



College of Information Studies

University of Maryland Hornbake Library Building College Park, MD 20742-4345

Representation

Week 6

LBSC 671

Creating Information Infrastructures

Muddiest Points

- More RDA examples please!
- All that terminology!

Tonight

- Finishing description
 - Subject authority control
- Representation
 - Bits to characters
 - Characters to meaning
 - Meaning in the large

Classification

- Classification
 - A system for organizing knowledge
- Notation
 - Expressing the classification in a systematic way

Library of Congress Subject Headings

- Controlled vocabulary for subject access points
 - Most commonly applied to books and serials
- Used when a subject describes $\geq 20\%$ of the work
- Choose the most specific appropriate headings
 - But if more than 3 subtopics, choose a broader heading

LCSH Subdivisions

- Topical

 - Archaeology – Methodology

- Form

 - Archaeology – Fiction

- Chronological

 - Archaeology – History – 18th century

- Geographic

 - Archaeology – Egypt

Hands On

- Find the LCSH for one of:
 - <http://www.mayoclinic.com/health/heart-attack/DS00094>
 - <http://en.wikipedia.org/wiki/AS-204>
 - <http://www.apollotheater.org/>
 - <http://www.flickr.com/photos/usnationalarchives/4153755504/>
 - http://en.wikipedia.org/wiki/Operation_Entebbe

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The character 'A'

- ASCII encoding: 7 bits used per character

0 1 0 0 0 0 0 1 = 65 (decimal)

0 1 0 0 0 0 0 1 = 41 (hexadecimal)

0 1 0 0 0 0 0 1 = 101 (octal)

- Number of representable character codes:

$$2^7 = 128$$

- Some codes are used as “control characters”
e.g. 7 (decimal) rings a “bell” (these days, a beep) (“^G”)

ASCII

- Widely used in the U.S.
 - American Standard Code for Information Interchange
 - ANSI X3.4-1968



0 NUL	32 SPACE	64 @	96 `
1 SOH	33 !	65 A	97 a
2 STX	34 "	66 B	98 b
3 ETX	35 #	67 C	99 c
4 EOT	36 \$	68 D	100 d
5 ENQ	37 %	69 E	101 e
6 ACK	38 &	70 F	102 f
7 BEL	39 '	71 G	103 g
8 BS	40 (72 H	104 h
9 HT	41)	73 I	105 i
10 LF	42 *	74 J	106 j
11 VT	43 +	75 K	107 k
12 FF	44 ,	76 L	108 l
13 CR	45 -	77 M	109 m
14 SO	46 .	78 N	110 n
15 SI	47 /	79 O	111 o
16 DLE	48 0	80 P	112 p
17 DC1	49 1	81 Q	113 q
18 DC2	50 2	82 R	114 r
19 DC3	51 3	83 S	115 s
20 DC4	52 4	84 T	116 t
21 NAK	53 5	85 U	117 u
22 SYN	54 6	86 V	118 v
23 ETB	55 7	87 W	119 w
24 CAN	56 8	88 X	120 x
25 EM	57 9	89 Y	121 y
26 SUB	58 :	90 Z	122 z
27 ESC	59 ;	91 [123 {
28 FS	60 <	92 \	124
29 GS	61 =	93]	125 }
30 RS	62 >	94 ^	126 ~
31 US	64 ?	95 _	127 DEL

The Latin-1 Character Set

- ISO 8859-1 8-bit characters for Western Europe
 - French, Spanish, Catalan, Galician, Basque, Portuguese, Italian, Albanian, Afrikaans, Dutch, German, Danish, Swedish, Norwegian, Finnish, Faroese, Icelandic, Irish, Scottish, and English

Printable Characters, 7-bit ASCII

	!	”	#	\$	%	&	'	()	*	+	,	-	.	/
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
'	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
p	q	r	s	t	u	v	w	x	y	z	{		}	~	

Additional Defined Characters, ISO 8859-1

	ı	ϕ	£	κ	¥	ı	š	”	ø	≡	«	¬	-	⊗	ˉ
°	±	²	³	´	μ	¶	·	¸	¹	º	»	¼	½	¾	¿
À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

Other ISO-8859 Character Sets

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	À	Á	Â	Ã	Ä	Å	Š	Ś	Ť	Ž	-	Ž	Ž		
°	à	á	â	ã	ä	å	š	ś	ť	ž	-	ž	ž		
Ř	Á	Â	Ã	Ä	Å	Ł	Ć	Č	É	Ę	Ë	Ě	Ī	Ī	Ď
Ø	Ñ	Ń	Ó	Ô	Õ	Ö	×	Ř	Ů	Ú	Ū	Ü	Ý	Ť	Ŧ
ř	á	â	ã	ä	å	ł	ć	č	é	ę	ë	ě	í	î	ď
đ	ñ	ń	ó	ô	õ	ö	÷	ř	ů	ú	ű	ü	ý	ț	’

