



Twenty years after.
Challenges and successes in digital archiving

Tim Evans 27-10-2018

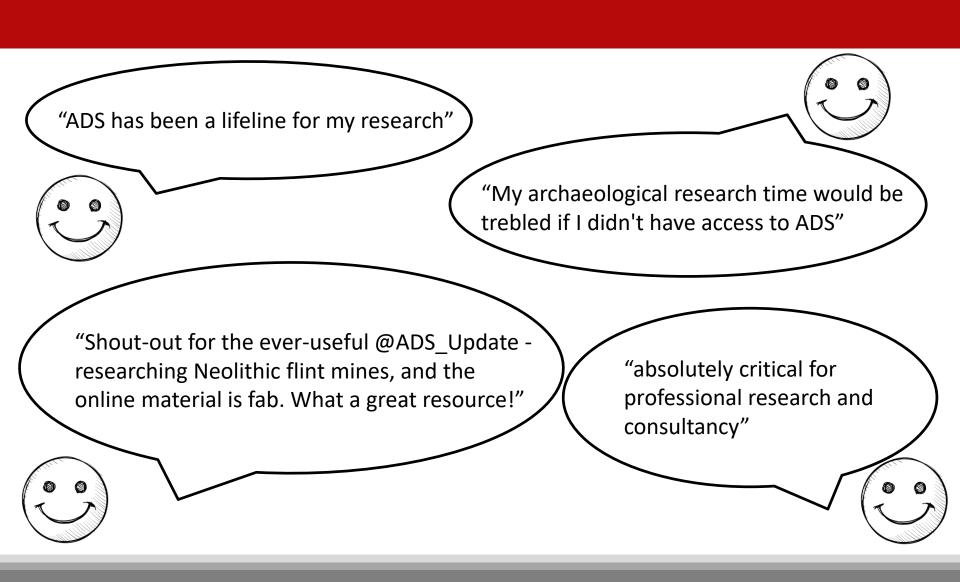


### Introduction

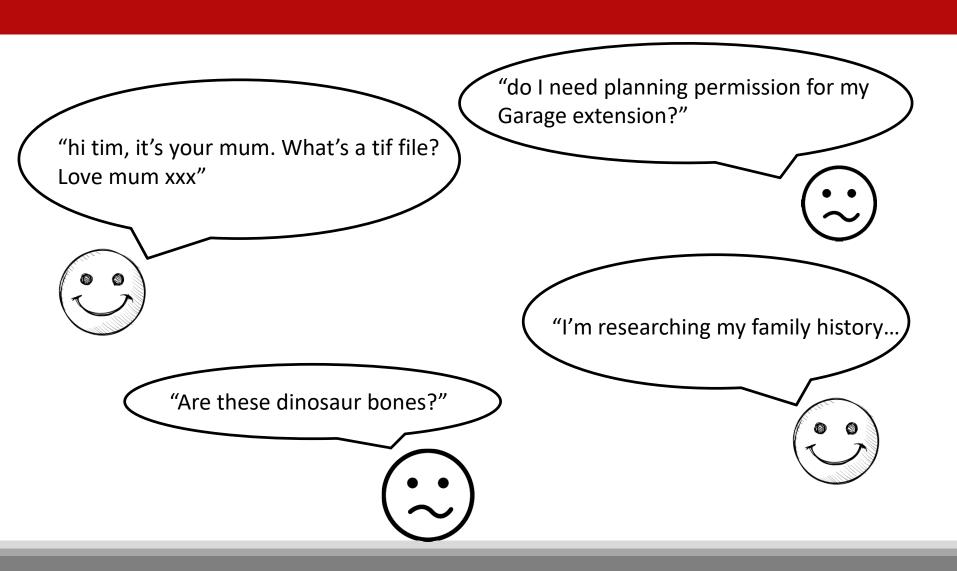
In April 1996 a consortium comprising eight Departments of Archaeology from UK Universities joined forces with the Council for British Archaeology (CBA) to put a proposal to the Arts and Humanities Data Service Executive to establish an *Archaeology Data Service* 



