BACK TO THE FUTURE: A HISTORY OF SERIALS 1997-2017

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A light-hearted look at the future of serials which considers the technological, social, economic and political factors which are likely to drive the future of periodical publishing over the next twenty years, starting from an analysis of the purposes which journals have served and currently serve.

I lay in my bed here in Edinburgh and dreamt that I found myself cast twenty years into the future, lying in my apartment, watching the hologram of an elderly Derek Law giving the following address:

> "I have been invited to give you a brief talk on the recent history of one of the more absurd constructs of the human imagination to appear during the past half millennium; the periodical."

Before dealing with my immediate theme, I shall spend a few moments reviewing the earlier history of this perniciously insidious form of communication. We all know that the periodical started life in the mid-seventeenth century as a means of keeping scientists up to date with the already rapidly expanding field of human knowledge. At that time it had a useful and purposeful existence and was still tied to the concept that every serious scholar should strive to be a polymath. The journal, with its brief abstracts of scientific advance, was designed to keep investigators abreast of advances in areas in which they were universally interested.

Already such a concept as the universal scientist was under attack and the rapid progress of the enlightenment during the next century destroyed both universality and the original purpose of the journal.

Nevertheless the journal continued to flourish throughout the nineteenth and twentieth centuries, fed by the demand for information on specialist topics, and reinforcing the trend towards specialisation. Many of us may still remember the period of greatest triumph of some journal publishers who found a means of milking those with an interest in scientific information by charging them ever higher prices for ever more specialised, or perhaps ever more trivial information. Even the learned societies, towards the end of the century, appeared to see the journal more as a profitable source of income, than as a means of communicating valuable information to their membership. When the staff of institutions,

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many of whom themselves contributed the academic input to these highly profitable journals, attempted to ameliorate the impact of such price rises by reliance on inter-library lending and photocopying, the publishers, ignoring the fact that so much of their income came from the public purse through these subscribing institutions, were quick to cry foul.

As the century drew to a close it was evident that the situation could not continue. Throughout the world, economists specialising in the impact of education on development identified that higher education was a much less valuable investment for economic growth than primary education. In the developed world the drive to reduce state spending seized upon such evidence not necessarily to increase spending at one level but certainly to reduce it at the other.

At the same time the widespread adoption of information technology began to offer the distinct possibility of alternative provision. As the spiral of more new titles, covering ever more specialised topics at ever higher prices crept on into the new century, some of us despaired of ever seeing significant change. A rolling ten years seemed to be the most accurate prediction for future events. Change would come in ten years was a statement often made and equally often repeated twelve months later.

Above all change has, as always, been unpredictable. No-one could have guessed in 1997 at the present outcome, although a logical analysis of the trends, needs and problems at the time might have give some pointers to future development. Let us cast our minds back to the purpose of serials at that time. Undoubtedly they had an important role as a long-term record of scientific achievement and advance: a repository of the various successful explorations which have pushed the frontiers of science to undreamt of limits. This archival role is important as a bench mark of achievement as well as an historical record.

Journals also existed, however, to serve the selfish needs of authors, particularly, but not exclusively, in the academic community. In many western countries the pressure on academics to achieve success in research meant that individuals were encouraged to publish. A long list of articles was a necessary pre-requisite to promotion, to the well-being of the

departmental research rating and, more generally, to the sort of publicity which ensures lucrative consultancies, invitations to overseas conferences and other attractive benefits of the academic life. That journals were important for this purpose is evident from the fact that publishers increasingly were able to charge authors, rather than pay them, to publish in the more prestigious titles.

If that sounds a bit cynical, we should remember that journals were also useful as a means of providing information for current research - though the suspicion constantly lingers that they were more useful to academics, at least, for the information they did not contain. In other words, academics' desire to have as many titles as possible in their field of research held in the library may have been motivated by the need to confirm that their own research was breaking new ground which had not been previously published. Certainly the frequency with which searches for relevant material were delegated to research students or assistants suggest that many academics were not at all interested in the powers of serendipity to find the occasional, out-of-the-way, tangential article. The students' need for serials was more genuine. They were required to read the frequently tedious detailed research reports, often of their own lecturers, in order to prepare their reports and essays.

