

Keynote Address

Serials: Publishing for No-One?

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Introduction

It is just over thirteen years since I was interviewed here for the post of Librarian of Southampton University. I can still remember the most difficult interlude the Selection Committee imposed on me. The Vice-Chancellor, Jim Gower, was a lawyer. "Look", he said. "Our library's getting quite full and I suppose you'll be wanting us to build you more accommodation. But when I go along the shelves of back runs of law periodicals, or any periodicals for that matter, I know what I'll find. Each volume will have one or two dirty patches on the foredge, and those patches mark the articles which people want to read. Why don't we cut those articles out, bind them for the sake of preservation and throw the rest of the volume away? It would save us a lot of space".

I seem to remember I argued the classic librarian's case for "the complete run". I reminded the committee how stock disposal is always being recommended by scholars for other people's subjects and virtually never for their own. But I seem to remember I was enough of a trimmer to concede that perhaps my lawyer interrogator "had a case". Whatever I did say proved to be enough to get me the job - or at least not to cause them to rule me out. But I never did tear up those periodical volumes. I'm now on my third Vice-Chancellor - and I've had two library extensions.

Still, I haven't forgotten what Jim Gower said. Unused back runs of periodicals are a burden on the strictly finite accommodation of a library. In addition, they pose a question the selection committee never put to me: if it is their fate not to be used, how come they were ever bought in the first place? Put like that, you will no doubt tell me, the question is grossly simplistic. And of course, it is. The non-use of any journal article is something which only becomes clear over time after it has been published and bought. However, during the next few minutes, I should like to explore some of the real complexities which lie underneath the simplistic question. In the modern academic library, the periodical is king. But what if the king turns out not to have any clothes?

Population Growth

It is a classic citation of the librarian's discipline to say that the first ever learned periodical was the Philosophical Transactions of the Royal Society, which first appeared in 1665. It is impossible to say what the number of titles published has swollen to by now. The collection at the British Library Document Supply Centre may well be the largest in the world, and contains between 50,000 and 60,000 current titles. The use of computers has led to the compilation of large data bases of serial titles, such as CONSER and ISBD serials file, and these amount to between a quarter and half a million titles. Not all of them will be current, by any means. If I wanted to be combative with statistics, I might complain that the growth in the number of periodicals from 1665 to the present day, is proportionately rather greater than the growth in population. In other words, if the process continues at this rate, there will be some distant future date at which there will be at least one periodical title for every member of the human race. However, I have recently read a suggestion that the growth in periodical titles is not so great now as it was twenty years ago. The same cannot be said for the total human population, I have to say. More to the point however is the growth of the "learned" population, the proportion of the population and indeed the absolute numbers of people who are engaged in fairly high level intellectual work which requires that they interact with a growing corpus of knowledge. Facilitating that interaction is the particular function of periodicals. I think it is quite likely that that particular subset of the world's population is growing at least as fast as the classic media for the exchange of its ideas and research findings.

The Learned Journal Model

The discussion of learned journals is best carried on with an awareness of the simple model of the process of journal creation and use. The scholar or researcher produces the new research finding and writes it up in an article. The article is submitted to and ultimately accepted by a journal publisher, most often through a process involving moderation

by peer scholars. The journal publisher's product is bought by the research library - and sometimes by the individual scholar as well but much less often than was once the custom. The scholar often exercises a major influence over the number of titles the library he mainly uses subscribes to, and usually over the specific titles selected for subscription as well.

It is also useful to note the role of money in the model. The individual scholar makes relatively little or no money directly out of producing the research findings published in the journal.

But he may well exploit his research findings through an invention or through their application in the context of a consultancy. According to one writer, he may also do rather well in some instances if he is editor of one of the more prestigious and well-subscribed titles:

"Many established journals probably pay (the editor) the equivalent of a royalty of something between 3 per cent and 10 per cent of receipts from subscription sales. One method of calculation is to fix a rate per page and then index-link it to the cost of living or some other measure. The disadvantage of this is that it may encourage editors to accept marginal papers and deter him from spending time cutting overlong ones".(1)

The journal publisher certainly has other costs to meet, printing, marketing, administration and so on but the basic product he is marketing is usually available free or indeed he may sometimes even be paid to take it. I am referring to the practice some journals have of imposing page charges on contributors.