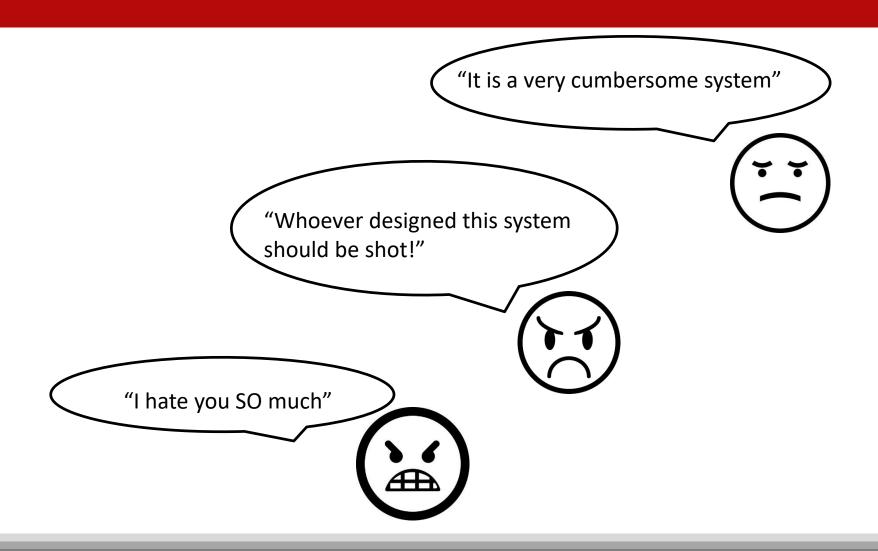














# Background

- Founded in 1996 as part of the AHDS
- 20 years after our first collection was accessioned (RCAHMS!)
- First iteration of the website in 1998
- Withdrawal of AHRC funding for the AHDS (in 2008)
- ADS business model based upon project-based charging policy

### Archaeology Data Service

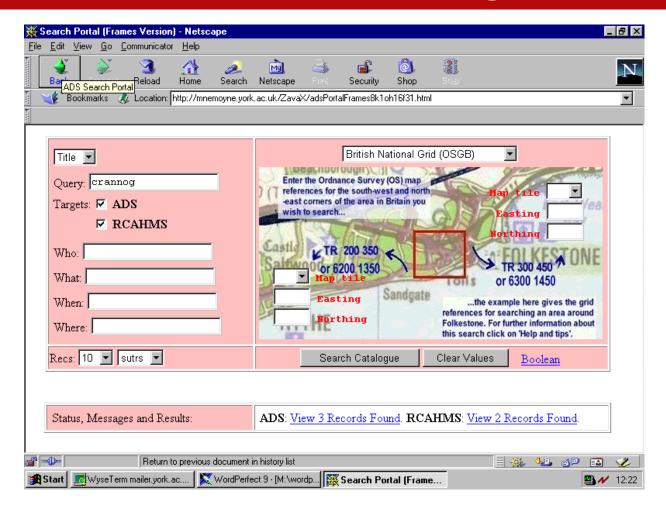
http://ads.ahds.ac.uk/

Part of the residing at THE UNIVERSITY of York

Archaeology Data Service King's Manor York YO1 7EP (01904) 433 954 phone (01904) 433 939 fax info@ads.ahds.ac.uk



## Background

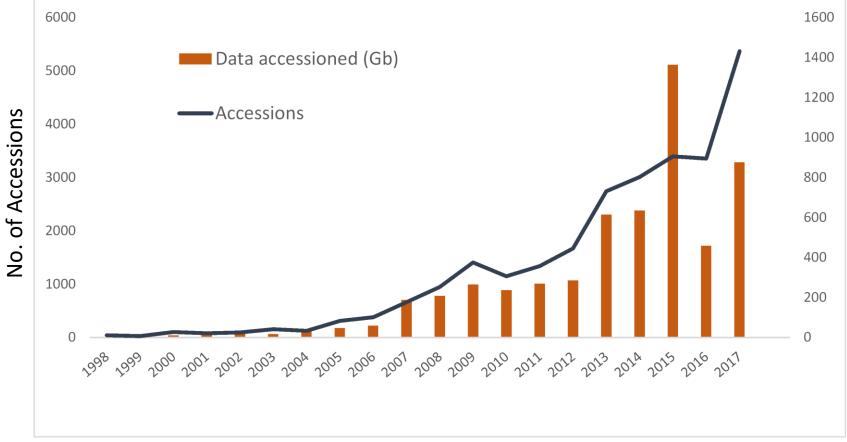


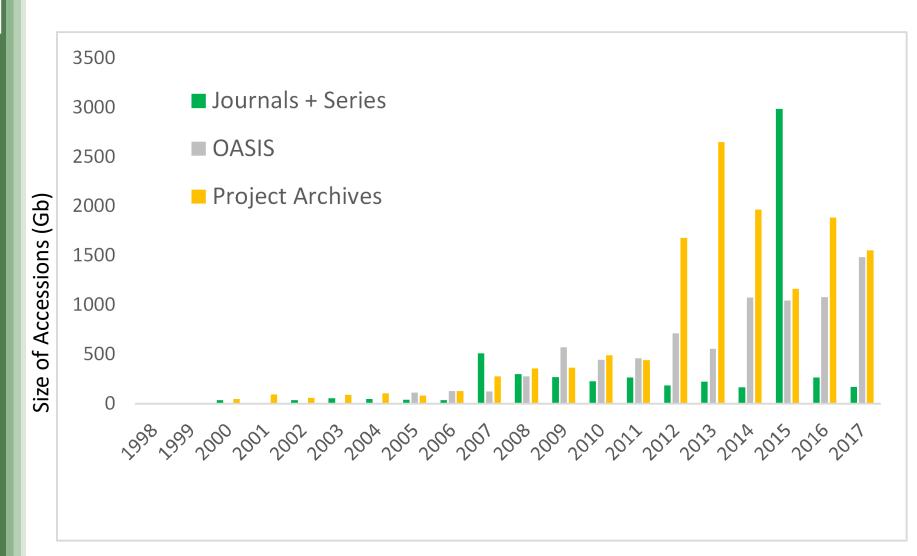


## Background

- Core remit was with AHRB/AHRC projects
- Quickly also started to take specialist databases and national inventories
- Still more of an applied research project
   one single ORACLE database, very
   small number of physical servers
- Relatively little data from archives



















