

The Evolution of Scientific Publishing

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In the beginning....

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*.

Image from
JSTOR

LE
JOURNAL
DES
SÇAVANS.

TABLE

TOME 1

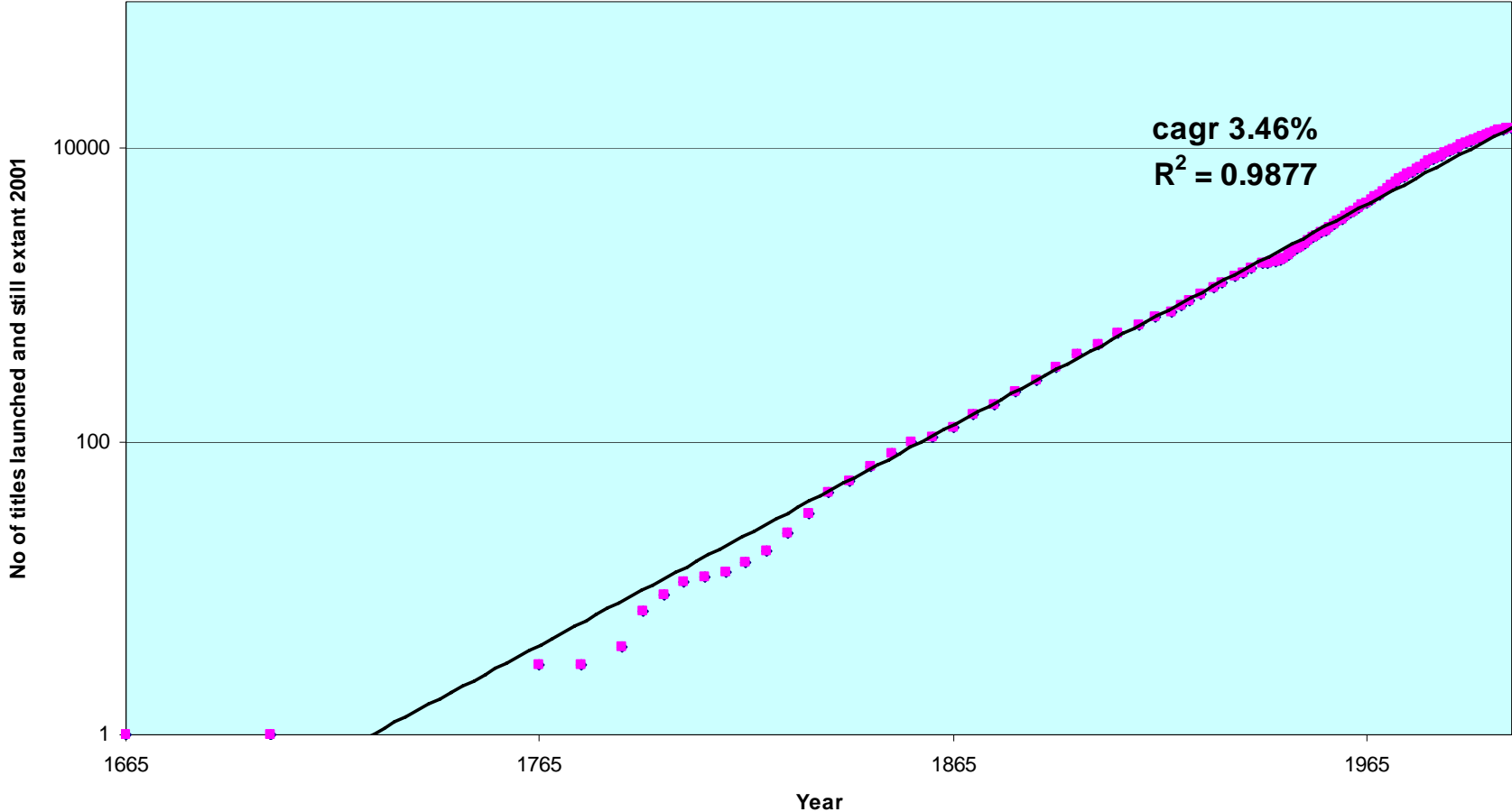
Image from
Gallica

An era of specialization begins

- More scientific societies
- More periodicals
- More specialization
- A trend that continues today

