# Born-Digital Archives in Collecting Repositories:

### Turning Challenges into Byte-Size Opportunities

Gretchen Gueguen, Mark A. Matienzo, Simon Wilson, and Peter Chan

Session 502, 27 August 2011 Society of American Archivists Annual Meeting











AIM

## **AIMS Project**

- "Born-Digital Collections: <u>An Inter-</u> Institutional <u>Model for Stewardship</u>"
- Two year project to create a framework for stewardship of born-digital archival records in collecting repositories
- Funded by the Andrew W. Mellon Foundation







### Partners



![](_page_2_Picture_2.jpeg)

![](_page_2_Picture_3.jpeg)

![](_page_2_Picture_4.jpeg)

![](_page_2_Picture_5.jpeg)

![](_page_2_Picture_6.jpeg)

![](_page_2_Picture_7.jpeg)

![](_page_2_Picture_8.jpeg)

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## **Grant Goals**

- Processing of Hybrid Collections
- Software Development
- Community Development
  - Unconference (May 2011, Charlottesville, VA)
  - UK Symposium (June 2011, London, England)
  - Workshop (August 2011, Chicago, IL)
- White Paper and Project Report

![](_page_3_Picture_8.jpeg)

![](_page_3_Picture_9.jpeg)

## **Framework Development**

A framework for collecting and delivering the born-digital materials that are quickly beginning to constitute the collections of contemporary scholarly, literary, and political figures and organizations.

![](_page_4_Picture_2.jpeg)

![](_page_4_Picture_3.jpeg)

![](_page_4_Picture_5.jpeg)

### **AIMS Framework**

![](_page_5_Figure_1.jpeg)

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## **Collection Development**

Gretchen Gueguen University of Virginia

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![](_page_6_Picture_3.jpeg)

![](_page_6_Picture_4.jpeg)

![](_page_6_Picture_5.jpeg)

![](_page_6_Picture_6.jpeg)

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### What is Collection Development?

Actions and policies of institutions to bring in material for end users (both current and future); includes prioritizing, developing relationships with creators, assessments, negotiating agreements and preparing for accessioning.

### Within the AIMS framework

Viable, practical method to capture/process borndigital material from hybrid collections requires sound work at the beginning (i.e. policies, practices, agreements with donors, etc.) to set up later work

![](_page_7_Picture_4.jpeg)

![](_page_7_Picture_5.jpeg)

![](_page_7_Picture_6.jpeg)

### Elements of Collection Development

- 1. Prerequisites
- 2. Establish relationship with donor
- 3. Analyze Feasibility
- 4. Negotiate Agreements
- 5. Prepare for Accessioning

![](_page_8_Picture_6.jpeg)

![](_page_8_Picture_7.jpeg)

![](_page_8_Picture_9.jpeg)

### Prerequisites...

![](_page_9_Picture_1.jpeg)

Born Digital Collections: An Inter-Institutional Model for Stewardship (AIMS)
AIMS Digital Material Survey – Personal Digital Archives (Part II)
Note: This part of the survey is designed to be filled out by digital archivists regarding technical details of the tools used to create digital material.
1. Hardware
1.1 List the hardware configurations of each computers / mobile device. (e.g. manufacturer, model no, cpu, ram, hard drive capacity, video card, etc.)
1.2 Find out if the computers have USB ports or CD writers which could be used to copy the digital files.
2. Software
2.1 List the operating system and other system software with version no., installed in all the hardware (in 1).
2.2 Check if system date and time are set correctly. List the "Time Zone" used, if any.
2.3 With the help of the donor, list the main application software, with version no., used to create digital files.
2.4 If Microsoft Office is used, find out if the "User Name" field is set to the name of the donor. Find out similar setting for
other main application software used.
3. Internet Access
3.1 Find out if the digital archivist can use the Internet access in the donor's office using the digital archivist's portable
computer?
4. Networking
4.1 With the help of the donor, confirm if the computer is connected to file servers. Confirm if the donor save files in the
file server. How much file server space is used by the donor?
5. Security
5.1 With the help of the donor, confirm if login is required to access desktop computers / mobile devices?
5.2 With the help of the donor, confirm if a digital certificate is used by the donor to login / sign digital files / encrypt
digital files?
5.3 With the help of the donor, confirm if digital files are encrypted?
This work is based on the Paradigm records survey published by the Bodleian Library, Oxford University.
This work is licensed under a Creative Commons Attribution-Share Alike 3.0 License. Revision: July 16, 2010. Born Digital Collections: An Inter-Institutional Model for Stewardship (AIMS)

![](_page_10_Picture_1.jpeg)

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### **Enhanced Curation**

![](_page_11_Picture_1.jpeg)

### DIGITAL FILM-MAKING

![](_page_11_Picture_3.jpeg)

MIKE FIGGIS

![](_page_11_Picture_5.jpeg)

![](_page_11_Picture_6.jpeg)

![](_page_11_Picture_7.jpeg)

![](_page_11_Picture_8.jpeg)

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## **Analyzing Feasibility...**

![](_page_12_Picture_1.jpeg)

![](_page_12_Picture_2.jpeg)

![](_page_12_Picture_3.jpeg)

![](_page_12_Picture_4.jpeg)

![](_page_12_Picture_5.jpeg)

![](_page_12_Picture_6.jpeg)

![](_page_12_Picture_7.jpeg)

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## Negotiate Agreements...