### HERITAGEG ATEWAY





Web Services / WMS / OAI-PMH

### **PostgreSQL**

















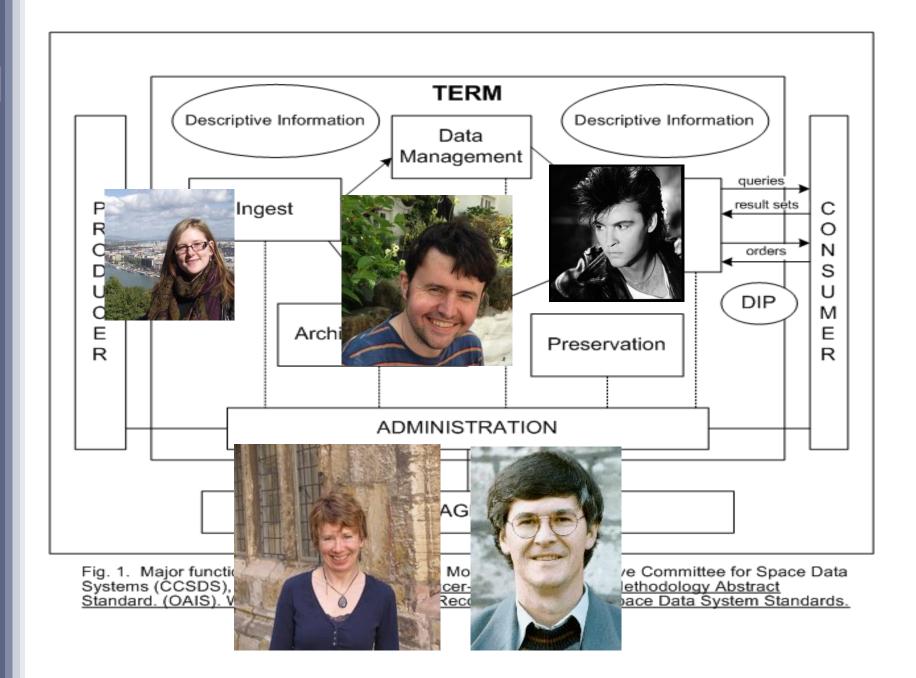




AllegroGraph
Franz Inc.









# Leading + Learning

- Award winning work for Digital Preservation
- Accredited (Core Trust Seal\*)
- Peer-reviewers in wider context
- The only people in the UK doing digital archiving for archaeology
- This has changed....





## Leading + Learning

- National bodies (e.g. British Library, UKDA), slower to move but more resourced
- Institutional Repositories
- National Heritage bodies
- International concepts of what it is to do digital archiving have advanced





https://www.dpconline.org/our-work/working-groups-and-task-forces/bedern-group

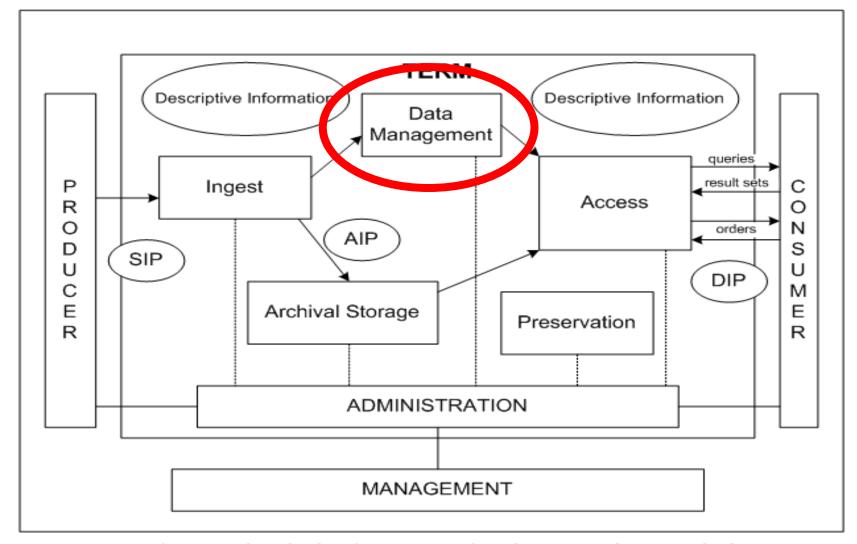


Fig. 1. Major functions of the OAIS Reference Model from Consultative Committee for Space Data Systems (CCSDS), <u>CCSDS</u> 650.0-W-1, <u>Producer-Archive Interface Methodology Abstract Standard</u>. (OAIS). White Book. Issue 1. Draft Recommendation for Space Data System Standards.