-3

	À	Á	Â	Ã	Ä	Å	Š	Ś	Ť	Ž	-	Ž	Ž		
°	à	á	â	ã	ä	å	š	ś	ť	ž	-	ž	ž		
Ř	Á	Â	Ã	Ä	Å	Ł	Ć	Č	É	Ę	Ë	Ě	Ī	Ī	Ď
Ø	Ñ	Ń	Ó	Ô	Õ	Ö	×	Ř	Ů	Ú	Ū	Ü	Ý	Ť	Ŧ
ř	á	â	ã	ä	å	ł	ć	č	é	ę	ë	ě	í	î	ď
đ	ñ	ń	ó	ô	õ	ö	÷	ř	ů	ú	ű	ü	ý	ț	’

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	Н	°	£	х		Ĥ	š	ı	ş	ğ	ĵ	-		ž	
°	h	e	z	˘	μ	ĥ	·	ı	ş	ğ	ĵ	ˆ		ž	
À	Á	Â		Ä	Å	Ĉ	Ċ	Ç	È	É	Ê	Ë	Ī	Ī	Ī
	Ñ	Ò	Ó	Ô	Õ	Ğ	Ö	×	Ĝ	Ù	Ú	Û	Ü	Ÿ	ß
à	á	â		ä	å	ĉ	ċ	ç	è	é	ê	ë	ì	í	î
	ñ	ò	ó	ô	õ	ğ	ö	÷	ğ	ù	ú	û	ü	ÿ	ß

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	Ë	Б	Г	Е	С	І	Ї	Ј	Љ	Њ	Ћ	Ќ	-	Ÿ	У
А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я
Ń	ë	ь	г	е	с	і	ї	ј	љ	њ	ћ	ќ	š	ÿ	у

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					х									‘	-		
														‘			’
	ء	آ	أ	ؤ	ا	ى	ا	ب	ة	ن	ث	ج	ح	خ	د		
د	ر	ز	س	ش	ص	ض	ط	ظ	ع	غ							
-	ف	ق	ك	ل	م	ن	و	ى	ي	”	”	”	”	”	”	”	”
ر	”	”															

-7

	‘	’	£			ı	š	ı	ø		«	¬	-		-
°	±	²	³	´	ˆ	À	·	È	Ĥ	Ì	»	ò	ˆ	Ÿ	Ω
İ	A	B	Г	Δ	E	Z	H	Θ	I	K	Λ	M	N	Ξ	O
Π	P		Σ	T	Υ	Φ	X	Ψ	Ω	İ	ÿ	α	ε	η	ι
Ù	α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
π	ρ	ς	σ	τ	υ	φ	χ	ψ	ω	ï	ü	ó	ú	ώ	

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		φ	£	х	¥	ı	š	ı	ø	×	«	¬	-	ø	-
°	±	²	³	´	μ	¶	·	ı	°	÷	»	ˆ	ˆ	ˆ	
×	ı	λ	τ	π	ı	ı	π	υ	ı	ı	ı	ı	ı	ı	ı
ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı

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	ı	φ	£	х	¥	ı	š	ı	ø	°	«	¬	-	ø	-
°	±	²	³	´	μ	¶	·	ı	°	°	»	ˆ	ˆ	ˆ	ı
À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ī	Ī	Ī	Ī
Ğ	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	İ	Ş	ß
à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
ğ	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ı	ş	ÿ

East Asian Character Sets

- More than 256 characters are needed
 - Two-byte encoding schemes (e.g., EUC) are used
- Several countries have unique character sets
 - GB in Peoples Republic of China, BIG5 in Taiwan, JIS in Japan, KS in Korea, TCVN in Vietnam
- Many characters appear in several languages
 - Research Libraries Group developed EACC
 - Unified “CJK” character set for USMARC records

Unicode

- Single code for all the world's characters
 - ISO Standard 10646
- Separates “code space” from “encoding”
 - Code space extends Latin-1
 - The first 256 positions are identical
 - UTF-7 encoding will pass through email
 - Uses only the 64 printable ASCII characters
 - UTF-8 encoding is designed for disk file systems

Limitations of Unicode

- Produces larger files than Latin-1
- Fonts may be hard to obtain for some characters
- Some characters have multiple representations
 - e.g., accents can be part of a character or separate
- Some characters look identical when printed
 - But they come from unrelated languages
- Encoding does not define the “sort order”

