Social Epistemology from Jesse Shera to Steve Fuller

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Abstract

This article examines the project of Jesse Hauk Shera (1903–82), carried out originally in association with his colleague Margaret Egan, of formulating an epistemological foundation for a library science in which bibliography, librarianship, and the then newly emerging ideas about documentation would be integrated. The scholarly orientation and research agenda of the University of Chicago's Graduate Library School provided an appropriate context for his work for social epistemology, though this work was continued long after he left the University of Chicago. A short time after his death, a group of philosophers that included Steve Fuller (1959–) began to study the collective nature of knowledge. Fuller, independently of Shera, identified, named, and developed a program of social epistemology, a vehicle for which was a new journal he was responsible for creating in 1987, *Social Epistemology*. Fuller described his program as an intellectual movement of broad cross-disciplinary provenance that attempted to reconstruct the problem of epistemology once knowledge is regarded as intrinsically social. Fuller, like other philosophers interested in this area, acknowledges the work of Shera.

"The Renaissance of Epistemology"

Nineteenth-century philosophy, and especially its branch of epistemology, was dominated by neo-Kantianism and neo-Hegelianism. The twentieth century opened with a new and naturalistic interest in epistemology, a reaction against German metaphysical idealism. Luciano Floridi describes

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this period as "The Renaissance of Epistemology" in the first half of the twentieth century—between the two world wars—which formed "a bridge between early modern and contemporary philosophy of knowledge" (Floridi, 2003). This young Italian philosopher at Oxford University identifies the roots of this philosophical reaction in Europe and in the United States. He suggests that, in German philosophy, this antimetaphysical movement originated from Hermann Ludwig Ferdinand von Helmholtz's (1821–94) scientific interpretation of Immanuel Kant (1874–1904), from Franz Brenato's (1838–1917) phenomenology, and from Ernst Mach's (1838–1916) "neutral monism." In France, Auguste Comte's (1798–1857) positivist movement prepared this reaction. In Britain, the critical realism at Oxford and the philosophy of George Edward Moore (1873–1958) and Bertrand Arthur William Russell (1872–1970) at Cambridge repelled Hegelianism. In the United States, Floridi describes how Kant's and Hegel's idealism was directly confronted by the new pragmatist epistemology of William James (1842–1910) and Charles Sanders Peirce (1839–1914), who introduced the term "pragmatism"; John Dewey (1859–1952), who introduced the terms "experimentalism" and "instrumentalism"; Clarence Irving Lewis (1883–1964); and George Herbert Mead (1863–1931). By the turn of the twentieth century, major advances in mathematics, logic, and physics prompted new methodological interests in the philosophy of science, and central topics in epistemology came to be reexamined mainly as "a reconsideration of the role of philosophy as a critical exercise of analysis, rather than as an autonomous and superior form of knowledge" (Floridi, 2003, p. 531).

The second half of the nineteenth century in the United States was the age when many of the contemporary liberal professions and the academic disciplines that supported them intellectually were institutionalized. The trend was not different for such an old humanistic profession as that of librarianship. In the United States, a strong demand for a "national union catalog" to link major libraries in the country was voiced at the first conference of American libraries in 1852, while British librarians were gathering around the "public libraries movement" at almost the same time in their country. Librarians had developed by then the whole basic apparatus for the proper organization of books in library collections (Egan and Shera, 1953). But concurrently the periodical, or scientific journal—the "archive of science"—at around its bicentennial was reaching the landmark of one thousand titles (Price, 1961). This event brought a problem for the library, since the tools to organize this new medium of scientific publication were not readily available. An augur of things to come, William Frederick Poole, at Yale College in 1848 devised a "collective index" to enable access to the content of individual periodical articles. Twenty-eight years later, at the first American Library Association (ALA) conference, Poole reported on the constraints he had gone through to bring his index to a second edition by 1853. He then suggested that the conference had the powers to organize a

practicable plan of cooperation to proceed with a new edition of the index. He was adamant in maintaining that the burden and labor of producing such a work should not be laid upon one person (*Library Journal*, 1876). The library profession, however, was unable to unite around a cooperative venture of this sort, partly because management resources were still scarce, and partly because they were not then convinced of the importance of "micro-documentation" at the level of the "thought unit," as against "macro-documentation" for the "publication unit" (Egan and Shera, 1949; Ranganathan, 1963, p. 29). Meanwhile, even before the establishment of ALA, calls were recorded for the creation of a "librarians' association," and the philosopher and writer Ralph Waldo Emerson identified the need for a "professorship of books" to teach readers how to make the most of library resources (Emerson, 1870).

The Birth of a New Social Science (Library Economy) from an Old Profession (Bibliography and Librarianship)

Library Apprenticeship

A "library and information profession" has existed ever since mankind adopted writing to record graphically on any physical object their knowledge and imagination. By mid-nineteenth century, the library profession, both in the United States and in Britain, was becoming aware of its responsibility to provide a sophisticated library service. However, a formal profession entrusted with the duty to manage the graphic record for the benefit of society—and a matching overruling institution for library and information education and research—did not emerge in the United States until 1876, when the American Library Association was founded, and in Britain until 1877, when the Library Association (LA) was founded. Before the emergence of a formal profession, prospective librarians were chosen for their "housekeeping" skills, and the chief librarian directly supervised their training during an apprenticeship period. We take into account only the American and British library profession and education development because this is where the strongest early developments occurred.