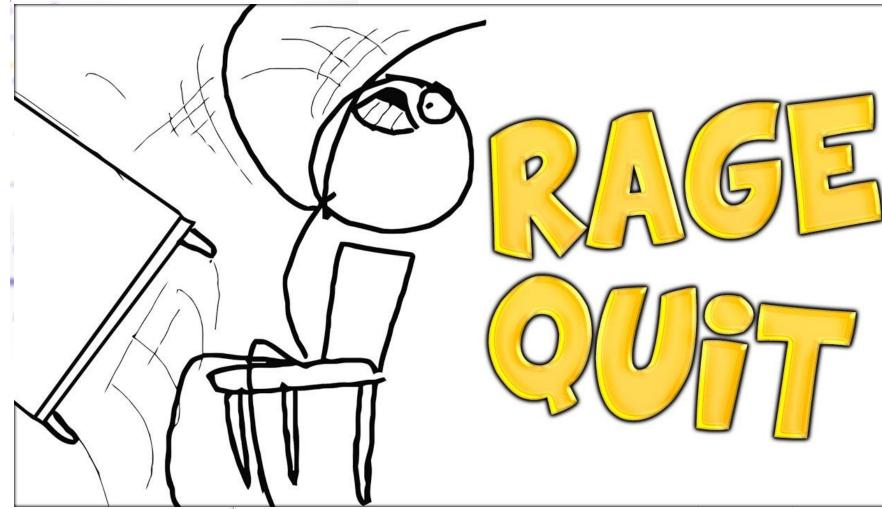
## Data management

- The ADS currently have:
  - Over 2.5 million files
  - Over 300 unique formats
  - 20+ Tb
  - Growing at over 3Tb a year



## Data management

- How do we know what we have?
- How do we manage objects comprising different files/data streams?
- How do we manage objects that are split up, but related?
- How do we associate metadata with the correct file?



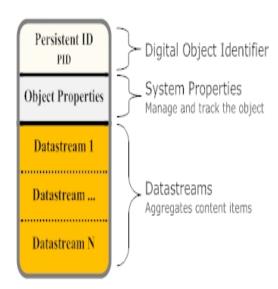
- E\_Facing\_Section\_of\_1810\_Ditch.tif
- E\_Facing\_Section\_of\_ditch\_1810.tif
- General\_Shot\_of\_Trench\_13.tif
- General\_Shot\_of\_Trench-16.tif
- MG\_0024.tif
- IMG\_0039.tif
- MG\_0041.tif
- IMG\_0041.tif
- MG\_0048.tif

59,084 KiB 14/06/2016 16:10:46 59,084 KiB 14/06/2016 16:10:48 59,084 KiB 14/06/2016 16:10:49 59,084 KiB 14/06/2016 16:10:39 59,084 KiB 14/06/2016 16:10:41 59,084 KiB 14/06/2016 16:10:42 59,084 KiB 14/06/2016 16:10:43 59,084 KiB 14/06/2016 16:10:43 59,084 KiB 14/06/2016 16:10:43



