

Tales from The Keepers Registry

Helping to ensure ease & continuity of access to digital resources

Peter Burnhill

EDINA (JISC & University of Edinburgh)

Digital Future and You: Library of Congress, Washington DC

10 December, 2012



Three Stories To Tell & Pictures To Paint

(based on an invited paper being accepted for *Serials Review*)

1. The Keepers Registry (to monitor progress)
 2. A Large Volume of Serial Issues
 3. The Scholarly Web (the now & the future then)
- + some asides on the way: eg, 'seriality'

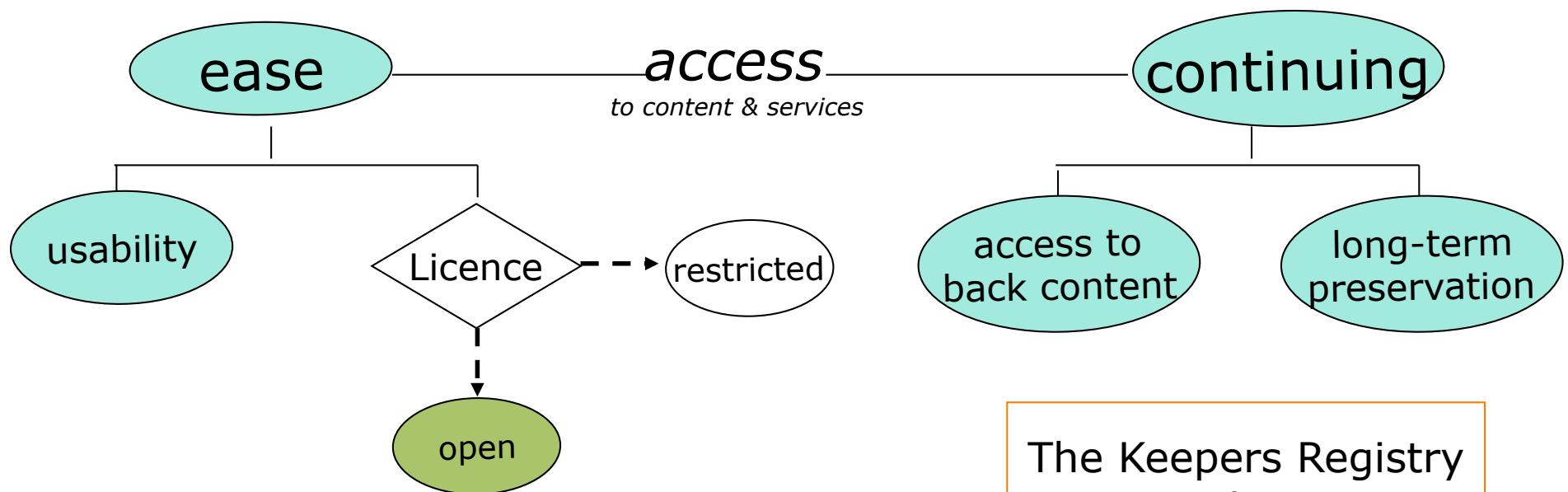
Monitoring Preservation of (Digital) Serial Content



Identifying
the stream

Helping to ensure
continuity of access

Central Task for Libraries: To ensure researchers, students and their teachers have **ease and continuing access** to online scholarly resources



The Keepers Registry
as monitor upon
e-journal archiving

The Basics of Our Shared Concern

[The Good News] ☺

What was once available locally <on shelf, in drawer/datacentre>
is now online & accessed remotely, anytime/anywhere

- *Studies show that scholarly literature is now nearly all online*
- *Libraries moving to an e-only environment for journals*

[The Bad News] ☹

The role of libraries as trusted keepers of information and culture has been disrupted

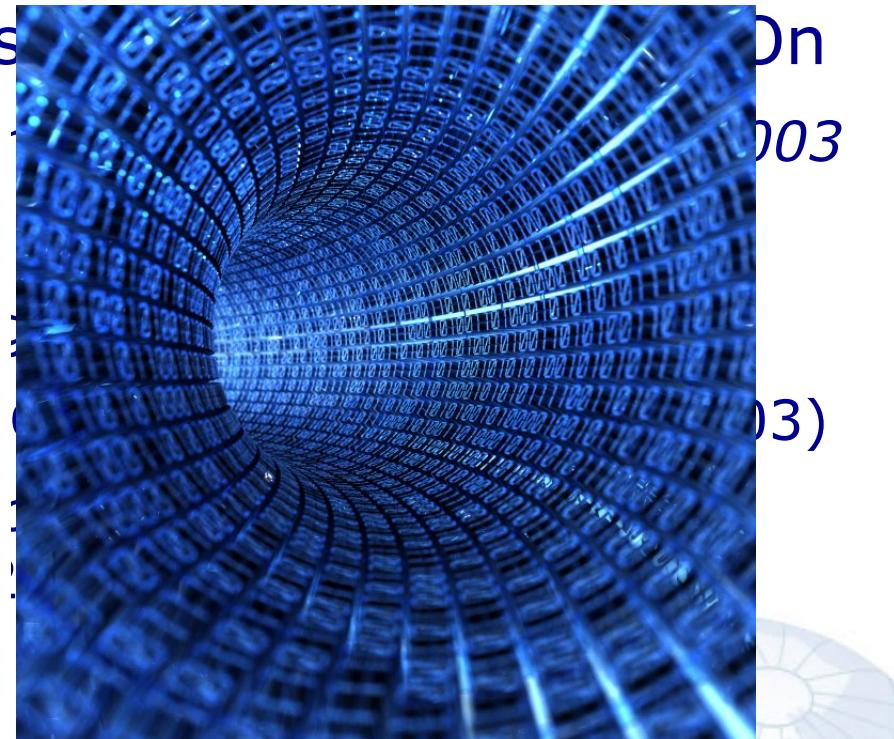
- ✧ Libraries no longer take physical custody of digital
 - *Publishers license content online remotely*
- ✧ Risk of loss for future scholars, citizens & our children

Our Shared Understanding

- ✧ World heritage & scientific understanding is global
- ✧ Scholarship & science has global literature
 - ✧ Researchers in any one country are dependent upon content written and published in other countries
- ✧ International/National Reports

Increasingly born digital,
or re-born digitized

Need to ensure continuity of
access



The real heroes in the story are ...

