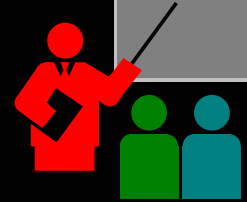




# E-Publishing in the health sciences: a changing landscape

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# Outline of presentation



- Discuss how the world of scholarly publishing is evolving and the reasons for this.
- Demystify and clarify the new types of publishing models.
- Look at benefits and problems services such as PubMed Central offer to Library staff and their users.
- Speculate how scholarly publishing will evolve in the near future.

# Scholarly publishing: a changing landscape

- ☞ There is a growing desire amongst researchers and librarians for the biomedical literature to be available without barriers.

↑ Public Library of Science <http://www.publiclibraryofscience.org/>

*We believe that the permanent, archival record of scientific research and ideas should neither be owned nor controlled by publishers, but should belong to the public, and should be made freely available.*

*16,000 signatures.*

- ☞ Witnessing the emergence of publishers - both new and old - who are making their works available free of charge or at cost.
- ☞ Traditional publishers are working more closely together - trying to provide aggregated "one-stop" services.

# Demystifying e-publishing

- ★ **E-print archives / Open Archives**
  - self-archiving by individual authors, providing barrier-free access to scholarly(?) information
  - not dependent upon formally published scholarly journals
  - Examples include arXiv.org, Cogprints, Netprints, ERA etc
- ★ **Journal archives - free access**
  - Publishers (as opposed to authors) archive their publications and provide free access to the scholarly literature
  - Example: PubMed Central
- ★ **Other journal archives - mix of free and chargeable access**
  - Examples include E-BioSci, Highwire and CrossRef
- ★ **New publishing alternatives**
  - Examples include Biomed Central, SPARC

# Biomedical open archives

## ☞ Netprints <http://clinmed.netprints.org/>

- Website developed by *BMJ*
- Provides a place for authors to archive their completed studies - before, during, or after peer review by other agencies. Its scope is original research into clinical medicine and health
- Only 3 papers posted in last 90 days

## ☞ Lancet Electronic Research Archive

<http://www.thelancet.com/era>

- This area is a self-archive for research material in international health - aimed at the developing world.
- Only 10 papers submitted since launch in 1999

## ☞ PubMed Express

- The “open” section of PubMed Central According to David Lipman “we haven’t gotten a lot of queries for non peer-reviewed manuscripts” - Not launched.

# Online archives - free access

- ☞ PubMed Central - <http://www.pubmedcentral.nih.gov>
  - Developed by the NCBI PMC ‘aims to fill the role of a world class library in the digital age. It is not, and has no intention of ever becoming, a journal publisher’.
  - Acting as a central source of traditional peer-reviewed articles. From April 2001 PMC will link out to publishers sites for the full text.
  - All material included in PMC will be available **free** of charge
  - Link to MEDLINE citations
  - Launched March 2000 - 8 journals available via PMC, including *BMJ*, *PNAS*. 10 more committed to joining including *NAR* and *CMAJ*.
  - Somewhat negative Editorial in *Nature Medicine* (May 2000) recently concluded: “*If PMC represents the Internet revolution for scientific publishing, my advice is: Don’t cancel your print subscription just yet!*”

# Other online archives

➡ **HighWire** <http://highwire.stanford.edu/lists/freeart.dtl>

- Biggest biomedical science online archive
- 130 life science journals - in full text
- 21 April 2001 - 957,804 full-text articles; 245,065 free

➡ **CrossRef** <http://www.crossref.org>

- Publishers response to e-publishing
- More than 3 million articles, across thousands of journals - all seamlessly linked. Article fees determined by publisher (pay per view). As of April 2001 - some 65 publishers signed up - including Elsevier Science, OUP, Blackwell

➡ **E-BioSci** - [http://www.embo.org/E\\_pub\\_pages.html](http://www.embo.org/E_pub_pages.html)