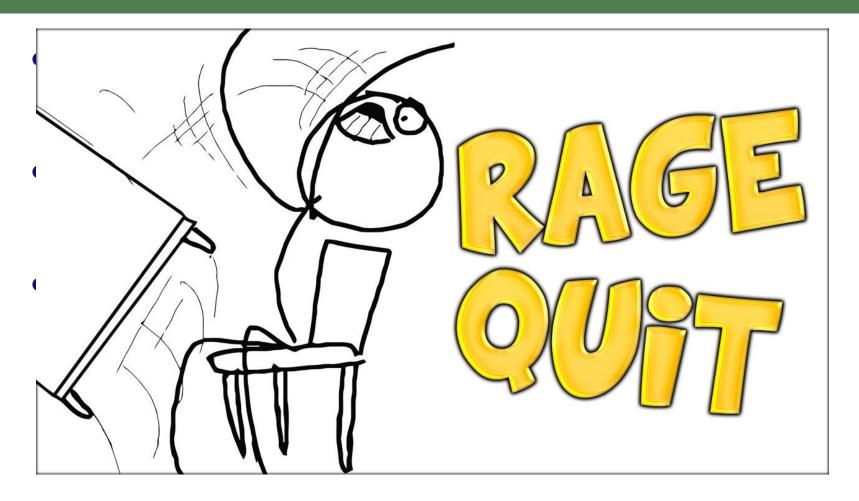
## Fedora

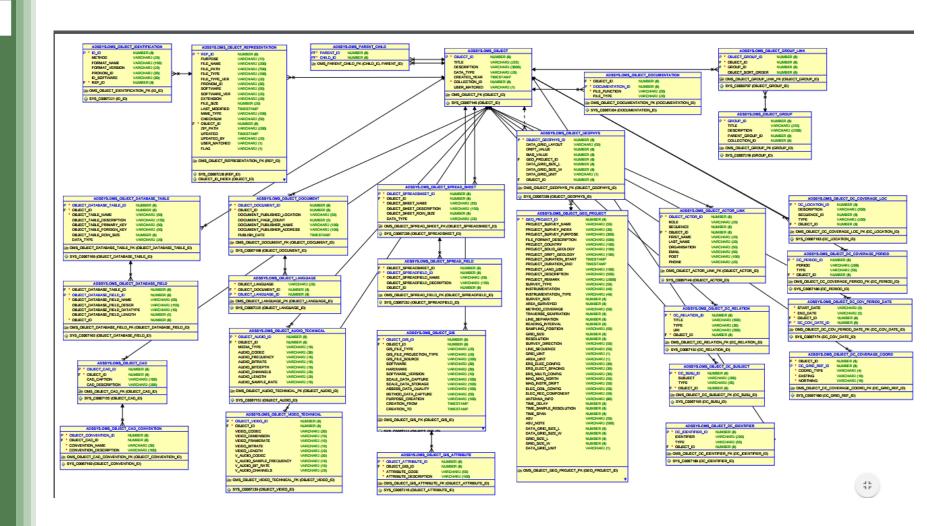
 Implementing <u>Fedora</u> (Flexible Extensible Digital Object Repository Architecture).





# Fedora





	ш
9	$\circ$
Ö	
=	>
	$\simeq$

0#	EII E 017E	LACT MODIEL		MIME TYPE	OHEOKOHM	OBJECT ID
	_	LAST_MODIFI		MIME_TYPE	CHECKSUM	OBJECT_ID
333,146			image/jpeg		eb42610ee767aecd6fe0518df4a5ef22	1,000,913
1,217,60		2009-11-21 0	image/jpeg		f87a9a59175243a559eb5de78756c441	1,001,414
1,217,60		2009-11-21 0	image/jpeg		f87a9a59175243a559eb5de78756c441	1,001,414
332,348		2009-09-10 2	image/jpeg		cb1c33f2b613fad68c8f743a6e00003c	1,000,914
15,610,6		2009-09-10 2	image/tiff		db614cc9ec1ceb1e2066df0d7edfcf4b	1,000,914
14,761,7		2009-11-21 0	image/tiff		aa233d95956c3e5d08a82e0403beec8c	1,001,414
332,348		2009-09-10 2	image/jpeg		cb1c33f2b613fad68c8f743a6e00003c	1,000,914
1,228,19		2009-11-21 0	image/jpeg		512c531d6cb7335c3bd8995cb370c06b	1,001,415
1,228,19		2009-11-21 0	image/jpeg		512c531d6cb7335c3bd8995cb370c06b	1,001,415
336,111		2009-09-10 2	image/jpeg		933f3e228143bb06915721021bb934a3	1,000,915
15,610,6		2009-09-10 2	image/tiff		ec6d354771aee4c941af7bcbbc37ce98	1,000,915
14,761,7		2009-11-21 0	image/tiff		bd976f4dd2d7343768f2e7e82ef9714a	1,001,415
336,111		2009-09-10 2	image/jpeg		933f3e228143bb06915721021bb934a3	1,000,915
1,254,45		2009-11-21 0	image/jpeg		16dd2afe6d27f48496f292b365d6c727	1,001,416
1,254,45		2009-11-21 0	image/jpeg		16dd2afe6d27f48496f292b365d6c727	1,001,416
493,179		2009-09-10 2	image/jpeg		a0f96c6e40ef137427a85a219d377f9e	1,000,916
15,610,6	82	2009-09-10 2	image/tiff		9c4b0c08b31adc46b7e803b74a3cf85f	1,000,916
14,761,7	90	2009-11-21 0	image/tiff		237d20d08e6c1824b3435856d31747b2	1,001,416
493,179		2009-09-10 2	image/jpeg		a0f96c6e40ef137427a85a219d377f9e	1,000,916
1,225,34		2009-11-21 0	image/jpeg		7a0dbfbfe03688959febc2a0fcb979c2	1,001,417
1,225,34	7	2009-11-21 0	image/jpeg		7a0dbfbfe03688959febc2a0fcb979c2	1,001,417
379,548		2009-09-10 2	image/jpeg		bed5efb4c92ea5c8d77870913e13a0a6	1,000,917
15,610,6		2009-09-10 2	image/tiff		e5b0d5c40adc917495971933363e0615	1,000,917
14,761,7	90	2009-11-21 0	image/tiff		2e648d0ef43b772595689502988f2f75	1,001,417
379,548		2009-09-10 2	image/jpeg		bed5efb4c92ea5c8d77870913e13a0a6	1,000,917
1,223,24		2009-11-21 0	image/jpeg		a9310ac12f2111451b00cdc3af045c43	1,001,418
1,223,24	3	2009-11-21 0	image/jpeg		a9310ac12f2111451b00cdc3af045c43	1,001,418
280,368		2009-09-10 2	image/jpeg		a65f4615e48ca79108e5dc9fe261773f	1,000,918
15,610,6		2009-09-10 2	image/tiff		0960687e6a7dd8d4591ac37ecdbde040	1,000,918
14,761,7	90	2009-11-21 0	image/tiff		1c14156f502dec925b3b84e8b96f0448	1,001,418
280,368		2009-09-10 2	image/jpeg		a65f4615e48ca79108e5dc9fe261773f	1,000,918
704,225		2009-09-10 2	image/jpeg		a5babbb8b7ce643f32b8f6e05328b279	1,000,919
704,225		2009-09-10 2	image/jpeg		a5babbb8b7ce643f32b8f6e05328b279	1,000,919
1,191,68	7	2009-10-30 0	image/jpeg		0001015c94683659fed1b70c6c81b4dd	1,001,419
19,633,4	62	2009-09-10 2	image/tiff		7aba613922e8f99834e385f8663157d4	1,000,919
18,935,0		2009-10-30 0	image/tiff		7173e70af02ef985926936e35f0b6c5f	1,001,419
18,935,0	08	2009-10-30 0	image/tiff		7173e70af02ef985926936e35f0b6c5f	1,001,419
621,776		2009-09-10 2	image/jpeg		b32af33660585536127db6006ad1caf5	1,000,920
621,776		2009-09-10 2	image/jpeg		b32af33660585536127db6006ad1caf5	1,000,920
1,036,50		2009-10-30 0	image/jpeg		704d25964e545c4e75235f4b2cd2bbc3	1,001,420
	1,000,720		Preservation	n0000020.tif	nyation/arch-1501-1/preservation/tit/origimages/n0	

