

original insights in the book. For example, the late Barry Gross, an active member of the "conservative" National Association of Scholars, turns out to have the most experience teaching at a nonelite institution and makes some fairly radical proposals for fairness in admissions, such as the use of lotteries. Conversely, Gregory Jay and Gerald Graff, cochairs of the "leftist" Teachers for a Democratic Culture, indulge in a little self-criticism, admitting that oppositional pedagogy can be dogmatic and oppressive to students. A series of speakers tentatively explores the possibility that "difference" needs to be balanced by concern for universals. If not communion, then at least community. The last paper in the collection, Jerry Watts's "Identity and the Status of Afro-American Intellectuals," movingly conveys the devalued status of Afro-American studies, the inescapable black "fear of the white gaze."

Higher Education under Fire is a fairly sophisticated attempt to reason and delve beneath the surface of apparently straightforward issues. Although on a practical level one might wish for closure rather than deconstruction of the issues, wish for solutions rather than paradoxes, as a member of the academic community one has to respect this attempt to read the crisis of higher education as a social text.—*Jean Alexander, Northwestern University, Evanston, Illinois.*

Richardson, John V., Jr. *Knowledge-Based Systems for General Reference Work, Applications, Problems, and Progress.* San Diego: Academic Pr., 1995. 357p. alk paper, \$50 (ISBN 0-12-588460-5).

Knowledge-based (or expert) systems are computer applications developed to contain expert knowledge about a particular discipline or topic, and are used to solve problems by applying this knowledge according to programmed rules of logic. Geared to librarians with a professional interest in improving reference services as well as to public service administra-

tors who allocate resources, Richardson's book is also designed to be a text for library school instructors who wish to incorporate technology-based solutions into their curricula. The premise of the book is that the thoughtful inclusion of knowledge-based systems (referred to as KBS in the book) into the realm of networked information and on-demand reference service could benefit both library users and staff.

Richardson lays out an ambitious set of objectives. The book attempts to explain basic artificial intelligence concepts, the elements of KBS, limitations and abilities of KBS, knowledge acquisition techniques, knowledge representation methods, current KBS developments, and various implications of KBS adoption. To do all this, the author moves through expert system definitions, feasibility discussions, reference transaction modeling, development of knowledge bases, shell evaluation, discussion of user interface issues (from the view of both developer and users), and reviews of current progress in developing KBS. To provide context, lengthy analysis of the existing paradigms for learning reference work and reference research are presented. Appealing to the broadest possible audience, the book does not focus its discussion of KBS on any particular type of library, user, or need.

Despite its somewhat textbookish nature, this volume offers the academic practitioner a number of valuable tools. It provides a good introduction to KBS, though it is doubtful that a reader finishing the book could then create a simple expert system as suggested by the author. An extremely well-annotated directory and review of extant KBS systems offers an overview of most KBS work to date. An equally well-annotated list of expert system shells should be a valuable, preliminary resource for anyone thinking of developing a KBS system. Librarians seeking a fresh viewpoint for their evaluation and consideration of reference work

will find Richardson's systematic view of reference work worth further consideration. Indeed, his thirty-four-plus-element flowchart model for reference work is one of the most intriguing aspects of the book. For those seeking to explore reference work in their research, especially in relation to KBS, Richardson has tucked suggestions for additional research into every chapter.

Readers should be aware of some weaknesses that diminish the work. Its organization is a bit artificial and confusing at times. For example, the first of the book's three sections, "Applications," is not the expected in-depth discussion on incorporating KBS into the library. Instead, it is a set of chapters covering a variety of topics including a lengthy overview of reference training paradigms and an historical review of artificial intelligence/expert systems developments from experiments with the game of chess. Although these help to establish the author's premise, the same point could have been made in less detail. Some topics, however, would benefit from further development. For example, in the chapter "Feasibility," the author pays scant attention to issues of intellectual property ownership. The book also suffers from being overly subdivided. A number of chapters contain four levels of subdivisions (e.g., 4.3.1.1), which can cause the reader to lose track of the overall concept under consideration. Finally, the lack of focus on a particular type of library denies the work a consistent set of examples from which to draw or extrapolate.

The possible appeal of this book to librarians lacking knowledge about KBS or to managers seeking to provide service with increasingly diminished budgets is obvious. Its price will probably mean that the most likely purchasers of the book will be those truly interested in creating their own expert systems, and library school students.—*Elizabeth Blakely, University of Pennsylvania, Philadelphia.*



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