The Keepers, organisations that act as our digital shelves:

- ① web-scale not-for-profit organizations
 - * e.g. CLOCKSS Archive & Portico
- ② national libraries
 - *e.g. British Library, e-Depot (Netherlands) & National Science Library of China
- ③ library consortia
 - *e.g. HathiTrust & Global LOCKSS Network

Sidebar note on National Libraries

Should we wait upon Legal Deposit?

- 94% of libraries have some form of legal deposit *for print*.
- Only 44% national libraries had legislation in 2011 for e-books or e-journals; expected to rise to 58% by June 2012.
- Only 27% [expected to rise to 37% by June 2012] actually ingest via legal deposit
- Total national libraries collecting =
those 14 via legal deposit + 9 by other means
(Netherlands, UK/BL & Switzerland have voluntary deposit)
- 2 (KB e-Depot & BL) participate in the Keepers Registry
 - Only when the other 21 join will all know about their activity

from presentation, CENL 2011 Survey by Lynne Brindley
to CDNL Annual Meeting Puerto Rico, 15/8/11



Many archiving initiatives is a Good Thing ☺



“Digital information is best preserved by replicating it at multiple archives run by autonomous organizations”

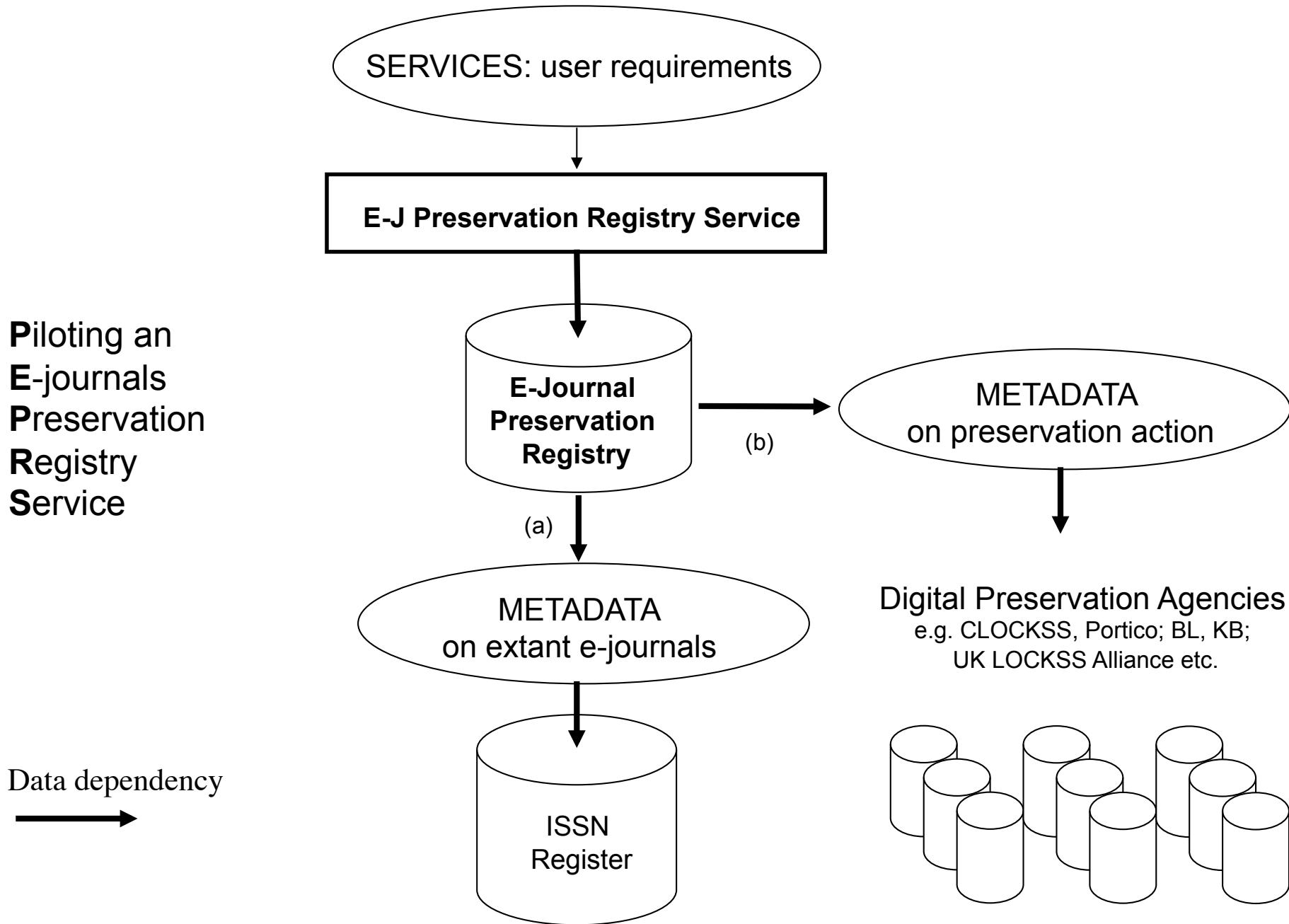
B. Cooper and H. Garcia-Molina (2002)

A Registry to discover 'who is looking after what'