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Machine-Readable Catalog (MARC)

```
001      26132811
008      920608s1992    nyu      bf      001 0 eng
010      $a92021087
020      $a1555701205
040      $aDLC$cDLC$dAGL
049      $aHNKA
050      00 $aZ678.9$b.C58 1992
082      00 $a025/.00285$220
100      1  $aCohn, John M
245      10 $aPlanning for automation :$ba how-to-do it manual for
          librarians /$cJohn M. Cohn, Ann L. Kelsey, Keith Michael
          Fiels
260      $aNew York :$bNeal Schuman Publishers,$cc1992
300      $avi, 116 p. ;$c28 cm
440      0  $aHow-to-do it manuals for libraries ;$uno. 25
504      $aIncludes bibliographical references and index
650      0  $aLibraries$xAutomation$xManagement$xHandbooks, manuals, etc
650      0  $aLibrary planning$xHandbooks, manuals, etc
700      10 $aKelsey, Ann L
700      10 $aFiels, Keith Michael
```



Planning for automation

Author: [John M Cohn](#); [Ann L Kelsey](#); [Keith Michael Fiels](#)
Publisher: New York : Neal-Schuman, ©1997.
Series: [How-to-do-it manuals for libraries](#), no. 78.
Edition/Format:  Book : English : 2nd ed [View all editions and formats](#)
Database: WorldCat

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Details

Genre/Form: Handbooks, manuals, etc

Additional Physical Format: Online version:
Cohn, John M.
Planning for automation.
New York : Neal-Schuman, c1997
(OCoLC)607693438

Document Type: Book

All Authors / Contributors: [John M Cohn](#); [Ann L Kelsey](#); [Keith Michael Fiels](#)

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Responsibility: John M. Cohn, Ann L. Kelsey and Keith Michael Fiels.

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History of Structured Documents

- Early standards were “typesetting languages”
 - NROFF, TeX, LaTeX, SGML
- HTML was developed for the Web
 - Too specialized for other uses
- Specialized standards met other needs
 - Change tracking in Word, annotating manuscripts, ...
- XML seeks to unify these threads
 - One standard format for printing, viewing, processing

eXtensible Markup Language (XML)

- SGML was too complex
- HTML was too simple
- Goals for XML
 - Easily adapted to specific tasks
 - Rendering Web pages
 - Encoding metadata
 - “Semantic Web”
 - Easily created
 - Easily processed
 - Easily read
 - Concise

Some XML Applications

- Text Encoding Initiative
 - For adding annotation to historical manuscripts
 - <http://www.tei-c.org/>
- Encoded Archival Description
 - To enhance automated processing of finding aids
 - <http://www.loc.gov/ead/>
- Metadata Encoding and Transmission Standard
 - Bundles many types of metadata
 - <http://www.loc.gov/standards/mets/>

Even More Uses of XML ...

- **MARXML** – MARC in XML
- **MODS** – Metadata Object Description Schema
- **CML** – Chemical Markup Language
- **CellML** – biological models
- **BSML** – bioinformatic sequences
- **MAGE-ML** – MicroArray Gene Expression
- **XSTAR** – for archaeological research
- **AML** – astronomy markup language
- **SportsML** – for sharing sports data

Really Simple Syndication (RSS)



```
<?xml version="1.0"?>
<rss version="2.0">
<channel>
  <title>Lift Off News</title>
  <link>http://liftoff.msfc.nasa.gov/</link>
  <description>Liftoff to Space Exploration.</description>
  <language>en-us</language>
  <pubDate>Tue, 10 Jun 2003 04:00:00 GMT</pubDate>
  <lastBuildDate>Tue, 10 Jun 2003 09:41:01 GMT</lastBuildDate>
  <docs>http://blogs.law.harvard.edu/tech/rss</docs>
  <generator>Weblog Editor 2.0</generator>
  <managingEditor>editor@example.com</managingEditor>
  <webMaster>webmaster@example.com</webMaster>
  <ttl>5</ttl>
  <item>
    <title>Star City</title>
    <link>http://liftoff.msfc.nasa.gov/news/2003/news-starcity.asp</link>
    <description>How do Americans get ready to work with Russians aboard the International Space Station? They take
      a crash course in culture, language and protocol at Russia's Star City.</description>
    <pubDate>Tue, 03 Jun 2003 09:39:21 GMT</pubDate>
    <guid>http://liftoff.msfc.nasa.gov/2003/06/03.html#item573</guid>
  </item>
</channel>
</rss>
```

See example at <http://www.nytimes.com/services/xml/rss/>

XML: A Family of Standards

- Definition: DTD or Schema
 - Known types of entities with “labels”
 - Defines part-whole and is-a relationships
- Markup: XML
 - “Tags” regions of text with labels
- Presentation: XSLT
 - Specifies transformations
 - Commonly used to create a HTML display

XML Example

- View “The Song of the Wandering Aengus”
 - <http://www.umiacs.umd.edu/~oard/teaching/671/fall13/slides/6/xml.html>
- Built from three files
 - yeats01.xml
 - poem01.dtd
 - poem01.xsl