### THE PERFECT HANDSHAKE

![](_page_13_Picture_2.jpeg)

#### $\mathbf{PH} = \sqrt{(\mathbf{e}^2 + \mathbf{v}\mathbf{e}^2)(\mathbf{d}^2) + (\mathbf{cg} + \mathbf{dr})^2 + \pi \{(4 < \mathbf{s} > 2)(4 < \mathbf{p} > 2)\}^2 + (\mathbf{vi} + \mathbf{t} + \mathbf{te})^2 + \{(4 < \mathbf{c} > 2)(4 < \mathbf{du} > 2)\}^2 + (\mathbf{vi} + \mathbf{t} + \mathbf{te})^2 + (\mathbf{t} + \mathbf{te$

(e) is eye contact (1=none; 5=direct) 5; (ve) is verbal greeting (1=totally inappropriate; 5=totally appropriate) 5; (d) is Duchenne smile - smiling in eyes and mouth, plus symmetry on both sides of face, and slower offset (1=totally non-Duchenne smile); 5=totally Duchenne) 5; (g) completeness of grip (1=very incomplete; 5=full) 5; (dr) is dryness of hand (1=damp; 5=dry) 4; (s) is strength (1= weak; 5=strong) 3; (p) is position of hand (1=back towards own body; 5=other person's bodily zone) 3; (vi) is vigour (1=too low/too high; 5=mid) 3; (t) is temperature of hands (1=too cold/too hot; 5=mid) 3; (du) is duration (1=brief; 5=long) 3

![](_page_13_Figure_5.jpeg)

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![](_page_13_Picture_7.jpeg)

![](_page_13_Picture_8.jpeg)

![](_page_13_Picture_9.jpeg)

![](_page_13_Picture_10.jpeg)

## Prepare for Accessioning...

#### Scope and extent determined?

Method and time determined?

Pre-acquisition appraisal performed?

Test capture if needed?

![](_page_14_Picture_5.jpeg)

Coordination with acquisition of analog material?

Enhanced curation carried out?

Development of new methodologies undertaken as needed/possible?

![](_page_14_Picture_9.jpeg)

![](_page_14_Picture_10.jpeg)

![](_page_14_Picture_11.jpeg)

![](_page_14_Picture_12.jpeg)

## Accessioning

### Mark A. Matienzo, Yale University

![](_page_15_Picture_2.jpeg)

![](_page_15_Picture_3.jpeg)

![](_page_15_Picture_4.jpeg)

![](_page_15_Picture_5.jpeg)

![](_page_15_Picture_6.jpeg)

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## What is Accessioning?

Archival institution takes physical and legal custody of a group of records from a donor and documents the transfer in a register or other representation of the institution's holdings

### Within AIMS Framework

Processes which establish physical, administrative and intellectual control over transferred records; assessment and documentation of future needs; documentation of actions taken; beginning of safe storage and maintenance

![](_page_16_Picture_4.jpeg)

![](_page_16_Picture_5.jpeg)

![](_page_16_Picture_6.jpeg)

![](_page_16_Picture_7.jpeg)

## **Elements of Accessioning**

- 1. Prerequisites
- 2. Transfer records and gain administrative control
- 3. Physical control and stabilization
- 4. Intellectual control and documentation to support further processes
- 5. Maintain accessioned records

![](_page_17_Picture_6.jpeg)

![](_page_17_Picture_8.jpeg)

## Case Study: Re-Accessioning at Yale

- Collaborative capacity building across two repositories
  - Manuscripts and Archives
  - Beinecke Rare Book and Manuscript Library
- Addressing previously received accessions of containing electronic records on media
- Still in testing phase, but working towards implementing in production

![](_page_18_Picture_6.jpeg)

![](_page_18_Picture_7.jpeg)

## **Types of Records and Media**

- Wide variety of records creators
  - Literary authors
  - University faculty
  - University offices
  - Architectural firms
- Common types of media
  - Floppy disks: 5.25" and 3.5"
  - Optical media: CDROM, CD-R, DVD-R, etc.

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- Zip disks
- USB flash drives

![](_page_19_Picture_11.jpeg)

![](_page_19_Picture_12.jpeg)

## **Goals of Re-Accessioning**

- Identify, document, and register media
- Mitigate risk of media deterioration and obsolescence
- Extract basic metadata from filesystems on media and files contained on filesystems

![](_page_20_Picture_4.jpeg)

![](_page_20_Picture_5.jpeg)

![](_page_20_Picture_6.jpeg)

## **Re-Accessioning Workflow**

![](_page_21_Figure_1.jpeg)

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## **Disk Imaging**

- Using "forensic" (bit-level) imaging process
- Ensure data on media is not manipulated using write-protection
- Uses software to acquire images
- Includes hash-based verification process

![](_page_22_Picture_5.jpeg)

![](_page_22_Picture_6.jpeg)

![](_page_22_Picture_8.jpeg)

![](_page_22_Picture_10.jpeg)

🔍 AccessData FTK Imager 2.9.0.1385

![](_page_23_Picture_1.jpeg)

NUM

11.