- Idea mooted in UK Report (JISC: Maggie Jones, 2003/4); Call in USA/Canada for “clarity of public statement by each agency **or through a registry**” (CLIR Report, 2006)
- UK scoping study recommended an e-journals preservation registry be built (JISC: Rightscom/U. of Loughborough 2007)
- JISC funded EDINA & ISSN-IC as partners to Pilot an E-Journal Preservation Registry Services (PEPRS)
 - Phase 1: August 2008 – July 2010
‘investigate, prototype and build’ [evaluation in Feb. 2010]
 - Phase 2: August 2010 – July 2012
‘preparing for service & governance’



Abstract Data Model: Figure 1 in reference paper in Serials, March 2009



Partners have 15+ years of association

- ISSN International Centre (ISSN IC, on behalf of Network)
linked to national libraries and publishers
 - an intergovernmental institution governed by statutes/convention between UNESCO & France (as host country)
 - coordinates the ISSN Network of national centres, operating an automated system for the registration of serials, via assignment of International Standard Serial Numbers (ISSNs)
<http://www.issn.org>
- EDINA **linked to needs of research & teaching**
 - part of The University of Edinburgh (Scotland, UK)
 - designated in 1995 to act as a national data centre by JISC, the ICT agency for UK universities and colleges
<http://edina.ac.uk>



EDINA

EDINA's Mission: We develop and deliver online services & digital infrastructure for UK research and education.

Our Vision: To be integral to the quality & productivity of research & education, in the UK & beyond

part of The University of Edinburgh & the Jisc Family



Who We Are

EDINA delivers online services and tools to benefit students, teachers and researchers in UK Higher and Further Education and beyond.

[Community Report: what we do \(pdf\)](#)

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Film, Images & Sound
JISC MediaHub
Journal Catalogues
SUNCAT
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Article References
Land Link Leisure
Historical Materials
Statistical Accounts of Scotland
Sharing Research Papers
OpenDepot.org

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GeoData Discovery
GoGeo
Maps & Datasets
Digimap
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For Schools
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Sharing Data
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Repositories & Preservation
The Keepers Registry
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Sun, 09 Dec 2012 15:20:48 +0000

Latest blog post

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Sidebar note on Statistical Account (1790)



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Maps & Data



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Extracts of various Letters, approving of the STATISTICAL ACCOUNT
OF SCOTLAND, and urging a Perseverance in that Undertaking.

No XXIII. *Extract of a Letter from General Washington, dated 15th March 1793.*

I CANNOT but express myself highly pleased with the undertaking in which you are engaged, (that of drawing up the Statistical Account of Scotland), and give my best wishes for its success. I am full persuaded, that when enlightened men, will take the trouble to examine so minutely into the state of society, as your inquiries seem to go, it must result in greatly a-

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No XX. Extract of a Letter from his Excellency John Adams, now President of the United States of America, dated Philadelphia, 2d March 1793.

I RECEIVED yours, with your plans for a natural history of sheep, and the Statistical Survey of Scotland. You could not have made a wiser choice. The natural history of that animal, so useful to man, must be extremely important, as well as extremely curious; and a detail of particulars, relative to your native country, must be interesting to all but especially to the inhabitants of it. We, in this country, enjoy a delicious tranquility at present, and if your European fermentations should not disturb us, shall continue to be happy.

EDINA & Jisc

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*Jisc reformed to become a charity governed by UUK, GuildHE & AoC;
JISC was an arm of Government funding*

Previous JISC Mission: To provide world-class leadership in the innovative use of information and communication technology to support education, research & institutional effectiveness.

With Vision of easy & widespread access to information and resources, anytime, anywhere; a vision with technology and information management at the heart of research & education.

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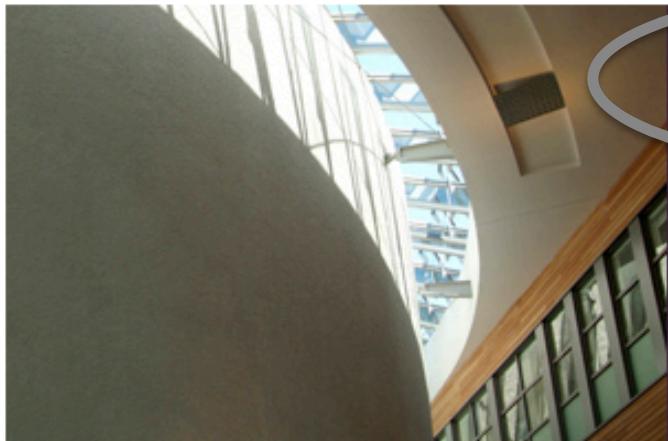
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Commission agrees way forward for modernising copyright in the digital economy (SCA Blog) ↗
07 Dec 2012 04:43

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Interactive map shows where Blitz bombs hit

6 Dec 2012

Jisc's trustees' ambitions for its future as a registered charity

5 Dec 2012

Customer centric approach core to JISC

19 Nov 2012

Podcast/Press Release: Gaming in the classroom – could this be a new way of teaching for the future?



16 Nov 2012

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Events

Will's World online hack

05 Dec 2012

Jisc Advance FE and Skills webinar series



19 Dec 2012 14:00

The Keepers Registry

- Initial scope was upon what is published in digital form
 - in serials and periodicals (journals, magazines, newspapers etc)
- Content of significance for each & every country:
 - publishers & archiving agencies are international

We can already report some good progress, having launched a Beta service a year ago, as noted on our blog,
<http://thekeepers.blogs.edina.ac.uk/>



and their activity

Discover who is looking after what e-journals

Search

Input a search term (e.g. free text, or a title or ISSN(s))

[Display example searches](#)

 [Glossary and definitions](#)

search on
title or ISSN

Learn more about the [archiving agencies](#) in The Keepers Registry who have stepped forward to take responsibility for ensuring long-term continuity of access to global scholarship.