XML Example

```
<?xml version="1.0"?>
<!DOCTYPE poem SYSTEM "poem01.dtd">
<?xml-stylesheet type="text/xsl" href="poem01.xsl"?>
<poem>
  <title>The Song of Wandering Aengus</title>
  <author> <firstname>W.B.</firstname>
           <lastname>Yeats</lastname>
  </author>
  <stanza>
    <line>I went on to the hazel wood,</line>
    <linein>Because a fire was in my head,</linein>
    <line>And cut and peeled a hazel wand,</line>
  </stanza>
</poem>
```

Document Type Definition (DTD)

<!ELEMENT poem ((title, author, stanza)*)>

<!ELEMENT title (#PCDATA) >

<!ELEMENT author (firstname, lastname) >

<!ELEMENT firstname (#PCDATA) >

<!ELEMENT lastname (#PCDATA) >

<!ELEMENT stanza (line+ | linein+) >

<!ELEMENT line (#PCDATA) >

<!ELEMENT linein (#PCDATA) >

#PCDATA	span of text
<i>a,b</i>	<i>a</i> followed by <i>b</i>
<i>a b</i>	either <i>a</i> or <i>b</i>
<i>a*</i>	0 or more <i>a</i> 's
<i>a+</i>	1 or more <i>a</i> 's

Specifying Appearance: XSL

```
<xsl:template match="poem">  
  <html>  
    <body bgcolor="#FFFFCC">  
      <xsl:apply-templates/>  
    </body>  
  </html>  
</html>  
</xsl:template>
```

```
<xsl:template match="title">  
  <h1>  
    <font color="Green">  
      <xsl:value-of/ select=".">  
    </font>  
  </h1>  
</xsl:template>
```

Some Basic Rules for XML

- XML declaration is the first statement
 - `<?xml version="1.0"?>`
- An XML document is a “tree”
 - Must contain one root element
 - Other elements must be properly nested
- All start tags must have end tags
- XML is case sensitive
- Attribute values must have quotation marks
 - `<item id="33905">`
- Certain characters are “reserved”
 - For example: < is used to represent `<`

Resource Description Framework

- XML schema for describing resources
- Can integrate multiple metadata standards
 - Dublin Core, P3P, PICS, vCARD, ...
- Dublin Core provides a XML “namespace”
 - DC Elements are XML “properties”
 - DC Refinements are RDF “subproperties”
 - Values are XML “content”

XML Namespaces

```
<?xml version="1.0"?>
<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:rss="http://purl.org/rss/1.0/"
  xmlns:dc="http://purl.org/dc/elements/1.1/">
  <rss:channel rdf:about="http://www.xml.com/xml/news.rss">
    <rss:title>XML.com</rss:title>
    <rss:link>http://xml.com/pub</rss:link>
    <dc:description>
      XML.com features a rich mix of
      information and services for the XML community.
    </dc:description>
    <dc:subject>XML, RDF, metadata, information
      syndication services</dc:subject>
    <dc:identifier>http://www.xml.com</dc:identifier>
    <dc:publisher>O'Reilly & Associates, Inc.</dc:publisher>
    <dc:rights>Copyright 2000, O'Reilly &
      Associates, Inc.</dc:rights>
  </rss:channel>
</rdf:RDF>
```