<u>File View Mode Help</u>

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⊡💁 2004-M-008.dd-0005.001	Name Size Type Date Modified	~
C910927A001 [FAT12]	1 w0000 59 KB Regular File 7/21/1997 7:58	
[root]	🕅 Hangman.bak 56 KB Regular File 6/10/1997 5:23	
iunallocated space]	🕅 Hangman.bak 58 KB Regular File 6/10/1997 5:36	
	🕅 Hangman.bak 59 KB Regular File 7/21/1997 7:57	
	🕅 Hangman.tex 0 KB Regular File 6/10/1997 5:23	_
	🕅 Hangman.tex 59 KB Regular File 7/21/1997 7:58	
	KENNEDY.WPD 41 KB Regular File 10/17/1997 11:	
	Q3.DIR 1 KB Regular File 7/5/1999 11:18	
	Q3.DIR.FileSlack 1 KB File Slack	
	0 QDATA.ABD 10 KB Regular File 7/5/1999 11:12	~
	0000 43 39 31 30 39 32 37 41-30 30 31 28 00 00 00 00 00 00 00000000000000000	
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	0030 E5 26 31 3D 00 00 48 5A-E5 26 02 00 C0 7D 04 00 as1=··HZas··À}··	
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2004-M-008.dd-0005.001/C910927A001 [FAT12]/[root]

## Media Log

- Using SharePoint list
- Contains unique identifier of media
- Records physical/logical characteristics of media
- Documents success, failure, or status of various processes and additional notes

![](_page_24_Picture_5.jpeg)

![](_page_24_Picture_6.jpeg)

![](_page_24_Picture_8.jpeg)

### Media Log

#### Electronic Records on Media Accessioning Log

New 🔻	Actions - Se	ettings <del>-</del>								View: Al	l Iten
🛛 Туре	Media number	Media Format	Imaging Date	Imaging Successful?	Bag Created?	Metadata Extracted?	Transfer to Storage Date	Examiner	Image format	Imaging Software	Sour
	2011-M- 075.0001	CD-R		No	No	No		Glick, Kevin	N/A	N/A	FAT
	2011-M- 075.0002	DVD-R		Yes	No	Yes		Glick, Kevin	ISO	ImgBurn	ISO
	2011-M- 075.0003	DVD-R		Yes	No	Yes		Glick, Kevin	ISO	ImgBurn	ISO9 (1.0
	2011-M- 075.0004	DVD-R		Yes	No	Yes		Glick, Kevin	ISO	ImgBurn	ISO9 (1.0
	2011-M- 075.0005	DVD-R		Yes	No	Yes		Glick, Kevin	ISO	ImgBurn	ISO9 (1.0
	2011-M- 075.0006	DVD-R		Yes	No	Yes		Glick, Kevin	ISO	ImgBurn	ISO9 (1.0
	2011-M- 075.0007	CD-R		Yes	No	No		Glick, Kevin	ISO	ImgBurn	ISO
	2011-M- 075.0008	CD-R		Yes	No	No		Glick, Kevin	ISO	ImgBurn	ISO
	2011-M- 075.0009	CD-R		Yes	No	Yes		Glick, Kevin	ISO	ImgBurn	ISO9 (1.0
	2011-M- 075.0010	DVD-R		Yes	No	Yes		Glick, Kevin	ISO	ImgBurn	ISO9 (1.0
	2011-M- 075.0011	CD-R		Yes	No	Yes		Glick, Kevin	ISO	ImgBurn	ISO
	2011-M- 075.0012	CD-R		Yes	No	Yes		Glick, Kevin	ISO	ImgBurn	ISO
	2011-M- 075.0013	Zip disk		Yes	No	Yes		Glick, Kevin	dd (Raw)	FTK Imager 3.0.0.1443	FAT
										AIM	S

![](_page_25_Picture_3.jpeg)

![](_page_25_Picture_4.jpeg)

![](_page_25_Picture_5.jpeg)

### Media Log

Electronic Records on Media Accessioning Log Electronic Records on Media Accessioning Log: 2011-M-075.0008