- [British Library](#) (Last updated: 05 Sep 2012)
- [CLOCKSS Archive](#) (Last updated: 13 Aug 2012)
- [e-Depot](#) (Last updated: 24 Apr 2012)
- [Global LOCKSS Network](#) (Last updated: 14 Aug 2012)
- [HathiTrust](#) (Last updated: 01 Sep 2012)
- [National Science Library, Chinese Academy of Sciences](#) (Last updated: 06 Aug 2012)
- [Portico](#) (Last updated: 06 Aug 2012)

The most up-to-date information is available on the agency website. The date represents when the Registry was updated.

This is a Beta release from the [PEPRS project](#). We are also exploring governance and seeking sponsorship for this global facility. Your [feedback](#) is welcome.

a showcase
for archiving
organisations

Current Statistics

- Serials reported as 'preserved' : 18,402
- Serials where action is 'in progress' : 11,819

We include a title count where at least one agency has taken the reported action on one or more volumes. See the [FAQ](#) for more information.

News and Events

17th July 2012: The Keepers Registry's first Pecha Kucha outing is a winner! [\[View\]](#)

10th July 2012: Your one minute starts now! [\[View\]](#)

1 June 2012: Draft Inclusion Criteria released for review. [\[View\]](#)

June 2012: ONIX for Preservation Holdings. [\[View\]](#)

FAQ for news on additional functionality that is planned at [keepers.org](#)

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Acknowledgements



EDiNA

Reminder about the real heroes in the story

The Keepers of e-journal content



Koninklijke Bibliotheek



中国科学院国家科学图书馆
National Science Library,
Chinese Academy of Sciences

And others, as they tell all via the Keepers Registry ...

<http://thekeepers.blogs.edina.ac.uk/2012/06/27/draft-inclusion-criteria-released-for-review/>

Sidebar note on monitoring their progress ...

- How should we measure progress?
 - 18,400 serial titles reported as being 'preserved'
- *How many e-serials are there?*
 - ISSN Network has issued c.100,000 ISSN for online resources
 - * 20% of those by ISSN-US (Lib.Congress);
 - c.30,000 refereed scholarly journals (SerialsSolutions)
- Cross-checking the e-serials (having ISSN) that a given university library cares about:

University Library	% 'Preserved' by 1 or more	% 'Preserved' by 3 or more	% <i>Not known as 'Preserved'</i>	Total having a valid ISSN
Columbia	26	12	74	58,882
Cornell	28	13	72	54,698
Duke	22	10	78	61,682

- But only partial coverage of issued content!
 - Volumes and Issues are missing from archival holdings

Example search for: *Origins of Life*

Origins of life

Search

1 hit found

Current search: Origins of life (Key Words)

This e-journal is being archived by 5 archiving agencies ...

Title	ISSN	Publisher	Current extent of archiving <small>i</small>	Archiving agency
1. Origins of life and evolution of the biosphere	1573-0875 (Online); 0169-6149 (Print)	Springer	Preserved: v. 36, 40-41	CLOCKSS Archive
		Kluwer Academic Publishers	Preserved: v. 27-37	e-Depot
		Springer Netherlands	Preserved: v. 37-41	e-Depot
		Springer Science+Business Media	In progress: v. 1-present	Global LOCKSS Network
		Springer	Preserved: v. 27-42	National Science Library, Chinese Academy of Sciences
		Springer	Preserved: v. 39, 41	Portico

... but coverage
of volumes is
partial & patchy

2. A Large Volume of Serial Issues

1. Identification

- focus when building the Registry was online content that had an ISSN, as project convenience
 - Incorrect, erroneous or missing
- We knew that different ISSN for digital and for print
 - But value of ISSN-L as kernel field to link across ISSN records
- Used HathiTrust to extending scope to include digitized journals
 - Rules for assigning ISSN to digitised content from print journals
 - same ISSN applies to all digital versions of an online resource
- Noted ISSN assignment rules for *integrating resources* (websites and online databases that change over time)

Sidebar note on Identifiers

- Current Publisher Titles:
- Relatively low numbers of ISSN assignments for titles from India and China/Hong Kong, as reminder of number of 'hidden' e-journals & the like.
- c.20% of 100,000 issued by US ISSN Centre; UK ISSN Centre assigned c.10%; centres in Netherlands, Germany & Brazil each assigned c. 4.5%. The ISSN IC assigns c.3.5%.
- Dead Publisher Titles:
- Estimated to be 250,000 digitised serials in HathiTrust
- Any 'body' (not just a publisher) can apply for ISSN
- Responsibility for assigning ISSN is with the national ISSN Centre for the country that organises the digitisation

A Large Volume of Serial Issues (cont.)