Example from <http://www.xml.com/pub/a/2000/10/25/dublincore/>

Dublin Core in RDF XML

```
<rdf:RDF
```

```
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:dc="http://purl.org/dc/elements/1.1/">
```

```
  <rdf:Description
```

```
    rdf:about="http://media.example.com/audio/guide.ra">
```

```
    <dc:creator>Rose Bush</dc:creator>
```

```
    <dc:title>A Guide to Growing Roses</dc:title>
```

```
    <dc:description>Describes process for planting and nurturing
                      different kinds of rose bushes.</dc:description>
```

```
    <dc:date>2001-01-20</dc:date>
```

```
  </rdf:Description>
```

```
</rdf:RDF>
```



```
<?xml version="1.0" encoding="UTF-8"?>
<mods:mods version="3.2"
ID="MODS" xsi:schemaLocation="http://www.loc.gov/mods/v3 http://www.loc.gov/standards/mods/v3/mods-3-2.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.loc.gov/mods/v3"
xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:mods="http://www.loc.gov/mods/v3">
<!-- DLC-MODS Workbook version 1.2 released 6 November 2007 by University Of Tennessee Libraries Digital Library Center:
<!-- CONTENT CONTRIBUTOR: Doug Oard -->
<!-- INSTITUTION: University of Maryland -->
<!-- RECORD CREATION DATE: Fri Feb 28 2014 21:54:45 GMT-0500 (Eastern Standard Time) -->
<!-- FILENAME: iconf14-oard.xml -->
<mods:titleInfo><mods:title>It's About Time</mods:title>
<mods:subTitle>Projecting Temporal Metadata for Historically Significant Recordings</mods:subTitle></mods:titleInfo>
<mods:name authority="LCNAF" type="personal"><mods:namePart type="family">Oard</mods:namePart>
<mods:namePart type="given">Douglas W.</mods:namePart></mods:name>
<mods:name authority="LCNAF" type="personal"><mods:namePart type="family">Kraus</mods:namePart>
<mods:namePart type="given">Kari</mods:namePart><mods:namePart type="termsOfAddress">Kari Michele</mods:namePart>
<mods:namePart type="date">1968-</mods:namePart></mods:name>
<mods:name type="personal"><mods:namePart type="family">Wu</mods:namePart>
<mods:namePart type="given">Min</mods:namePart></mods:name><mods:typeOfResource>text</mods:typeOfResource>
<mods:originInfo><mods:dateCreated encoding="w3cdtf" keyDate="yes">2014-03-05</mods:dateCreated>
<mods:dateIssued encoding="w3cdtf">2014</mods:dateIssued><mods:place>
<mods:placeTerm authority="iso1366" type="code">US</mods:placeTerm>
</mods:place><mods:publisher>iConference 2014, Berlin, Germany</mods:publisher>
</mods:originInfo><mods:language><mods:languageTerm authority="iso639-2b" type="code">eng</mods:languageTerm>
<mods:languageTerm type="text">English</mods:languageTerm></mods:language>
<mods:physicalDescription><mods:internetMediaType>application/pdf</mods:internetMediaType>
<mods:digitalOrigin>born digital</mods:digitalOrigin></mods:physicalDescription>
<mods:abstract>Twentieth century audio recordings and motion pictures are important sources, both for scholarly analysis and for
public history. In some cases, important metadata has not reached the collecting institutions along with the materials, which are
now in need of richer description. This paper describes a novel technique for determining the date and time on which a recording
was made based on analysis of incidentally captured traces of small variations in the electric power supply at the time the
recording was made.</mods:abstract>
<mods:subject authority="lcsb"><mods:topic>Metadata</mods:topic></mods:subject>
<mods:identifier type="uri">http://terpconnect.umd.edu/~oard/pdf/iconference14.pdf</mods:identifier>
<mods:location><mods:url usage="primary display">http://terpconnect.umd.edu/~oard/pdf/iconference14.pdf</mods:url></mods:location>
<mods:recordInfo><mods:languageOfCataloging><mods:languageTerm authority="iso639-2b" type="code">eng</mods:languageTerm>
<mods:languageTerm type="text">English</mods:languageTerm></mods:languageOfCataloging></mods:recordInfo></mods:mods>
```