I have tried to rough out in my own mind an analogy between the position of the scholar vis-a-vis the journal publisher and the position of the third-world raw material producer vis-a-vis the product producer in the developed world. The product producer is able to drive an increasingly severe bargain because the primary producer is desperate to sell. The analogy is not very satisfactory but it does focus correctly on the apparent helplessness of the primary producer - and I will analyse his position in more detail later.

Another strange aspect of the financial model is that the scholar can exercise a lot of influence over what the purchaser, that is the academic library, buys. It has to be a very strange market where the primary producer resigns himself to a subordinate and financially unrewarded role vis-a-vis the product

maker yet at the same time plays a major role in determining the sales performance of the product. It has often been said that "books are different". That statement is often quoted as the rationale behind the Net Book Agreement. From what I have said in the last few moments, I think it is clear that periodicals are very different too. The lesson I take from this is that we should not be surprised if the normal commercial patterns we would expect to occur from the development of specific market circumstances somehow don't materialise.

Having gone some way towards acclimatising you to expect the unexpected, I am now going to look in more detail at the three parties in the periodicals game, libraries, publishers and scholars.

The Librarian's Tale

If we are beginning with libraries, where better to start than with the experience of Southampton University Library itself? Not long ago, I almost thought I had stumbled across one of those unspoken conventions of human behaviour. It looked as though Southampton University instinctively opted to subscribe to one current periodical for every member of the student body. If you look at the growth in the number of current subscriptions and the growth in the student body over the last thirty five years, you might be forgiven for thinking there is some mysterious connection. The experience of other universities during those growth years might be worth looking at for the purposes of comparison. I do know from looking at recent SCONUL statistical returns that the number of current titles per 100 population, one of the ratios in the part II returns, varies widely among the institutions, even between those one might have thought were reasonably alike.

The problems of recent years have also thrown up some further interesting statistics. In Southampton University, we clung very hard to our collection of periodicals over the first ten years of my tenure of office. There were two reasons why tenacity was required. First, the University's income was in relative decline, due to funding constraints. I do not have any particular illustration of this but it is undoubtedly true. The second reason was the extraordinary price record of periodicals. Over the decade, the price of a "constant basket" of periodicals rose much faster than general inflation. Of course, the term "constant basket" could be a bit of a misnomer. Just because the title of a periodical is constant, it does not mean to say that its content is. One of the arguments of periodical publishers is that we have been getting more for our subscriptions and that therefore it is misleading to

say, simply, that "the cost of periodicals has been rising much faster than the rate of inflation". This is an important topic which has been looked at closely in research, funded by the Association of Research Libraries of the USA, but carried out by independent consultants. The principal finding of Economic Consulting Services Inc. was as follows:

"...each targeted publisher has increased subscription prices for the sample of titles examined at a much faster rate than the rate at which their costs have increased..." (2)

To summarise the situation briefly: academic periodical publishers are now producing a product which increasingly the principal customers, academic libraries, cannot afford to buy. So here is the first strange feature of this market. The buyer of the product is saying: I can no longer afford this product; I have got less money than I used to have; it has become too expensive. Yet despite that, new variants of the product, new journals, are coming onto the market all the time. It may be and is argued that the incessant start-up of new journals, especially in some particular fields, is evidence of intellectual vitality. There could well be quite different factors at work, as I shall explain later. Certainly, there cannot be many products where, with a market which can be described in the terms I have just used, the product nevertheless remains in reasonable health.

The library's reaction to the new products is usually to groan and writhe, as a result of feeling the psychological pressure exerted by them and of trying unsuccessfully to evade that pressure. In simple terms, then, any buoyancy there is in the journals market is contrary to the mood with which the librarian confronts it. Are journals then published for libraries? I would give only a qualified yes, at the present time and add "not in the quantity and in the manner that prevails right now". If libraries could find a cheaper way than subscribing to journals of playing their role in the communication of research findings, they would want to look at it very seriously indeed. As for the obvious matter of the scholar's influence on the library's continued level of expenditure in the journals market, I will return to that in due course.

