Letters

Journal Price Increases

The unstated problem relating to Constance Holden's article "Libraries stunned by journal price increases" (News & Comment, 22 May, p. 908) is that through vendors libraries generally subscribe to journals on a standing order basis in order to maintain continuity of receipt of individual issues and to simplify billing and payment. Unfortunately this means that each subscribing library commits itself to pay the next year's subscription rate without knowing what that rate will be. Cancellations may seem to solve an individual library's immediate problems, but the remaining subscribers generally must pay that much more in the future.

It is difficult to generalize about library-publisher relations since there are differences between for-profit publishers (for example, Gordon & Breach, Plenum, Elsevier, and Springer-Verlag) and society-nonprofit publishers (such as the American Institute of Physics, the American Chemical Society, and the University of Michigan). A major distinction appears to be the assessment of page charges, which in the case of society-nonprofit publishers, are a factor in maintaining reasonable subscription rates. In general, the cost of for-profit titles is approximately three times that of society-nonprofit titles (*1*). A graphic example can be seen by comparing Gordon & Breach's *International Journal of Neuroscience* (at about $1 per page) with the *Journal of Biological Chemistry* (at about 2.5 cents per page) or the *Journal of the American Chemical Society* (at about 4 cents per page).

I fear libraries are approaching a crisis situation vis-á-vis for-profit publishers that can only be avoided by something akin to a buyers' group that would negotiate subscription rates in return for commitments to subscribe. This obviously would lead to the possibility of libraries, in effect, deciding whether or not a journal would continue to be published.

As an alternative, heretical as it may sound, I think for-profit publishers should consider instituting page charges or seek society subsidies, or both, so that subscribers are not required to bear the complete financial load for a system that is being driven by the "publish or perish" syndrome.

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We have much sympathy with librarians in the United States who are faced more acutely than ever with the problems which result from shrinking budgets on the one hand and on the other the combination of reduced dollar value, proliferation of new and expansion of existing titles, the effects of inflation, some (but not much) discriminatory pricing and higher prices caused by the effect on unit costs of falling circulations.

Since Holden's article tends to leave with the reader an impression of overpricing and thus profiteering publishers ("profiteering by raising prices beyond what is necessitated by economics," "killing their markets by overexploitation"), it might be helpful to provide some facts about one publisher's list.

1) Of the 65 journals published in the United Kingdom by Blackwell Scientific Publications in 1982 and still published from there in 1986, 34 titles showed no increase in the North American price over the 4-year period, five an increase of less than 2.5%, a further five increases between 2.5% and 6.25%, and six a reduction of 10%. The higher increases for the remaining 15 titles were almost entirely accounted for by a larger number of pages or issues.

2) The increase in the dollar prices of the 86 U.K.-based journals common to our 1986-1987-1988 rate lists amounted to 11.48% between 1986 and 1987, but part of this was absorbed by inflation in costs, part by an increase in the number of pages or issues for 12 journals, and the rest by a 4% decline in the value of the dollar.

3) The increase of 1988 over 1987 prices for the same journals is only 7.85%, in spite of increases in pages or issues for 13 titles, cost inflation estimated at 6.5%, and a further fall in the value of the dollar which seems likely to be around 7%.

4) We have done our best to make dollar prices, which had to be fixed many weeks ago, correspond as closely as possible with the overseas sterling rates: the conversion rate over the whole list averages £1.69 per £1. The rate prevailing when prices had to be agreed with various societies was £1.67 per £1, and we have been able to reduce our safety margin in this way by selling dollars forward, with the attendant risk of loss should the dollar strengthen.

5) We are very conscious of the need to avoid "twigging" of journals, and indeed we are moving cautiously in the opposite direction by encouraging mergers of existing titles. *Geophysical Journal of the Royal Astronomical Society*, for instance, will from next January incorporate *Journal of Geophysics* and *Annales Geophysicae (Series B, Solid Earth)*, the journals, respectively, of the German and European geophysical societies, while plans for the merger of a major medical title with a European journal are already under consideration. In both cases the net call on library resources will be significantly reduced.

6) Finally, the view is widespread in North America that European journals are (regardless of price increases and exchange rate fluctuations) excessively expensive in comparison with U.S. titles. This overlooks the entirely different basis of funding for European and specifically British journals, which depend to a very large extent on subscription income, with relatively modest revenue from other sources such as advertising, offprint, and back issue sales. In addition to this income American journals can draw on manuscript handling fees, page charges, and a revenue from advertising which in most cases is proportionately much larger than that from European counterparts because of large society-linked circulations which are mainly in the domestic market. Furthermore, the generally larger print runs that result produce lower unit costs, which in turn make lower prices possible.

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The continuing rise in the price of scientific journals has led to a large-scale cancellation of subscriptions in the last year by most libraries in the world. At the Israel National Medical Library in Jerusalem, a 30% reduction was mandatory due to a drastic budget cut. We would like to report on our cancellation process.