Encoded Archival Description (EAD)

```
<?xml version="1.0" encoding="UTF-8"?>
<ead xsi:schemaLocation="urn:isbn:1-931666-22-9 http://www.loc.gov/ead/ead.xsd" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="urn:isbn:1-931666-22-9">
+ <eadheader dateencoding="iso8601" countryencoding="iso3166-1" repositoryencoding="iso15511" relatedencoding="dc" scriptencoding="iso15924" langencoding="iso639-2b">
- <archdesc relatedencoding="dc" type="inventory" level="collection">
- <did>
- <repository>
  <corpname encodinganalog="publisher">J. Willard Marriott Library, University of Utah</corpname>
  <subarea encodinganalog="publisher">Manuscripts Division</subarea>
- <address>
  <addressline>Special Collections</addressline>
  <addressline>295 South 1500 East</addressline>
  <addressline>Salt Lake City, Utah 84112-0860</addressline>
  <addressline>801-581-8864</addressline>
  <addressline>http://www.lib.utah.edu/collections/manuscripts.php</addressline>
</address>
</repository>
<unitid encodinganalog="identifier" countrycode="US" repositorycode="US-UUML">Ms0202</unitid>
<unittitle encodinganalog="title">James Chipman Fletcher papers</unittitle>
<unitdate encodinganalog="date" normal="1933/1992" calendar="gregorian" era="ce" type="inclusive">1933-1992</unitdate>
- <origination>
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Inventory of the James Chipman Fletcher papers

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- General Files: September-November
- General Files: November-December
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- Correspondence
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- Budgets, Personal Correspondence, Miscellaneous Files
- Speeches, Introductions, Travels
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- Travel Files
- Meetings, Briefings
- Presentations, Research
- Reports, Technical Bulletins
- NASA Fiscal Year Budget

Collection Overview

Title: James Chipman Fletcher papers
Dates: 1933-1992 (inclusive)
Collection Number: Ms0202
Summary: The James C. Fletcher papers (1933-1992), cover Fletcher's time as NASA Administrator from 1971-1977, and aspects of this professional life following his departure from NASA in the Carter Administration, and his return to NASA following the Challenger disaster in 1986. He also served as President of the University of Utah.
Repository: J. Willard Marriott Library, University of Utah
Address: Special Collections
295 South 1500 East
Salt Lake City, Utah 84112-0860
801-581-8864
<http://www.lib.utah.edu/collections/manuscripts.php>

Collection Inventory

Biographical Note/Historical Note

James Chipman Fletcher, born 5 June 1919, in Millburn, New Jersey, attended high school in New York City and received a B.A. in physics from Columbia University in 1940. He served as a research physicist with the U.S. Navy Bureau of Ordnance, and in 1941 became a special research associate at the Cruf Laboratory of Harvard University. He went to Princeton University in 1942 as a teaching fellow and later was an instructor and research physicist.

Under an Eastman Kodak fellowship, Dr. Fletcher received his Ph.D. degree in physics in 1948 from the California Institute of Technology. He joined Hughes Aircraft Company as director of the Theory and Analysis Laboratory in the Electronics Division.

