Foster Mohrhardt: Connecting the Traditional World of Libraries and the Emerging World of Information Science

Melissa H. Cragin

Abstract

Foster Edward Mohrhardt was a librarian in federal libraries for much of his career and served as the director of the National Agricultural Library from 1954 to 1968. Throughout his long library career, he used the freedom of his directorship to participate in a variety of high-level projects across organizations. This role served both to advance the prestige of the National Agricultural Library and to promote his personal goal to develop national and international library networks to support scientific communication. He worked actively throughout his career to bring librarians and documentalists together to address information problems outlined by practicing scientists and policymakers at a time when there was contention and competition between librarianship and documentation, which was then emerging as a new discipline. Mohrhardt considered librarianship an international endeavor, requiring cooperation and creativity to increase access to information produced in other countries. He saw libraries as essential to the growth of science and successful service necessarily tied to the development of national and international information systems. He mobilized people and resources to develop agricultural and research libraries and expand librarianship throughout the world. In light of current trends in scientific communication, and reemerging tensions concerning the role of libraries in information systems development, Mohrhardt's work is a significant model for increasing the prevalence of library expertise in current scientific data management activities. As a diplomat who bridged librarianship and documentation, his career as a librarian and an organizational leader deserves renewed attention.

INTRODUCTION

The present state of information management in the biological sciences (biodiversity, genetics, and neuroscience) reveals growing dependence on international cooperation. Professionals in the field anticipate that infrastructure development and data sharing will become the cornerstones of discovery (*Revolutionizing Science,* 2003; National Institutes of Health, 2003). Technological advances will support integration and aggregation of highly complex data produced across multiple fields using various methods (Final Report of the OECD, 1999). In a comparable way, technological advances during the 1950s and 1960s accelerated scientific productivity and discovery, illuminating a variety of information organization and access problems. There are other parallels worth noting between the scientific communication problems experienced during the1950s and 1960s and those in the current scientific information environment. Perhaps the most visible of these is the prevalence of scientists directly involved in the development of technological solutions to information problems, particularly in the nascent "e-science" domain, which consists of large-scale, distributed scientific research that produces digital data.

In broad strokes, the conditions for information management in the late 1950s and 1960s resulted, in part, from the information flood produced following World War II, when many thousands of documents and technical reports were imported from other countries and many thousands more from our own scientific activities released from classified status. The outcome of the war led to a belief that access to scientific information would lead to increased wealth and security for the country. In addition, the Russian Sputnik launch in 1957 instigated a coordinated federal response to compete for scientific superiority, a part of which resulted in new funding for technology and for the development of coordinated scientific information systems. These events helped to stimulate the emerging discipline of documentation, the growth of which was tied to developing mechanical and computing approaches to the management of report and technical literature (Williams, 1997). In addition to an added focus on dissemination, documentation techniques were in conflict with traditional bibliographic techniques, which were not intended to represent and integrate into collections materials in new formats (such as technical reports) at the rate they were being produced. The American documentation movement sought to experiment with mechanization and automated methods to solve these problems. It sought to add highly granular indexing and abstracting to document processing and to introduce special dissemination services for the new stores of scientific and technical information that were being developed. Today we recognize those kinds of research problems and activities that were then seen as belonging to an emergent discipline called documentation as part of the domain of information science.

Many people were involved in the expanding information sector in the

postwar period. Both individuals and organizations contributed to policy planning and systems and service implantation. Among the individuals who had distinct opportunities to facilitate interdisciplinary activity targeted at scientific communication was Foster Edward Mohrhardt, the director of the National Agricultural Library (NAL) from 1954 to 1968. Mohrhardt's personal and organizational work focused on the information problems experienced by scientists and researchers in the decades following the Second World War. He saw his primary mission as the creation and implementation of large-scale information networks to support the flow of scientific information. In addition to participating in national scientific and information systems planning, Mohrhardt worked actively throughout his career to bring librarians and documentalists together to address information problems outlined by practicing scientists and policymakers. At a time when there was contention and competition between the librarianship and documentation fields (Williams, 1997), Mohrhardt was, as Clapp (1966) notes, a pioneer in his promotion of collaboration between them. Foster Mohrhardt opened new paths for librarians by securing a role for them in various scientific information activities. He was active in professional and governmental organizations and many of his accomplishments occurred in such contexts. He mobilized people and resources to promote libraries and expand librarianship throughout the world. He was an innovator, willing to implement new approaches, to cultivate cooperative activities, and to change organizations that were entrenched in old ways. Often Mohrhardt represented libraries at planning activities that rarely included other librarians. This is evidenced by a series of engagements in high-level organizational work, which show his deep dedication to, and conviction of, the important role of libraries and librarianship in scientific communication.