Use of Journals in The Library

Librarians' lack of enthusiasm for spending money on journals is not inspired only by dwindling budgets and spiralling costs. Considerations of levels of use also come into it. As student numbers grow, the number of teachers required also grows, approximately pro rata. So, even if we regard

journals as being principally the medium for the teachers and researchers to communicate with one another rather than with the students, it is not surprising to find that the total number of subscriptions is increasing with the size of the user community. Nevertheless, it seems reasonable to ask whether the journals our academic libraries buy are being used as much as they should be.

I am told there is one Vice-Chancellor who has taken a robust view of this matter. Since I cannot quote precise details of his stance, I prefer not to identify him. But his argument goes something like this: few if any scholars can keep up with the contents of more than a handful of journals, given their numerous other responsibilities, such as teaching and administration. And very few scholars are working entirely alone in a field shared with no others in their own institution. Each scholar should therefore be allowed on average a low number of titles, perhaps one or two, certainly not the ten or so now typical of this University (600 plus teachers, 6,000 journals). And that is all the library would buy. Though of course any duplication of requests could be ironed out and lead to a slightly longer subscription list. Application of a rule of thumb like that would lead to a drastic reduction in subscriptions by academic libraries, probably much more severe than academic librarians themselves would like to contemplate in cold blood though economic stringency does force them to be more draconian than they ever thought they would be.

There is also a gut feeling among academic librarians themselves that their journal collections are relatively little used considering the overall cost. They devise schemes for monitoring use, signature sheets on the front covers being the best known.

And then users set out on systematic signing sessions, lest there should be any reduction in the numbers of subscriptions. The librarians note cynically that when issues fail to arrive, there is often a very long gap before their absence is noted by their supposed users.

One guide to the use of monograph material is provided by borrowing statistics generated by the library circulation system. Periodicals, however, are often reference only stock, and even when they are not, they are the kind of material which it is relatively attractive to use in "reference" mode. Why borrow the whole of a bulky bound volume when you only want to read one six page article and can either get through it there and then or take a cheap photocopy - for private study and research, I

hasten to add? So, we have relatively little hard information about the use of periodicals, and have to rely a lot on gut feeling, hunch, anecdote, impression - and the relatively few nuggets of hard evidence which may come our way. And even then, we have to have some defensible idea of what constitutes "reasonable use" for any periodical subscription. Let's explore this theme further by looking briefly at some of the evidence available.

I will begin with some interesting figures quoted by Karen Merry in an article about ADONIS, an experimental electronic document print out system:

"TheICSTI study compared 1983 usage data from five major international document supply centres..... The study indicated that even between centres with substantially different clientele and collections there is substantial overlap..... A "composite" rank across all five centres showed that 20 per cent of all demand could be met by 514 titles, 30 per cent by 1,041 titles and 60 per cent by 5,477 titles..... the demand for an individual article could, on average, be as low as 0.2 uses in a journal at the bottom of the list of 514 and a little less than twice in a journal at the top of the list".(3)

In the late 1970's, there was an investigation of periodicals use at Texas A & M University. The student community numbered about 27,000. The number of current journals increased over the two years of the study from 5,863 to 6,327. Unfortunately, in my view, the study is not written up as precisely as it might have been, but it does appear to be a study of the use of newly acquired parts in the first two years (at most) of their being held in the Library. This approach has to be suspect because some types of use arise from citation in the literature, and it is obvious that a journal article cannot be cited until it has been published a reasonable length of time. Nevertheless, it is of some interest that the study found that over 11 per cent of the journals (734 in all) had not been consulted at all in the period in question.(4)

My next instance concerns a much more concrete piece of information which appeared in a journal that fortuitously crossed my desk as I was preparing this paper. The whole issue is devoted to information collected at the library of Eastern Illinois University, an institution of about 9,500 undergraduates and 1,250 postgraduates. There are about 600 teaching staff. The library subscribes to about 3,100 current journals. As a security measure, the institution decided to place all its periodicals in

the library stack so that consultation by the users was much more tightly controlled. There were certain loopholes in the control system so that once again the evidence is not entirely conclusive. However, one finding was that twenty per cent of the journal titles or about six hundred titles accounted for eighty nine per cent of the demand. Another was that, over two years, twenty five per cent of the journals, or about 750, were not consulted at all, and a further forty one per cent were consulted ten or fewer times.(5)

Of course, it has to be said that putting journals into stacks tends to inhibit the use of them, and that use in such a situation can depend on the quality of the retrieval tools, such as catalogues, which the user has at his disposal, and how easy any particular reference is to retrieve. Still the overall impression is probably not being falsified too much by these factors. And the overall impression at that university is that quite a large number of the periodicals prove to have been bought for nobody.