In 1954, Dr. Fletcher joined the Ramo-Wooldridge Corporation as an Associate Director and soon became Director of Electronics in the Guided Missile Research Division, later to become Space Technology Laboratories, with responsibility for all United States ICBM's. In July 1958 Dr. Fletcher organized the Space Electronics Corporation with his associate Frank W. Lehan. Space Electronics Corporation merged with the spacecraft division of Aerojet in 1961 to form the Space General Corporation of which Dr. Fletcher was the first president. He later became Chairman of the Board of Space General and Systems Vice President of the Aerojet General Corporation, where he served until becoming the eighth president of the University of Utah in 1964. Leaving the University after seven years, Dr. Fletcher returned to work with the aerospace industry through the government when he was appointed administrator of the National Aeronautics and Space Administration in 1971. He served in this capacity until 1977. Following the Challenger disaster in 1986, Fletcher assumed once again took up the reigns at NASA and served as administrator from 1986-1989.

Dr. Fletcher served on more than fifty national committees, and as chairman of ten. In March 1967, he was appointed by President Johnson to the President's Science Advisory Committee for a four year term. He was a member of the National Academy of Engineering, was a Fellow of the IEE and an Associate Fellow of the American Institute of Aeronautics and Astronautics. He is a member of the Executive Committee of the National Association of State Universities and Land Grant Colleges, Chairman of the Naval Warfare Panel, a Regent of the National Library of Medicine, and on the Visiting Committee of the National Bureau of Standards. He was a member of Sigm Xi and the recipient of the Alumni Distinguished Service Award of the California Institute of Technology in 1966.

Dr. Fletcher died 22 December 1991.

Content Description

The James Chipman Fletcher papers consist of records, correspondence, and other documents primarily relating to his tenure as the Administrator of NASA, the top position in that organization. Among the items included in Fletcher's papers are his appointment books. These are quite detailed accounts of Dr. Fletcher's meetings, as the books indicate with whom he met, at what time, and for how long. In some cases there is also a brief note on the subject of the discussion.

The bulk of the papers consist of speech and travel information. As NASA Administrator, Dr. Fletcher was called upon frequently to speak at affairs related to the aerospace industry, as well as address the requisite number of graduating classes and service organizations. He also traveled on tours of inspection and was present at various space launches.

For some years, following the speech and travel files, are notes and information from meetings and briefings. Some of these contain formal briefing charts and extensive printed materials on proposed NASA-related programs. In 1975-1977 there appear a number of files dealing with the fiscal year budgets.