Mohrhardt wrote on several subjects, including library management and science and technical reference, but what stands out are his publications concerning the validity of documentation as a discipline and his papers on science and agricultural information systems. Over the course of two decades, he spoke regularly of the historical foundations of librarianship, but he shaped his rhetoric about documentation to validate it as a separate and necessary discipline that could complement librarianship. His works on librarianship and documentation, national information systems planning, and scientific information problems collectively embody a genre of scientific writing identified by Ceccarelli (2001) as "interdisciplinary inspirational." Applying Ceccarelli's framework to this body of work, I will detail Mohrhardt's progressive case for cooperative interaction among librarians, documentalists, and scientists. These writings—along with Mohrhardt's organizational work—were meant to motivate and inspire interdisciplinary activity. Through Mohrhardt's role as a diplomat (Vosper, 1993),[1] he connected a range of people interested in librarianship and documentation while promoting national information systems to support

scientific endeavor. Through these actions, he was influential in ways that are important to reassess today in view of the information problems emerging in the digitization of science and the current debates about the future role of libraries.

Foster Mohrhardt was a librarian who held interesting jobs and many high-ranking positions in national and international professional organizations. These include serving as

- President of the International Association of Agricultural Librarians and Documentalists (IAALD), 1955–69
- President of the National Book Exchange, 1958–60
- U.S. Board of Civil Service Examiners, appointed 1958
- Vice-President of the American Association for the Advancement of Science, 1963
- Founder and Chair of Section T (Information Science)
- President of the National Federation of Scientific Abstracting and Indexing Services, 1964–65
- Chair of the U.S. National Committee of the International Federation of Documentation (FID), 1965
- Vice-President of the International Federation of Library Associations, 1965–71
- President of the Association of Research Libraries, 1966
- President of the Council on Biological Sciences Information, National Academy of Sciences, 1966–67
- President of the American Library Association, 1967–68

These positions afforded him access to people and resources that he mobilized to support library development and cooperative librarianship. While his library directorships were visible public positions, his organizational activities were more "behind the scenes." This means that lasting impacts of his contributions are harder to trace than they might have been had he been an inventor or written a famous book.

Biographical sources have provided the chronological framing of his life.[2] To understand his thinking about documentation, scientific information, and national networks we have as evidence the body of his writings. There are many aspects of Foster Mohrhardt's career and his broad role in library and information science (LIS) that will not be addressed in this article or only touched on in passing. For example, it is clear from his papers in the American Library Association (ALA) Archive that Mohrhardt was instrumental in the revitalization of the American Library in Paris, an event that occurred following the closing of the U.S. Information Agency libraries in Europe, circa 1965. Equally important is his work as a program director at the Council on Library Resources (CLR) and the impact he had on its direction and activity. This article focuses on the parts of his career

and writing that illustrate his efforts to bridge the divide between American documentalists and librarians.

Mohrhardt's Entry into Librarianship

Foster Edward Mohrhardt was born in Lansing, Michigan, on March 7, 1907, and died in June 1992. He grew up there with his parents, Alice and Albert, a factory manager who was said to have "helped to pioneer the young automobile industry" (Moritz, 1967, p. 292). Foster Mohrhardt went to high school in Lansing and then to Michigan State College, now Michigan State University, where he was the state Amateur Athletic Union (AAU) wrestling champion in his weight class in 1928.[3] While at Michigan State he also began his lifetime pursuit of librarianship, with his job as a "student stack assistant" (Moritz, 1967, p. 292), and from 1928 to 1929 he was an assistant to the librarian (*Who's Who in Library Service,* 1943).

Following his graduation in 1929 with a B.A. in English, Mohrhardt earned a B.S. in library service from Columbia University in 1930. While in New York City he worked as a general assistant in the New York Public Library. In 1931 Mohrhardt returned to the University of Michigan and worked in the library there while completing an M.A. degree in English and library service. In addition to these degrees, he earned a diploma from the University of Munich in 1932, as well as taking courses at several other universities as a special student. He even had some training at the General Electric Company. He began his postcollege professional career as assistant librarian and a faculty member at Colorado State College of Education in 1933, before moving back to New York to work in the Business Library at Columbia University in 1934 (*Who's Who in America,* 1962–63).