Nev	N T	Actions -	Settings 👻					Close
Ø	Туре	Media number	Media Format	Imaging Date	Imaging Successful?	Bag Creat	🖃 New Item   🞲 Edit Item	🗙 Delete Item   🐴 Manage Permissions   Alert Me
		2011-M-	CD-R		No	No	Media number	2011-M-075.0008
		075.0001					Media Format	CD-R
		2011-M- 075.0002	DVD-R		Yes	No	Media Density (floppies only)	N/A
		2011-M-	DVD-R		Yes	No	Interface	N/A
		075.0003					Label text	Osaka Monograph Final Images
		2011-M- 075.0004	DVD-R		Yes	No		Aug 29 2003 Monograph Latest Files
		2011 M	DVD D	/	Vac	No	Manufacturer	
		075.0005	DVD-R		tes	NO	Serial Number (hard drives only)	
		2011-M-	DVD-R		Yes	No	Examiner	Glick, Kevin
		075.0006					Imaging Successful?	Yes
		2011-M-	CD-R		Yes	No	Imaging Date	
							Image filename	2011-M-075.0008.ISO
		2011-M-	CD-R		Yes	No	Source File System	ISO9660, Joliet
		075.0008					Image format	ISO
		2011-00	CD-R		Yes	No	Imaging Software	ImgBurn
		075.0009					Image Fixity Function	MD5
		2011-M-	DVD-R		Yes	No	Image Fixity Value	dbca43c94690edff07329b6687550f60
	D	2011-M-	CD-R		Yes	No	Notes	mam54 04/28/2011: Could not extract metadata using fiwalk; log file from imaging process says that the block structure is Mode 2/Form 1 $$
		075.0011					Metadata Extracted?	No
		2011-M-	CD-R		Yes	No	Bag Created?	No
		075.0012					Transfer to Storage Date	
		2011-M-	Zip disk		Yes	No	Fiscal Year	2010-11
	_	075.0013	-				Created at 4/27/2011 9:35 AM by C Last modified at 4/28/2011 4:26 PM	Slick, Kevin Close 1 by Matienzo, Mark

![](_page_26_Picture_3.jpeg)

![](_page_26_Picture_4.jpeg)

![](_page_26_Picture_5.jpeg)

## **Metadata Extraction**

- Can be repurposed for descriptive, administrative, and technical metadata
- Uses command-line tools (Sleuthkit, fiwalk)
- Outputs XML document

![](_page_27_Picture_4.jpeg)

![](_page_27_Picture_5.jpeg)

![](_page_27_Picture_7.jpeg)

![](_page_27_Picture_8.jpeg)

## Packaging and Transfer

- Using BagIt packages/Bagger application
- Packages contain disk images, extracted metadata, imaging logs, and high-level accession information
- Transfer to storage is verified by comparison against manifest

![](_page_28_Picture_4.jpeg)

![](_page_28_Picture_5.jpeg)

![](_page_28_Picture_7.jpeg)

Create New Bag Open Existing Bag	Create Bag	In Place <u>V</u> alidate Bag <u>I</u> s Bag Complete <u>C</u> lose Bag <u>S</u> ave Bag Save <u>B</u> ag As	
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□       2004-M-088.0005         □       2004-M-088.0006         □       2004-M-088.0007         □       2004-M-088.0008         □       2004-M-088.0009         □       2004-M-088.0010		External-Identifier     R     mssa.2004-M-088       Bag-Size     35.7 MB       Payload-Oxum     37381126.81       Source-Organization     R	] × ] ×
Fag Files □ → mssa □ bagit.txt □ tagmanifest-md5.txt □ bag-info.txt □ manifest-md5.txt		External-Description       R       Forms part of James Tobin papers. Disk images of 3.5 inch floppy disks; originals from circa 1987-1999.         Profile Name       R       YUL_DISKIMG_ACCN_SIP_0.1         Bagging-Date       2011-04-11         Forms-Part-Of       R       mssa.ms.1746	] ×
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![](_page_29_Picture_1.jpeg)

![](_page_29_Picture_2.jpeg)

![](_page_29_Picture_3.jpeg)

## **Arrangement & Description**

### Simon Wilson Hull University Archives

![](_page_30_Picture_2.jpeg)

![](_page_30_Picture_3.jpeg)

![](_page_30_Picture_4.jpeg)

![](_page_30_Picture_5.jpeg)

![](_page_30_Picture_6.jpeg)

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### **Purpose of Arrangement & Description**

The general objectives for Arrangement & Description are:

- to preserve context
- to establish intellectual control of the material

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- to provide a means of discovery

SAA definition, emphasis on *minimizing the amount of handling* 

#### Within the AIMS framework

Processes which establish intellectual control of the material including implementation of policies and agreements with donors etc. to enable subsequent discovery and access

![](_page_31_Picture_8.jpeg)

![](_page_31_Picture_9.jpeg)

![](_page_31_Picture_10.jpeg)

### Elements of Arrangement and Description

- 1. Prerequisites
- 2. Plan for processing

 gather supporting information; files captured from media (accessioning); convert files (for viewing); appraisal strategy; assess arrangement options; consider preservation issues

3. Processing

 implement arrangement strategy; add descriptive metadata and wider context (eg Collection Level Description); copyright & other legal considerations

- 4. Prepare for Discovery & Access
  - remove restricted access to b-d material during processing

![](_page_32_Picture_8.jpeg)

![](_page_32_Picture_9.jpeg)

### **Case Study - Stephen Gallagher**

#### **Background**:

2005: 42 boxes paper archives

2010: born-digital material: 14,320 files (13.6GB) transferred to us via external hard drive and a box of Amstrad disks

Create integrated catalogue to accommodate paper, borndigital and future accruals

![](_page_33_Picture_5.jpeg)