Library Economy

During the last quarter of the nineteenth century, the leading character of Melvil Dewey commanded the library scene in the United States. As a professional librarian, in 1876 alone, amongst other ventures, he published his Decimal Classification and was instrumental in the creation of the American Library Association (ALA), becoming its first secretary and then its president for several terms. As a library educator, he made a proposal to ALA for a first School of Library Economy. The creation of the school was approved by ALA, although not without some resistance from opposing quarters, and it started operating in 1887 at Columbia College.

In comparison to the young and already wealthy science of economics, the establishment of a librarianship course seems now to have been opportunistic but still in accordance with the title the new academic area received at the formation of ALA. Dewey tried hard to find a suitable academic cradle for his newborn scientific discipline. An appropriate name for the program was already inscribed on ALA's "birth certificate." In fact,

> on the last day of the congress [in Philadelphia], Friday 6 October 1876, those present were invited to append their signatures to the following: *For the purpose of promoting the library interests of the country and of increasing reciprocity of intelligence and good-will among librarians and all interested in library economy and bibliographical studies, the undersigned formed themselves into a body to be known as the AMERICAN LIBRARY ASSOCIA-TION.* (Munford, 1977, pp. 17–18; emphasis added).

Documentation

At the end of the nineteenth century, while in the United States the education for library service swiftly expanded in the presence of challenging obstacles, English librarians also gathered around their Library Association and for a period of time shared with their American peers the same *(American) Library Journal,* a periodical "devoted to library economy and bibliography" (*Library Journal,* 1876) By this time, the focus of development shifted to Brussels, where the Belgian lawyers Paul Otlet and Henri La Fontaine undertook—under the name of "documentation"—to develop new approaches to the organization of access to all sources of knowledge. In 1892 Paul Otlet met Henri La Fontaine, who was engaged in collecting documentary material on the social sciences at the Société des Études Sociales et Politiques in Brussels, Belgium. Scientific periodicals were reaching the mark of 10,000 titles at the turn of the twentieth century, and the European pioneers worked fast and hard to build the "Répertoire Bibliographique Universel," which would include classified references to the entire universe of subjects and literatures. The activity of documentation soon became institutionalized in what has been up until recently the International Federation for Documentation and Information (FID) (Bradford, 1953; Rayward, 1975).

Library Service

In the United States the growth in the number of library schools led to the setting up of the Association of American Library Schools in 1915. In the early 1920s the Carnegie Corporation took an interest in the education of librarians and in 1923 issued what became known as the Williamson Report, *Training for Library Service.* This along with *Minimum Standards for Library Schools,* published in 1925 by the newly created American Library Association Board of Education for Librarianship, set in motion a normative function for the new library-based area of research and professionalized education. On the other side of the Atlantic, the first British library school—

now the School of Library, Archive, and Information Studies (SLAIS)—was opened in 1919 at the University College, University of London.

Outside the U.S.-U.K. axis, but somewhat related to it, in Brazil the first school of librarianship was opened at the Bibliotheca Nacional do Rio de Janeiro in 1910 and started operation in 1915; it was designed after the model of the French École des Chartes in Paris. Then, in 1929, the librarian of the Mackenzie Institute library in São Paulo, Adelpha Silva Rodrigues, received a scholarship from the American Association of University Women to study librarianship in the United States. To replace and train Miss Rodrigues in advance of her studies abroad, the institute brought from the United States the young Miss Dorothy Muriel Geddes, later Mrs. Arthur E. Gropp, who opened the first training course for librarians at Mackenzie and became the true founder of modern librarianship in São Paulo (Rodrigues, 1945, pp. 8–9).

From the Library Economy to Library Science

The most influential drive toward the emergence of a library science was—without any doubt—the establishment of the Graduate Library School (GLS) at the University of Chicago in 1926, sponsored by the Carnegie Foundation (Richardson, 1982). The school faculty was drawn from well-established scientific disciplines to support a strong program of research related to what they saw as the theoretical foundations of library science. Highly significant in this context was the influence exerted on GLS by the philosophy of John Dewey, amongst other scholars of the day. His small treatise on "the sources of a science of education" (Dewey, 1929) became required reading at GLS and was eventually "translated" into library science by GLS faculty member Pierce Butler (1933). Following Dewey's approach to creating a science of education, Butler stated that the three essential problems of a library science as an autonomous discipline are sociological, psychological, and historical. The scholarly work of the school obtained an outlet after the founding of a new journal, *Library Quarterly*. Another member of the school faculty, Douglas Waples (1939), prepared one of the first handbooks on library research methodology. This was especially tailored for students supervised through correspondence courses (Waples, 1939, p. viii). On the other hand, this seemingly distinct improvement that library science received from this all-graduate program and from the "Chicago School" environment during the 1920s and 1930s did not come unquestioned. The library profession did not entirely agree to a swift change from its traditional "pragmatic" mainstream, and adjustments had to be negotiated between GLS and the profession (Richardson, 1982).