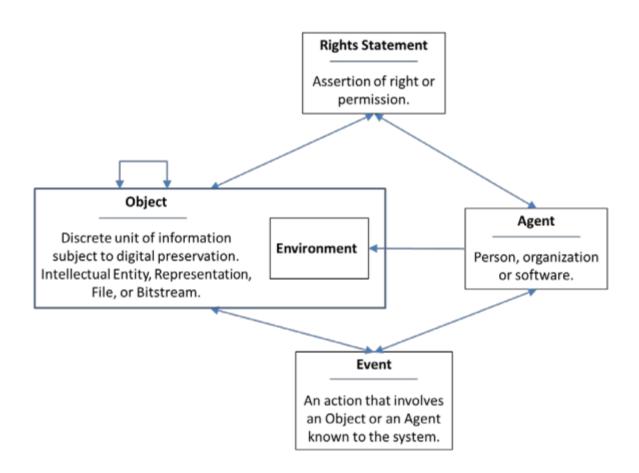
 1,003,730
 Preservation
 p0000020.tif
 /ADS\_preservation/arch-1591-1/preservation/tif/origimages/p0...

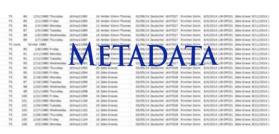
 1,003,731
 Original
 p0000020.tif
 /ADS\_preservation/arch-1591-1/original/3306/2013-08-05/orig...

١.	л	u	
1	П	u	
			•

We	Object Id	Object Title	Data Type	Created Date	Object Representations
(	1328034	Map of traditonal farmsteads in Greater Lincolnshire with house located with gable side on to yard	GIS	12-Sep- 2015	i side_on_point.dbf i side_on_point.prj i side_on_point.shp i side_on_point.shx i side_on_point.gml i side_on_point.prj i side_on_point.xsd i side_on_point.zip
	1328033 Map of traditonal farmsteads in Greate Lincolnshire with detached farm house		GIS	12-Sep- 2015	<ul> <li>detached_point.dbf</li> <li>detached_point.prj</li> <li>detached_point.shp</li> <li>detached_point.shx</li> <li>detached_point.gml</li> <li>detached_point.prj</li> <li>detached_point.xsd</li> <li>detached_point.zip</li> </ul>
	1328032	Map of traditonal farmsteads in Greater Lincolnshire with zadditonal deatched elements to main plan	GIS	12-Sep- 2015	d_point.dbf d_point.prj d_point.shp d_point.shx d_point.gml d_point.prj d_point.xsd d_point.zip
				i LizPearsor i MalcolmAt i MarkBowd i MikeHodde i PaulStamp i AnnWoode i JamesGrei i JohnHalste	Parkhouse_Warwickshire.pdf n_Environmental.pdf tkin_Worcestershire.pdf len_Earthworks.pdf er_Birmingham.pdf per_Countryside.pdf ward_PotsPitsandMonuments_(2).pdf ig_Environmental.pdf ed_BronzeAgeShropshire.pdf

# PREservation Metadata: Implementation Strategies (PREMIS)









AIP

DIP

SIP

AIP

SIP

DIP

AIP

DIP

SIP

Metadata

OBJ + MTL +Textures

Source images (lots of raw)

