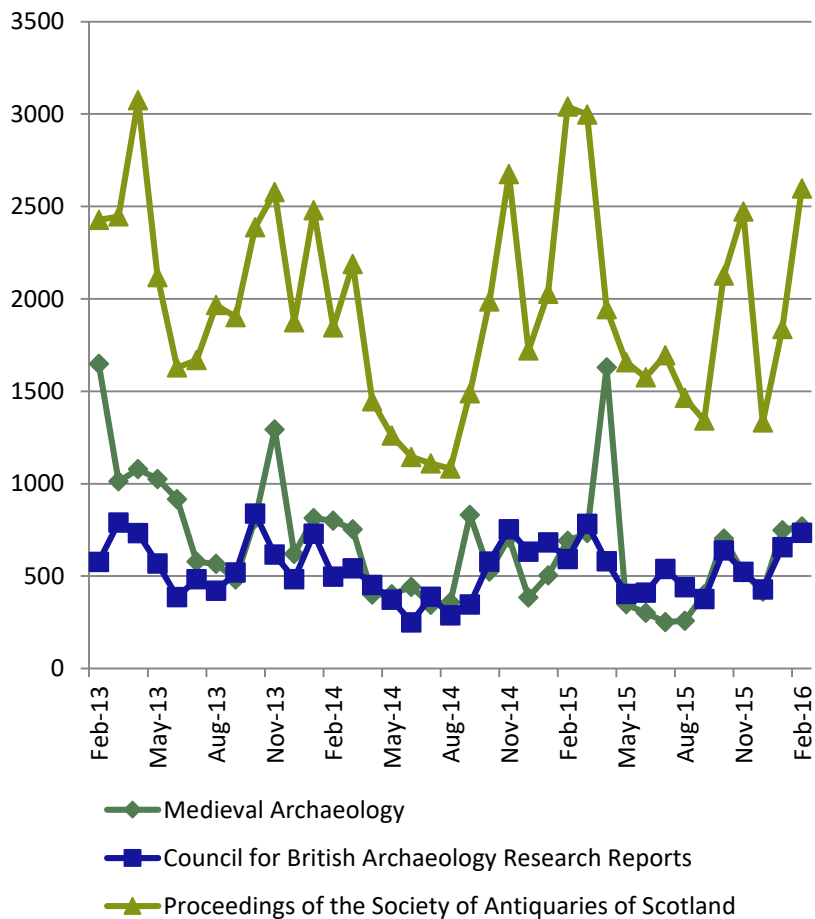
Highcharts.com

Statistics start from May 2013 but if the values are zero to start with they are not shown. Zero values after the start of use for the archive are shown.

Who is Using the ADS?



ADS Downloads: papers vs data sets



Data Re-Use

- Data collection is expensive!
 - Fowler: estimated only able to take account of 5% of information gained in last 20 years
 - Bradley: British & Irish Prehistory – 3 person years
 - Richards: Viking and Anglo-Saxon Landscape and Economy Project – using Portable Antiquities Scheme data – 2 person years of data cleaning
 - Fulford: Roman Rural Settlement project – 6 person years of data collection

Research Value

ADS: % respondents

- 84% - ADS has had an impact on data sharing
- 79% - reduced time required for data access and processing
- 51% - New intellectual opportunities
- 56% - Permitted new types of research
- 94% - Data very or quite important for their research



JISC

Data centres: their use, value and impact



Figure 16: Impact on culture of data sharing, by data centre

	ADS	BADC	CDS	ESDS	NGDC
To a large extent	84%	69%	72%	54%	68%
To a small extent	16%	29%	27%	40%	30%
Not at all	0%	2%	1%	7%	3%
N=	61	601	164	244	37

Source: Technopolis ranking based on survey of data centre users, January 2010

Economic Impact

Beagrie/ Houghton 2014:

- Investment value £1.2m pa
 - £698,000 pa funding from sponsors
 - £465,000 pa indirectly contributed by depositors
- Direct use value £1.4m pa
- But efficiency impacts £13m-£58m per annum
- Research efficiency gains = 7 hours per person per week
- **£1 investment provides up to £8.30 return**



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Conclusions

- Digital data preservation has a cost – but data collection / data loss is more expensive
- Digital data is re-used – and studies show research and economic return
- Sustainable business models for data archives are possible
- New models for publication/ dissemination
- Need to work at European level

Thank-you for listening



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