papers from the 2001 preconference, this book also includes selected papers from the previous three preconferences.

In his keynote address, Ken Haycock (Graduate School of Library, Archival and Information Studies, at the University of British Columbia) reviewed the outcomes and recommendations of two ALA-sponsored Congresses on Professional Education, in addition to those of other studies of successful professional development programs. Haycock's address not only provides an overview of the current state of planning and development for librarian continuing education but also creates a context for the themes presented by the other presenters.

The papers included in this book represent an international perspective on continuing education for library professionals. Contributors represent all areas of librarianship, including graduate schools of library science, libraries, and service providers. The authors discuss issues related to the delivery of professional development both within their own countries and globally, review current practices, present case studies, discuss models of technology use for continuing education, and propose methodologies and practices for future development and implementation. Several interesting and creative uses of technology are described.

Two papers are particularly noteworthy. Anne Clyde's essay describes the International Association of School Librarianship's School Libraries Online Web site. This site combines the use of various technologies to foster professional development for school librarians as well as to share information about, and encourage research in, school librarianship. Another noteworthy essay by Lesley Moyo describes Africa Virtual University. This interesting project provides continuing education opportunities in Africa; Moyo presents it as a model for the library profession. Moyo also focuses on the advantages of, and barriers to, technology-based education in Africa: financial, cultural, technological, and content issues. Several other papers in the book also discuss these issues within the framework of providing professional and continuing education for librarians in developing countries.

The papers are arranged in the order they were presented at the preconference as indicated in the table of contents. However, there are no divisions within the book itself. Given that the preconference was focused on subthemes, a separate table of contents or index providing access to specific papers addressing those themes would have been helpful. The last five papers, which serve as appendices, are not clearly labeled as being from previously held preconferences or as appendices. A note at the end of the foreword does indicate their status; however, it does not match the individual papers with a particular preconference. The print throughout the book is small; figures representing screenshots from Web sites also are small and at times blurry, making them difficult to read.

Despite these stylistic difficulties, this volume of proceedings is recommended reading for anyone interested in the topic of professional continuing education for librarians. Those involved with the use of technology in education also may be interested as many of the essays provide good examples of the effective use of technology in learning that may be adopted in other contexts.—*Barbara J. D'Angelo, Arizona State University East.*

Longino, Helen E. *The Fate of Knowledge.* Princeton, N.J.: Princeton Univ. Pr., 2002. 233p. alk. paper, $49.50, cloth (ISBN 0691088756); paper, $16.95 (ISBN 0691088764). LC 2001036267.

The Fate of Knowledge is, in a general sense, a treatise on the philosophy of knowledge and the epistemology of science. More narrowly, it is an exploration of a matter of considerable moment and dispute in that domain, namely, the role of social relations in the production and content of scientific knowledge. In her exploration, Longino, professor of philosophy and women's studies at the University of Minnesota, offers an impressive clarifica-

tion and attempted resolution of the issues surrounding this subject. The broad issues treated by the author concern the nature, production, acceptance, and evolution of scientific knowledge. What is scientific knowledge? Are its production and acceptance largely individualistic, rational, and independent of cultural processes, social interactions, and historical contexts? Or is scientific knowledge determined by such factors? How can scientific knowledge be distinguished from nonscientific opinion and belief? In her treatment of these questions, Longino's concern is not with historical or psychological particulars, but, instead, with general patterns and processes. Most of it is an analytical critique, but an important part is a normative prescription for scientific knowledge.

To a large extent, she builds her arguments on a categorization of the perspectives of philosophers and sociologists who have written on scientific knowledge. She contends that many thinkers have approached this subject in one or another of two opposing, dichotomous ways. On the one hand, philosophers have taken a normative approach, embraced monistic explanation, and emphasized rationality and cognition by individual scientists but have downplayed—or even excluded—pluralistic explanation, as well as historical and social context. In contrast, sociologists of science have taken an empirical approach, focusing on either the ideological, cultural setting of research or social interactions among members of scientific communities. In so doing, a number of sociologists have espoused relativism and denied the role of cognition in science. To Longino, this opposition is false, unproductive, and a barrier to communication between philosophers and sociologists of science. Her aim is to produce an epistemology that dissolves this dichotomy—an epistemology that recognizes that science is both rational and social. This perspective she calls "social epistemology," a perspective that she most strongly elucidates and develops.