Jesse Shera

Formative Years

Jesse Hauk Shera (1903–82) was born in Oxford, Ohio, on December 8, 1903. He graduated with honors at Miami University, in Oxford, in 1925 with an A.B. in English. He then went to Yale University, graduating in 1927 with a master's degree in English literature. Shera had planned to teach English language and literature at a university, but he was prevented from getting a teaching post because of his poor eyesight. He returned to his native Oxford and got a position as assistant cataloguer at the library of Miami University. The head of the library, Edgar King, pressed him to apply for a job as a library science lecturer. He effectively was offered such a job in 1928 by Charles C. Williamson, dean of Columbia University's library school, of which Edgar King was himself a graduate. Shera instead took a position as a bibliographer and research assistant at the Scripps Foundation for Research in Population Problems, at Miami University.

Shera worked at the Scripps Foundation from 1928 to 1938 under Warren S. Thompson, a sociologist from the University of Columbia and a famous demographer. To conduct population studies at Scripps, Jesse Shera worked with perforated cards and related equipment, the same equipment that Herman Hollerith had devised to cope with the volume of the 1890 census data. This was Shera's first experience using automatic equipment to organize information (Presnell, 1999).

From 1938 to 1940 Jesse Shera enrolled in the doctoral program at the Graduate Library School at the University of Chicago. After his practical years at Scripps, GLS was the crowning period of his formative years. The ideas he encountered at Chicago about librarianship matched and underscored his own thinking (Kaltenbach, 1980). Douglas Waples was later named by Shera as the one responsible for setting down the foundations of "social epistemology," Shera's main academic project: "A generation ago Douglas Waples, of the Graduate Library School of the University of Chicago, devoted many years to the consideration of the social effects of reading, but he was never able to do more than to ask the fundamental questions of the new discipline that I have subsequently called *social epistemology*" (Shera, 1976, p. 49). Again, at the University of Chicago, Shera made close acquaintance with philosophical ideas, especially John Dewey's epistemology and Karl Mannheim's developing sociology of knowledge.

Jesse Shera spent the years of 1940 and 1941 in Washington, D.C., working for the war administration and learning about library automation and management. He received his Ph.D. in 1944, with a dissertation on the origins of the public library movement in New England from 1629 to 1855, later published as his first monographic work (Shera, 1949). Back in Chicago, Shera was made the vice-director of the university library and part-time lecturer at GLS until 1947, when he was made a full-time faculty

member; he kept this position at GLS until 1952, when he was selected dean of the School of Library Science (SLS) at Western Reserve University, later Case Western Reserve University, in Cleveland, Ohio. At Case Western he spent almost two very busy decades teaching, especially the two courses History of American Libraries and Theory of Classification, starting a doctoral program at SLS, enlarging the program's full-time faculty, and running national meetings and international conferences. He and his associates conducted research into the foundations of information retrieval and developed some of the first computer devices for bibliographic organization. They created the Center for Documentation and Communication Research (CDCR) at Western Reserve in 1955. Shera was also busy as an editor and an active professional member of several associations and institutions, and he was a prolific writer and a born lecturer. His most important work, *The Foundations of Education for Librarianship* (Shera, 1972a), was published with the financial support of the Carnegie Foundation. He was married to Helen May Bickham, also a librarian. They had two children—Mary Helen (Shera) Baum, and Edgar Brooks Shera. He died on March 8, 1982.

The Search for Foundations: Bibliography and Library Science

An important early academic milestone for the work of Shera surfaced at the Fifteenth Annual Conference of the Graduate Library School at the University of Chicago, July 24–29, 1950, on bibliographic organization. Shera organized this conference with his associate at the GLS, Margaret Elizabeth Egan (1905–59), and their short article, "Prolegomena to Bibliographic Control" (Egan and Shera, 1949), was intended to provide an agenda for the conference. The article already contained the seeds for the project of "social epistemology." At the conference, at a discussion on the functional approach of bibliographic organization—side by side with Mortimer Taube, from the Atomic Energy Commission, and S. R. Ranganathan, from the University of Delhi and president of the Indian Library Association—Shera presented a paper entitled "Classification as the Basis of Bibliographic Organization," during which he nonchalantly introduced the terms "social epistemology" and "sociology of knowledge":

> Even a cursory examination of the history of the classification of the sciences emphasized the extent to which any attempt to organize knowledge is conditioned by the *social epistemology* of the age in which it was produced. This dependence of classification theory upon the state of the *sociology of knowledge* will doubtless be even more strongly confirmed in the future. (Egan & Shera, 1951, p. 82)

Neither of these terms appear in the index to the proceedings (Shera and Egan, 1951), and the "hidden" references to these new concepts remained "hidden," except—as far as I could find out—for a citation by W. Boyd Rayward (Machlup and Mansfield, 1983, p. 354).