The evidence I have presented to you so far is by no means incontrovertible. The studies I've mentioned need replicating elsewhere, and the findings of these further studies need to be compared with those already available. But so far, we do seem to be coming up with a picture that is unfavourable to journals in their present numbers; librarians think they cost too much money and library users don't seem to want them all any way. Let's now turn our attention to the second party in our eternal triangle, the scholar or researcher.

The Scholar's Tale

The literature of librarianship now contains a significant number of accounts of periodicals cancellations exercises. And it has to be said that here is a further surprise. From what I have just been saying, you might have thought that scholars and researchers would quietly acquiesce in journals cancellations exercise, as they would in the cancellation of anything else that is too expensive and under used. But as we all know, that is not so. On the contrary, periodicals cancellations exercises are nearly always painful for academics.

Another possibility might be that scholars feel an immediate sense of deprivation when titles are cancelled, just as Linus does when his blanket is taken away, but that this fades as they come to realise that they don't really need them after all. Again, that doesn't seem to be true. Keith Pocklington and Helen Finch were commissioned by the British Library to examine the effects of library funding constraints on researchers. The

results were published as British Library Research Paper 36 under the title Research Collections Under Constraint: the effect on Researchers.

In the circumstances, it could be predicted that scholars might declare themselves more reluctant to take risks by changing their field of interest, and that they might also feel certain fields of research were now no-go areas as compared with previously. It may also not be unexpected that they make more use of the inter-library loans system - for which they do not normally have to pay. But it is worth taking note that they reported an overwhelming sense of falling behind their competitors. Perhaps more interesting are those instances where they have made a particular financial choice in order to substitute for the libraries' reduced performance in the field of journal provision. This shows up in two ways. First, they reported making more use of on-line searches, for which they would normally expect to make a payment, even if not out of their own pocket. Second, they reported buying their own literature to substitute for the library's perceived deficiencies, and therefore by-passing the library altogether. Although this reverses a trend, there is, as some of you may know, something of a resurgence of departmental provision of journals - I think using the term "departmental libraries" would perhaps give an exaggerated impression of the scale of the thing since minimal organisation is required.(6)

I commented earlier on the peculiar nature of the financial structure of the journal purchasing business, namely that the person really wanting the journals is not the one who has to commit the finance. This new trend contradicts that. Some scholars at least feel the lack of journals so greatly that they are prepared to use some of the money at their disposal to remedy it. I feel more convinced by their professed need for journals when I see that their money is, in the slightly vulgar expression, "going where their mouth is". One way to reconcile this finding with the previous thrust of my paper is to point to Pocklington and Finch's comment that their findings do not necessarily apply to all fields. So we could have some scholars genuinely oversupplied with journals and reacting to a reduction in the local stock out of a sense of deprivation which quickly wanes, while at the same time others are really adversely affected and prepared to demonstrate this by taking steps which have financial implications for them, because they feel that it is very important for their work that the situation be remedied.

So, if we ask ourselves whether journals are

published for scholars as library users, we have to admit that there is evidence on both sides.

The Scholar as Primary Producer

Our examination of the scholar cannot be limited to his role as user of journals, it must also embrace his role as producer of the content. We need to look at the phenomenon of "publish or perish".

The pressure on scholars to publish has always been particularly strong in the United States, where it is tightly bound up with the achievement of "Faculty" or "tenured" status. The same pressure is now making itself felt more strongly in this country too as a result of changes in the higher education system. There is an emphasis on the assessment of academic departments, through the introduction by the UGC of the concept of research ratings. Since university allocations from the UGC are affected by the research ratings held by the departments of any university, the incentive to publish is clearly very much enhanced. There is also an emphasis on the assessment of individuals through the introduction of personal appraisal systems. I do not see any reason why departments in general and individuals in particular should not have their performance assessed. However, I am sceptical of excessive reliance on publications as a measure of performance even though it is obvious that they are a tempting source of evidence.