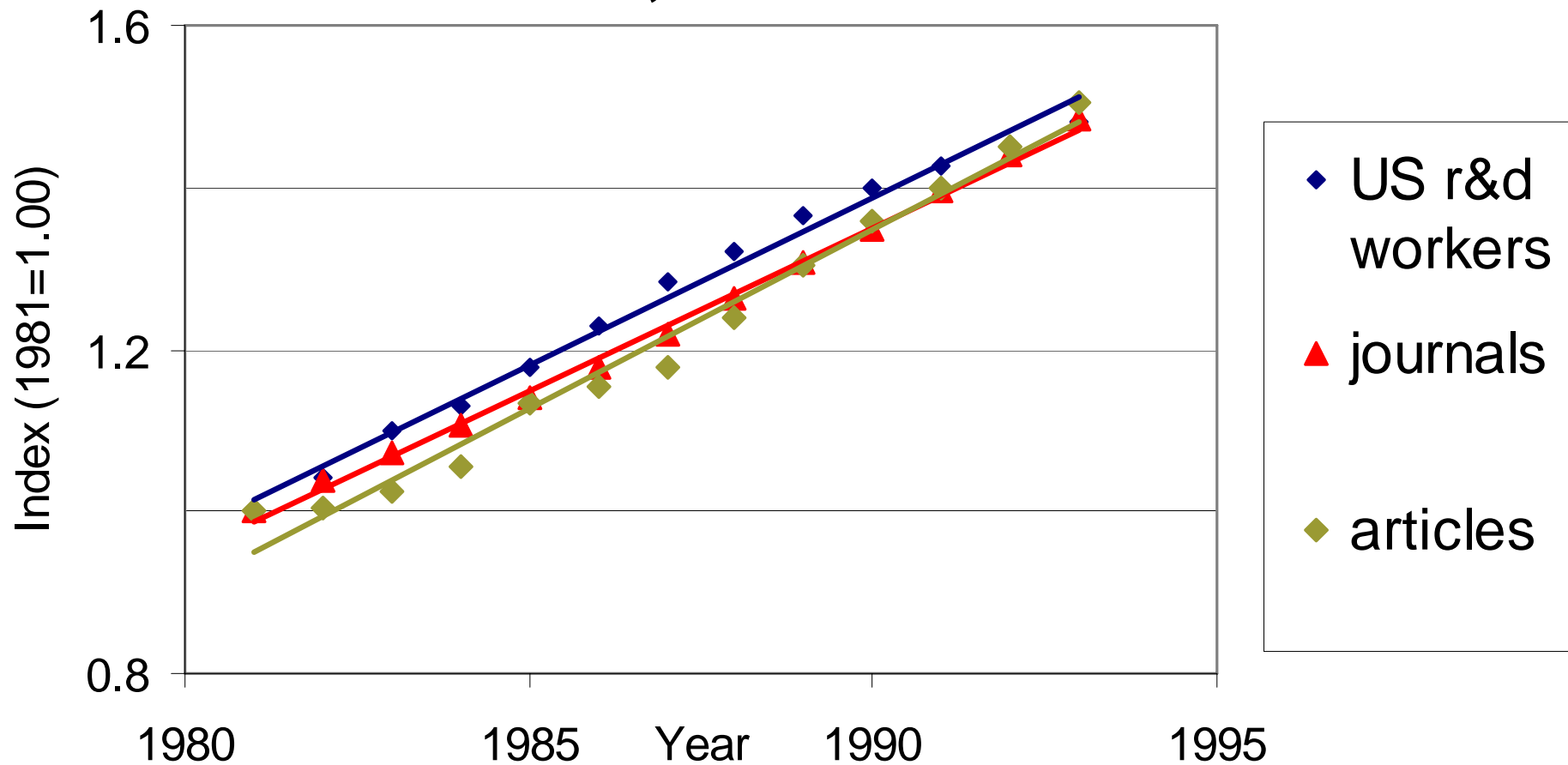
Growth of peer-reviewed journals 1665 -2001(M. Mabe, Open Access and STM publishing, Goteborg, 2004)

Journal growth



(Credits: M.Mabe, Goteburg 2004)