The Problem of Information Science

After the Second World War, in part because of developments in the war and even due to war experience, new information techniques became generally available for the library profession. The mainstream of investigation and practice concentrated around "information retrieval." The number of library schools considerably increased throughout the world, especially in the United States and in Britain, responding in part to the need to create new university places and jobs for war veterans and their families. The fast growth of "information technologies" (mainly computers, telecommunications, and publishing technologies) greatly affected the library profession. Furthermore, in face of an "information explosion," the scientific community gathered in London in 1948 for the Royal Society Scientific Information Conference and in Washington in 1958 for the International Conference on Scientific Information and helped the library profession and other agencies to focus attention on "scientific information." The nucleus of investigation and action was then oriented toward the fluid concept behind this new simple but multifaceted word—"information." Since the 1960s what was called an "information science" has engaged with computer science, cybernetics, general systems theory, operations research, information theory, formal logic, management theory, etc. with no happy ending thus far!

In the early 1960s the economist Fritz Machlup, who since the 1950s had been researching the products of the United States "Knowledge Industry," produced a landmark study, "The Production and Distribution of Knowledge in the United States" (1962). This was followed by his three volumes on "Knowledge: Its Creation, Distribution and Economic Significance" (1980–84) (Volume 1: Knowledge and Knowledge Production, 1980; Volume 2: The Branches of Learning, 1982; Volume 3: The Economics of Information as Human Capital, 1984). At the end of the 1970s, Machlup was responsible for a multidisciplinary project to examine the different approaches that had emerged in the study of information. He assembled over forty highly specialized scholars and grouped them into nine areas. For each of the nine areas a lead paper was commissioned to serve as the basis for between three and five discussion papers. The result was *The Study of Information,* a superb report edited by Fritz Machlup and Una Mansfield (1983) about the academic development of the information area and its terminology. The library science lead paper was "Library and Information Sciences: Disciplinary Differentiation, Competition, and Convergence" by W. Boyd Rayward (1983a, pp. 343–363). The discussion papers were David Batty and Toni Carbo Bearman, "Knowledge and Practice in Library and Information Services"; Manfred Kochen, "Library Science and Information Science: Broad or Narrow?"; Jesse H. Shera, "Librarianship and Information Science"; and Patrick Wilson, "Bibliographical R&D", with a rejoinder by W. Boyd Rayward, "Librarianship and Information Research: Together or Apart?" (Rayward, 1983b, pp. 399–405).

Twenty years later, this report is still alive. Shera's contribution to this project might have been his last. He does not discuss "social epistemology" but rather talks of "symbolic interactionism." "I submit," he says, "that librarians must look for the proper foundations of a theory of librarianship" in this theory. "First named by Herbert Blumer in 1937," he observes that it "is rooted in the social psychologies of William James, Charles S. Peirce, Charles H. Cooley, John Dewey, and George Herbert Mead" (Shera, 1983, p. 386–388).

With the support of UNESCO and other international agencies, the field of education for the library profession quickly expanded worldwide to embrace information. Starting in the late 1960s most of the library schools in Britain and in the United States took a middle-of-the-road position by adopting the title of Library and Information Science (LIS) or even—in a more moderate guise—Library and Information Studies. Other schools took on additional qualifications, such as Archival Studies, Communications, Information Management, Policy, Resources, Services, Technology, Instructional Technology, Learning Technologies, and Media Studies. At least two schools in the United States went straight into "The School of Information" or "The Information School." After a few years, library schools all over the world followed suit in naming themselves.

Shera's Ideas about Social Epistemology

Jesse Shera spent his most productive years in the middle of this terminological turmoil, and he was permanently in favor of basic scientific and professional values, which he held to against all obstacles. He took a strong position in favor of the unity of library science, documentation, and information science. One of his main principles was that "bibliography" ("bibliographic organization" or "control") was the basis for information organization at the national and international levels. His first extended work on "social epistemology," written again jointly with Margaret E. Egan, is an article on the "foundations of a theory of bibliography" (Egan and Shera, 1952), where they discuss "graphic communication" as part of a theory of communication. Then came Shera's most visible piece on "social epistemology" in the form of an Alfred Korzybski Memorial Lecture and Colloquium at the Institute of General Semantics in Lakeville, Connecticut. As the conference came to be published by at least three different periodicals in different languages, the text of this speech may be considered as the "birth certificate" of the new concept (Shera, 1960, 1961, 1977). An additional work touching on the social epistemology project was published in the Illinois Library Association Bulletin, after a lecture presented at the College and University Section of the Louisiana Library Association in New Orleans in 1962, with the title "What Is Librarianship?" (Shera, 1962). Other articles by Shera on social epistemology are listed in the bibliography below (Shera, 1963; 1965a; 1968a; 1968b; 1971; 1973b).