REP_ID	PURPOSE	FILE_NAME	FILE_SIZE	CHECKSUM	OBJECT_ID
3,935,118	Original	Bayo_04_obj.jpg	2,646,743	d82278660faeb15979ce47a2408033fd	1,640,995
3,935,119	Original	Bayo_04_obj.mtl	591	85d7f17485d895259dc47f2b8c7770bd	1,640,995
3,935,120	Original	Bayo_04_obj.obj	62,254,861	52a77f1a869f06d225930d380a92df09	1,640,995
3,935,121	Original	Bayo_04_obj1.jpg	2,286,790	e81f43d7b8b7977ef8d0595617aae964	1,640,995
3,935,122	Original	Bayo_04_obj2.jpg	1,851,007	182af6c0d14222d8cfa9f9cf12644fdc	1,640,995
3,935,123	Original	Bayo_04_obj3.jpg	2,237,707	b92b8b585a1306524c53fc2a42f53a48	1,640,995

process.validation

process.virus check



Is Documented In











process.normalization



process.migration



agent.actor.r\_moore

agent.software.xnview

Is Source of









HOME

**SEARCH** 

**DEPOSIT** 

RESEARCH

**ADVICE** 

**ABOUT** 

**HELP** 

### HOM Island Farm, Ottery St. Mary, Devon. Archaeological evaluation and excavation

Cotswold Archaeology, 2018

ALL JO Introduction Downloads Metadata Queries c Usage Statistics

Royal Albert Memorial Museum KEYWORI Collections

> Data copyright @ Cotswold Archaeology unless otherwise stated

⊕ O **O** Cotswold Archaeology **O** 

**B** O ⊕ ()

Primary contact Cotswold Archaeology

■-WHEN Building 11

Kemble Enterprise Park

 ☐ ○ | Cirencester GL7 6BQ O IUK

Tel: 01285 771022 Fax: 01285 771033

Send e-mail enquiry

■ ○ | Resource identifiers

ADS Collection: 3151 DOI:https://doi.org/10.5284/1047562 How to cite using this DOI

⊕ ○

⊕ () :

Island Farm, Ottery St. Mary, Devon. Archaeological evaluation and excavation



	World region	British Isles and Ireland
	British Isles country	England
	English region	South West
Location	County	Devon
Location	District	East Devon
	Parish	Ottery St Mary
	Place	Island Farm
	TGN	World, Europe, United Kingdom, England, Devon, Ottery Saint Mary [7011312]
Grid reference	OSGB	309020 095030
Grid reference	Latitude longitude bounding box	50.749218 -3.2934251 -3.2879616 50.745765
	Building Materials (England)	CERAMIC
	Event Type (England)	EXCAVATION
	Event Type (England)	STRIP MAP AND SAMPLE
	Event Type (England)	EVALUATION
	FISH Archaeological Objects (England)	CLAY PIPE (SMOKING)

### **RESET QUERY**

**M 4 123... ▶ M** 

	123 / /
	YEAR
al Evaluation	2018
I Observation	2018
SIS ID: yorkarch1-	2018
logical Evaluation	2018
cal Evaluation	2018
atthew Law,Kate	2018
on (OASIS ID:	2018
(OASIS ID:	2018
aeological	2018
	2018
on	2018

HOME SEARCH

RCH DEPOSIT

RESEARCH

ADVICE

Objects (England) ABOUT

HELP

### Island Farm, Ottery St. Mary, Devon. Archaeological evaluation and excavation

Cotswold Archaeology, 2018

Introduction Downloads Metadata Usage Statistics

Royal Albert Memorial Museum Collections

Data copyright © Cotswold Archaeology unless otherwise stated



Primary contact Cotswold Archaeology Building 11 Kemble Enterprise Park

Cirencester GL7 6BQ UK Tel: 01285 771022 Fax: 01285 771033

Send e-mail enquiry 33/4/55
Resource identifier 6

ADS Collection: 3151 5 DOI:https://doi.org/10.52 How to cite using this Do Island Farm, Ottery St. Mary, Devon. Archaeological evaluation and excavation



World region	British Isles and Ireland
British Isles country	England
English region	South West
County	Devon