Following an initial review of the works of other philosophers and sociologists, the author turns to "Disassembling the Rational–Social Dichotomy," a chapter in which she describes and analyzes two principal obstacles to reconciling the approaches of normative/philosophical and empirical/sociological investigators: first, ambiguity of the term "knowledge," and second, a set of binary epistemological concepts. In an attempt to reduce misunderstanding, Longino distinguishes three meanings of scientific knowledge: (1) knowledge production, the practices and processes that generate knowledge; (2) knowing, a three-way relationship among knowers, representations (e.g., models and theories), and objects (e.g., black holes); and (3) content, the corpus of knowledge that consists of verbal, mathematical, or visual representations. That sociologists and philosophers have regarded these three senses of knowledge in differing, opposing ways has been a principal source of disagreement and misunderstanding. Paralleling misunderstanding of the meanings of knowledge has been a dichotomy consisting of a set of binary concepts. In this dichotomy, the "rationalizers" stress individualism and monism, while eschewing relativism, whereas the "sociologizers" emphasize nonindividualism, pluralism, and relativism. In place of this dichotomy, Longino advocates what she terms "the nondichomtomizers way," which is nonindividualist in that it stresses the social interdependence among knowers, pluralist in that it recognizes that there can be more than one satisfactory account of reality, and nonrelativist in that it rejects the argument that evidentiary justification is arbitrary. One should note that despite her advocacy of the position that social factors shape scientific research and content, she is not an antirealist or social constructivist; she does not hold the view that scientific explanations are social constructions that need not have any correspondence with reality.

In "Socializing Cognition," Longino amplifies her attempt to reconcile the two

opposing views by arguing that social factors play an integral role in all three senses of knowledge. She contends, for example, that social processes have a formative role in two cognitive activities—observation and reasoning—emphasized by philosophers of science in their treatments of knowledge production. Observation, she writes, "is not simple sense perception … but an organized sensory encounter that registers what is perceived in relation to categories, concepts, and classes that are socially produced. Both ordering and organization are (dependent on) social processes." Similarly, reasoning, especially when used to support or justify ideas, involves challenges and responses that arise from social interactions. To anyone educated in the social sciences these points seem indisputable.

In marked, rather unexpected contrast with preceding chapters, the expository mode of "Socializing Knowledge" changes from analytical to prescriptive and normative; in other words, from an analysis of *how* scientific knowledge (and perhaps all knowledge) *is* produced and accepted to a presentation of a model of *how it ought to be* produced and accepted. The foundation of Longino's model is community-based criticism or, more specifically, "critical discursive interactions." Such criticism, she writes, "must be epistemologically effective—by helping a community avoid falsehood and by helping to bring its accepted content into alignment with its cognitive goals and its cognitive standards." To ensure effectiveness of criticism, Longino sets forth four criteria: first, *venues* in the form of "publicly recognized forums for the criticism of evidence, of methods and of assumptions and reasoning;" second, *uptake*, consisting of a community's changing its beliefs and theories in response to critical discourse; third, *public standards*, principles by which theories, hypotheses, and practices can be evaluated; and fourth, *tempered equality*, equality of intellectual authority qualified by the amount of training and past record of the individuals who offer criticism. Meeting these criteria for effective critical dialogues, she holds, would insure diversity of perspectives on ideas, methods, and findings without reducing scientific knowledge to relativistic chaos.

Whether or not her model would be effective is arguable. The democratic, socialistic tenor of the model has an undoubted appeal to anyone troubled by the sometimes imperious, male-dominated scientific establishment. At the same time, her presentation of the model leaves some questions unanswered. For instance, how should one define a community with regard to critical discussion? Should effective critical dialogue about theories, hypotheses, and methods be limited only to qualified members of a scientific community or opened to all interested members of a broader community? Or, should only the potential (or actual) economic, social, and ecological consequences of scientific programs be opened to truly public criticism? Then, too, in regard to the concept of tempered equality, how should intellectual authority be determined? Should criticism of an interpretation of the fossil record of human evolution by a so-called creation scientist be assigned epistemic weight equal to that made by a paleoanthropologist?