The Brazilian periodical *Ciência da Informação* contained one of the three most extended and complete texts Shera provided on his ideas on social epistemology. The publication in the Brazilian journal was set in the original English. This work had been originally presented at a seminar at the Study Center for Democratic Institutions at Santa Barbara, California, 1972 (Shera, 1973a). Two collections of Shera's papers were edited by the English librarian D. J. Foskett: *Libraries and the Organization of Knowledge* (Shera, 1965b) and *Documentation and the Organization of Knowledge* (Shera, 1966). Almost all of the works published previously elsewhere and republished now in these two books had three advantages for the project of social epistemology. First, almost every one of the reprinted works carries a contribution, even if implicitly, to the ideas of social epistemology. Second, the fact that "Libraries" and "Documentation" were both concepts strongly linked to "The Organization of Knowledge" in the titles of the books suggested that the latter concept lay emphatically at the core of librarianship and documentation. And third, these books give the papers in them renewed circulation and, especially for the British public, an extra opportunity for a wider examination of this basic project.

The furthest Jesse Shera brought his social epistemology concepts was in a visit to India, where he presented the Sarada Ranganathan Lectures in 1967 at the invitation of S. R. Ranganathan. Shera and Ranganathan were able to share again their ideas, for they knew each other at least from 1950, when Ranganathan had participated in the 1950 bibliographic organization conference at the University of Chicago. At the event in India, Shera gave five lectures:

> Library and the Individual
> Library and Society
> Library and Knowledge
> Transition and Change
> Education of the Librarian

The lectures were published by Asia Publishing House in 1970 under the title *Sociological Foundations of Librarianship* (Shera, 1970; Ranganathan, 1970).

In an article published in *American Libraries* (Shera, 1972b), Shera complained that while "Such terms as 'social epistemology', adopted by the present writer, or 'social cognition,'" which he thought perhaps might be more appropriate and was being used quite often to identify this field of inquiry, "little progress has been made in its exploration." He indicated that he knew that "only one conference touching on the subject has been held on this side of the Atlantic, and that was at Syracuse University in the summer of 1965." He did acknowledge that in England, however, Barbara Kyle "had been investigating the problem until her untimely death." One of his fullest treatments of his ideas about social epistemology occurs as

chapter 4 ("An Epistemological Foundation for Library Science") of *The Foundations of Education for Librarianship* (Shera, 1972a). He divides this chapter as follows:

> The Need for a New Epistemological Discipline
> The Nature of Knowledge
> The Classification of Knowledge
> Social Epistemology and the Sociology of Knowledge
> Social Epistemology and the Library

The main ideas from this chapter may be listed as a series of propositions, as follows:

- The brain deteriorates when deprived of information.
- To avoid decay, a society must make constant provision for the acquisition and assimilation of new information and knowledge.
- Knowledge and language are essentially inseparable.
- Language is social in origin.
- Language is the symbolic structuring of knowledge into communicable form.
- Modern society is a duality of action and thought bound together by the communication system.
- The librarian must also concern himself with the knowledge he communicates.
- The study of the nature of knowledge, the relationship between the structure of knowledge, and the librarian's tools for intellectual access to that knowledge have received almost no attention and certainly no intensive exploration.
- We need a new epistemological discipline, a body of knowledge about knowledge itself.
- We know how scientific knowledge is accumulated and transmitted from one generation to another.
- Historians of science are interested in the growth of scientific knowledge.
- Philosophers have speculated about the nature of knowledge, its sources, methods, limits of validity, and relation to truth.
- Epistemology is a branch of speculative philosophy, concerned with *how* we know.
- The evolution of the science of psychology left epistemology relatively poor in intellectual substance.
- "Scientific epistemology" (coined by Sir Arthur Stanley Eddington, 1822–1944) transformed philosophic and speculative approach into scientific, largely theoretic study.
- "Scientific epistemology" is concerned largely with what man cannot know, that is, the *limits* ("constraints" in cybernetics) of human knowledge.

- "Constraints" may be physical, biological (or physiological), psychological, or determined jointly by the environment and the organic and electronic structuring of the human body.
- The study of epistemology has been seen against the background of the intellectual processes of the *individual.*
- The psychologists have made progress in understanding mental behavior by carrying the philosophers' speculations into the laboratory.
- Neither epistemologists nor psychologists have developed an ordered and comprehensive body of knowledge about intellectual differentiation and the integration of knowledge within a complex social organization.
- The new discipline, *social epistemology,* should provide a framework for the investigation of the complex problem of the nature of the intellectual process in society.
- Social epistemology is a study of the ways in which society as a whole achieves a perceptive relation to its total environment.
- Social epistemology was so named by Margaret Elizabeth Egan, for want of a better name.
- Social epistemology should focus on the production, flow, integration, and consumption of communicated thought throughout the social fabric.
- From social epistemology should emerge a new body of knowledge about, and a new synthesis of, the interaction between knowledge and social activity.
- Social epistemology should have its own corpus of theoretical knowledge.
- Social epistemology should be interdisciplinary, dependent upon sociology, anthropology, linguistics, economics, the physiology of the human nervous system, psychology, mathematics, and information theory.
- Social epistemology may be expected to have practical results.
- One of the most practical applications of social epistemology will be in librarianship.
- There exists a very important affinity between social epistemology and the role of the librarian in society.
- Librarianship is based on epistemological foundations.
- The aim of librarianship is to bring to the point of maximum efficiency the social utility of man's graphic record.
- The librarian is an effective mediator between man and his graphic records.
- The good librarian will do his job well if he possesses a true mastery over the means of access to recorded knowledge.
- The bibliographic and information systems of the librarian are to be structured to conform as closely as possible to man's uses of recorded knowledge.