A number of allegations surface as a result of this increasing emphasis on publication as a measure of performance. One is that scholars publish their results too early. But in this respect it could be argued that academic competition is as much to blame. Martin Fleischmann did not have much to gain in terms of personal or departmental appraisal by way of early publication of his claim to have achieved nuclear fusion at room temperature. He was already semi-retired anyway. But he certainly feared that others might beat him to the claim to be the first to have achieved the effect if he did not go public. It was more a case of professional pride and sense of achievement, and probably also of the commercial implications of registering patents.

Another allegation is that scholars break up and pad out their research so that where formerly a piece of work would have resulted in only one article it now results in two or three. A third claim is that too many scholars want to have a share, however tenuous, in any particular piece of research in order to flesh out their curriculum vitae. That factor gives me the only opportunity I have ever had to quote a citation which ought to be in the Guinness Book of Records, namely the record for the largest number

of authors for an article in a learned journal. In the October 17, 1988 issue of *Physics Review Letters*, there is an article which has 190 authors from 17 institutions.

Is this pressure to publish something that needs to be taken seriously by academics, or is it largely a non-problem dreamt up by librarians? There is some evidence of anxiety on the serious academic side. The Harvard Medical School has now decided that, where someone is being considered for appointment to a full professorship, they should be allowed to select only ten papers for citation in their curriculum vitae. As well as cutting down the list, and reducing any temptation to publish in quantity as an alternative to quality, this also forces on the candidate a discipline of evaluation of his own work which can only be salutary. In the case of appointments to associate professor, the number of citations allowed is seven and, in the case of assistant professor, five.

Some of us have tried to press this point in the British context. We have emphasised that incitement to publish is making things more difficult in many respects. Journals have more material to referee. Candidates for appointment have more material to cite.

Libraries have more material they are urged to buy. Scholars have more material to read. In this context, it is interesting to present anecdotal evidence that some scholars actually resent the more comprehensive and thorough going indexing tools introduced by and for libraries with the progress of the computer. They claim that it is giving them more to read without increasing the time they have for reading. The result is a sense of frustration and guilt without any accompanying sense of being better informed. There was once a tradition (they suggest) that scholars could manage perfectly well even though on the face of it they were less well informed. Now, their awareness of the limitations of their scholarly reading is adversely affecting their self-confidence.

To summarise this part of the assessment, we can see that journals do have an important role in the career progression of academics and researchers. But we can also see that there are adverse aspects of this. There also seems to be a serious disjunction. Surely the validation of research effort need not inevitably involve the placement in libraries at large cost of journals which people are not going to consult?

There is one other aspect of scholarly involvement with the learned journal which carried me over

neatly into consideration of the publisher side of the triangle. I mean the involvement of scholars in the actual publication of journals.

The Scholar as Publisher

Scholars can be involved with publishing journals in two ways: they can be members of editorial boards or they can themselves be editors. Membership of an editorial board is itself an adornment, a kind of academic honour which can bring benefits. In practical terms, it is more likely to lead to the receipt of free copies of publications for review. It can also often mean a free copy of the journal itself. In honorific terms, it is another thing to add to the curriculum vitae. It can also lead to additional pressure to publish. I know it for a fact that some editors do encourage the members of their editorial board to publish, and I have known one editor say: "We believe that the case for our journal is well established - but articles are a bit slow coming through...." When does encouragement to people not to hide their lights under bushels shade over into incitement to publish excessively?

While membership of an editorial board may contain an element of "the power that corrupts", the status of editor by comparison appears to offer the kind of absolute power which tends to absolute corruption. (Please note carefully that I said "tends". I am definitely not accusing editors of academic journals of corruption). Editorship of a journal is of course a supreme accolade, especially where the subject is important and dynamic and the journal prestigious. It can also bring financial rewards, especially from some major journal publishers, as I have already outlined. It is flattering to be singled out by a publishing executive at a conference on an emerging discipline - as we are assured happens - and asked to be the editor of a new journal in the field. The honour is difficult to refuse if one is in any way human and proud of one's quite likely genuine achievements.