At this point his career took a significant shift of the sort that can change one's entire life trajectory. While working toward the M.A. degree at the University of Michigan, Mohrhardt had met Dr. William Warner Bishop, director of the library and the new library school. Bishop became Mohrhardt's mentor and this relationship proved influential in Mohrhardt's career. When Bishop was made chairman of the Carnegie Corporation Advisory Group on Junior Colleges, he hired Mohrhardt in 1935 to assist him on one of the group's projects. Mohrhardt produced *A List of Books for Junior College Libraries,* which was published by the ALA in 1937 (Carnegie Corporation of New York, 1937). His work as field visitor for the Carnegie Corporation of New York required extensive travel throughout the United States to meet with various library and education representatives at many schools (Mohrhardt, 1967a). Through this experience Mohrhardt gained expertise in library evaluation that he drew on throughout his career.

1n 1938 Mohrhardt became the librarian at Washington and Lee University in Virginia and held that position for eight years. During his tenure there he is credited with developing new special collections and complet-

ing renovations on the library building. In addition, as the United States was entering World War II, the Library of Congress was seeking space away from Washington to protect some of its more valued collections. Mohrhardt invited the Library of Congress to store materials in the university library. This was the beginning of a long professional relationship and friendship with Verner Clapp, then director of Administrative Services at the Library of Congress (Wagman, 1993) and later the founding director of the Council on Library Resources (CLR) (Vosper, 1993). The practice of developing personal networks as a means of promoting professional agendas is a topic that requires independent research. The development of such personal connections and relationships was characteristic of Mohrhardt's administrative activities in both the federal government and his organizational work.

Mohrhardt was away from Washington and Lee for several periods while engaged in military service. Interestingly, he served in two different branches of the military (the U.S. Army Air Force and the U.S. Navy) and was also involved in civilian duty. There is little documentation about Mohrhardt during this time period. It seems that he performed several types of work, but we are left to speculate as to what, when, or where he was trained for these particular jobs, which appear quite dissimilar from his background. In 1942 he was at Fort Lee for army service and then went to Indianapolis as a civilian instructor in electronics and aircraft turrets. In 1943 and 1944 we know simply that he was involved in radar work for the navy (Moritz, 1967).

Following his military service, Mohrhardt began his professional career with the federal government in 1946, first as assistant and then as chief of the Library and Reports Division of the Office of Technical Services (OTS) at the Department of Commerce. The OTS was established in 1945 as the Office of Declassification and Technical Services and redesignated in 1946.[4] The processing of the deluge of materials coming in from Germany and other countries, as well as U.S. military documents, involved translation where appropriate and indexing and listing. The documents were appraised for their value to the public and private sector. Those judged important were made widely available, a process that included deposit in one of several libraries for public use.[5] Within OTS, the volume and complexity of the materials spurred the development and application of mechanization as well as new automated techniques for information handling.

In September 1947 Mohrhardt left the OTS to work as a contract consultant for documentation at the Brookhaven Laboratory of the Atomic Energy Commission. Unfortunately, records of Mohrhardt's Brookhaven activities may not exist; communications with library reference staff and the Publications Office were not able to identify any.[6] Mohrhardt's experience at the OTS had given him experience with new mechanized approaches to problems in scientific communication; this shaped significantly his later views on technological solutions for library and information problems.[7] Al-

though Mohrhardt continued to work in documentation for a short period, he later specifically identified himself as a librarian. He often remarked in both published works and memos that the single-minded technological approach to library and information problems was shortsighted. It obscured the range of problems that were not amenable to mechanized solutions. This duality is pertinent in light of Ceccarelli's "interdisciplinary inspirational" thesis. One component of her theory is that the subject be a known leader and recognized as an expert by members in both fields he addresses, which was evident in Mohrhardt's work connecting the library and documentation disciplines.

Before returning to service in the federal government, Mohrhardt also had a faculty appointment for a year. During 1947–48 he was a visiting professor in the Columbia University School of Library Service, where he taught courses in library management and collection development. Then in the fall of 1948 he went to work as the assistant to the director of the 450 libraries of the Veterans Administration (VA) and became the director soon after his arrival. The libraries were part of the Special Services division of the VA, and the director's office was responsible for "developing policies and programs; preparing budgets and management procedures; and field supervision and training to insure the quality of performance in the VA" (Mohrhardt, 1951, p. 1101). Mohrhardt worked there for six years, focusing his efforts on reorganizing the library to achieve a more centralized administration. He developed a central acquisitions and cataloging system that increased the direct services the center provided to the VA libraries around the country.