![](_page_33_Picture_6.jpeg)

![](_page_33_Picture_7.jpeg)

![](_page_33_Picture_8.jpeg)

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### Case Study - Stephen Gallagher

### Approach:

- current work higher priority in filing system
- considered each work a distinct 'project'
- structure reflect his way of working & the archival principles of control that creator, archivist & user can all understand

Series level was most logical solution

- all related files placed in the series
- reasonable return for our effort

🖃 🔄 U DGA • Stephen Gallagher
🗄 🧰 1 • Short Stories
🖨 🧰 2 • Novels
1 • Outlines only
🔄 🧰 2 • The Last Rose of Summer (1978)
🖶 🧰 3 • Silver Dream Racer (1980)
🖶 🧰 4 • The Kids From Fame (1980)
🖶 🧰 5 • Saturn Three (1980)
🖶 🧰 6 • Warrior's Gate (1982)
🗄 💼 7 • Chimera (1982)
🗈 💼 8 • Dying of Paradise (1982)
🗈 💼 9 • The Kids From Fame 2 (1983)
ia.⊶🧰 10 • The Ice Belt (1983)
🗈 💼 11 • Terminus (1983)
🗈 🧰 12 • Follower (1984)
13 • Valley of Lights (1987)
🗎 🧰 14 • Oktober (1988)
i≘ · 🧰 15 • Down River (1989)
i≘ · 🧰 16 • Rain (1990)
⊕
⊕ 18 • Nightmare, With Angel (1992)
⊕ 19 • Red, Red Robin (1995)
21 • The Babylon Run (unpublished)
24 • The Kingdom of Bones (2007)
25 • The Suicide Hour (forthcoming)
1 • The Last Rose of Summer (1977)
Z • Devils Paw (1978)
3 • Hunters Moon (1978)
- 4 • The Babylon Run (1979)

![](_page_34_Picture_9.jpeg)

![](_page_34_Picture_11.jpeg)

![](_page_34_Picture_12.jpeg)

### Case Study - Stephen Gallagher

300 files created using *FinalDraft*screenwriter software
view file (as created) to identify
appropriate format for long term
preservation

#### Other issues:

- copyright/third-party content
- commercial implications: access
via repository = publication?
- re-purposing of work from one
(unsuccessful) project to another

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![](_page_35_Picture_4.jpeg)

![](_page_35_Picture_5.jpeg)

![](_page_35_Picture_6.jpeg)

![](_page_35_Picture_7.jpeg)

### **Challenges faced**

#### Each collection is unique, approach will vary:

- integrate born-digital material with existing material/arrangement?
- one-off collection (eg project) or likely to be subsequent accruals?
- collection type; differs for personal papers & organisational records
- same personnel work on paper and born-digital components?
- can we appraise without knowing the contents? similar to paper material that is in a different language?

![](_page_36_Picture_7.jpeg)

![](_page_36_Picture_8.jpeg)

### **Challenges faced**

#### Volume of material :

- depositor perception that 'storage is cheap' does this mean we shouldn't appraise the material we receive?
- wide range of file types encountered
- not practical to describe each and every file
- risk management if you don't check every file for sensitive information

![](_page_37_Picture_6.jpeg)

- we need to automate as much of the processing as possible

![](_page_37_Picture_8.jpeg)

![](_page_37_Picture_9.jpeg)

![](_page_37_Picture_10.jpeg)

### Hypatia

Digital archivists' identified a gap in current tools – used experiences to define the requirements for a new tool

### Key features identified:

- need an intuitive (for archivists) graphical interface
- drag'n'drop to create the intellectual arrangement
- ability to return to original order of the material

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- view some file types, add descriptive metadata etc
- high level of granularity when applying rights & permissions

Technical (acquired at accessioning) and descriptive metadata -Discovery & Access process

![](_page_38_Picture_9.jpeg)

![](_page_38_Picture_10.jpeg)

## **Discovery and Access**

### Peter Chan Stanford University

![](_page_39_Picture_2.jpeg)

![](_page_39_Picture_3.jpeg)

![](_page_39_Picture_4.jpeg)

![](_page_39_Picture_5.jpeg)

![](_page_39_Picture_6.jpeg)

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## What is Discovery & Access

*Discovery and Access* refers to the systems and workflows that make *processed or unprocessed* material and the metadata that support it available to users.

![](_page_40_Figure_2.jpeg)

## Goals of D&A

- To make material available to user communities by ensuring that they can:
  - find out about material
  - understand whether it is available for consultation and if so, how
  - access material.
- To apply appropriate access restrictions in order to protect private and sensitive information as well as intellectual property.
- To provide access to material in a format and/or environment that presents the original's significant properties.

![](_page_41_Picture_7.jpeg)

### Case Study - Stephen Jay Gould Papers

Analog component: 550 linear feet of papers (789 boxes, 119 cartons, 30 flat boxes, and 14 map folders.

File size and number: 59.7 MB and 2,567 files.