But the editor is also in a somewhat weak position. The principal factor tending to make the editor weak is the relative difficulty of rejecting an article. There is the sense of responsibility to the subject matter. Supposing this is really a good article despite what the referee says? Supposing it is placed in another journal and proves in due course to be seminal? What about the status of the writer's department, the seniority and influence in the subject of the professors there? Perhaps it is even one of those professors who has written it. They do not necessarily hit the target every time, despite their eminence. And then there is the complication

of rejection; perhaps a request for a second referee's opinion. The sum total of all this is that it is probably harder than it should be to reject material for publication and easier than it should be to accept it. I am not alleging that the imbalance is absolute, just suggesting that it is tilted a bit too much in the wrong direction for the overall healthiness of things.

The suggestion is that some journal articles may be published because it is not easy enough for them not to be once they have been submitted. Such a suggestion can only be contemplated because of the odd financial structure of the journal model to which I referred earlier. Otherwise the very idea would merit a brusque riposte about the function of the market in eliminating that kind of sloppiness.

The Publisher's Tale

The other party in the publishing picture is the publisher himself. In the American research I referred to, the learned society publisher is cast comparatively as the angel of the piece, and the commercial publisher as the villain. I must try not to fall into the trap of using stereotypes like that. It will not help the discussion of the problem. It is nevertheless alleged that the commercial publisher is most active in trying to make money out of publishing. He is more likely to prompt the formation of new journals either by identifying new fields or by splitting existing ones where the material submitted seems to justify the creation of a new medium both by its volume and by the natural subject subdivisions into which it falls. He is the one who shows the most ingenuity in launching new journals, carefully selected launch subscription levels followed by equally shrewdly chosen price increases. He is the one who has been known to approach the learned publisher and offer to take over his titles lock stock and barrel and then proceed to make a lot more money out of them than the learned society publisher ever did, in addition to paying the learned society publisher a decent royalty for the goodwill. In one instance, he has even gone public on his ambition to control new knowledge and to use this control for the generation of income:

"...If Pergamon could win the trust of scientists, it could establish the standard journal in each specialisation, and that would give it a series of publishing monopolies.... scientists are not generally as price conscious as other professionals, mainly because they are not spending their own money..."(7)

But I'm not going to get too sanctimonious about

this. If the Sainsbury and Tesco grocery chains can make millions for their proprietors by the fact that our bodies get hungry and need to be satisfied with material foods, I am not going to get too anguished about some people turning an honest penny by the fact that other people get intellectually hungry too and look for that to be satisfied.

I think that the main factor for concern that I would want to point to is the lack of coherence among the different parties involved in the publishing operation. At one end is the scholar, whether editor or member of the editorial board or even contributor who sees himself as participating in an altruistic enterprise for the dissemination of knowledge. At the other end we have an entrepreneur who is interested in the bottom line, the profit he can show at the end of the year, and the dividend he can offer to his shareholders. Neither of them is any way at fault by their own lights, but when each has such different perceptions of what they are involved in, it need cause no surprise if their customers, the libraries, are at a bit of a loss at what then follows. I should like to spend the remaining part of this paper in looking at things that might be done, or indeed have been done to change this situation.

Alternatives: Some Examples

The first alternative I want to look at is the system established by the Society of Automotive Engineers in the United States. It has been going since 1965, and is probably the best example of its kind. The Society issues quarterly abstracts of accepted papers and holds on to master copies for three years to enable people to order individual items. You can also order them as a complete set if you wish. I have not seen any analysis of why such an eminently sensible procedure has become so well established in this one field but not been copied elsewhere.

There have been several other attempts to alter the research communication system. Sometimes, effort is directed towards the more precise targetting of articles through some form of selective dissemination of information. This is more likely to be of benefit to the individual scholar than to the library. Nor can it address the question of the quality of the content of an article which presumably is a major reason why some articles end up not being read.

