browsing the library shelves." Her point is that the vocabulary of online catalogs often does not match the vocabulary of humanists.

The discussion session that follows the second set of papers focuses on the roles of librarians in enhancing accessibility to information. The keynote speech, by Koga Setsuko of Aoyama Gakuin University, leads to discussion of the diminishing role of librarians as mediators between users and information. She revealed that: "In Asia, the importance placed on librarians is not very high." Another presenter noted that in many Asian countries reference service is passive and that sometimes librarians purposely work ineffectively so that their work will not be completed and they will not be left without work—and a job—to do. But Chang reiterated that the electronic environment will make more, rather than less, work for librarians as they select and evaluate electronic media, catalog them, and teach people to use them.

Much of what is presented in these papers is fairly common knowledge to U.S. librarians, but perhaps less well known to Japanese librarians. Conversely, much of what the Japanese librarians related in the discussion sessions is probably quite evident to Japanese librarians, but largely unknown to those in the United States. Thus, this volume is indeed a document that reflects both Japanese and American interests and concerns about the relationship between the electronic information environment and academic libraries in the two countries. Both sides will find much valuable information and opinion in this volume.

In the preface to these conference proceedings, the editor states: "The Middle Ages possessed a world view based on divine laws, which fostered an environment of control of information. In due course came the invention of printing." It is ironic to read such a statement in a volume of papers from a conference in Asia because, as the editor surely knows, both block printing and printing by movable type were in use in Asia centuries before the Middle Ages in Europe.—*Raymond Lum, Harvard University.*

Saenger, Paul Henry. *Space between Words: The Origins of Silent Reading.* Stanford, Calif.: Stanford Univ. Pr. (*Figurae: Reading Medieval Culture*), 1997. 480p. $49.50, alk. paper (ISBN 0-8047-2653-1). LC 96-35088.

Librarians have more reason than most to appreciate the interplay between technology and language. After all, the wares on their shelves are almost always technologically preserved language artifacts, be these cuneiform tablets, Roman codices, medieval manuscripts, printed books, texts preserved in digital form, or streamed audio delivered via the Internet. As a profession, we are aware of certain watershed events in language preservation and reproduction technology, with the Gutenberg revolution surely foremost among them. But we also manifest an unfortunate tendency to equate technology with machinery, when in fact the elaboration of an alphabet or the many other conventions of rendering spoken language in written form are—no less than the printing press—fruits of human invention and imitation. Writing is, as Walter J. Ong described it in *Orality and Literacy: The Technologizing of the Word* (1982), a "deeply interiorized technology." It "initiated what print and computers only continue, the reduction of dynamic sound to quiescent space, the separation of the word from the living present . . . ." As a reflex of a mistaken identification of *Techne* not with *Ars*, but with *Machina*, we are prone to see in the page of a medieval manuscript, in its illuminations and rubrications, its gracefully rounded uncials or less graceful, angular fraktur, above all the desire of a presumably pretechnological scribe to please the eye rather than to wield a communicative tool. But to do this both un-

derestimates and fundamentally misunderstands the medieval book by imputing to its creator only a passion for ornament rather than a will to communicate. With Serenus Zeitblom, Thomas Mann's narrator in *Doctor Faustus,* we can observe that "ornament and meaning always run alongside each other. The old writings too served for both ornament and communication. Nobody can tell me that there is nothing communicated here."

Paul Saenger's remarkable new book on the emergence of (rapidly) readable text in the course of the Middle Ages demonstrates that there has been a discourse on readability, on the most economical and efficient rendering of meaning as characters on a page, antedating by centuries the period covered by Elizabeth Eisenstein's landmark *Printing Press As an Agent of Change: Communications and Cultural Transformations in Early-Modern Europe* (1979). Indeed, in the wake of Saenger's book and the research on which it is based (the scholarly apparatus takes up 200 of the book's nearly 500 pages), the transformation of scholarly and popular communication that Eisenstein ascribes to the print "revolution" of the fifteenth and sixteenth centuries should itself be reconsidered. As Saenger shows, an awareness for the meaningfulness of form and a desire to mold form to maximize reading efficiency—in a word, to make the book an effective vehicle for the conveyance of complex meanings—is true of medieval writing culture no less than of the early modern culture of print. And the scribal innovations of medieval Europe were no less seminal and far-reaching than those of post-Gutenberg typesetters.

