Primary Publication

LONG ago Michael Faraday said that there are three necessary stages of useful research—to begin it, to end it, and to publish it. At the present time the first two stages are within the control of the individual scientist, particularly in view of the large amounts of money available for research and development in this country. The third step is now, more than ever, the stumbling block for the individual scientist, since he depends upon the technical journals in his field. Publishers of these journals do not have enough income to print all the papers they accept. Sources of income for publication have not increased at the same pace as the sources of funds for laboratory research. Revenue for the journals cannot be appreciably enhanced by raising society dues and subscription prices, for every increase in dues means a loss of nonpublishing subscribers, and this loss increases exponentially with the price.

Other sources of income and new means of decreasing costs must be found, because there is an ever-increasing backlog of acceptable papers awaiting their turn for publication. A few journals have not yet felt the full pinch, but others have been tormented by income deficiencies for five years or longer. When this problem was discussed in February 1950 at the National Research Council's Conference on Primary Publications, the conference recommended that data on the backlog be obtained. Representatives of 22 journals of original publication and three review journals agreed to supply the figures. Here are the averages, with the figures for the two categories in the order given above:

Pages published in 1939—*1174, 805*; in 1949—*1555, 969*; average number of pages per paper in 1939—*6.8, 31.7*; in 1949—*6.9, 37.7*; time between receipt of paper and acceptance—*2.6* months, *1.0* month; time between acceptance and publication—*5.0* months, *9.7* months. This small sample is subject to a number of biases, the most apparent being inclusion of a disproportionate number of journals with good incomes and with reserve funds. However, the increase in the number of pages in a decade is certainly significant. The differences in the length of the papers are not significant, but it should be noted that many journals have increased the total words per page by using larger pages, smaller type, and double columns. Some of the indicated backlog is normal, but certainly almost 75 per cent of it is not.

Although the figures for the backlog do not indicate a serious condition at present, the factors of fixed incomes of the journals and of increasing research expenditures have certainly not yet had their full impact. The real effect of each month of unnecessary delay in publication cannot be measured solely in terms of retarded scientific progress. No one will deny that the effect is adverse, or that the effect increases rapidly, even though the delay increases gradually.

A striking anomaly of this "era of good feeling in science" is that, whereas scientists invariably use scientific methods in solving their laboratory problems, most of them seem content to use the discursive philosophical approach of the early Greeks to problems affecting the handling of their results. Publication delay is only one of the technical information problems that plague our scientific generation. Some basic and applied research, coupled with sound experimental development, can certainly show the way to quicker and better publication. Is the progress of modern science to be paced by the pedestrian tempo of obsolete communications methods and facilities?

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