Mohrhardt published several papers during his term at the VA, including an overview of the VA library system, in which he promoted the use of "simplified systems, machine methods, and centralized activities" (Mohrhardt, 1951, p.1099), which would free the librarians from clerical work in order to focus on interaction with patients and medical staff. In a subsequent paper, Mohrhardt wrote about several federal agency library systems, such as the Department of the Air Force and the Department of Agriculture (Mohrhardt, 1953). In this paper, while he advocated the benefits of centralization, he held that book selection should remain a local activity; collection development had to occur at the site of user services.

With this experience in the VA library system Mohrhardt began to think about the construction of large-scale cooperative library networks. A comparison of the several library systems reported in the 1953 "National Systems" paper led him to propose that streamlining of services and cost cutting could be a beneficial result of a large cooperative system. He began a promotional campaign for the centralization of various library services, the expansion of cooperative bibliographic and technical services, and an organized approach to national and international library and information systems. These themes would continue throughout his career, leading him

to propose that the success of the user of libraries was a function of cooperation among them.

> All too often prior investigation and research work are ignored or unused as a result of the inability of the research worker to readily locate and obtain the publications he needs. This is one of the greatest challenges that faces us in the library profession today, the urgent need for local, state, and national cooperative action in collecting, organizing, and providing ready service on all important publications. (Mohrhardt, 1967b, p. 4)

Mohrhardt's Leadership of the National Agricultural Library

On September 7, 1954, Mohrhardt succeeded Ralph Shaw as the director of the library at the U.S. Department of Agriculture (USDA), remaining in that role until his retirement from federal service in 1968 (Oliveri, 1962). Mohrhardt's career with the USDA Library is marked by a number of accomplishments. Perhaps the most important of these was spearheading the redesignation of the USDA Library as the National Agricultural Library (NAL), a mission he undertook early in his tenure. In 1957 he published an article about the history of the USDA Library. He noted that the federal act that established the Department of Agriculture had explicitly stated that it should acquire all information about agriculture that was obtainable. Incorporated into his description of the library's growth was a case for its formal recognition as a national library. He reasoned that the library had essentially served as a national library since its inception, stating, "It is a national library because the Department has always worked to bring agricultural information directly to the people," (Mohrhardt, 1957, p. 63). As he outlined the library's national and international responsibilities, he suggested that the mission and services of the USDA library were comparable to those of the Library of Congress, "which serves . . . as a national library in fact and acceptance by the general public" (Mohrhardt, 1957, p. 80).

During his tenure at the NAL, Mohrhardt began to participate frequently in scientific information conferences and governmental information planning activities. In 1958 he represented the Department of Agriculture in U.S. Senate hearings on the Science and Technology Act of 1958 and spoke on the extent of cooperation among the national libraries. In 1960 he was nominated by R. S. Roberts, administrative assistant secretary,[8] to represent the USDA on the U.S. National Committee for the International Federation of Documentation (FID), sponsored by the National Academy of Science's National Research Council. Mohrhardt was renominated to this committee at least once, became the chair in 1965, and served as a national delegate at least twice to the international meetings of FID. We know from his papers in the ALA Archive that he was influential in attempts to arrange formal cooperation between the FID and the International Federation of

Library Associations (IFLA).[9] At the same time as his initial appointment to the FID committee, Mohrhardt's participation in various international scientific information conferences and activities began to increase steadily.

In 1962 the USDA's Secretary, Freeman, authorized the renaming of the Department of Agriculture Library as the National Agricultural Library. Although Mohrhardt himself credits Administrative Assistant Secretary Roberts with responsibility for this change,[10] clearly Mohrhardt's own leadership and prominent role as director were central to bringing it about. This same year, Senator Hubert Humphrey, a member of the U.S. Senate Committee on Government Operations, published an Agency Coordination Study Memorandum entitled "Agricultural Research Information and Communication: A Progress Report." In it he recognizes Mohrhardt's role, stating, "The Director of the National Agricultural Library has personally been in the forefront of efforts to strengthen scientific information programs in the U.S. Government on a national and on an international basis" (Committee on Government Operations, 1962, p. 18). In 1963 the USDA awarded Mohrhardt the Distinguished Service Award, citing him for "outstanding vision, competence, and accomplishment in evolving and promoting a dynamic agricultural library program for the Department and the Nation, and for exceptional professional leadership" (Moritz, 1967, p. 294). In detailing Mohrhardt's achievements, the report noted that Mohrhardt's "participation in the work of special librarians, documentalists, and information storage and retrieval research workers have [*sic*] made him a key figure in the major efforts to solve the science information dilemma" (Moritz, 1967, p. 293).

