

Science Historians Address Evolution of Scientific Publishing

Dave Amber

Although the need to communicate science to the broader public has made *scientific literacy* a popular buzzword these days, the desire to communicate about the natural world can be traced back centuries. At the 1999 annual meeting of the History of Science Society (HSS) in November, scholars sought to explain the evolution of scientific journals and offered insights into how science, scientific publishing, and science journalism intersected and converged.

The meeting, which celebrated the 75th anniversary of the society, held sessions on topics such as the early years of Mendelian genetics, Cold War politics, and the theory and practice of early modern navigation. But attendees also debated children's author Beatrix Potter's role as a natural historian and the importance of natural philosophy in the writings of Ralph Waldo Emerson.

In the session on "Readers and Publics of Early Modern Science", speakers discussed the 17th-century rise of consumer populations that craved news about science. The expanding publishing environment allowed for a proliferation of specialized journals in medicine, physics, and chemistry to feed this intellectual appetite that was growing in an increasingly literate middle class.

Thomas Broman, historian of science at the University of Wisconsin at Madison, described how the economics of the period allowed for a wide range of journals to be published. Today salaries and other fixed costs of publishing can limit the number of journals on the market, but Broman said that the most important financial concern for publishers in the 17th and 18th centuries was the cost of paper. Many journals with low circulation—in the hundreds—were able to coexist.

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In an interview with Jane Maienschein, the Arizona State University historian of biology and coeditor of the *Journal of the History of Biology* stressed the value of examining the history of scientific publishing. She said that with access to the World Wide Web having become so common, new generations of readers find it difficult to understand how culture affects publishing and how limited print runs for older journals might make them difficult to find. "Already some people brought up in the Web world are asking why people think it's interesting to study how scientists published in the 17th and 18th centuries", she said. "They assume that it's all up there on the Web and accessible."

Maienschein said that the publishing world changed dramatically from about 1880 until 1920; it was a period of major expansion and development of specialized scientific societies. Scientific authors started out by publishing very long articles of 200 to 300 pages that were more like monographs than current journal articles. However, scientists would publish those long papers in journals rather than as books.

"Journals were more important", Maienschein said. "Eventually the articles got smaller, but not because of pressure to cut them. There was the sense that a long article taking 5 years to write needed to be broken up. Scientists needed to produce something every year because professionalization forced them to start showing productivity." Broader scientific theory, which traditionally had been an important part of long papers, began to disappear from journal articles to be published in books instead.

In "Workshop on Writing in Science: Its Past and Future", Cornell University historian Bruce Lewenstein described a new project to study the importance of books in science today. "We tend to think of science as something that is done just in journals and something in which books don't matter",

he said. As part of his research, Lewenstein will examine how scientific books pull together varied strains of research to help define new scientific disciplines.

Lewenstein, editor of the journal *Public Understanding of Science*, said scientists often do not consider some of the economic issues in the publishing industry that can directly affect their culture. For example, a late 1970s business-accounting rule restricted how long publishers could hold on to back lists of books, so books did not stay in print as long as they had. Lewenstein said that by examining the place of books and journals in science and in broader culture, he might develop a stronger sense of how science is organized and of how scientists and the broader public interact.

As the rise and fall of journals dominates the history of scientific publishing, the history of science itself has undergone changes in focus. Maienschein said that over the course of HSS's 75 years, historians have moved from the study of big ideas and concepts, like mechanics, through a period in which they concentrated on the "great men" of science, like Newton, Galileo, and Darwin. Currently social histories of the scientific process are popular, and historians are using aspects of sociology and anthropology to document scientific practice and the culture of science. Maienschein, who chaired a session on "Alternative Approaches in the Biological Sciences", hopes that scholars will continue to embrace a wide array of approaches to form an eclectic view of history, at least in her major field.

For more information about the History of Science Society and its meetings, visit the HSS Web site at depts.washington.edu/hsexec/ or get in touch with the society at History of Science Society Executive Office, University of Washington, Box 351330, Seattle, WA 98195-1330; telephone 206-543-9366. 