1. Identification

2. Recording the extent preserved

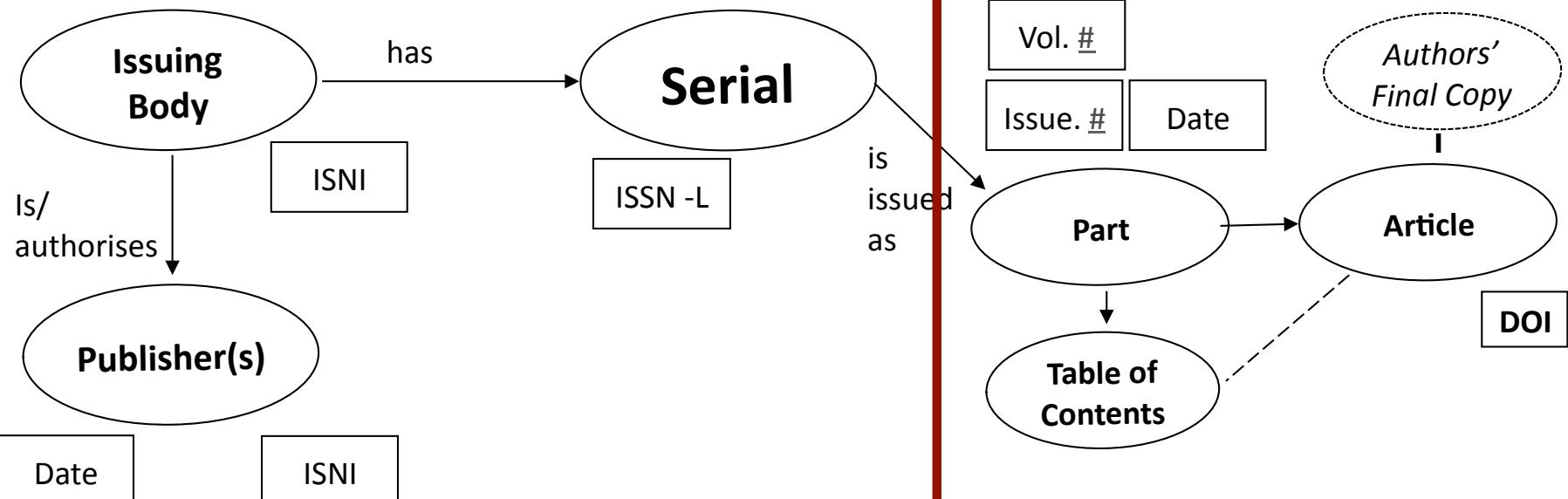
- Issues about issues: a Universal holdings statement
 - * Stewardship: print archiving as much as digital archiving
 - * 'Middle child syndrome' ALA Annual Holdings Update Forum, 2011
- Interoperability standard for Issues and Volumes
 - * ONIX for Preservation Holdings (ONIX-PH); KBART

3. Variability in publisher information

- Transfer of title between publisher
 - * TRANSFER Code of Practice, <http://www.uksg.org/transfer/>
- publisher naming
 - * Not critical at ingest into Keepers Registry, but poor browsing
- Identifiers for Publishers (ISNI, builds on VIAF)
 - * International Standard Name Identifier (ISO 27729),

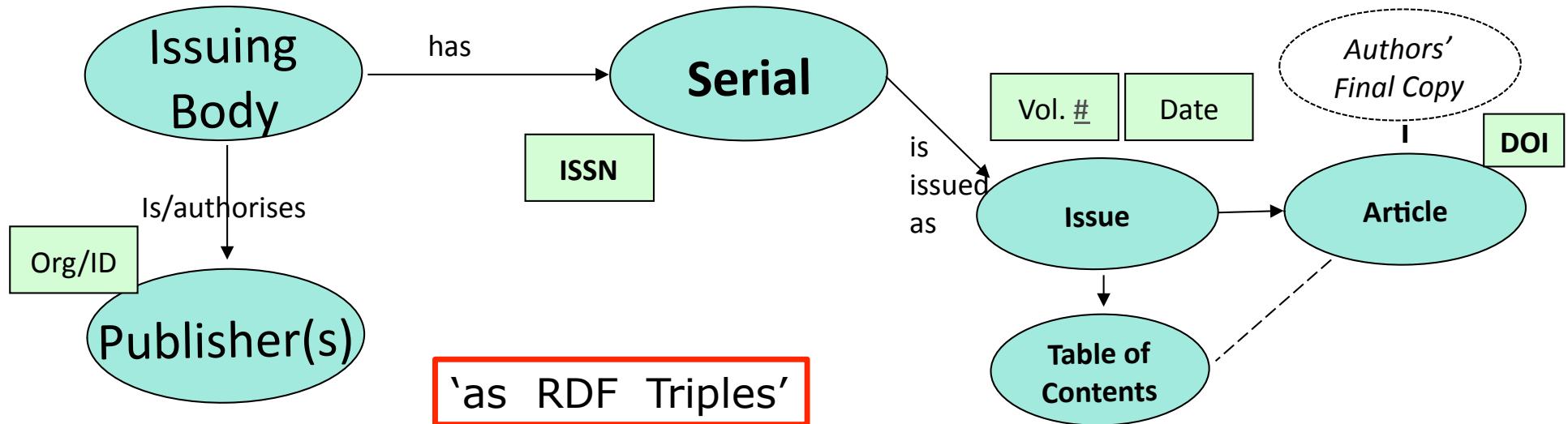
Metadata Model for serials & their issued content

Need for Serial / Publisher Database

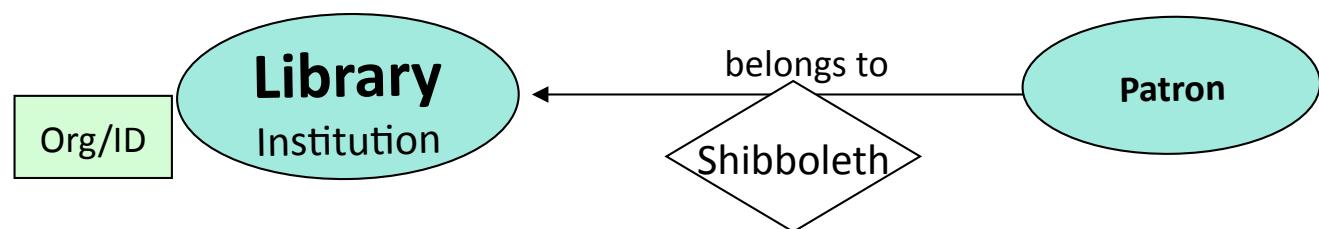


ISSN Register typically has only publisher at time of ISSN assignment

Archiving agencies (and therefore Keepers Registry) deal with current publisher



	Entity	Predicate	Entity
1	Publisher	Is (authorized by)	Issuing_Body
2	Serial	Belongs to	Issuing_Body
3	Issue	Is part of	Serial
4	Article	Is part of	Issue
5	Volume	Is attribute of	Issue
6	Table_of_Contents	Is part of	Issue
15	Patron	Is (authenticated) member of	Library/Institution



3. The Scholarly Web (the now & the future then)

a) Preserving the digital

- OAIS (ISO 14721:2003) (ISO 14721:2012)

b) Digital Fixity & Copy of Record

- “the property of being unchanged between two points in time”,
(Caplan, 2006)
- Abrams & Rosenblum (2003): use of XML as archiving format
- Rosenthal (2010): format obsolescence as rare problem that happens infrequently to a minority of unpopular formats
- “the sine qua non is that the original bits be preserved”.