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**Media formats:** 98 3 <sup>1</sup>/<sub>2</sub>" floppy diskettes; 61 5.25" floppy diskettes; 4 sets of punch cards\*; 3 computer tapes

File Types: Computer Programs; Data sets; Documents; Spreadsheets

File Formats: ASCII Text; WordPerfect 4.2, 5.0, 5.1, 6.0, 6.1; Microsoft Word 2.0, 6.0, 97, 2000; Microsoft RTF; Microsoft Excel 4.0; Lotus 1-2-3 2.0, etc.

\* During processing of the "analog" papers in 2011, another 21 sets of punch cards and more floppy diskettes were found.

![](_page_42_Picture_7.jpeg)

![](_page_42_Picture_8.jpeg)

![](_page_42_Picture_9.jpeg)

### D&A – EAD

#### Descriptive Sum

Title Series VI: Gould Born Digital Material

File Types and File Type: Computer Program; Data set; Document; Speadsheet. File Format: ASCII Formats Text; WordPerfect 4.2, 5.0, 5.1, 6.0, 6.1; Microsoft Word 2.0, 6.0, 97, 2000; Microsoft RTF; Microsoft Excel 4.0; Lotus 1-2-3 2.0

creator Gould, Stephen Jay

#### Additional Information

Scope and This series consists primarily of the born digital material from the Stephen Jay Gould Contents note (SIG) papers. The born digital material was stored in floppy diskettes, tapes and punch cards. The labels, if any, on the computer media are in many cases too brief to tell the contents in the diskettes. The processor has to view the contents of the files to decide the proper EAD component levels which the contents belong to. Since SIG divided his works into "Articles", "Abstracts, Reviews, Letters, etc.", "Natural History Column", and "Books" in his bibliography, the processor followed this arrangement and added "Bibliography & CV", "Teaching", "Rare Books", "Plunch Cards", "Misc.", and "Computer Media Photos" as other subseries. Details of the ten subseries are as follows.

> Subseries I, Articles, is divided into 15 sub-subseries according to the publication years: 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2001, "Unidentified Period". Articles which the years of publication cannot be identified were put in "Unidentified Period". There are 99 files in this subseries.

Subseries II, Abstracts, Reviews, Letters, etc., is divided into 6 sub-subseries according to the publication years: 1992, 1994, 1996, 1997, 1999, "Unidentified Period". Articles which the years of publication cannot be identified were put in "Unidentified Period". There are 107 files in this subseries.

Subseries III, Natural History Column, is divided into 12 sub-subseries according to the publication years: 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, "Unidentified Period". Articles which the years of publication cannot be identified were put in "Unidentified Period". There are 171 files in this subseries.

Subseries IV, Books, contains drafts of 12 books written by SJG: The Structure of Evolutionary Theory, Full House, The Book of Life, Triumph and Tragedy in Mudville, Dinosaur in a Haystack, The Burgess Shale and the Nature of History, Time's Arrow, time's Cycle, The Lying Stones of Marrakech, Eight Little Piggies, Hidden Histories of Science, The Hedgehog, the Fox, and the Magister's Pox, The Mismeasure of Man. There are 404 files in this subseries.

Subseries V, Bibliography & CV, contains several versions of bibliography and CV of SJG. There are 44 files in this subseries.

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begries VI, Teaching, contains examination papers, syllabus, and student in are 12 memory of the subseries.

Subseries VII, Rare Books, contains information on the rare books owned by SJG. There are 28 files in this subseries.

Subseries VIII, Punch Cards, contains computer programs and data migrated from one box of punch cards. Data in another box of punch cards is not migrated. There are 11 files in this subseries.

![](_page_43_Picture_15.jpeg)

![](_page_43_Picture_16.jpeg)

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![](_page_43_Picture_18.jpeg)

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### **D&A – Facet Browsing**

#### Collection

Subseries The Structure of Evolutionary Theory (227) Suberies III: Natural History Column (169)

Subseries X Computer Media Photos (165)

Subseries II: Abstracts, Reviews, Letters, etc (99) Subseries I: Articles (85) more subseries

#### Subjects

Evolution (Biology) (281) Punctuated equilibrium (Evolution) (227) Natural history (51) Evolution (13) Life--Origin (3) more subjects

Title

(16)

Filename

Content Type Document (692) Image (165)

Media Format 3.5 inch. floppy diskettes (472) 5.25 inch. floppy diskettes

File Format WordPerfect 6.0 (228) Steven J. Gould

![](_page_44_Picture_13.jpeg)

Browse the Collection

Biography When five-year-old Stephen Jay Gould first marveled at the towering Tyrannosaurus skeleton in the American Museum of Natural History, he decided to spend his life studying fossils. Although few children in Queens, New York, shared his early fascination for evolution, he never considered any other career but paleontology.