Dr. Fletcher's handwritten notes on meetings or general office business are followed by the correspondence files. The general correspondence is filed by date. There are, however, some special subject files, such as those on Soviet Union and United States cooperation, which are filed chronologically within subject. Personal correspondence included with the collection consists of letters or recommendation as well as correspondence with friends.

There are a number of miscellaneous files at the end of each year. These include reports, telephone messages, newspaper clippings, and other similar items. Finally, the requests for autographs from the years 1971-1978 are filed together at the end of the collection.

The memorabilia includes clippings about Dr. Fletcher's appointment, biographies of NASA Astronauts, various certificates, plaques, models, and other items.

Dr. Fletcher's papers from his tenure as president of the University of Utah are housed in the University Archives.



SELECTED TOPIC



LATEST FROM THE BLOG

Score collection notes music performed at Emmy Awards

This collection of music scores at University of California, Los Angeles may be of interest to music history researchers and anyone with an ear for television show theme songs. I learned about this collection, which come from the CBS Music Library.

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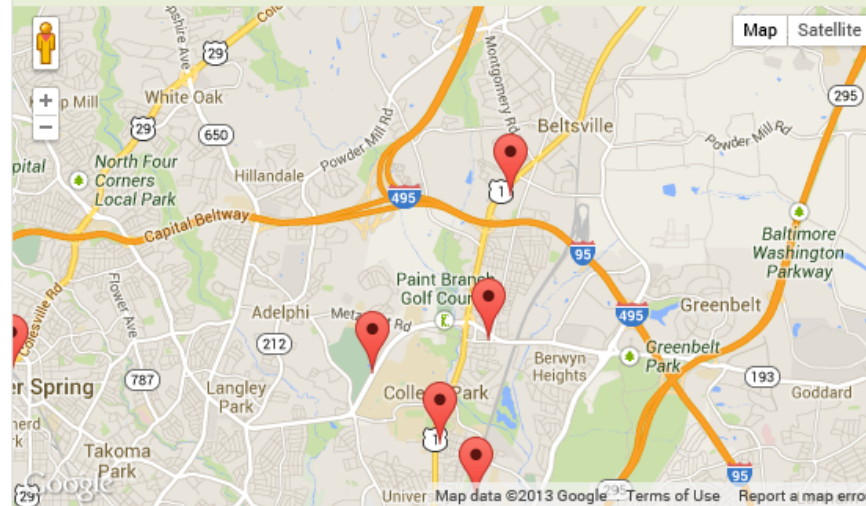
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COLLECTION HIGHLIGHT



Henry Sugimoto. Half Dome of Yosemite, 1935

[Guide to the Sugimoto \(Henry\) Collection 1928-1990](#). Gift of Madeleine Sugimoto and Naomi Tagawa, Japanese American National Museum (92.97.134)

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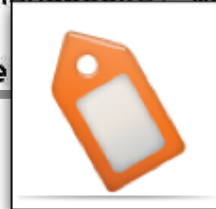
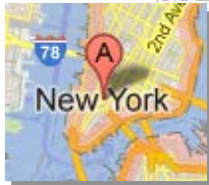
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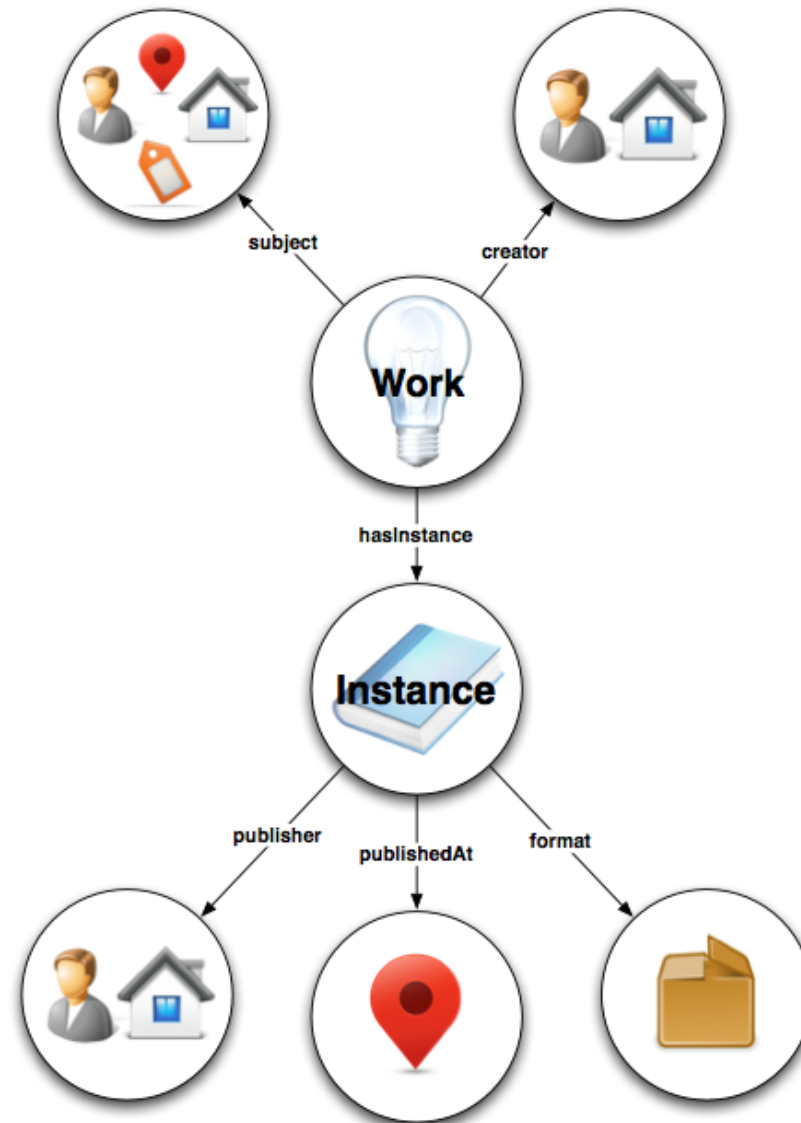
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Edward Maynard

Author

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- 1 Georgetown (Washington, D Corporation.
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Details

Visualization

 **Cooper, Samuel, 1798-1876**

URI(s)




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Cooper, W. W. Corcoran, John A. B. Dahlgren, Stephen A. George Washington Riggs, Edwin McMasters Stanton, a

Subject

-  Carter, Timothy W.
-  Cooper, Samuel, (★)(✓)
-  Corcoran, W. W. (✓)
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-  Douglas, Stephen A. (✓)
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 his improvements in the breech-loading rifle and the sale of his patent rights. Correspondents include
 usetts Arms Company), George Mackay, Edward Riddle, Thomas L. Smith, and Joseph Washington
 documenting Mavnard's Washinton. D.C.. dental practice. Patients mentioned include Samuel

Cooper, Samuel, 1798-1876 

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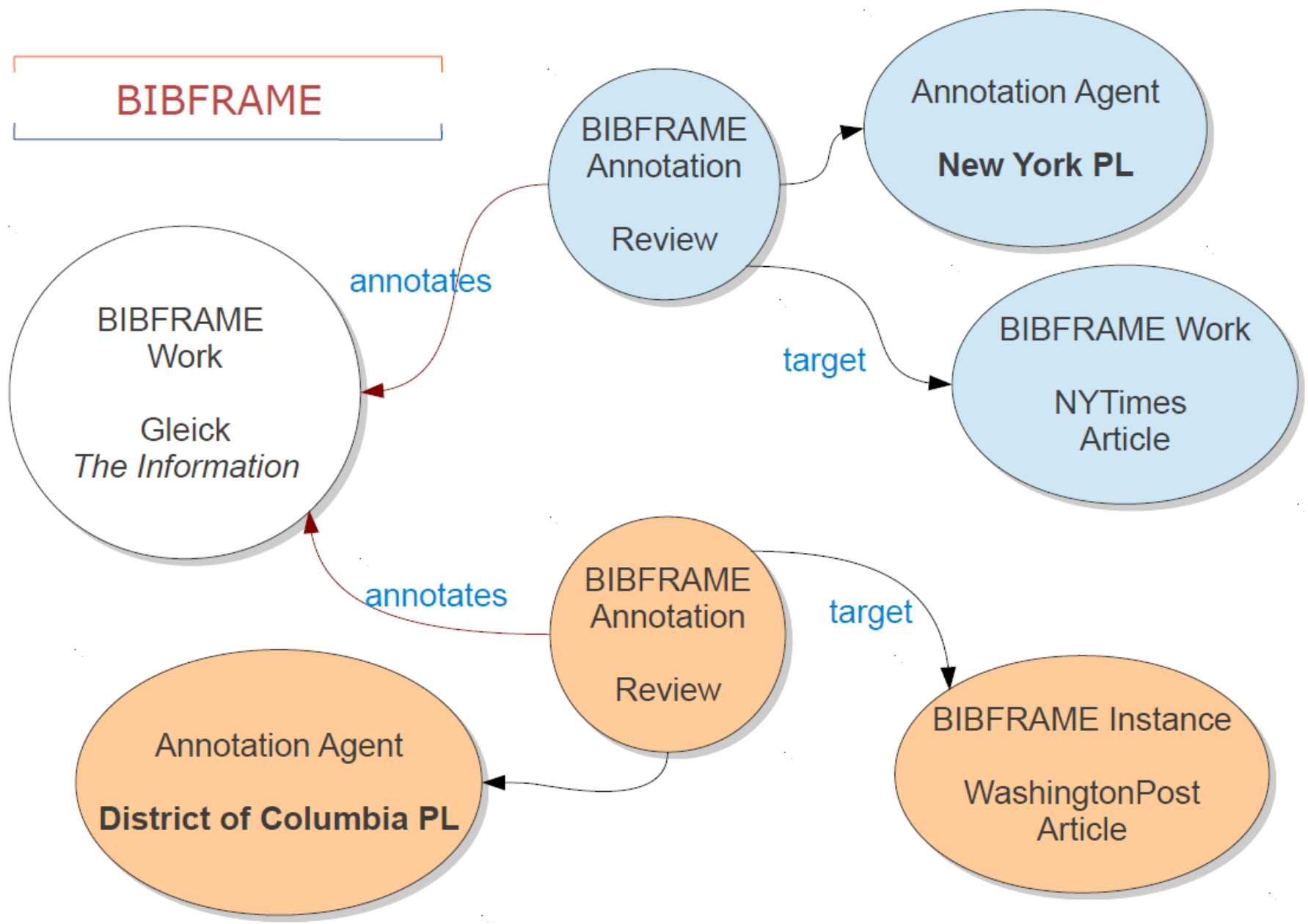
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- On a sheet of paper (no names), answer the following question:

What was the muddiest point in today's class?