3. The Scholarly Web (the now & the future then)

- a) Preserving the digital
- b) Digital Fixity & Copy of Record

c) **Citation in Serials of Serial Content**

- Citation of sources is a fundamental part of scholarly discourse.
- expectation that the sources with which scholarly statements are made can and should be checked by others, with the potential for their re-use for the purposes of reproducibility of results.
- traditionally, sources relate only to statements made by other scholars and to some extent the evidence from which these statements are drawn.
- Presumption that the cited (printed) material – typically an article – sat on a shelf that could, with tedium and delay, be obtained on Inter-Library Loan

3. The Scholarly Web (the now & the future then)

- a) Preserving the digital
- b) Digital Fixity & Copy of Record
- c) Citation in Serials of Serial Content

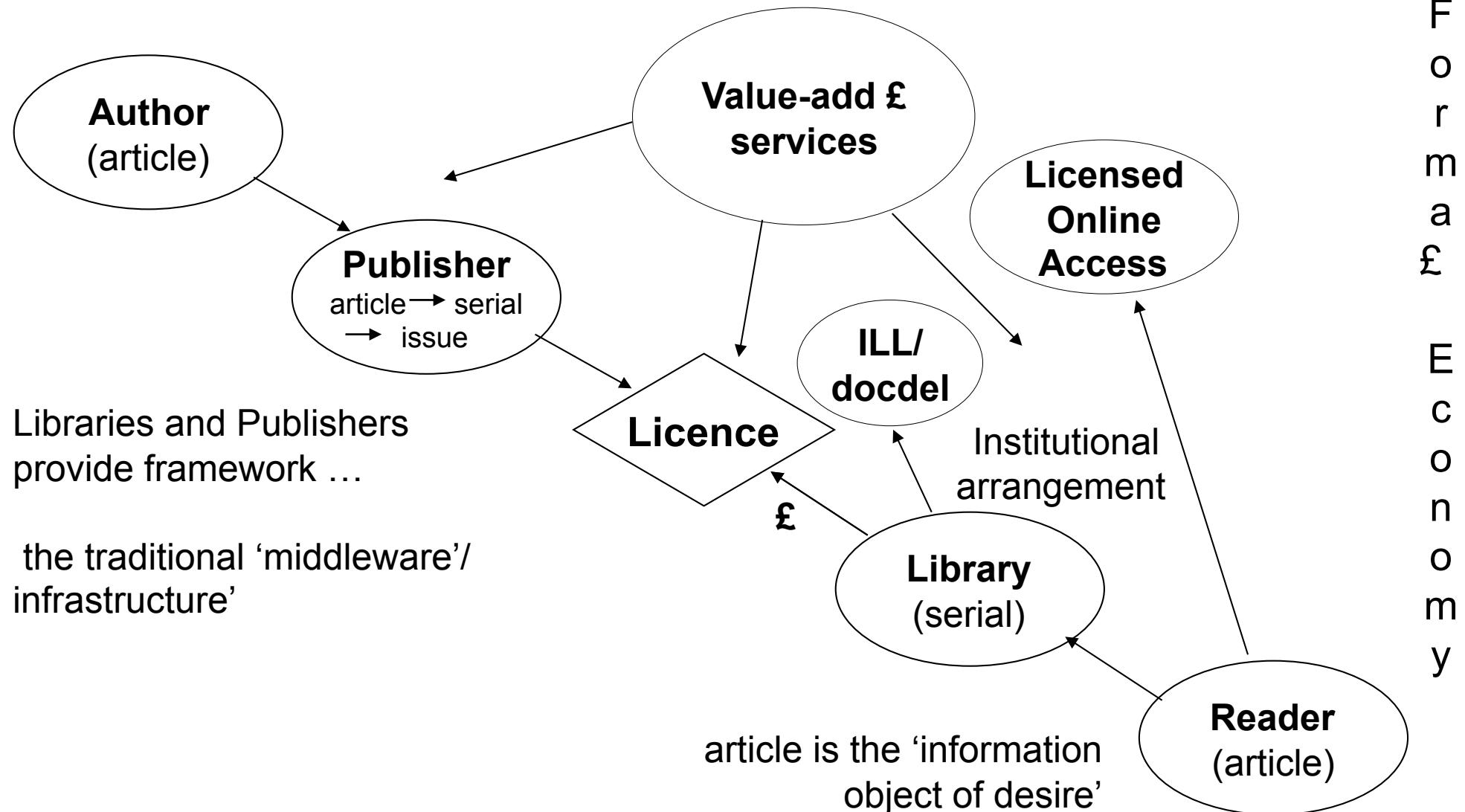
d) New Models of Scholarly Communication

- Then we all began to apply electricity & get digital ...