Mohrhardt also guided a number of large-scale administrative changes at the NAL. In 1961 he reorganized the library functions into four departments: Public Services, Technical Services, Field and Special Services, and Management Services (Oliveri, 1962). These changes streamlined technical services and facilitated cooperative arrangements with a network of national and international agricultural libraries, which put emphasis on a user orientation. The following year USDA Secretary Freeman authorized the establishment of a committee to review the systems and services provided by the NAL to the agriculture libraries of the Land Grant universities, which housed most of the agricultural collections across the country. This was one way that Mohrhardt foresaw the growth of an agricultural library network. The recommendations of this committee led to the implementation of new cooperative arrangements to fill service gaps for users at both these libraries and USDA research sites. Then, in 1966, following a large-scale evaluation called Task Force ABLE (Agricultural Biological Literature Exploitation), the NAL made several additional changes in service. Among the technical changes, a shift to Library of Congress Subject Headings was accompanied by the publication of the Dictionary Catalog of the National Agricultural Library that included the entire card catalog of the NAL col-

lection through 1965. In an example of Mohrhardt's concern to streamline systems and improve compatibility, he wrote with satisfaction, "Now two of the national libraries are using the same subject classification" (Mohrhardt & Oliveri, 1967, p. 14).

Aware of advances in bibliographic products of the National Library of Medicine (NLM), whose MEDLARS (MEDical Literature Analysis and Retrieval System) went online in 1964, Mohrhardt's papers indicate that he was interested in the NAL keeping pace with this other specialist national library. Having learned that the NLM would include report literature in its MEDLARS program, he sent a memo to his chief of indexing and documentation, Ljubo Lulich, telling him, "Certainly if we are to claim that the Bibliography of Agriculture is a comprehensive index, it must include the report literature as well as monographs and serial articles."[11]

It is evident, however, that the NAL budget limited both the prioritization and pace of advances in automated services. External reports by the Information Dynamics Corporation (1965) and EDUCOM (1969) both state that the library lacked adequate funds to support the full range of activities needed for a national agricultural library network. Despite this, the library continued to develop these plans and to make advances in bibliographic products and services. In 1966 the library initiated testing of the automated system for monthly production of the Subject Index to the Bibliography of Agriculture. The annual index issue was scheduled to be produced using an optical scanner and computing techniques in 1967. Also in 1967, the library published the Agricultural/Biological Vocabulary, and the Herbicides System was added to the Pesticide Information Center, which was already publishing a biweekly Pesticides Documentation Bulletin (ARL, 1966b, pp. 35–37).

Mohrhardt considered experimentation with mechanical methods of information handling to be a valuable part of the library's role in the provision of national services. He was a participant in the planning workshop for Project INTREX, MIT's Information Transfer Experiments sponsored by CLR from 1965 to 1972 (Burke, 1996). This was important, ironically, because Mohrhardt was one of the few librarians at the workshop where a project was planned that in effect was to eschew participation by librarians during implementation. In a historical context, however, participation of this kind was not an unusual role for a director of the NAL; Mohrhardt's immediate predecessors had each been involved with automation and documentation activities. In fact, the NAL had a long history of experimenting with and implementing mechanized approaches to library services. One of Clarabel Barnett's achievements was to use photocopying to reduce the costs of interlibrary loan. She was responsible in 1934 for the library's role in starting up the Bibliofilm Service, a microfilm-based approach to interlibrary loan and distribution of scientific articles (Mohrhardt, 1957; Farkas-Conn, 1990). Ralph Shaw succeeded Barnett, and during his tenure

he led the library's development and experimentation with mechanical devices. These included his famous Rapid Selector, designed to rapidly locate information "stored on microfilm which could then be photographed for the user," and the photoclerk, which was devised to replace some typing activities (Mohrhardt, 1957). Mohrhardt continued these endeavors and was actively involved in the implementation of major automation efforts and techniques in the handling of special information. Under his leadership, the NAL was a library where librarianship and documentation came together to improve the scientific information services for agricultural researchers.