> Now professor at Harvard University and curator of its Museum of Comparative Zoology, Gould attended Antioch College, then returned to Manhattan, for graduate work in paleontology at Columbia University. For his doctoral thesis he investigated variation and evolution in an obscure Burmudian land snail, anchoring his later theorizing in intense scrutiny of a single group of organisms, as Darwin had done with Barnalee

![](_page_44_Picture_17.jpeg)

![](_page_44_Picture_18.jpeg)

![](_page_44_Picture_19.jpeg)

![](_page_44_Picture_20.jpeg)

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### **D&A – Full text search**

![](_page_45_Figure_1.jpeg)

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![](_page_45_Picture_3.jpeg)

![](_page_45_Picture_4.jpeg)

![](_page_45_Picture_5.jpeg)

![](_page_45_Picture_6.jpeg)

### **D&A – See Contents on Web**

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« Back to Results This document refers to:	< Previous #2 of 3 Next >						
Collection							
Steven J. Gould (857)	Document Viewer						
aims_document (1)	full screen						
Subseries	DOCUMENT ANNOTATIONS TEXT Zoom Level Search						
The Structure of Evolutionary Theory (227)							
Suberies III: Natural History Column (169)	p.1						
Subseries X Computer Media Photos (165)	Reconstructing (and Deconstructing) the Past						
Subseries II: Abstracts, Reviews, Letters, etc. (99)	Stephen Jay Gould						
Subseries I: Articles (85)							
Bibliography (29)	Harvard University						
Dinosaur in a Haystack (27)	Cambridge, MA 02138						
Subseries VII SJG Rare Books	I Framed on the Bias						
(21)	The Great Exhibition of 1851 did wonders for the morale of two central figures in Victoria's England						
Full House (13) Subseries VI Teaching (12)	for her husband Prince Albert, who directed this magnificent show of might and industry at the Crystal						
CV (5)	Palace, and who thereby won respect and accolades from his previously suspicious subjects; and for Charles Darwin, a frequent visitor, who viewed this yeas yet transparent edifice as a sign that his						
The Book of Life (3)	previously fragile nation had now become a stable and fertile ground for an intellectual revolution that						
Triumph and Tragedy in	he had been guarding in silence since the late 1830 s.						
Mudville (2)	When the Exhibition closed at its original home in Hyde Park, workmen dismantled the innovative						
more subseries	Among the varied attractions commissioned for the grounds of the Crystal Palace's new home, none						
	was as spectacular, as innovative, as fecund, and as enduring as the set of life-sized models of						
Subjects	collaboration of Eneyland's greatest anatomist Richard Owen (1804–1892) inventor of the term						
Evolution (Biology) (281)	"dinosaur."						
Punctuated equilibrium (Evolution) (227)	the Crystal Palace burned in 1936, but Hawkins's models are still in Sydenham (recently agritened,						
	ΔΙΛΛΟ						

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### D&A – Tag & Annotation by Invited Persons / Public

19NATHID.BK!.wpd (1)
19NATHID.wpd (1)
21NATHI6.wpd (1)
22NATHI6.wpd (1)
295.doc (1)
296.doc (1)
297.doc (1)
299.doc (1)
2SJGBIBL.BK!.wpd (1)
2SJGBIBL.WPD (1)
300.doc (1)
301.doc (1)
302.doc (1)
9BASEBAB.wp5 (1)
ACKCER3 (1)
AFRISILE.wp (1)
ALLOMIND.BK!.wpd (1)
ALLOMIND.WPD (1)
ANDERSON.W50.wp5 (1)
BABERUTH.wp5 (1)
BACON.wp5 (1)
BASBA'93.BAK.wp5 (1)
BASBA'93.wp5 (1)
BASE'94.wp5 (1)
BELLCURV.wp5 (1)
BIBAdoc (1)
BIBA.BK!.wp5 (1)
BIBA.doc (1)
BIBA.wp5 (1)
BIBA.wpd (1)
BIBBdoc (1)
BIBB.BK!.wp5 (1)
BIBB.wp5 (1)
BIBB.wpd (1)
BIBCdoc (1)
BIBC.wp5 (1)
BIBDdoc (1)
BIBD.wp5 (1)

Description			
Title:			
Subseries:	The Book of Life	Annotation:	
Author: +			
Contributor: +			
Date:			
Subject Values:	Evolution (Biology) LifeOrigin X		
Archivist Tags: +			
Donor Tags: 🕇			
Document Type:	Document 💌	File Type: WordPerfect 5.0	
Format Type:	3.5 inch. flo		

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## Impacts from Collection Development

- File formats: no restriction
- Computer medium: no restriction (punch card, open reel tape, 5.25 inch floppy, 3.5 inch floppy),
- File type: no restriction (computer program, data set, document, spreadsheet),
- Agreement: permission to post contents online.

![](_page_48_Picture_5.jpeg)

![](_page_48_Picture_6.jpeg)

![](_page_48_Picture_7.jpeg)

### Impacts from Accessioning

• Built 5.25 inch floppy capture station

Ask Computer History Museum to read
 punch cards

• Open reel tapes – still outstanding

![](_page_49_Picture_4.jpeg)

![](_page_49_Picture_5.jpeg)

![](_page_49_Picture_6.jpeg)

![](_page_49_Picture_7.jpeg)

### Impacts from Processing

- AccessData FTK was used to search files with restricted information, annotate files with appropriate descriptive metadata (book title, articles, etc.), and rights metadata (access restriction), generate technical metadata for the delivery platform to act upon.
- Transit Solution was used to transform files to html format for display in web.
- A XSLT program was written to transform the XSL-FO output from FTK to XML content document. A Ruby program was written to ingest the XML content document, original files, and the display derivatives to Fedora.