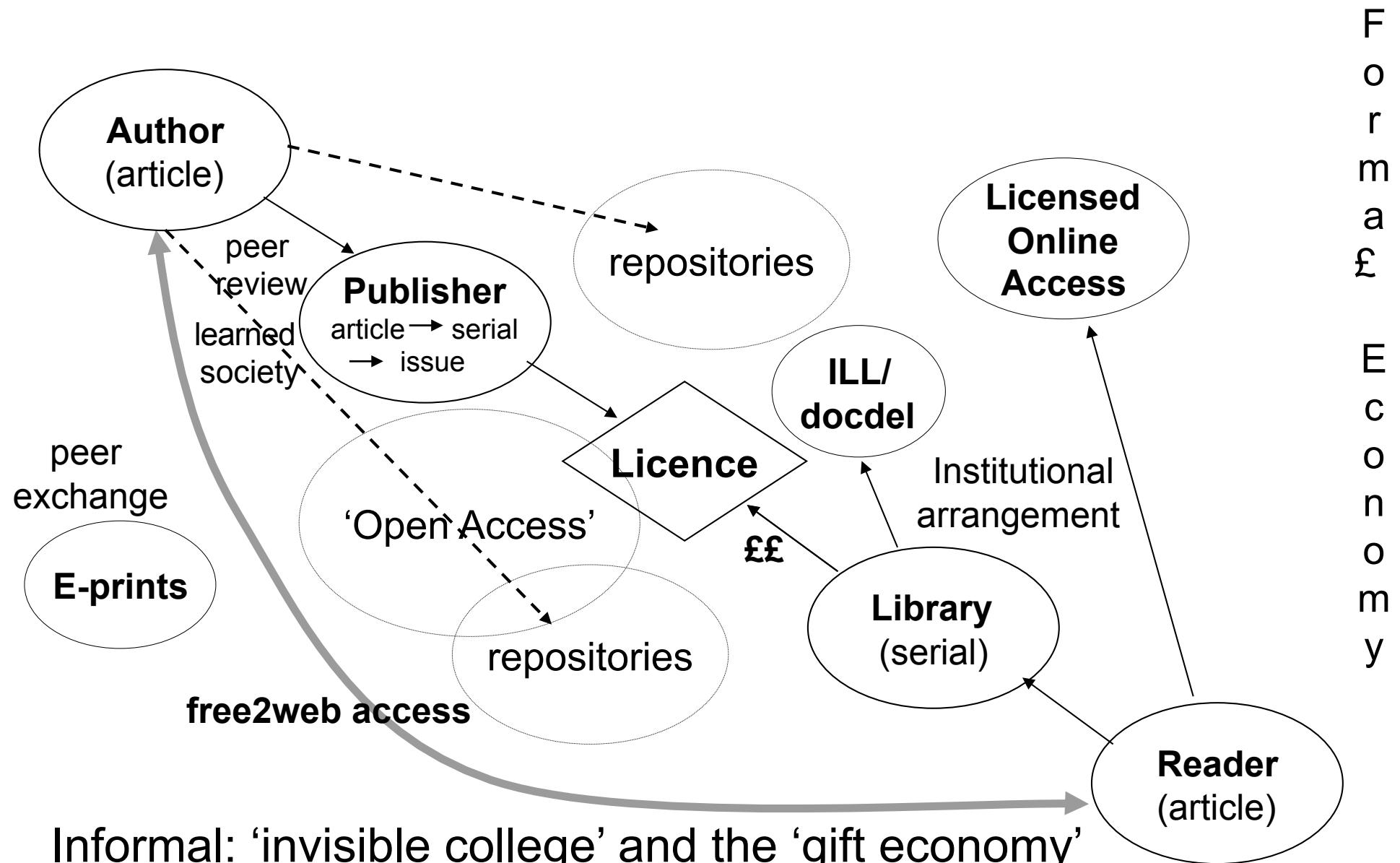


Scholarly Communication

(Access to article-length work)



Mixed Modes in Scholarly Communication



Informal: 'invisible college' and the 'gift economy'

3. The Scholarly Web (the now & the future then)

- a) Preserving the digital
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- c) Citation in Serials of Serial Content
- d) New Modes of Scholarly Communication

e) Cataloguing and Archiving The Web

Reduced ambition: assignment of identifier at points of (re-)issue

- Internet Archive
(<http://archive.org>).

Seriality: identify stream
of issued content

- Put simply, there
can be fewer ISSN
than DOI

Reminder about ease
of access ...



3. The Scholarly Web (the now & the future then)

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f) **New Scholarly Objects, with Links**

Beyond enhanced publication & supplementary data (behind the graph)

- *Research Objects*: rich aggregations of linked content with suitability for re-use by machine. Archived Objects & Publication Objects which “are intended as a record of activity, and should thus be immutable” and citable.” (Bechhofer, et al, 2010)
- *Compound units*: “aggregations of distinct information units [] “represented (by OAI-ORE) [to] enable it to be accessed and processed by machines & agents” (Van de Sompel & Lagoze, 2007)

“two traditions, or mentalities, even cultures, co-exist” (Buckland, 1998):

- (i) Approaches based on a concern with documents, with signifying records: archives, bibliography, documentation, librarianship, records management, and the like; and
- (ii) approaches based on finding uses for formal techniques, whether mechanical ... or mathematical (as in algorithmic procedures).

3. The Scholarly Web (the now & the future then)

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- d) New Modes of Scholarly Communication
- e) Cataloguing and Archiving The Web
- f) New Scholarly Objects, with Links

g) Web Citation

- Range of scholarly assets published & referenced is increased
- Dynamic. What was at the end of a given HTTP URL/URI at the moment of citation can and does change, or even cease to be, when scholars wish to look up the citation.

This is referred to as 'citation rot'.

- study by Sanderson, Phillips & Van de Sompel (2011) found that 28% of the resources referenced by articles in an institutional repository had been lost and that 45% (66,096) of the URLs [in arXiv] that were found to still exist had not been archived.
- Expect announcement of Mellon funding of *Time Travel for the Scholarly Web* (TT4SW) as joint UoE/LANL project ☺

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- g) Web Citation

h) Points of Issue

assignment of identifier at points of (re-)issue

- *Nature Precedings* acted as preprint repository for Life Sciences community. An integrating resource, assigned ISSN, 1756-0357.
- the long running *arXiv*, a pre-print repository for physics and comp.sci. (*and 5th in terms of h5 Index, being highly cited*) has yet to be assigned ISSN



Strategies -> Action Plans -> Delivery

- Principles into practice [even for unique/special objects]
 - ① Assign an identifier at 'point of issue' [ISSN for the stream]
 - ② Archive routinely (preferably have others/peers do that for you too)
 - ③ Tell someone what you are doing (and how) [e.g. Keepers Registry]
 - ④ Publish terms of access (now and when triggered as orphaned) [OA]
- Make Copies, Establish Safe Places & Monitor Progress
 - What is different about the digital includes the ease with which digital content can be copied, cheaply and exactly.
 - Strategy for a safe places network in which the responsibility for custody of the new digital content is shared.

