

in the field of science and technology. A high proportion of the scientific and technological papers published today are abstracted three or four times over by different organizations, and readers are probably as overwhelmed by the multiplicity of abstracts and abstracting services as they are by the explosive growth of the primary literature.

It is likely, however, that the advent of the computer in the field of information storage and dissemination, far from destroying the value of abstracts, will give them a new and extended lease of life. Publishing an abstract journal via a computer not only enables the most modern and speediest printing techniques to be employed; it also makes possible the generation of computer-aided indexes and, most important of all, provides an additional computer store of the information published in the abstract journal. From this computer store, abstracts on related subjects, suitably tagged with relevant keywords, can be retrieved and printed out for specific groups of users or even for individuals whose personal interest profiles have been stored in the computer (selective dissemination of information).

It will probably be a long time, however, before this ultimate state of Utopia is reached and, in the meantime, reviews are likely to play an increasingly important part in the dissemination of information, providing scientists with a convenient short-cut to the primary literature, the searching for, and co-ordination of, related items of information having been carried out for them by someone else, preferably in a critical fashion by a specialist in the particular field.

The sterility of modern science

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The 'information' explosion has been greatly overestimated. Data regarding the rate of increase of genuine research publications in various fields will be given, showing an absolute falling off in some subjects in recent years. There is sometimes a spurious increase caused by a flood of 'bogus' publications, often following international conferences, where the same itinerant speakers give the same lectures time after time. The most striking thing about modern science is that as it gets more expensive, and as more people are paid from the scientific budget, so it gets less efficient. Those who were selected as professors and as heads of departments as a result of their fruitful research records are—with a few notable exceptions to prove the rule—today almost completely sterile. These scientists are so busy planning future developments, that may never take place, that their subjects suffer. A rising proportion of research funds is being spent on things which hinder, rather than help, its progress. A drastic reorganization of science, with the elimination of many of the parasitic administrators and advisers who not only do not contribute to new knowledge, but who waste the time and energy of the remaining workers at the bench, is essential.

This sterility makes some retrieval problems less difficult, but the need to sift the small amount of valuable new information from the mountain of useless chaff remains.

Human nutrition; the information requirements of a Government department

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The Ministry of Health and the Ministry of Agriculture, Fisheries and Food (MAFF) are the two Government Departments mainly responsible for official policies relating to human nutrition in England and Wales. Within the latter Department is the Food Standards, Science and Safety Division which contains four scientific branches, each of which is concerned with some special aspect of food. These aspects are wide, and include: nutrition and diet, food standards, food additives and contaminants, storage of food for emergency purposes, and the effects of atomic radiation on food and agricultural products.

Departments such as MAFF must be able speedily to supply definitive information on a very wide variety of topics. Questions addressed to the Minister, the briefing of officials, and the servicing of committees, often require rapid action. Departments acquire large amounts of information (in many forms), and a good knowledge of departmental organization is essential for its efficient utilization. Scientific and technical matter must be interpreted and presented in a form which is meaningful to those with administrative and executive responsibility.

Our broad responsibilities make it necessary to be alert to new developments in food production and processing, and to any public reaction to these. If it is found that there is insufficient knowledge of the nutritional implications of such new developments, appropriate practical investigations may be initiated.

Assessment of average food consumption is made by means of the National Food Survey; other Departmental publications include the *Manual of Nutrition* and several booklets dealing with the cooking and preservation of food. The Ministry of Health are concerned with the publication of reports of certain expert panels on specialized aspects of nutrition.

To keep abreast of developments, it is necessary to scrutinize a wide range of scientific and technical literature, and to have personal liaison with representatives of governmental, academic and industrial institutions with interests in food and related subjects. Indexes giving details of specialists and their location are being prepared. Unpublished information is often difficult to locate, but improvement in liaison should ease this problem.

A selection of items from literature received is made by the Food and Nutrition Library; a more specialized selection is made by the Information Section in the Food Standards, Science and Safety Division, which issues a small 'current awareness' sheet, mainly for distribution within the Department.