Another approach is to publish research initially in the form of a synoptic journal. The synopsis of each article is meant to indicate to the potential buyer whether the full text would be worth acquiring. If

the full text is wanted, it can then be supplied on demand. The idea seems impeccable; but how many synoptic journals are you familiar with? That is a measure of its practical success - or lack of it.

Advanced technology has increasingly been applied to document delivery. Since journal publishing is a form of document delivery, experiments such as ADONIS, the DOCDEL trials of the European Community and the Knowledge Warehouse Project could all have an impact on journal publishing as we know it. There have also been explicit attempts to test the concept of an Electronic invisible college, for example in Project BLEND and the electronic Information Exchange System of the New Jersey Institute of Technology.

I think there are two main comments to make on these experiments. First, they are evidence that some people believe that a change is needed in the system of communicating research results. Second, they ultimately bear witness to the durability of the conventional hard copy refereed journal. There is really no strong evidence of imminent substantial change.

Alternatives: Speculation

At this point, I think I need to revert to the question implied by the title of this paper. Who are journals published for, and why? They are published for scholars partly as a means of communicating research findings and partly as a demonstration of research competence. They are also published for publishers as a means of making an honest living and quite possibly as a way of being involved in the communication of research. But they are, mostly, not published for the people who sign the cheques that pay for them, the librarians - and that sets periodicals apart, further away from the financial pressures which normally determine the fortunes of any product in the market place.

The corollary of this is that, if journals are to be replaced, they must be replaced with a system which adequately serves the interests the journals serve yet does so in a more disciplined financial framework.

Any new solution has to communicate knowledge. Communicating knowledge is difficult because of the uncertainty which I mentioned earlier as to which knowledge really needs communicating. Peer appraisal of research eventually amounts to a fairly ruthless system of survival of the fittest. If an article is not cited fairly early in its life, it will probably not be cited at all. But by then it has already achieved the status necessary for minimal survival, that is, publication, and, more important to

my paper, it has already cost the library money. This appears to imply that new research findings such as are now communicated in periodical articles ought in future to go through a two stage process. The first would be one in which the status of the research as a citation-worthy piece of information would be assessed by the writer's peers. This process needn't be any more formal than the present one, but it would happen at a point where the article was not formally disseminated in print form. We shall have to change people's understanding of what is meant by the word "published". Libraries should be able to opt to defer receiving and paying for the full text of an article until it has received peer endorsement. It is worth noting here that the British Ph.D. thesis is a piece of research which has been fully authenticated by peer assessment and is stored in a central repository, but it is distributed only in response to demand.

One might envisage a form of "chart", like the "pop charts", perhaps one for each of many disciplines. Compact-Disk technology is already being used to enable the pop-music lover to make his own selection of hit tracks and have them output onto his own personalised disk. Libraries might be allowed to do something similar for the intellectual communities they serve. They could order single copies of items their users have seen mentioned in an abstracting service and have decided they want to consult. They could also order regularly material which has achieved a certain level of validation (indicated by quantity of requests) in the fields of their choice.

The system must also provide a means for the recognition of scholarly and research attainment. If somebody were asked to devise ab initio a system for the recognition of scholarly and research attainment, I doubt whether they would conclude that placing periodical articles on the shelves of libraries, even though it was reasonable to expect that they would not be read, would constitute an inevitable part of it.

Should the system also continue to provide a decent living for present day periodical publishers? If the worst comes to the worst, most of them, like good entrepreneurs, will get out and make their money somewhere else if that's what the markets tell them they ought to be doing. But I wouldn't want to devalue completely the commitment of the genuinely interested.

The inherent difficulty arises from the financial model to which I referred at the beginning. Most of the money is being spent by the librarians. Most of

the money is being received by the periodicals publishers. If a new system is to grow up, it will inevitably result in periodicals publishers receiving less by way of income than they do now. They ought to incur less by way of expenditure too, but it is problematical whether a new equation can be written that they will like the look of.

If a new system is to come in, it must also enable scholars to compare the value they place on information derived from journals in their local library with information they might get in other ways. That way they could join with librarians in reaching more logical decisions about investing in information. But librarians may have to resign themselves to losing some of their present responsibility for spending on journals if the real consumers are to be confronted with the true financial implications of their preferences. □

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