- The tools and methods of the librarian for the control of his collection are his classification schemes, subject headings, indexes, and other devices for the subject analysis of bibliographic units.
- The librarian's tools are based on the assumption of permanent, or relatively permanent, relationships among the several branches of knowledge.
- The librarian's tools tend to become inflexible, closed, fragmented, and non-holistic systems into which each unit of information is fitted.
- The structure and communication of knowledge form an open system that changes as the functions and needs of the individual and society shift to accommodate the increasing differentiation of knowledge, as well as its consolidation resulting from the coalescence to two or more disciplines.
- Modern philosophy is held captive by the alleged objectivity of science.

Jesse Shera designed an explicit proposal for his project of a discipline of social epistemology in the 1960s. This proposal can be retrieved from several of his papers but mainly from (Shera, 1972a, pp. 113–114), where it reads as follows: The theoretical foundations of the librarian's profession must eventually suggest solutions to the following problems:

- "The problem of cognition—how man knows.
- The problem of social cognition—the ways in which society knows and the nature of the sociopsychological system by means of which personal knowledge becomes social knowledge.
- The problem of the history and philosophy of knowledge as they have evolved through time and in variant cultures and,
- The problem of existing bibliographic mechanisms and systems and the extent to which they are in congruence with the realities of the communication process and the findings of epistemological inquiry." (Shera, 1972a, p. 114)

Shera's Followers

There has been a range of citations to these ideas of Shera. Some of the papers, essentially by colleagues at Case Western Reserve University, Shera regarded as themselves works of social epistemology (Shera, 1972a, pp. 112–113; Goffman and Newill, 1964, 1967; Goffman, 1965, 1966). B. C. Brookes has argued that "Shera's 'microbibliography' or 'social epistemology' provides not only a subject for theoretical study but that it will also be needed for the rational design of library and information systems and networks of the near future" (Brookes, 1973). It is also interesting to observe the influence of Shera's ideas internationally. Some references are just laudatory, citing "social epistemology" for its novelty. Others take Shera's proj-

ect as an exercise to defend socialism against capitalism: Dube (1975), Stupnikova (1976), Yatsko (1985), and Dubroskaya (1988). Yet others both in the United States and abroad, like Wright (1985), Froehlich (1987, 1989a, 1989b, 1994), Budd (1995, 1999), Dick (1999), and Hjørland (2002), began a philosophical discussion of Shera's social epistemology before the philosopher-epistemologists came to the area and joined the epistemological discourse (see also Khurshid, 1976; Brace, 1976; Rolland-Thomas, 1975; Vásquez Restrepo, 1980; Mukhopadhyay, 1984; Mueller, 1984; Botha, 1989; Kawasaki, 1989, 1990; Warner, 1993; Lai, 1994, 1995; Nemoto, 1994; Pentland, 1995; Shan, 1995; Watson, 1995; Pahre, 1996; Plaiss, 1996; and Taher, 1998).

Steve Fuller and the Birth of a New Social Epistemology

"Synthese"

As we have seen above, by the time Shera died in the early 1980s the expression "social epistemology" had already been around for over three decades and used by writers in many countries east and west of the United States. This expression, however, did not reach those philosophers and scientists to whom it might mean something different than for librarians and information scientists. There can be many explanations for the "message" not having been received earlier by this audience:

- Shera was mainly a librarian and an educator, so he was used to addressing library and information scientists and professionals, by lecturing usually—with few exceptions—to this restricted audience.
- In every writing by Shera on this issue, the topic of social epistemology always was described as appended to a broader theme, sometimes as a comment of just a few paragraphs, sometimes as a proposed solution to solve library and information problems in a more scientific guise rather then working through them in a "pragmatic" way.
- Most journals used by Shera to disseminate his project were special library and information science periodicals, which were usually not read outside this narrow scientific community.
- The phrase "social epistemology" was never used by Shera in the title of a whole monograph or of a scientific article, and even when the expression was recorded in an appropriate context, it usually came out in a diffident way—for want of a better name—sometime opening space for alternative expressions, like "social cognition," "symbolic interactionism," or "knowledge management," amongst others.
- The choice of the term "social epistemology" was attributed sometimes to Shera himself, most often to his associate Margaret E. Egan, and at least once to the GLS scholar, Douglas Waples (Shera, 1976).