Mohrhardt was also involved with information planning activities outside of the USDA. In 1962 the Federal Council for Science and Technology established the Committee on Scientific and Technical Information, known as COSATI, to oversee and coordinate science information activities for the federal government. Mohrhardt was the USDA representative to COSATI from its start, and he would later serve in a dual role representing both the USDA and the library community when he served on the Board of the Association for Research Libraries (ARL, 1966a).

In 1963 the President's Science Advisory Committee published a report titled "Science, Government, and Information: The Responsibilities of the Technical Community and the Government in the Transfer of Information," which is commonly known as the "Weinberg Report." The report contained a number of recommendations on the management of scientific and technical information, including establishment of clearinghouses and documentation or specialized information centers. Following these recommendations, Mohrhardt set up the clearinghouse for research and development in scientific communication and documentation at the NAL. The clearinghouse collected and disseminated information on the "development and testing of machines; linguistic research; machine translation; documentation; communication and information theory; operations research of systems; and studies of subject classification and indexing schemes" (National Agricultural Library, 1966). Moreover, in 1966 the library opened the Pesticide Information Center (Mohrhardt, 1967b), one of the first documentation centers created to provide the specialized services recommended by the Weinberg Report. Documentation centers were to be staffed by scientists who would be able to provide expert abstracting services, judge the relevance of materials for particular user needs, and execute selective dissemination. To address this last requirement, the Pesticide Information Center initiated a profile system to record the specific activities and particular information needs of USDA laboratories (Mohrhardt, 1966a).

Mohrhardt retired from the NAL in January 1968, a year prior to the opening of the new and much needed library building in Beltsville, Maryland. In addition, his retirement came only a short time before the formal National Agricultural Libraries Network was established in 1971

following the launching of AGRICOLA (AGRICultural OnLine Access), the NAL's electronic publication of the Bibliography of Agriculture, which was under development during his tenure in office. Following his retirement, Mohrhardt became a program officer at CRL and served there until 1975. Although this period of Mohrhardt's career is not covered in this study, it must be noted that the focus of CRL's initiatives often aligned with Mohrhardt's fundamental goals to increase library cooperation and develop international library resources (Haas, 2003).

International Librarianship

Mohrhardt began his work in international librarianship while he was the director of the NAL. There is little doubt that W. W. Bishop was influential in this aspect of Mohrhardt's career, as Bishop was actively involved with IFLA and became the first American elected president of that organization in 1932 (Mohrhardt, 1977). Mohrhardt's own work in this area is prolific and would require another study for full treatment. It is important to introduce some of his accomplishments, however, because they inform his information network development and disciplinary bridging activities. Mohrhardt's enthusiasm for international librarianship was tied to his views that the growth of science depended on access to materials from across the world, but it is clear that he also enjoyed the spirit of collaboration that he found in librarians working on such problems as exchange and library development.

With Foster Mohrhardt's effective participation, the International Association of Agricultural Librarians and Documentalists (IAALD) started in 1955. Mohrhardt was its first president, and he would hold that position for three terms spanning almost fifteen years. The creation of this organization represents a major contribution by agricultural librarians to facilitate information dissemination and access throughout the world: "IAALD looks forward to a closer co-ordination of its work with the scientists using agricultural publications, and with documentalists throughout the world. This is a particularly important field since information in the agricultural area is of utmost importance to world development," (Mohrhardt, 1962, p. 135). This is a contrast with medical librarianship, which during Mohrhardt's career never had a comparable international organization.

Mohrhardt was also very involved with scientific information exchange and library education in Asia. Although there are few records pertaining to this work, Mohrhardt was active in scientific communication activities and library development in Japan. In 1957 he was a delegate to the meeting on International Exchange of Publications in the Indo-Pacific Area in Tokyo, Japan, after which he led the development of the librarian training program for Japan's National Diet Library. In 1961 he was a U.S. delegate to the Pacific Science Congress in Hawaii, where he "started cooperative projects with Japanese scientists" (Welch, 1988, p. 16). He actively led a number of

other scientific and library-related activities in Japan, many related to the National Diet Library. These contributions were acknowledged in 1979, when he was awarded the Merit Third Class of the Order of the Rising Sun, signed by the Emperor of Japan (Welch, 1988). We should note that Mohrhardt was not the only U.S. librarian involved in library development in Japan. There was a small group that often worked through IFLA but also independently in a variety of capacities.