- Developed by EMBO - aims to be European equivalent to PMC.
- E-BioSci will provide free access to as much abstract or other material as possible... **but** will protect access to commercially produced full text material or other types of data.
- Not just articles - access to databases eg. genomics

# New publishers



## ☞ SPARC <http://www.arl.org/sparc/>

- Scholarly Publishing & Academic Resources Coalition
- SPARC creates "partnerships" with publishers who are developing high-quality, economical alternatives to existing high-price publications. E.g. *Organic Letters* (\$2438) cited as an alternative to *Tetrahedron Letters* (\$9036); *Geometry & Topology* (free), cited as an alternative to *Topology* (\$1223)
  - ◆ BioOne - <<http://www.bioone.org>> Contains set of highly cited, peer reviewed journals. E.g. *BioScience*, *Am. Zoologist*

## ☞ BioMed Central <http://www.biomedcentral.com>

- Will publish all accepted articles - after "light" peer review - in PubMed Central
- Authors retain copyright
- Income will be generated by other "add-on" services - analysis & review, commentary etc

SPARC

# What are the drivers of this changing landscape?

- 🕒 The role of the publisher in the age of the Internet
- 🕒 Economics
- 🕒 User expectations



# 1. The role for the publisher

- ⌚ Research - undertaken by the academic community
- ⌚ Peer review - undertaken by the academic community
- ⌚ Distribution - the one thing publishers could claim to do - This role negated by the development of, and the widespread access to, the Internet.
- ⌚ Marketing - Relatively little. Librarians obligated to buy!
- ⌚ Other value added services? Little evidence of this.

## 2. Economic driver

- ☞ Cost of print/electronic journal subscriptions rising significantly faster than inflation.
  - Association of Research Libraries reported a 207% increase in the price of journal subscriptions between 1986 and 1999.
    - ◆ <http://www.arl.org/stats/arlstat/1999t2.html>
  - Projections from Faxon indicate that journal prices will increase by 10% in 2002
    - ◆ <http://www.faxon.com/proj/default.htm>
  - MLA members spend over \$200m pa on journal collection development
  - In 1999 Reed-Elsevier reported profits of £231 million on a turnover of £652 million in its scientific activities; Robert Maxwell made his fortune in scientific publishing

# 3. User Expectations - availability

## ☞ If its not on the Web...it doesn't exist

- *“It is hard to make some students do anything but consult the Internet when doing research. Our experience has been that, particularly with young researchers, if they cannot get information easily they do not get it all - and easy means sitting at their desks”*

<http://www.stsci.edu/stsci/meetings/lisa3/stevens-rayburns.html>

## ☞ Researchers want easy access to research.

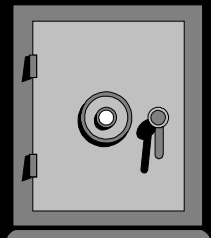
- Traditional publishing model is too fragmented.
- Researchers are dependent upon whether the library subscribes to a particular journal, and/or that journal having an electronic archive.

