

Supplement to NATURE

No. 5136

APRIL 6, 1968

Vol. 218

Is the Literature Really Exploding?

THE "literature explosion", the "crisis in documentation", are slogans which have been so often quoted as to be almost meaningless. Is the crisis made out to be more of a headache than it really is? It may be that we are over the worst; it is even likely that the explosion as such has been a myth. It is very difficult to tell. It is stating the obvious to say that there are more scientists living and doing research than at any time before. It follows that the amount of scientific research being communicated is more than ever before, but this does not necessarily mean that the crisis in scientific information is growing from bad to worse as many try to make out. The reason for the crisis may be just that everyone is better informed than they used to be. Not only are easier travel, modern communications media and better bibliographical control making scientists much more aware of research at the moment, but also past records of research have become more accessible. Of course, it is not as simple as this.

The panic seems to stem partly from figures of journal titles in circulation—the case of the "exponential curve" and so on. These figures have been circulated in most cases without reference to factors such as the mortality of journals, the number of articles published in them, the duplication of articles in journals and conference proceedings, the growth in size of individual journals and the existence of other publishing media. Not much notice has been taken either of the difference between the quantity of literature and its quality. It may not matter all that much if a scientist does not know about 90 per cent of the journals in his particular field, as long as he reads the small number of "hard core" journals which usually contain all the most important research. The success of this method will obviously vary from one subject to another.

Estimates of the number of scientific and technical periodicals currently being published have varied from 100,000 to 26,000. The first figure is now known to be wildly inaccurate. K. P. Barr points out (*Journal of Documentation*, **23** (2), 110; 1967) that the estimate of 100,000 was probably based on a misunderstanding of a graph published by D. J. De Solla Price in 1961 (*Science Since Babylon*, Yale University Press). He had plotted the number of periodicals against their date of origin. The result was an exponential curve. This graph has been widely quoted as showing that there is a fifteen year doubling period for scientific periodicals and fantastic extrapolations have been made to predict figures for the years 1970 and 2000. In a subsequent

book (*Little Science, Big Science*, Columbia University Press), De Solla Price states that the figures in his graph represented the number of periodicals founded, and they did not take into account those that had ceased publication. His estimate of the number of periodicals actually being published in 1963 was only 30,000. Other estimates have been made by C. P. Bourne (*American Documentation*, **13**, 159; 1962), and by C. M. Gottschalk and W. F. Desmond (*Amer. Doc.*, **14**, 188; 1963). Both these estimates were that about 35,000 titles existed in 1962–63. Probably the most reliable estimate is that by Barr based on the holdings of the National Lending Library. He gives the figure of 26,000 current scientific periodicals which he calculated for the end of 1965 after an analysis of the journals received by the library and those on order. The figure is likely to be a little higher now because of some increase, but it is not likely to be more than 27,000–28,000. The latest list of the National Lending Library (*Current Serials Received by the NLL, March, 1967*) gives a figure of 26,000. Those on order have not been included, but it must also be remembered that the NLL now takes some periodicals in the social sciences.

Although new periodicals are continually appearing on the scene, almost as many cease publication. Mortality figures are very difficult to estimate: Gottschalk and Desmond reported a sample check on the third edition of the *World List of Scientific Periodicals* showing a mortality rate of 33 per cent in periodicals published between 1900 and 1960. They also found a mortality rate of 40 per cent in a sample from the *Serial Record* published by the Library of Congress. These are approximate mortality rates for all scientific journals. The picture may be rather different for the separate branches of science. A survey of *Aeronautical and Space Serial Publications* in 1962 (Library of Congress) showed an extremely high death rate—of 4,551 titles listed, only 1,553 were found to be current, a mortality rate of approximately 66 per cent between 1900 and 1960, and one of 10 per cent for the decade 1950 to 1960. Unfortunately there do not seem to be figures for many other subjects, but all indications are that the growth rates are levelling off. Each field in fact seems to have its own growth curve, and the peaks of all do not necessarily have to coincide. There is a growing trickle of papers in space biology. The explosion in this subject is still to come—but when it does, it will very likely be at the expense of other subjects.