![](_page_50_Picture_4.jpeg)

![](_page_50_Picture_5.jpeg)

![](_page_50_Picture_7.jpeg)

### FTK – Bookmark and Label

AccessData Forensic Toolkit Version: 3.2.0.32216 Database: localhost Case: M1437 Stephen Jay Gould		
<u>File E</u> dit <u>V</u> iew Evi <u>d</u> ence Filter <u>T</u> ools <u>M</u> anage <u>H</u> elp		
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B-C Q CM028.ad1	06 Subseries VI Teaching	
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	OK Cancel	1
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BURBIB         /CM004.ad1/A::A:\/BURBIB         101009 <missing?>         Unknown</missing?>	19.38 KB D3608AEE5A0BEAD98551A9EE70301C38 12/31/1979 12/31/1979 11	/29/198 False
FIGCAP /CM004.ad1/A::A:\/FIGCAP 101003 <missing?> WordPerfect 4</missing?>	1.2 29.07 KB D791992949FC7F38DB5230E319A525CD 12/31/1979 12/31/1979 12	/20/198 False ≡
PREF /CM004.ad1/A::A:\PREF 101008 <missing?> Unknown</missing?>	17.71 KB 560B645115FB76777E999701B8D83172 12/31/1979 12/31/1979 4/2	28/1988 False
TABCON         /CM004.ad1/A::A:\/TABCON         101005 <missing?>         Unknown           TABLE         (20004.ad1/A::A:\/TABCON         101005         <missing?>         Unknown</missing?></missing?>	4072 B E57DEE5C5B3CF4B87ADDC6F6887D218C 12/31/1979 12/31/1979 4/2	28/1988 False
Loaded: 8 Filtered: 8 Total: 8 Highlighted: 1 Checked: 0	Total LSize: 90.97 KB	DDD198 Faise
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### FTK – Full Text, Pattern Search & Fuzzy Hash

![](_page_52_Figure_1.jpeg)

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## **Emulation – Design Files**

![](_page_53_Picture_1.jpeg)

### Network Diagram for 50,000 Creeley Emails

![](_page_54_Figure_1.jpeg)

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### MUSE: Sentiment Analysis for Emails

![](_page_55_Figure_1.jpeg)

![](_page_55_Picture_2.jpeg)

![](_page_55_Picture_3.jpeg)

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### **MUSE: See Individual Email**

#### Sentiments Positive (150 life event (33) Date: August 31, 2010 11:59pm Negative (18) From: Peter Chan <pchan3@stanford.edu> family (15) To: Chris Fitzpatrick <cfitz@stanford.edu> Glynn Edwards <gedwards@stanford.edu>, vacations (15) Cc: sulair-aims <sulair-aims@lists.stanford.edu>, Lynn McRae <lmcrae@stanford.edu>, Tom More <toramer@stanford.edu> Group: cfitz+4 Groups Subject: Re: hydra-aims-dev application gedwards (37) gedwards+1 (24) Hi Chris, Thank so much for your wonderful work. We are getting nearer to what we can show people in our AIMS meeting next 23 emeeks (12) It will be great if you can get access to the whole Gould collection asap. The files on sul-powervault are generated twl8n (9) after our Skype call and include many of the features missing in the "Full House" files and the TAD has been updated bjd2b+14 (8) as well. More Thanks & Regards, Peter People ----- Original Message -----From: "Chris Fitzpatrick" <cfitz@stanford.edu> Glvnn Edwards (72) To: "Peter Chan" <pchan3@stanford.edu> Michael G Olson (39) "Glynn Edwards" <gedwards@stanford.edu>, "sulair-aims" <sulair-aims@lists.stanford.edu>, Cc: "Lynn McRae' Elijah Meeks (13) <lmcrae@stanford.edu>, "Tom Cramer" <tcramer@stanford.edu> Sent: Tuesday, August 31, 2010 9:13:22 PM Tom Laudeman (12) Subject: hydra-aims-dev application Tom Cramer (10) Hello everyone, More I've done a kinda first pass at tweaking the hydrangea application for the AIMS demo next week. I've loaded in the files that Peter sent me Click to toggle filter last week (the "Full House" files), added some minimal metadata, and processed the html output into some jp2000s and text files for the document viewer ... You can see the application here --> http://hydra-aims-dev.stanford.edu/

![](_page_56_Picture_2.jpeg)

![](_page_56_Picture_3.jpeg)

![](_page_56_Picture_4.jpeg)

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### Want to know more?

### http://born-digital-archives.blogspot.com

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Mark Matienzo <u>mark.matienzo@yale.edu</u>

Simon Wilson <u>s.wilson@hull.ac.uk</u> Peter Chan pchan3@stanford.edu

![](_page_57_Picture_6.jpeg)

![](_page_57_Picture_7.jpeg)

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![](_page_57_Picture_9.jpeg)