The Evolution of Scientific Publishing

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PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD

Vol I.
For Anno 1665, and 1666.

In the SAVOY,
Printed by T. N. for John Martyn at the Bell, a little with-
out Temple-Bar, and James Allestry in Duck-Lane,
Printers to the Royal Society.
An era of specialization begins

• More scientific societies
• More periodicals
• More specialization
• A trend that continues today
Growth of peer-reviewed journals 1665 -2001 (M. Mabe, Open Access and STM publishing, Goteborg, 2004)

Journal growth

cagr 3.46%
$R^2 = 0.9877$
R&D Workers, Journals and Articles
STM Publishing Today

- $8 billion industry
- 64% commercial, 30% society, 4% university presses, 2% other
- 25,400 active peer-reviewed journals by early 2009, growth in journals over 3 centuries at 3.5% per year
- 1.5 million articles
- 96% STM journals now online

(Mark Ware, STM Report 2009)
Essential purposes served by journals

• Registration – ownership, claim priority
• Certification – quality control, peer-review
• Dissemination – provides access
• Archiving – preserving the scientific record
Impact of growth in periodicals on libraries

- Storage space inadequate
- Rising costs leads to serials cancellations
- New fields, subject specialization
- Market concentration – mergers and consolidations
- The Big Deal – purchasing journals in packages
Impact of growth in periodicals on libraries

• More journals - more need for shelving space
• Online journals solve this problem
  – JSTOR – started in 2004 as a cooperative solution for libraries (6,792 to date)
  – Covers 1371 journals in 55 disciplines
  – Moving wall of back issues digitally preserved
  – In 2011 extended to current scholarship
Median Monograph and Serial Expenditures in ARL Libraries, 1986–2008*

Scholarly Publishing and Academic Resources Coalition

• Intended to ease financial pressures on libraries while expanding access to scholarship through digital technology.

• SPARC Partnerships
  – SPARC Alternative
  – SPARC Leading Edge
  – SPARC Scientific Communities
New Directions in Scholarly Publishing

• An old tradition and a new technology have converged to make possible an unprecedented public good.
  » Budapest Open Access Initiative, 2002

• Open vs free
• Two roads to Open Access
  - Self-archiving
  - Open Access Journals
• Public Access Mandates – NIH, CIHR
New Models in Scientific Publishing

- Self archiving – institutional vs disciplinary repositories, TSpace vs ArXiv
- Open Access Journals
  - Fully OA, Delayed OA or Hybrid OA
- SCOAP3 – Large Hadron Collider & HEP
- Atmospheric Chemistry & Physics/Discussions
- ChemSpider – Synthetic Pages
- Open Notebook Science – Useful chemistry
How libraries support new publishing models

- Campus based OA funds
- Compact for Public Access Equity (COPE)
- Support for SCOAP3 – 70% of $13 million budget already committed
- ArXiv – Hosted by Cornell University Library, supported by libraries worldwide
- Bioline International hosted by U of T creates visibility for research in developing countries
- Synergies – Open Journal Systems (PKP/SFU)
Journal Ranking Data

• Journal Impact Factor from ISI Journal Citation Reports

• SCImago Journal Rankings from Elsevier’s Scopus

• Journal ranking – a tool for authors and librarians not for T&P decisions
The Imperfect Impact Factor – the need for alternative metrics

PLoS journals includes alt-metrics
- online usage e.g. download statistics
- citations from the scholarly literature
- social bookmarks, blog coverage
- post-publication review - comments, notes, star ratings

Other metrics – h index, eigenfactor, article influence

MESUR Project: Usage Closeness Centrality
Article of the Future

- Semantically enhanced articles - RSC’s Project Prospect, SemanticBiochemical Journal
- Article of the Future - Cell Press and Elsevier
- Video-journals – Journal of Visualized Experiments (JOVE)
- Linking research articles to datasets e.g. Elsevier PANGAEA project
- Pre-eminence of data – Earth System Science Data: the data publishing journal
Create Change

• CARL/SPARC author addendum allows more control of your work, retaining the right to
  - use for educational purposes
  - post on institutional web sites
  - deposit in institutional repositories
In the end .......

YOU WRITE THE PAPERS,
YOU REVIEW THE PAPERS...

WHY SHOULD YOU PAY TO READ THEM?
Thank you!