CONNECTING LIBRARIANSHIP AND DOCUMENTATION TO IMPROVE SCIENTIFIC COMMUNICATION

In an assessment of his work to bridge the apparent divide between documentation and librarianship, it is clear that his experience at the OTS just after the war reenergized his fundamental beliefs in the work of librarianship and shaped his views about the role of mechanization and the future of automation in libraries. In a memo he sent to Verner Clapp at CLR in October 1956, Mohrhardt said,

> I have become increasingly concerned during the past few years over the fact that so many of our experienced as well as new librarians expect that some new mechanical development will solve their problems. Having gone through all this in a microcosm at OTS, where John Green expected to find some machine to solve all of his bibliographic problems, I am highly dubious of the mechanical approach. Basically, I think we have to find some common ground for our basic and manual problems. My best illustration of this is . . . the new consolidated air lines schedule for ten major air lines. Surely, if these highly competitive corporations find such cooperation profitable, I would hope that we, as librarians, can go even farther than that.[12]

This note to Clapp illuminates Mohrhardt's eagerness to connect people and organizations, which he hoped would extend or create cooperative programs to improve the access and use of scientific materials. Along with his calls for national information networks, he promoted cooperative effort as part of an organized approach to solving scientific communication problems. This note also suggests another key component of Mohrhardt's mission. In many of his talks specifically about scientific communication, Mohrhardt points to several information problems that he feels are overlooked by those focused too narrowly on mechanized solutions (Mohrhardt, 1961, 1966c, 1967b). These include disciplinary specialization (and with it the fragmentation of literature), burgeoning interdisciplinary information needs, a lack of resources to manage materials that require translation, and a lack of methods to manage bibliographically the variety of media and formats for new materials.

Throughout all of his activities, Mohrhardt was concerned about bringing librarians and documentalists together and making sure that they were concerned with the problems of scientists at that time. While he was actively

involved in documentation activities, Mohrhardt considered himself a librarian, often making reference to this in his papers concerning librarianship and documentation. In the first of several papers written over ten years, he states, "Although my viewpoint is that of a librarian and not a documentalist, I should like to attempt to analyze as objectively as possible both approaches to the effort to make all recorded knowledge readily available for use" (Mohrhardt, 1956, p. 412). This is one of the most interesting aspects of Mohrhardt's work. During his tenure at the NAL, the voice of science would swell to a crescendo, calling for a large-scale coordinated response to the need to improve scientific communication. Led by scientists and documentalists, resources were mobilized to address information needs in the hard sciences. Librarians, who were familiar with the problems and already addressing many of them through the practices identified with special libraries, were left wondering what set the documentalists apart.

Mohrhardt struggled with this early on, and he, too, shared the predominant library opinion that the documentalists were usurping the work and ideology of special librarianship. Holding himself firmly in the librarians' camp, he did not start out to motivate cooperative activity (or shared responsibility) among the documentalists and librarians. His early writings include strong statements about the history of librarianship and the goals and qualities that define the field. We can see changes in his writings over time, however, as he came to speak about documentation as a new and separate discipline.

Mohrhardt was inspired by John Dury, a seventeenth-century clergyman who wrote about the role of librarians in learning; he cites Dury's three roles for librarians: "A factor and trader for helps to Learning, and Treasurer to keep them, and a dispenser to apply them to use" (Mohrhardt, 1956, p. 413). He essentially uses Dury's framework to guide his development of the National Agricultural Library, and we can see this in his description of Dury's "The Reformed Library Keeper." Dury, he says, "proposes these objectives be accomplished through an international acquisitions program, subject classification of materials, an expandable catalog, centralized international exchange of materials, and a knowledge of the interests and specializations of the clientele" (Mohrhardt, 1956, p. 413). Dury, he says, "anticipated the phase that is now called documentation" (p. 413). He concludes that "Librarians such as these men have always been interested in acquiring and serving publications regardless of their format, language or location. Yet a study of the literature of documentation would convince one that all this is new and unprecedented" (p. 413). He argues, however, that the definitions of documentation are not only grounded in librarianship but "do not take us beyond what is considered special librarianship" (p. 414).