By virtue of presenting several concrete cases of pluralistic explanation, "Pluralism and Local Epistemologies" is the book's most interesting chapter.

The cases the author explores, all from modern biology, feature situations in which two explanations, models, or methods stand in seemingly irreconcilable conflict with one another. Whereas a monist would hold that one or another of the opposing views in each case will eventually be accepted, Longino—a pluralist—argues that these kinds of opposition often represent different, but complementary, accounts of natural phenomena.

How should one judge this work? While conceding that substantive criticism should be left to philosophers and sociologists of science, and without repeating criticism made previously in this review, I would make the following points: To begin with, nearly all readers

with a background in the social sciences would not dispute the central tenets of the author's argument—that scientific representations are approximations to real phenomena, that social and cultural factors influence scientific knowledge, that plurality of models and theories is often valuable, and that informed criticism of scientific ideas should be encouraged. At the same time, one is sometimes unsure of what she means by *knowledge.* What, essentially, is knowledge? How does it differ from *information*? In certain places in the text, she appears to intend to limit the term *knowledge* to *scientific knowledge*, but in other instances she seems to use the term to refer to all knowledge. Turning to stylistic matters, prospective readers should be forewarned that despite its catchy title, the book's subject matter and expository style are abstract and academic. With a handful of notable exceptions, the text is nearly devoid of concrete examples. For all readers except those trained in philosophy, this absence of concrete illustrations hinders understanding. Seemingly written for philosophers and sociologists of science, the book contains little that lends itself to easy digestion. Following and understanding Longino's arguments and analysis requires sustained attention, effort, and re-reading. Even so, any who have an interest in the genesis and nature of scientific knowledge should find her exploration of epistemology enlightening and rewarding.—*James D. Haug, The Smithsonian Institution.*

Reading Acts: U.S. Readers' Interactions with Literature, 1800–1950. Eds. Barbara Ryan and Amy M. Thomas. Knoxville: Univ. of Tennessee Pr., 2002. 289p. alk. paper, $36 (ISBN 1572331828). LC 2001-5651.

On the surface, it might not be obvious that there are connections between the issues librarians are facing these days and these essays that completed their introspections more than half a century ago. Yet, a closer inspection of this fascinating compilation of eleven historical and literary essays on "reading acts" from several historical periods—and this is important—reveals issues that are alive and kicking today for librarians. What do people read? How do they make their choices about what they read? What primary source documents should we be saving today so that similar analyses can be done in the future concerning today's readers? These are all questions we ponder and analyze on a regular basis. Moreover, a collection such as this forces one to think about issues such as resource preservation, collection development policies for archives, as well as the need to develop an ability to think imaginatively.

But I digress, as I suspect these were not the goals of the authors and editors of this collection, though one clear sign of the quality of this book is the number of questions it raises and the issues it presents for future research. The intent here was to have scholars work with documents left by actual readers who are deemed "ordinary." These documents include diaries, commonplace books, fan mail, booksellers' reports, and student papers. The essays included here cover several historical periods, deal with books written by prominent authors, and touch on a number of literary genres and cultural groups. Add to this another working premise of this collection, that scholarship can begin with the reader's perspective, the ways in which ordinary people—in this case meaning nonreviewers and nonscholars—responded to and used their reading. This is achieved with a great variety of perspectives. The first essay by Elizabeth B. Nichols asks the question, Was there a gap between the experiences of elite New England women readers in the early national period, as recorded in letters and diaries, and prescriptions of what was proper reading for women? Alison Scott's "This Cultivated Mind" chronicles the reading of an immigrant woman, Mary Ann Wodrow Archbald, through a study of her journals, letter books, commonplace books, and her surviving library, complete with extensive marginalia. Scott uses these