

lessly and argued persuasively for the cause of culture; but it was probably Harpers whom authors knew as the firm that spoke with its pocketbook.

This we may suspect, but can never prove: the Harpers knew all too well that good business required holding one's cards close to one's chest. (Among Mr. Exman's least successful chapters, for instance, is his sixth, in which he attempts to demonstrate how his firm "launched" American authors.) In the absence of much evidence to the contrary, we must presume that the record of Harpers is best reflected in its publishing record: the brothers were astute, hard-working, and relatively scrupulous businessmen, whose diversified competences included the selection of good literary texts, but whose modest intellectual accomplishments and interests discouraged them from providing much of any cultural leadership. Mr. Exman is thus both justified and successful in preparing a book that never inspires a warm veneration or sympathy for the brothers, but passively and cumulatively induces a cold respect for their ability to flourish in one of the more formidable areas of the business world.—*Donald W. Krummel, The Newberry Library.*

Focus on Information and Communication. Ed. by Barbara Kyle. London: ASLIB, 1965. viii+113p. 14s.

Recently, according to Miss Kyle's introduction to this volume, ASLIB sponsored a conference on classification as an interdisciplinary study at which papers were presented in such diverse fields as botany, mathematics, and anthropology. The interdisciplinary approach to classification aroused so much interest that Miss Kyle has brought together a collection of seven papers, by six scholars, from widely differing areas of research as "a further attempt to provide for ASLIB members a selection from authors in peripheral fields and to introduce these authors to each other and to ASLIB's field of endeavour." The philosophy behind this collection is characteristic of the work of ASLIB members whose approach to classification has always been more interdisciplinary than that of their American colleagues. However, the conference held at Syracuse University last July

on the sociological foundations of access to knowledge may hopefully be regarded as suggesting that American librarianship is beginning to tend more toward the interdisciplinary view.

Only three of the seven papers in this collection have been previously published, and none is by a librarian, though all have something of importance to say to librarians, and such serious students of British librarianship as Foskett, Farradane, and Miss Kyle herself are deeply indebted to their authors.

The collection opens with an essay by Rupert Crawshay-Williams on a linguistically based method for resolving controversies in science and the philosophy of science as to the correctness of empirical statements or judgments when the facts themselves are not in dispute. The relevance of this essay to classification theory lies in the insight it can give for the answering of such questions as: Is mathematics to be classified with the sciences? Is a species a natural group or a construct of the human mind?

The second paper in the series (by James K. Feibleman) on the integrative levels in nature and in the sciences, and the technological applications that derive from them, has strongly influenced D. J. Foskett's studies of the integrative levels in bibliographic classification.

Perhaps more obviously related to library problems than some of the other essays in this volume are the two on computers. The first, by A. R. Meetham of the National Physical Laboratory at Teddington, deals with the problems of developing machine-generated indexing vocabularies. The essay by W. T. Williams of the faculty of the University of Southampton on "Computers as Botanists" is an exposition of the advantages offered by the computer in the performance of certain intellectual tasks, particularly that of extracting from a complex mass of data some underlying pattern or formulation of general principles. His essay could as well have been entitled "Computers as Classifiers." He finds, however, that man enjoys three advantages over the computer "which he may well retain even into the far distant future"—he weighs less than any computer yet designed; he requires far less energy than does the computer; and he

"is the only computer yet designed which can be produced entirely by unskilled labour."

Patrick Meredith (who, because of his participation in the Washington ICSI Conference of 1958, is perhaps better known to American librarians and documentalists than are most of the other contributors to this volume) is represented here by a particularly fine attempt to develop a fundamental theory, based on the structuring of relationships, of the subject or "topic" analysis of documents. The work of both Farradane and Ranganathan has much in common with Meredith's inquiry into the psycho-linguistic and logical relationships in the classification of documentary content. Barbara Wootton, who is a professor of social studies at the University of London, is also well known on this side of the Atlantic, mainly through her contributions to ASLIB publications. She is represented in this volume by two excellent papers which discuss the problems of communication and language, particularly in the social sciences. Both essays should greatly interest librarians generally and reference librarians in particular, as well as those concerned specifically with classification.

This reviewer is thoroughly convinced that the literature of librarianship needs enrichment through relevant writings from other disciplines, and we applaud Miss Kyle's declaration that "Librarianship no longer deals with packaged information but must include such topics as semantics, the philosophy of science, and automation." We hope that this collection of papers will be widely read by librarians, for as the editor says, it "demonstrates how large is the area of knowledge and how numerous the journals which documentalists must scan if relevant work is not to be missed." However, there is one serious problem of strategy that Miss Kyle's point of view presents: how is it possible to persuade, not to say compel, librarians to read such material. Certainly more conferences like those of ASLIB and Syracuse University are needed, and compilations like Miss Kyle's are useful. But the fact remains that such important material, of which the volume under review is a valid sample, is not easy reading for those not trained in the appropriate

discipline. Perhaps one cannot complain too loudly if the average librarian shies away from concepts and vocabularies that are strange and even terrifying. But the librarian of tomorrow will have these interdisciplinary infiltrations in his future, and he must prepare himself for them. Therefore, the meaning for library education of the growing dependence of librarianship upon research in areas of knowledge which, in the past, were regarded as alien to it is obvious. We hope that *Focus on Information and Communication* will help to sharpen the perspective on the curriculum in every library school.—Jesse H. Shera, *Western Reserve University*.

Computer & Information Sciences. Ed. by Julius T. Tou, and Richard H. Wilcox. Washington: Spartan, 1964. 544pp. \$13.85. (64-25585).

The term "information science" has been used in so many ways and in so many different contexts that the prospective reader of a book concerning it must be alert to the particular meaning used. This book adopts the meaning used by those who are highly oriented toward computer theory; it therefore includes information science as a branch of "computer science," with heavy emphasis on the problems in "artificial intelligence." The papers from which this book is made were presented in June 1963 at a conference concerned with "Learning, Adaptation, and Control" as a symposium on Computer and Information Sciences.

The papers can be divided into five groups. (The numbers shown for each paper are those assigned in the book.)

A. *Four concerned with learning or adaptive behavior:* (2) some fundamental theorems of perceptron theory and their geometry; (15) dynamic programming, learning, and adaptive processes; (16) pre-requisites of self-organization; (17) a unified theory of learning and information.

B. *Seven concerned with pattern recognition:* (3) determination and direction of features in patterns; (4) hyperplanes, hyperspheres, and hyperquadrics, as decision boundaries; (5) a mathematical approach to pattern recognition and self-organization; (6) a pattern-identified device using linear