

Computing Science". The third report was on "The Position of Computing Science in the University Structure", and considered this from academic, administrative and political points of view. The final report was on "The Computing Center and the Academic Program", and mainly concerned the relationship between the computing centre and the department of computing science.

The report is concluded with an appendix on "Computers in Higher Education" which lists all the universities which have, or are planning, undergraduate, masters, or doctoral courses in computing science. F. H. SUMNER

COMMUNICATING SCIENCE

Communication in Science: Documentation and Automation

Edited by Anthony de Reuck and Julie Knight. (A Ciba Foundation Volume.) Pp. xi+274. (London: J. and A. Churchill, Ltd., 1967.) 60s.

SYMPOSIA about the ways in which information can be stored and then restored to anyone wanting to use it are now becoming common. This one suffers from a common fault: the information scientists or documentalists have plenty to say, but the scientists who provide the information and make use of the systems are largely absent. In the present case one eminent user was present, and Lord Todd's talk has welcome clarity and some practical suggestions. But after him the Morris-dance of the documentalists is uninterrupted—apart from Lord Todd's contributions to discussion, which are usually sceptical.

The Morris invoked here is William, who once said that "Science will grow more and more one-sided, more incomplete, more wordy and useless, till at last she will pile herself up into such a mass of superstition, that beside it the theologies of old time will seem mere reason and enlightenment"—a prophecy not yet fulfilled though this book is one-sided and certainly wordy. Not only are many of the papers almost unreadable, but a librarian faced with the task of obtaining the references quoted might well resign and move into some field such as science where publication methods are reasonable. Not many people interested in information science would think to look in the journal *American Behavioural Science* and most of the references are to reports from governmental and other statutory bodies—some of them not even printed. Apparently there are no texts on the matter, though the thought of a book written by many of the expert contributors here is a daunting one. (Perhaps J. R. Smith and H. East are the most likely authors—their paper on information services in physics is clear and unpretentious.)

The object of the symposium is clear, that of the book is not. The participants, I suspect, are familiar with each other's work and could well profit from meeting each other. But they and their fellow workers in the field will not find much use for the book—nor will the scientists. It can be divided roughly into descriptions of information systems at the national and international level and in various disciplines, one or two papers on particular problems and some usually turgid "think pieces" about the general situation. Almost all the papers are too abstract with not nearly enough detail to enable the reader to assess the merits and benefits of the various systems or the economic and/or scientific arguments in their favour. Flow sheets of administrative hierarchies are of no interest until someone tells how they look at the receiving end. The Cranfield indexing project impresses by the amount of work that has gone into it—but depresses by the complete inability to communicate its results. An exception must be made in the case of the paper on the Chemical Compound Registry System (F. A. Tate)—this clearly indicates that this is not only an information service but a completely new chemical research tool. It is also true

that in the final discussion on policy for the future most speakers realize they have been standing several feet above the ground and become a little more realistic and cautious. I completely agree with the three points made by B. W. Adkinson about future developments of information activity. These are: that government will have to become more heavily involved both financially and in organization; that scientists must become more involved and prepared to work with the specialists on these problems; and that reasonable support and improvement of present information services must continue. This book convinces me that the second point is vital.

Professor de Solla Price's manner and historical name-dropping are irritating, but at least he is provocative and full of ideas of varying quality and depth. His plea for scientific findings to be published in journalistic format is attractive, but this is not altogether untried. French scientists publish almost each weekly experiment they make in *Comptes Rendus* with very little experimental detail and the minimum of the fore-and-aft waffle that constitutes the introduction and discussion sections of the standard Anglo-American paper. Every few years the French scientist then publishes a paper-backed monograph describing this work in more detail and relating it to that of others. Unfortunately this excellent system, which combines the transient value for current awareness with the more permanent and leisurely archival deposit, breaks down at the library level. Certainly in Britain, libraries will almost always stock *Comptes Rendus* and almost never the monographs; expenditure on books is usually minute in comparison with that on periodicals.

Lord Todd's chief suggestion is allied to Professor Price's. This is that scientists should submit short condensed accounts of their work accompanied by the full experimental evidence, but that only the condensed account should be published and the experimental evidence should only be available on demand. If it is true that a scientific paper is only read on the average by one other scientist, then this clearly is a most sensible thing to do. His other suggestion is that the writers of critical review articles should be accorded much more honour and, more importantly, money.

The main trouble about storage and retrieval of information is that the systems allow little or no selection, but optimists still believe that the selection at source could be improved. This, of course, is the job of the scientific editors who, worthy though they be in a very thankless job, are all too often little more than specialized press editors and amateurs working in their spare time—a sort of gentleman's gentleman, taking the odd hair off the lapels, seeing that the tie is straight and flicking the dust from the shoes of the paper. What is wanted is a generation of scientists turned professional editors. Once journals reach a certain age and eminence, they could afford to pay them professorial salaries. Such people would be pugilistic rather than pedestrian and prepared to knock the submitted papers about, divesting them of their encumbering woolly combinations and dirty pullovers so as to display the work in its naked simplicity. Reading scientific papers might then be an interesting instead of a dreary occupation.

The difference between scientific and professional editing is exemplified in the work of Dr de Reuck and Miss Knight on this book. Clearly they have been scientific editors of the submitted papers which are often involved and tedious—but even the most turgid speakers appear to speak clearly and straightforwardly in the discussion sections. Obviously the editors have been true professionals in dealing with these parts of the book. Had they been as ruthless with the presented papers, what a vastly improved book would have resulted. Which brings us to the question: who is going to teach the communication scientists how to communicate their findings to us? The hardware may be all right, but who is going to stiffen the software?

P. C. WILLIAMS