Mapping the road ahead for The Keepers Registry

<http://thekeepers.blogs.edina.ac.uk/development-roadmap>

The Keepers Registry Blog



ED*i*NA

The Keepers Registry

Supporting long-term access to journal content



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Development Roadmap

Brief History

The Keepers Registry Beta service provides easily accessible information about the archiving arrangements for electronic journals, and is an output of the JISC funded project, Piloting an E-journals Preservation Registry Service (PEPRS). The project commenced in August 2008 and is currently funded until July 2012. In April 2011 the PEPRS Beta service was launched with limited functionality. In October 2011, an enhanced service was re-launched as the Keepers Registry.

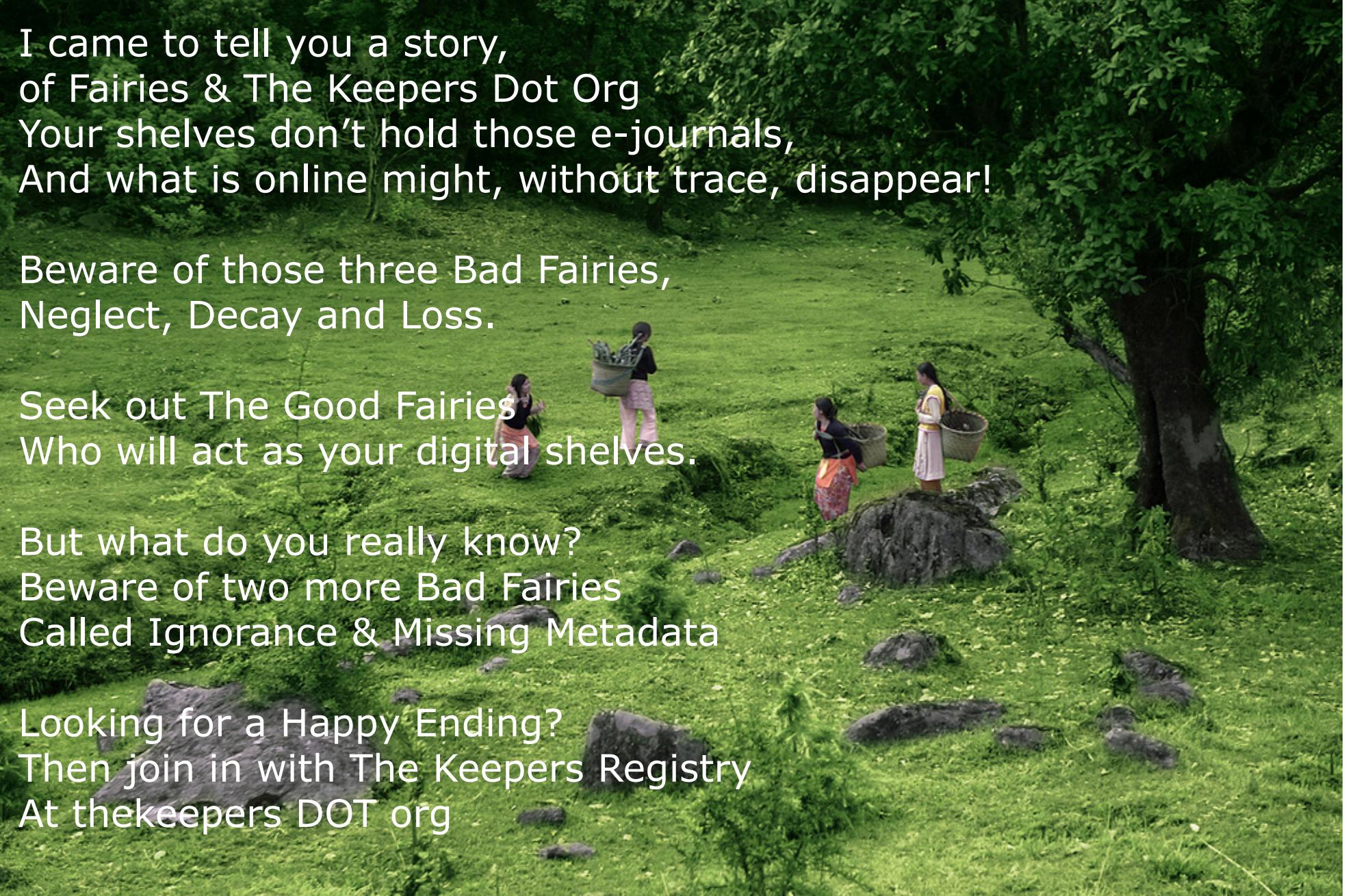
[Introduction](#)

Down in dingle dell, four Bad Fairies dwell
Named Neglect, Decay and Loss
And WorryMuch



Come away, O human child!
To the waters and the wild
With a faery, hand in hand,
For the world's more full of weeping
than you can understand.

The Stolen Child, WB Yeats



I came to tell you a story,
of Fairies & The Keepers Dot Org
Your shelves don't hold those e-journals,
And what is online might, without trace, disappear!

Beware of those three Bad Fairies,
Neglect, Decay and Loss.

Seek out The Good Fairies
Who will act as your digital shelves.

But what do you really know?
Beware of two more Bad Fairies
Called Ignorance & Missing Metadata

Looking for a Happy Ending?
Then join in with The Keepers Registry
At thekeepers DOT org

Use Seriality for Preservation Monitoring



Thank you for listening

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<http://thekeepers.org>

<http://thekeepers.blogs.edina.ac.uk/>