The book's full title succinctly renders both its content and principal argument: It is a book about the spaces between words and their revolutionary implications for modern reading, which is silent, fast, and discontinuous. We dip into and back out of texts in acts of "intrusive consultation." Here, too, we moderns might naively regard this space as self-evident—until, that is, we begin encountering the unseparated narrative or epigraphic texts of Greek and Roman antiquity and of the early to high Middle Ages that were written without spatial interruption: *Scriptura Continua.* Space between words, as Saenger documents, was introduced into medieval manuscripts to serve as a co-constituent of meaning, a visual cue allowing the rapid parsing of units of meaning at the sentence, word, and morphemic level. Without this space, text must be separated by the reader at considerable cognitive expense, usually by repeated passes through the text, beginning with the *Praelecto,* the reading of a text to oneself, "quietly with suppressed voice," that preceded *Narratio,* or reading for comprehension. It will be recalled that the libraries of medieval monasteries were not places of silent intercourse with the book, as they are often conceived today. Instead, they echoed with the muffled voices of monks reading to themselves—the *Sussurri dei Libri* (whispering of the books) that Umberto Eco conjures up before the reader's eye (and ear) in the library of *The Name of the Rose.*

Of course, separations of texts into word units did not happen by fiat or all at once but, instead, emerged slowly, from the seventh century on, beginning in the *Scriptoria* of the British Isles and moving gradually eastward and southward through Europe. In charting this spread across Europe, *Space between Words* gives careful consideration to the additional graphic cues that allowed medieval readers to read fluidly, rapidly, and silently: capitalization to mark the beginnings of certain words; *traits d'union* (roughly, hyphens) showing the lack of completion of a word at the end of a line; ligatures and "monolexisms" (such as the "&") that aided the "compaction" of text—all technological devices improving reading efficiency.

Other studies of the history of the written word have commented on the importance of space and the spatial relation-

ships of textual elements in the transmission of meaning. In Ong's work already mentioned, an entire section is devoted to "typographic space," and he observes correctly that what is today called white space is of "high significance" for the communication of complexity in "the modern and post-modern world." But as a convention and a technology of the word, Ong ascribes it to typography (i.e., to print, instead of "merely to writing"). He overlooks the microtextual origins of white space as a coformative of meaning. Saenger's great service is to show that the discovery of the semiotic potential of space is centuries older than print.

This book therefore leads us to consider once again the meaning of technology in relation to reading and writing. Technology did not begin its association with verbal communication with the invention of printing. Instead, medieval scribes such as Gerbert, Richer, Fulbert, and Abbo were—no less than Gutenberg—innovators and "technologists of the word." Graphic ideas were tried and discarded (e.g., the use of capitals to mark word endings, not just beginnings, or the use of the long *j* at word or sentence beginnings). Scribes even experimented with inserting spaces between syllables as well as between words in what Saenger refers to as "aerated text." This is a visit to a museum where we see all varieties of clever innovations that have nonetheless ended up on the scrap heap of history, which in turn gives us a sense for the hit-and-miss, trial-and-error, by no means linear way in which we have arrived at the graphic conventions by which we live today. If science is a process of objectification—that is, the taking of that which is familiar and making it strange so that by describing the strangeness, one comprehends the familiar for the first time, Saenger has written a profoundly scientific book. With the intuitions and authority of the thoroughly trained humanist, but also the toolbox of the cognitive psychologist, he has sub-jected the field of medieval writing and reading to a scientific review that meets high standards in a number of disciplines. For the first time, we see the evolution of writing, print, and computing not as a succession of fitful revolutions but, rather, as a continuum of technological innovation. Many of the issues we face today (e.g., the readability of extended texts on scrollable computer screens) had their roots in the ruminations of Irish scribes of the seventh century.—*Jeffrey Garrett, Northwestern University.*

Universities and Empire: Money and Politics in the Social Sciences during the Cold War. Ed. Christopher Simpson. New York: The New Pr., 1998. 273p. $27.50 (ISBN 1-56584-387-8).

Universities and Empire is the second volume in The New Press's *Cold War and the University Series.* It is indeed, as the dust jacket says, a major contribution to a growing field of inquiry. It encompasses an examination of politics and funding of intellectual life in universities covering a period that begins with WWI and includes the post–Cold War period when the corporate juggernaut takes over from the military national security forces. Although it follows from the first book in this series, *The Cold War and the University*, it goes beyond that earlier contribution to include a picture of what this period looked like from a Russian point of view and what happens when corporate interests boldly begin a redefinition of the American university.

It is widely believed in this country that university professors have a mandate to carry out certain functions related to teaching, learning, and the creation of new knowledge. In the process of carrying out these functions, faculty (although not all faculty) have supported free and open discussion of ideas, and have fostered and fought for a nonoppressive environment in the university. The collective result of faculty responsibilities is what gives the university its reputation and prestige.