# User expectations - timely access to research

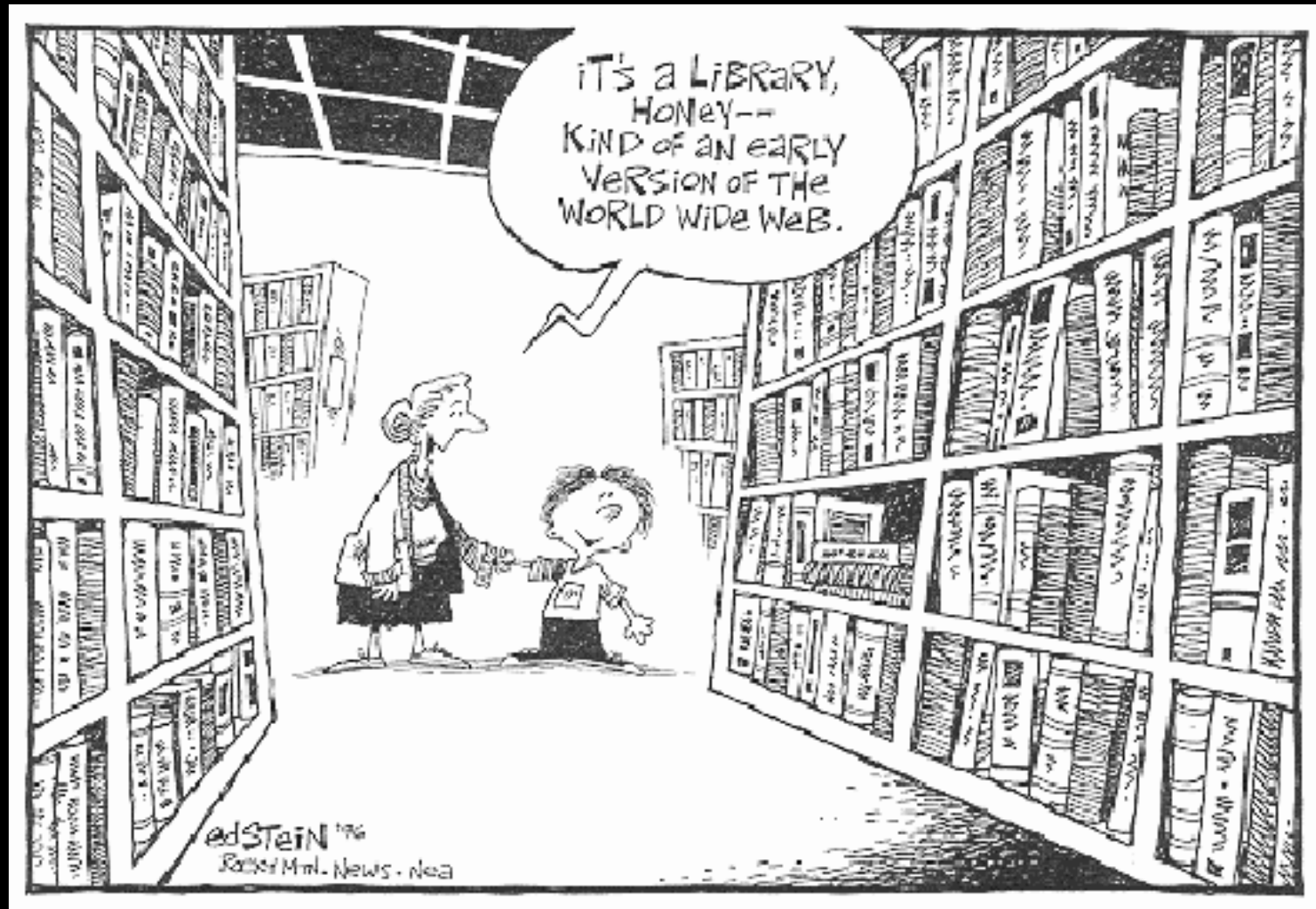
- ☞ With the traditional publishing model publication of research can be slow. Some journals take up to one year to publish research.
- ☞ Research from the US shows that astronomers and physicists alike have found it necessary to cite e-prints in their research articles rather than wait until they appear in print.
  - See: <http://www.stsci.edu/stsci/meetings/lisa3/youngeng.html>
- ☞ In contrast, the new publishing models will provide timely access to research.

# User expectations - need for perpetual access

- Few publishers guarantee that their electronic archives will be available in perpetuity
- Even those who do guarantee perpetual access (Elsevier), can they be trusted?
  - *“Elsevier Science is committed to maintaining an active electronic archive of its journals and to providing access to that archive to all subscribers. We know electronic archiving is important and we have made it a priority”*
- Librarians and their users may have more faith in organisations like the NCBI or JSTOR honouring this obligation.



