the opposite effect of forcing the reader to read through the chapters—in order to make sense of the summaries.

Although few academic librarians will want to read through this book, it is nevertheless well worth reading. My advice is first to read carefully through the short glossary (pp. 167–68), and then to read the "Introduction" (pp. 1–16), which presents all of the key ideas. Depending upon one's interest or purpose, one can then read selectively from the remaining chapters. Of special interest to academic librarians will be the discussion of the shift of knowledge production away from the academy. While the research university remains the primary center for research even in Mode 2 (p. 82), knowledge production is no longer the university's exclusive responsibility. New centers of knowledge production, such as small-technology businesses, are rapidly evolving and contributing. One reason for this trend is the "massification" (i.e., massive growth) of higher education following World War II (pp. 70–89). This created, among other things, more people capable of knowledge production than there has been room for in the academy, so that such scholars are now finding work—and are producing university-quality knowl-

edge—in the private sector. There are also other issues raised in the book that will be of interest to anyone trying to understand how knowledge is produced and exchanged, as, for example, the useful distinction between tacit and codified knowledge (pp. 24–26), or the discussion of the increasing "density" of scientific communication (pp. 38–40). Also of special concern to some academic librarians will be the examinations throughout the book (especially pp. 8, 31–34, 65–69, and 152–54) of how the quality control of knowledge production (and therefore presumably publication) is affected by judgment and measures that are no longer limited to the standard conventions of academic peer review.

Although a few brief case studies and other examples are presented, the content of this book is for the most part abstract: there is little detailed or extended discussion of how these new trends are affecting actual research now under way. Nor do the authors feel obliged to draw any general conclusions. The book ends somewhat abruptly with a one-page list of some "future issues." While the main purpose of the book is presumably to identify and investigate the qualities of Mode 2, the real interest of the authors seems to be not so much in the nature of Mode 2 itself as in the socioeconomic implications of the shift from Mode 1 to Mode 2. As a result, Mode 2 is defined and made understandable primarily on the basis of its difference from, or opposition to, Mode 1. In the end, therefore, this book is not so much an analysis of how research is done—or how knowledge is produced—as it is a rather rushed and somewhat disjointed commentary on currently changing social and economic values.—*Ross Atkinson, Cornell University, Ithaca, New York.*

Higher Education under Fire: Politics, Economics, and the Crisis of the Humanities. Eds. Michael Bérubé and Cary Nelson.

New York: Routledge, 1995. 379p. $55 cloth (ISBN 0-415-90805-1), $16.95 paper (ISBN 0-415-90806-X).

In April 1993 a diverse group of academics gathered at the University of Illinois for a conference sponsored by the Unit for Criticism and Interpretive Theory. Most were left-leaning, but a few were avowedly conservative. Many taught in departments of English, but the fields of education, political science, sociology, communication, philosophy, and history were also represented. Some of the names (Gerald Graff, Joan W. Scott) are familiar to this reviewer, others may be familiar to other readers, but this was not a platform for "culture wars" superstars. A great deal of honest soul searching took place, mixing "theoretical reflection with practical advice." That higher education really was under fire may be the only opinion shared by all participants. Everything else—the canon, multiculturalism, affirmative action, identity politics, free speech, pedagogy, tenure—was subject to dispute. These candid, occasionally heated, but always civil papers and discussions are collected in *Higher Education under Fire*. The book should appeal to readers who have always wanted to be a fly on the wall of a faculty lounge or humanities seminar room.

There is, of course, a dated quality to discussions taking place in early 1993, before the antigovernment, antitax, anti–affirmative action, and anti-NEH initiatives of 1995. But these political initiatives were many years in the making, and by 1993 the editors of this volume had already detected a crisis of legitimacy in higher education, as in other public institutions. All debates essentially stem from one central question: What is the purpose of higher education? This formerly theoretical, even slightly rhetorical, question has taken on a frightening reality as higher education is placed on the chopping block.

Many, if not most, American parents and students view higher education as a means toward an end: expanded opportunity, middle-class respectability, or simply a decent job. Professors have traditionally been reluctant to justify themselves on these instrumental grounds, but cost-benefit analysis is often the most effective way of persuading legislators and the public to support universities, as Linda Ray Pratt shows in case studies of three successful political actions.

The utilitarian approach can be dangerously anti-intellectual, however. Jeffrey Herf maintains that universities exist to "pursue important truths" and are inherently elitist; Joan W. Scott stresses "the value of learning as critical inquiry." Meanwhile, social groups that have historically been denied both economic advancement and "critical inquiry" demand their rightful place in the academy.

For some, like Paul Lauter, the fiscal crisis and attacks on speech codes, political correctness, and multiculturalism are the means by which an entrenched establishment blocks universal access to higher education. Michael W. Apple also deplores the social and economic goals of the political right, including "the reinforcement of intensely competitive structures of mobility, the lowering of people's expectations for economic security, and the popularization of what is clearly a form of Social Darwinist thinking." In her paper "Writing Permitted in Designated Areas Only," Linda Brodkey angrily reports on her unsuccessful attempt to create a new composition curriculum at the University of Texas, "Writing about Difference." This incident became a national media event, resulting in cancellation of the new program.

More typical of this conference was a willingness to believe in the sincere convictions of one's ideological opponents, rather touchingly expressed in Gerald Graff's lament that "it seems to me in the current debate . . . we're simply operating with representations of each other that we don't recognize." This temporary cease-fire leads to the most valuable and

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