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

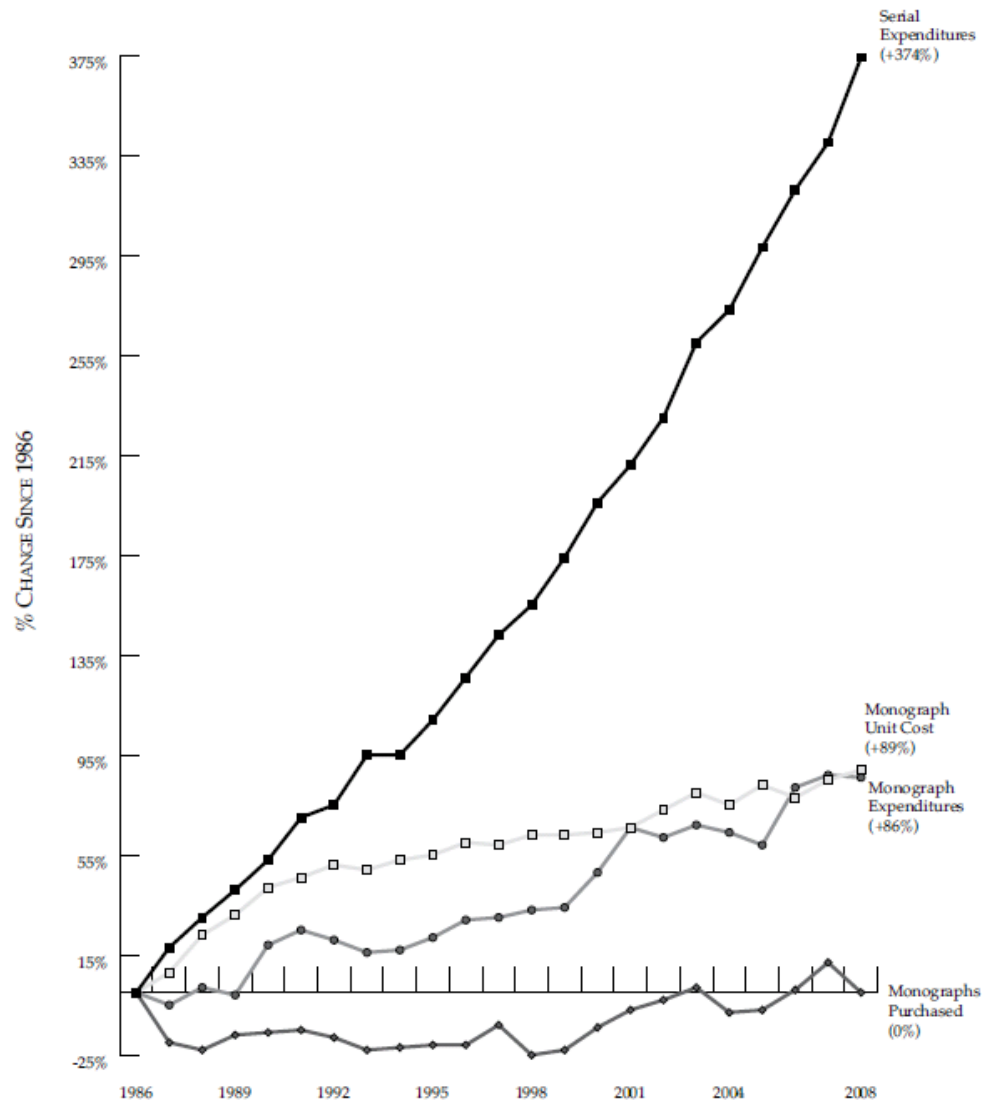
- Storage space inadequate
- Rising costs leads to serials cancellations
- New fields, subject specialization
- Market concentration – mergers and consolidations
- The Big Deal – purchasing journals in packages

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*



*Includes electronic resources from 1999–2000 onward.

Source: ARL Statistics 2007–2008, Association of Research Libraries, Washington, DC

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, Semantic Biochemical 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

Canadian Association of Research Libraries



Using the SPARC Canadian
Author Addendum to secure
your rights as the author of
a journal article

SPARC®

In the end.....



WHY SHOULD YOU PAY TO READ THEM ?

Th  nk you!