Important though these purposes were, however, they paled into insignificance before the principle purpose of serials: to make a substantial profit for the publishers. There is, of course, nothing wrong with making a profit. It was just unfortunate that, over time, a number of journal titles has acquired such significance that they enjoyed virtually a monopolistic position and it was possible for the publishers to charge more than they absolutely needed for subscriptions.

The serial itself did offer some benefits. For the established journals at least, a prestige title leant distinction and authority to the articles within it. A constant complaint in America in the late 20th century was that the Internet gave insufficient guidance to quality compared to journals. In addition, the title led to a pre-selected and largely self-selecting audience - large or small - with a presumed interest in the

material. In theory, at least, collections of
articles bound together provided opportunities
for serendipity and the chance finding of
valuable information.

Against that, the typical late 20th century
journal was difficult to access physically. Unless
a copy was held personally or in the local
library there could be a considerable wait while
an inter-library loan was obtained. Getting that
far was an achievement as, despite the
development of abstracts and indices, the ability
to find relevant material was not always simple.
Even when physical access was achieved,
intellectual access was all too often made more
difficult by jargon-ridden contributions which
made up in the density of language for the lack
of density of thought.

Costs continued to spiral upwards, increasing
the difficulty of access - because fewer local
libraries could afford the subscription - and
decreasing the already low cost-effectiveness of
a journal subscription. Increasingly, new
technology revealed, from the electronic
versions of journals mounted on the Web, that
few articles were actually read and only a tiny
handful were read at all frequently. For every
article accidentally found to be useful there
were many others that just seemed a waste of
space when the cost of subscribing was
considered. Some journals attempted to get
round this problem by organising issues by
themes, but many of these then found a
reduction in quality of the average content.
Conversely, the growth of inter-disciplinary
work made the rather artificial barriers imposed
by journal subject groupings more of a
constraint than in the past. The need for a wider
coverage of relevant material became more
strongly felt.

Long delays in publication of articles became
increasingly important when so much depended
upon speedy publication for the author as well
as the reader. Research assessment exercises,
promotion dates, appraisal reviews all operated
to deadlines which imposed almost impossible
demands on publishing schedules.

The growing propensity to share authorship
reduced the value of the journal article for
promotion prospects anyway. When two or
three authors shared an article, it was possible
to attribute responsibility. When, in the closing

years of the century, it was reported that the
first article with five hundred authors had been
published it became clear that the days of the
article as a valid indicator of academic merit
were numbered.

Just as the problems began to appear
insurmountable, networking appeared, offering
hope to at least some elements of the
community. Students rapidly switched from
print to using Web-based sources for
information. To begin with there was a basic
split between those who used only printed
information sources and those who used Web
sources but by the early years of the new
century the widespread availability of high
quality information covering all subjects and the
more rigorous training in IT provided by
schools had turned even the laggards into
enthusiastic users of new technology.

Amongst academics the change took place
more slowly. It was not until well into the 21st
century that the availability of high-speed
networking and appropriately powered
personal computers was sufficiently widespread
for the assumption to be made that virtually all
academics had ready access to networked
sources. Telecommunications costs had fallen so
far that the traditional transatlantic bottleneck
was no more than an occasional blip in the
usual instant accessibility to world-wide
information.

By that time the marketing of large screens
giving a reading quality superior to the printed
page had become widespread at prices which
even academics could afford. By the end of the
first decade of the new century the last of those
academics appointed during the sixties had
finally retired and there were few left who were
technophobic. The increasing emphasis placed
by university management on meeting
standards of performance in technological as
well as pedagogical expertise had already
weeded out most of those who were totally
unreconstructed.

With widespread familiarity with new
technology the reluctance to accord the same
value to electronic information as to
traditionally printed information had gone. This
was helped by developments in the handling of
networked information itself. Globalisation,
though still far from complete now in 2017, has

made enormous strides, facilitated by the
spread of networked links. Scientists in China
no longer need to wait for the publication of an
article to find out what is happening in the
United States or the European Federation. They
now communicate directly, face to face, across
the networks, frequently collaborating on joint
research projects and otherwise happy to dial
up a likely source of information for direct
contact. The serendipity of the printed page has
been replaced by the serendipity of the
networked contact. This phenomenon, of
course, is not restricted purely to academia but
is widespread across all sectors. Indeed,
increasingly, universities have not been at the
forefront of the use of such technology as their
funding reductions across the world have
placed them at an economic disadvantage
compared to commercial companies.