Although philosophers and epistemologists did not have a direct communication on this issue with library and information scientists, especially because of the isolated structure of the respective literatures, now we can see in retrospect that the collective character of knowledge had been studied for some time already in both arenas, although this trend in classical epistemology ran underneath the surface and without a proper name. The theme of "social epistemology" surfaced as such in the epistemological arena in 1987, when the journal *Synthese, An International Journal for Epistemology, Methodology and Philosophy of Science,* published an issue on "Social Epistemology" (volume 73, number 1). Frederick F. Schmitt, an eminent philosopher from the University of Illinois at Urbana-Champaign, edited the issue. The seven articles that comprised this issue of *Synthese* suggest the scope of what was then understood as social epistemology:

> Frederick F. Schmitt, "Justification, Sociality, and Autonomy"
> Stewart Cohen, "Knowledge, Context, and Social Standards"
> Hilary Kornblith, "Some Social Features of Cognition"
> Keith Lehrer, "Personal and Social Knowledge"
> Alvin I. Goldman, "Foundations of Social Epistemics"
> Steve Fuller, "On Regulating What Is Known: A Way to Social Epistemology"
> Margaret Gilbert, "Modeling Collective Belief"

Fuller, the youngest in the group, subsequently adopted the term "social epistemology" from the title of his contribution to *Synthese,* stuck to this name, defined clearly what he meant by it, mapped the intellectual and human resources belonging to what he regarded as a very mixed area, and designed the structure and dynamics of a new philosophical and empirical interdiscipline, social epistemology, that combined epistemology and the sociology of knowledge. Fuller launched the quarterly *Social Epistemology: A Journal of Knowledge, Culture, and Policy* in January 1987 and has published several books on the subject (Fuller, 1988, 1993a, 1993b, 1997, 2000a, 2000b, 2002a, 2002b, 2003). The question that opens his *Synthese* article remains fundamental to his thinking about social epistemology: "How should the pursuit of knowledge be organized, given that under normal circumstances knowledge is pursued by many human beings, each working on a more or less well defined body of knowledge and each equipped with roughly the same imperfect cognitive capacities, albeit with varying degrees of access to one another's activities?" (Fuller, 1987; 1988; 2002b).

Overview of Fuller's Program of Social Epistemology

Fuller's program of social epistemology, to which the fundamental question given in the passage above from *Synthese* gives rise, can be split into four statements and a final question:

• Many human beings pursue knowledge.

- Each human being works in a more or less well defined body of knowledge.
- Each human being is equipped with roughly the same imperfect cognitive capacities.
- Human beings have varying degrees of access to one another's epistemic activities.
- Given these propositions, how should the pursuit of knowledge be organized?

In Fuller's view, these propositions may be further investigated through an empirical approach to the sociology of knowledge and other social sciences. From the results of this investigation, the epistemologist will be equipped with the descriptions of the way human beings usually pursue knowledge, from which he will be able to sift the "norms" for pursuing knowledge. Fuller suggests that ultimately

> the social epistemologist would be the ideal epistemic policy maker: if a certain kind of knowledge product is desired, then he could design a scheme for dividing up the labor that would likely (or efficiently) bring it about; or, if the society is already committed to a certain scheme for dividing up the cognitive labor, the social epistemologist could then indicate the knowledge products that are likely to flow from that scheme. (Fuller, 1987, p.145)

One might summarize this view of social epistemology in these three propositions:

- Social epistemology answers normatively the question about how the pursuit of knowledge should be organized: it should arrive at an optimum organization of cognitive labor.
- The change in the social relations of knowledge producers (that is, better communication between producers in face of more efficient communication means or otherwise) affects the quality of knowledge of cognitive pursuits and of products of knowledge themselves.
- The social epistemologist is an ideal epistemic planner because he designs or manages a scheme for dividing up cognitive labor.

Fuller shows that social epistemology is a natural development from the history of philosophy since Kant. He also examines social epistemology in its incarnation as "the sociology of knowledge." This is an area where confused terminology abounds, and Fuller has attempted, for instance, to clarify the confusion surrounding the nuclear term "knowledge" in the English language. In a recent article about the project of social epistemology and the elusive problem of knowledge, Fuller writes:

> In retrospect, it is ironic that Russell drew rhetorical support from logical positivist strictures against the reification of natural language, since a German or French speaker could easily see that only an anglo-

> phone like Russell could be misled by the homonymous use of 'knowl-
> edge' to conclude that 'knowledge by acquaintance' and 'knowledge
> by inference' must have something in common that is captured by the
> word 'knowledge'. But what is confused in English is clearly marked in
> German and French—not to mention, Latin and Greek. The relevant
> distinctions between knowledge by acquaintance and by inference are
> *Erkenntnis/Wissenschaft, connaissance/savoir, cognition/scientia, nous/epis-
> teme.* In other words, the English word 'knowledge' is meant to cover
> the objects of both *consciousness* and *science.* Yet, the former is normally
> concentrated in an individual's mental space, while the latter is distrib-
> uted among a community of collaborators. (Fuller, 2001)

This terminological examination may help in clarifying in information sci-
ence the distinction between "knowledge" and "information."