	Results	MetaData	Info Overview / Charts	Rotated table		'	
	OBJEC	OBJECT_ID	GIS_FILE_TYPE	GIS_FILE_P	GIS_FILE_SOURCE	SOFTWARE	HARDWARE
	0	1,328,017	Point	OSGB	OS 2nd Edition Historic Mapping/OS Mastermap/HER data	MapInfo Professional	Laptop/Windows 8.45
i	5	1,353,981	Polygon	OSGB36	Seaman, A., P. 2010: 'Towards a Predictive Model of Early Med	ESRI ArcGIS	PC Windows 7
i	1	1,328,015	Point	OSGB	OS 2nd Edition Historic Mapping/OS Mastermap/HER data	MapInfo Professional	Laptop/Windows 8.43
_	2	1,328,016	Point	OSGB	OS 2nd Edition Historic Mapping/OS Mastermap/HER data	MapInfo Professional	Laptop/Windows 8.44
гу	3	1,328,022	Point	OSGB	OS 2nd Edition Historic Mapping/OS Mastermap/HER data	MapInfo Professional	Laptop/Windows 8.50
	4	1,328,023	Point	OSGB	OS 2nd Edition Historic Mapping/OS Mastermap/HER data	MapInfo Professional	Laptop/Windows 8.51
_	5	1,328,024	Point	OSGB	OS 2nd Edition Historic Mapping/OS Mastermap/HER data	MapInfo Professional	Laptop/Windows 8.52
fier	6	1,328,025	Point	OSGB	OS 2nd Edition Historic Mapping/OS Mastermap/HER data	MapInfo Professional	Laptop/Windows 8.53
	7	1,328,026	Point	OSGB	OS 2nd Edition Historic Mapping/OS Mastermap/HER data	MapInfo Professional	Laptop/Windows 8.54
51	8	1,328,034	Point	OSGB	OS 2nd Edition Historic Mapping/OS Mastermap/HER data	MapInfo Professional	Laptop/Windows 8.62
10.52	9	1,328,027	Point	OSGB	OS 2nd Edition Historic Mapping/OS Mastermap/HER data	MapInfo Professional	Laptop/Windows 8.55
is Dé	0	1,328,028	Point	OSGB	OS 2nd Edition Historic Mapping/OS Mastermap/HER data	MapInfo Professional	Laptop/Windows 8.56
	1	1,328,029		OSGB	OS 2nd Edition Historic Mapping/OS Mastermap/HER data	MapInfo Professional	Laptop/Windows 8.57
	2	1,328,030	Point	OSGB	OS 2nd Edition Historic Mapping/OS Mastermap/HER data	MapInfo Professional	Laptop/Windows 8.58
1	4	1,353,979	Polygon	OSGB36	This shapefile is based on data derived from the Tithe survey	ESRI ArcGIS	PC Windows 7
	1	1,376,363	Raster	OSGB36	<null></null>	AutoCAD	PC - Microsoft Windows 7
	2	1,376,371	Raster	OSGB36	<null></null>	AutoCAD	PC - Microsoft Windows 7
)	0	1,387,485	Raster	NONE	Original geophysical data	ArcGIS	Windows 7
	1	1,387,486	Raster	NONE		ArcGIS	Windows 7
1	2	1,388,335	Raster	OSGB36	Various- uses OS mapping, and GPS points taken physically	AutoCAD LT 2015	PC Microsoft Windows 7
1	3	1,388,336	Raster	OSGB36	Various- includes OS mapping & GPS points taken physically	AutoCAD LT 2015	PC Microsoft Windows 7
1	4	1,388,759	Raster	OSGB36	Various- uses GPS points taken physically within field	AutoCAD LT 2015	PC Microsoft Windows 7
1	5	1,388,762	Raster	OSGB36	Various-includes OS mapping & GPS points taken physically	AutoCAD LT 2015	PC Microsoft Windows 7
	6	1,389,118	Raster	OSGB36	Surveyed geophysical data	Manifold System 8.0	PC Windows 10 (64 bit)
	7	1,390,116	Polygon	OSGB36	Survey data	ArcGIS	PC

### British Institute in Eastern Africa Image Archive

British Institute in Eastern Africa, 2016

Introduction Overview Downloads Search Metadata Usage Statistics

Data copyright © British Institute in Eastern Africa, Aluka unless otherwise stated



Primary contact
British Institute in Eastern Africa
10 Carlton House Terrace
London
SW1Y 5AH
United Kingdom
Tel: +44 (0)20 7969 5201

### Send e-mail enquiry

Resource identifiers

ADS Collection: 1965

**DOI:**https://doi.org/10.5284/1038987

How to cite using this DOI



Object ID	1188052					
Object Title	Dungur: Walls excavated house duri	Dungur: Walls excavated house during Anfrays excavation.				
File name	bieaaks00908.jpg					
Format	JPG	JPG				
Format Type	JPEG File Interchange Format	1.01				
Checksum	f9d2cfa6d438ecb5d59f6e056ef703e6					
Created	12-Mar-2007	12-Mar-2007				
Last Modified	12-Mar-2007					
File size	4 Mb					
		Download				

#### Image

Title	Dungur: Walls excavated house	during Anfrays excavation.		
Creator	, British Institute in Eastern Africa	a		
Copyright	© , British Institute in Eastern Afr	rica		
	World region	Africa		
Location	Non British Isles country	Ethiopia		
Location	Place	Dungur		
	Place	Aksum		
Coordinates	Latitude Longitude	14.13019 38.71861		
Cubiosé	Other	Palace		
Subject	Other	Mansion		
Period	Other	Middle Aksumite		
renod	Other	Late Aksumite		
Dates (BCE/CE)	350 to 800			

#### Associated Metadata:

ADS Image metadata	CSV	604 Kb
Image metadata	XLSX	199 Kb



## Thanks!

tim.evans@york.ac.uk

http://archaeologydataservice.ac.uk/blog/

http://archaeologydataservice.ac.uk/blog/oasis/

https://twitter.com/ADS\_Update

help@archaeologydataservice.ac.uk