There have been restrictions on the freedom
of communication, of course, imposed by the
reclamation of copyright by employing
institutions. Even in the later 20th century
commercial concerns showed an
understandable caution about the broadcasting
of commercially valuable information.
Academic institutions were quick to follow in
this century, although a realisation that
copyright on the net was at best a fragile plant
meant that increasingly copyright owners used
their powers to ensure freedom of access, rather
than imposing restrictions on use.

There was a period when the periodical
publishers fought back hard against the threat
of the Internet. For a long time they were very
chary of committing their wares to electronic
format. Reports at the turn of the century were
increasingly pessimistic about the chances of
ever making money from information on the
net, but the development of smart card
technology did make it possible to charge very
low sums for access to individual units of
information, thus generating a mass market
which was not there when high access charges
were levied[1]. For a time it seemed that the
publishers' ability to contact the user directly -
without the intermediary of the traditional
library - would allow them to hold and even
improve their position. Globally monopolistic
control of access to information resources

offered the few the opportunity to make riches
beyond the dreams of avarice.

Fortunately the reaction to greed, to
selfishness and to the limitations imposed by
those seeking only profit have led the three
major economic world trading powers to
impose curbs and to take some social control of
the networks.

At the end of the day, periodicals ceased to
exist because they no longer had a value. The
artificial collection of quasi-related materials in
occasional publications made no sense in a
networked environment. New services have
been developed and they have replaced the
older constructs. How envious our predecessors
would have been at what is available to us now.
I can sit at my desk and have my machine assist
me in the construction of the questions to which
I want answers. It then trawls through the
networks for relevant information, categorising
it by relevance, age, authority, source and
language. It also maintains a profile of my
interests which is updated as I rate the material
which is found for me. I am fortunate that I can
afford quite expensive software to do this but
cheaper versions, giving much cruder recall, are
available as well.

Some of that material is still published by
those who make it their business to obtain,
select and broadcast high quality original
thought. A lot of it comes from archiving
sources such as those which have developed
from the old OCLC and RLG experiments of the
1990s. But the great bulk comes from a range of
independent sources mounted free of charge by
people ranging from commercial companies
promoting information as part of their
marketing strategy, through traditional
academic discourse to the whole host of new
information providers which have been
delivering material of very variable quality for
many years.

With so much information being provided by
those who do not see their financial future being
dependent upon recovering the cost, suppliers
who aim to make a living from selling
information have been forced either to specialise
in high value, usually instantly required data or
to reduce their charges to a minimum. Global
mass markets have made it possible for
individual suppliers to provide quality

information at low cost and competition prevents them from gaining excessive profit. At the present levels of charging most of us are happy to have the products selected by our algorithms and even, occasionally, and as a reminder of times gone by, to pay the higher price of doing a spot of personal browsing for the unexpected. On the whole, though, we pay most, not for the information but for the selection tools which help us to survive in a world overwhelmed by information.

In conclusion, I should apologise to Derek Law for taking his name in vain and for attributing to him ideas which, if not uniquely my own, certainly have no other immediate author. I adopted a non-serious form of presentation for a subject which is, of course, of great importance and interest to us all because I was asked to do the impossible. With serious planning horizons now down to eighteen months, because of the speed of change, it is not possible sensibly to predict what changes will take place in twenty years time. In the context of this conference, the only sensible reason for trying to look forward is to allow us to make decisions more usefully in the present. I have attempted to introduce, in a fantastical way,

some of the factors - technological, social, economic and political - which will affect the outcomes but I defy anyone to work forward with a clear vision of the future in 2017.

We must both plan and react quickly to changing circumstances. I have tried to outline my own thoughts on the sorts of issues which will undoubtedly affect us over the next few years and, in my own library I shall be taking them into account when I make decisions on information provision; but I know already that some of the most important factors affecting serials have not yet become clear enough to allow us to determine the way forward and, as always, we need to operate, if not entirely in the dark, at least with only a faint glow in the distance to light our way.

References

1. Oppenheim, C., *Internet publishing and beyond: the economics of digital information and intellectual property*, Harvard University, 23-25 January 1997 (Unpublished report circulated to JISC Committee on Electronic Information).