The Philosophers Acknowledge Shera

The last few years have seen the inclusion of definitions of social epis-
temology in important philosophical reference works that show some rec-
ognition of Shera's contribution, for example:

> Social epistemology is the conceptual and normative study of the rel-
> evance to knowledge of social relations, interests and institutions. It is
> thus to be distinguished from the sociology of knowledge, which is an
> empirical study of the contingent social conditions or causes of what is
> commonly taken to be knowledge. Social epistemology revolves around
> the question of whether knowledge is to be understood individualisti-
> cally or socially. (Schmitt, 1998, p. 828)

> Social epistemology is the study of the social dimensions of knowledge
> or information. There is little consensus, however, on what the term
> "knowledge" comprehends, what is the scope of the "social", or what
> the style or purpose of the study should be. According to some writers,
> social epistemology should retain the same general mission as classical
> epistemology, revamped in the recognition that classical epistemology
> was too individualistic. According to other writers, social epistemol-
> ogy should be a more radical departure from classical epistemology, a
> successor discipline that would replace epistemology as traditionally
> conceived. (Goldman, 1999)

On the history of social epistemology, Goldman writes of Shera:

> Perhaps the first use of the phrase "social epistemology" appears in
> the writings of a library scientist, Jesse Shera, who in turn credits his
> associate Margaret Egan. "[S]ocial epistemology," says Shera, "is the
> study of knowledge in society. . . . The focus of this discipline should
> be upon the production, flow, integration, and consumption of all
> forms of communicated thought throughout the entire social fabric"
> (1970: 86). Shera was particularly interested in the affinity between
> social epistemology and librarianship. He did not, however, construct
> a conception of social epistemology with very definite philosophical
> or social-scientific contours. What might such contours be? (Goldman,
> 1999)

Fuller himself suggests that social epistemology is

> An intellectual movement of broad cross-disciplinary provenance that attempts to reconstruct the problems of *epistemology* once knowledge is regarded as intrinsically social. It is often seen as philosophical science policy or the normative wing of *science studies.* Originating in studies of academic knowledge production, social epistemology has begun to encompass knowledge in *multicultural* and public settings, as well as the conversion of knowledge to *information technology* and *intellectual property.* The institutional presence of the field began with the quarterly, *Social Epistemology.* (Fuller, 1999, p. 801)

In an analytical report entitled "Recent Work in Social Epistemology," ten years after the foundation of the journal *Social Epistemology,* Fuller has become aware of Shera's work and observes:

> Social epistemology first appeared as the name of a proposal for making librarianship more "scientific" by having facts about the production, distribution, and utilization of knowledge impinge more directly on the organization of libraries (De Mey, 1982, pp. 111–12). Writing three decades ago, Jesse Shera's (1965[b]) call for cataloguing schemes that reflect contemporary divisions in the knowledge enterprise and his sensitivity to the material dimensions of knowledge growth were roughly contemporaneous with Machlup (1962) on the "economics of knowledge" and presaged the more broadly gauged Rescher (1979) on "cognitive systematization." Though ignorant of Shera's precedent, the first philosophical book explicitly devoted to "social epistemology" (Fuller, 1988) had largely this orientation, but its theoretical basis was in recent philosophy, history, and sociology of science. (Fuller, 1996, p. 149)

Fuller's Social Epistemology and Information Science

Fuller has more recently attempted to find ways of exploring the relationship between social epistemology and information science. An important event in this connection was the appearance of an issue of *Social Epistemology* on this matter under the invited editorship of Don Fallis (2002). Again, the titles of the articles (compared with those in the issue of *Synthese* mentioned above) indicate something about how the connections between information science more generally, Shera's notions of social epistemology, and the newer approaches are now being conceived:

> Don Fallis, "Introduction: Social Epistemology and Information Science"
> Jonathan Furner, "Shera's Social Epistemology Recast as Psychological Bibliography"
> Archie L. Dick, "Social Epistemology, Information Science and Ideology"
> Luciano Floridi, "On Defining Library and Information Science as Applied Philosophy of Information"
> Ashley McDowell, "Trust and Information: The Role of Trust in the Social Epistemology of Information Science"

Christopher Smith, "Social Epistemology, Contextualism and the Division of Labour"
Soraj Hongladarom, "Cross-Cultural Epistemic Practices"
John M. Budd, "Jesse Shera, Social Epistemology and Praxis"
Nancy A. Van House, "Digital Libraries and Practices of Trust: Networked Biodiversity Information"

CONCLUSION

Social behavior toward knowledge production, organization, management, and use is certainly changing and will change even more with the spread of information technologies and as electronic information becomes more democratically available. Information science has already learned that information provision will not survive in the near future if supported by old pragmatic principles. The strengthening of the underlying foundations concerned with social cognition or the discovery of new, higher-level principles seems a significant assignment for contemporary social epistemology. Here is a new road less traveled in the past but hopefully conducive to a better future for information science and the professional occupations it sustains.

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