The main question raised was, Which journals should be cancelled without sacrificing the overall quality in any one particular field and at the same time allowing the purchase of new journals beginning to make an impact? In the first stage, we used an objective evaluation of journal importance prepared by other institutions. A list of 138 journals suggested for small libraries (*1*) and a list of journals with high impact factors (*2*) served as the basis for deciding the basic minimum required. Also, in order to better evaluate journal use within the library itself, statistics were kept on the frequency with which journals were removed from their shelves for reading or photocopying, or both. (Readers were instructed not to return journals to the shelf.) Third, we listed journals not found in our library from which photocopies were requested from other libraries. The fourth stage was collection of subjective evaluations. The complete list of journal impact factors, according to subject, was given to the various departments for their particular recommendations. After collecting all the information from the above

sources, the data were entered into a special program of library software to produce proposed lists and their relative costs. These lists of journal cancellations and new subscriptions were then offered to the library's public, and every reader was encouraged to comment and offer alternative suggestions. Last, the library committee made the final decisions: 668 titles were cancelled; 88 titles proposed for cancellation were renewed; and 14 new titles were ordered. In total, the library subscribed to 1492 titles; the evaluation will continue routinely.

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"Science-Active" Colleges

When researchers examine the state of undergraduate science education in the United States, at least one surprising result stands out—the place that select liberal arts colleges such as Haverford, Macalester, Bowdoin, and Beloit hold among the ranks of educational institutions.

These colleges produce far greater numbers of scientists than one might expect, especially since they lack the kind of equipment and money that are available to the large research universities, both public and private. Historically, they have received little funding from federal sources such as the National Science Foundation, the National Institutes of Health, and other government agencies.

In a recent study (*1*), a group of 50 liberal arts colleges were found to have had significant impact on the training of future scientists. The study showed that, in 1985, about 30% of freshmen in these "science-active" colleges chose to major in science, which is twice the percentage at highly selective universities and about six times the national average.

The report also points out that, of the 7000 articles coming from these colleges, about 30% were coauthored by an undergraduate. That figure is less than 1% at large research universities.

A number of reasons are cited for such impressive results at select liberal arts schools. They include the small size of classes, quality teaching, and significant opportunities to participate in research. That may also explain why (since the mid-1970s) the total number of baccalaureate degrees in science increased slightly at these colleges, while national statistics reflected a drop of 17%.

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Another Cognitive Psychology

In his review of B. J. Boar's *Cognitive Revolution in Psychology*, Harry Levin (26 June, p. 1683) writes that "Neisser in 1967 published the first book to be named *Cognitive Psychology* and so named the field and outlined an agenda." In fact, Thomas Verner Moore (in 1939) was the first to publish a text entitled *Cognitive Psychology*. It was published in Chicago by the J. B. Lippincott Company. He defined cognitive psychology as the study of "the way in which the human mind receives impressions from the external world and interprets the impressions thus received" (p. v). Moore, then professor of psychology at the Catholic University of America, presented many interesting analyses, including a rejection of the introspection-based psychology of Wundt and Titchener as wholly inadequate and self-contradictory.

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Einstellung Effects

Gina Kolata concludes her article about language acquisition (Research News, 10 July, p. 133) by asking why Rumelhart's 5-year-old son, when giving the grades in descending order—"sixth," "fifth," "fourth"—said "thirdth," whereas he said "third" when giving them an ascending order. A possible explanation is that he developed an *Einstellung*, a mental set brought on by the nature and order of the stimuli (*1*). For example, if people are asked to say each of the following words as they are spelled—MACPHERSON, MACDONALD, MACNAMARA, MACHENRY, MACHINERY—they may mispronounce the last word. Decades of research with thousands of subjects of all ages reveal strong tendencies to develop an *Einstellung* in verbal, visual, and arithmetical materials; the subjects continue to apply patterns of rules even when they are not appropriate and thereby overlook novel or simpler methods (*2*).

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The Chlorofluorocarbon Dilemma

A number of years ago, considerable concern arose about "planned obsolescence," the supposed intentional designing of products so that they would wear out and have to be replaced; the theorem was that industry was creating the continued need for its existence. The "landmark ozone treaty" to control the emissions of chlorofluorocarbons (CFC) (News & Comment, 25 Sept., p. 1557) addresses a corollary of that theorem in which a product creates a need for its continued existence. As an example, when CFCs used as refrigerants escape to the atmosphere, they induce a climatic warming that increases the need for CFC-powered air conditioners. More directly, Europeans have available CFC-powered aerosol sprays of sunblock, the use of which may deplete the stratospheric ozone layer and increase the need for the product. Let us hope the called-for emission controls can limit such positive feedbacks.

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Overdue Movie

The "DNA dragon 1" (Editorial, 18 Sept., p. 1397) is a film long overdue. Please reserve a seat for me at the screening. I will bring the popcorn (mutant maize, of course).

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