# Existing publishing models not addressing current expectations





Current problems with e-publishing

# Problems - 1

- ➔ Multiple e-print servers - PubMed Central, HighWire, E-BioSci etc - hinders access.
  - The “one-stop shop” approach is what library users crave for. This panacea has not yet been achieved.
  - The real appeal of PMC was the idea of doing a MEDLINE search and seamlessly linking to the full-text of the required article(s).
  - Some users will not be aware of the different servers - and thus only “find” those articles which are included in that system. These may not be the best - possible adverse effect on patient care.
  - Problem may, in part, be solved if the different systems become interoperable, as suggested by the Sante Fe Convention.

# Problems - 2

☞ Problems of information overload will be exacerbated.

- Already calculated that to keep up-to-date clinicians in general medicine need to read 19 articles every day, 365 days a year.
- As the e-print servers develop - there are potentially many more papers which should be looked at.
- As articles submitted to open archive systems will not have been subjected to peer review - should librarians even be alerting their users to such papers?

# Problems - 3

- ☞ Whilst services are still evolving - and no single service is dominant - library costs will almost actually increase.
  - At least in the short term libraries will continue to subscribe to the traditional, high-impact journals - the delay in posting published articles on the HighWire & PMC servers will be deemed unacceptable by users.
  - In addition to this, the ease by which users will be able to link to full-text articles through services such as CrossRef will put increased pressure on libraries to support pay-per view access. This type of development will make it difficult for library's to control their costs.



# Look to the future - 1

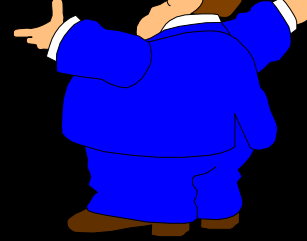
- ☞ Things moving very fast - and will continue to do so.
  - The very idea of providing barrier free access to the primary literature would have ridiculed a few years ago.
- ☞ Readers will still want access to paper journals - but will increasingly be looking for critical reviews - rather than the original research.
  - If traditional publishers are to survive - then this is the gap they need to plug.
- ☞ Readers want seamless online access from the key biomedical databases - MEDLINE and Embase - to full-text research articles
  - Readers cannot be expected to identify a useful article on MEDLINE and then hunt around on HighWire, OpenArchives etc in search of the full-text. A one-stop service, like PMC, *is* required.



# Look to the future - 2

- ☞ In this evolving landscape the "new alternatives" - BiomedCentral and the SPARC - need to be recognised as credible alternatives by the scholarly community if their uptake is to be anything other than peripheral.
  - RAE & impact factors support the existing publishing model
- ☞ Though self archiving (including peer-reviewed published material) is legal and possible it will take time to encourage authors to do this.
  - Funding bodies have a role to play in encouraging and facilitating this development

# Conclusions



- Exciting time for librarians and their users.
  - The developments in e-publishing provide real opportunities for librarians to truly meet the needs of their users.
- As the new publishing models evolve - we will almost certainly begin to see fewer printed journals.
- We will, however, witness the rise of critical review journals, that will provide researchers with commentary and analysis on the original research.

# Further information

## ☞ Useful articles

- Butler D. The writing is on the web for science journals in print. *Nature*, 1999, 397 (21st January):195-200
- Eysenbach, G. Challenges and changing roles for medical journals in the cyberspace age: electronic preprints & epapers. *JMIR*, 1999;1(2)  
Available online at: <http://www.symposium.com/jmir/1999/2/e9/index.htm>
- Harnad S. Free at last: the future of peer reviewed journals. *D-Lib Magazine*, 1999 5(12) Available online at:  
<http://www.dlib.org/dlib/february00/02contents.html>
- Van de Sompel. The Sante Fe Convention of the Open Archives Initiative  
*D-Lib Magazine*, 2000 6(2). Available online at:  
<http://www.dlib.org/dlib/december99/12harnad.html>

## ☞ Online Discussion

- <http://www.nature.com/nature/debates/e-access/>
- A complete archive of this ongoing discussion of providing free access to the refereed journal literature is available at the American Scientist September Forum. See:  
<http://amsci-forum.amsci.org/archives/september98-forum.html>