Though a proponent of the value of automation in libraries, Mohrhardt was careful about adopting technology without applying thorough analysis

and reasoned management standards to the process of its implementation. One thrust of his early writings regarding the documentalists was their apparent disregard for actual costs and their inattention to implications of implementation for the organization as a whole. In 1958 he wrote:

> Many of us who cannot afford experimentation are anxious to consider the adoption of these new devices, but we need more information than is now available. Those planners and developers, as well as those who are experimenting with methods and machinery for handling information, should provide extensive factual data on both the economic and sociological aspects of use. (Mohrhardt, 1958, p. 396)

In this same paper, Mohrhardt calls for better reporting on mechanization research and for research findings to be presented in lay language. His concern is for the library community, which needs to make implementation decisions based on the effectiveness and efficiency of mechanized systems. He states, "Reports on automation are confusing not only because of their jargon but often because of a lack of critical analysis" (1958, p. 397). Mohrhardt's interest in meeting the needs of users (both researchers and librarians) is also evident. For example,

> Having established the efficiency rating of a machine, we should be equally interested in the reactions of those whom it serves. Concern with the personal reaction of the ultimate consumer—the research worker or scientist—is not theoretical. Studies in research methods have shown that scientific research follows no set pattern and is a highly individualized procedure. (Mohrhardt, 1958, p. 396)

In his paper "Special Libraries—Pioneers in Documentation" (1965), Mohrhardt addresses a dual audience—librarians and documentalists. This paper is notable for its equivocation and its inclusive language. He asserts that based on international consensus, documentation does exist, and most importantly it exists as a discipline separate from librarianship. He suggests that it is not adequate to argue that they are, or ought to be, the same thing, even if documentation centers and special libraries are difficult to distinguish in their scope and service. In this document, librarians are offered historical validation and recognition for their service; documentalists are "rewarded" for their forward thinking and new technologies, though he questions the value of the current research for immediate applications.

> There are, however, new developments in the handling of publications that cannot be ignored and must be explored carefully and objectively if our progressive improvements in the collecting, preserving, and supplying of information are to continue. Where there was once the assumption that documentation was primarily a European-centered development, and possibly a local term for what was elsewhere called special or technical librarianship, it is now clearly established on a world-wide basis that documentation is indeed a distinct discipline with special characteristics. (Mohrhardt, 1965, p. 121)

The presence of a dual audience is key to Ceccarelli's theory about the "interdisciplinary inspirational" genre of scientific writing. Mohrhardt's works reveal the characteristics that Ceccarelli suggests are essential for this genre, even if he does not use all the rhetorical techniques she identifies as typical. Mohrhardt's set of papers on scientific information were meant to encourage and enlist scientific organizations and scientists to turn their attention to address information problems whose importance was obscured by the popular focus on mechanized approaches to solving the "information explosion" problem. As noted above, these problems included the interdisciplinary needs of scientists, specialization, and bibliographic organization of report literature (Mohrhardt, 1966c). In addition, in his later papers on documentation and librarianship, Mohrhardt sought to forge alliances, and in Ceccarelli's words, "to show how collaboration is a promising professional action," (Ceccarelli, 2001, pp. 157–158). Mohrhardt wrote:

> The most effective service that can be given to those who need published information is that which would combine or require the techniques and services of a library coupled, when necessary, with those of a more specialized and intensified documentation or information service. It is probably an over simplification, but at least one that would be useful for clearing the air, to indicate that what is now called "documentation" or "science information" is a refinement and further development of the efforts of librarians to meet current changing needs both in the publication of information and in the requirements of users. (Mohrhardt, 1965, p. 122)

It should be noted that, in a talk he gave to the General Council of IFLA in September 1966, Mohrhardt revealed his personal ambivalence about the status of documentation as a separate discipline (Mohrhardt, 1966b). However, his writings by 1966 were not in the least equivocal with regard to the need for disciplinary interaction and strongly advocated cooperation and collaboration among librarians and documentalists, urging the latter to bring the new information retrieval (IR) techniques into the library and to make them more effective in meeting the needs of users seeking information. He appealed to the documentalists to recognize and respect the field out of which they came and reasserted that librarianship was the foundation of this new discipline.

> Further we must recognize that on a worldwide basis differences have developed in the interpretation of the responsibilities of librarians and documentalists. Although in some areas such as the United States the difference is often indiscernible or artificial, a true documentation service certainly does go beyond conventional library activities both in scope and in depth of individual service to users. On the other hand the basic elements of both disciplines are similar if not identical. From a highly personal standpoint and the fact that my entire career has been spent in librarianship I tend to view documentation as a development or extension of librarianship itself. (Mohrhardt, 1966b, p. 215)

The Legacy of the Librarian Diplomat

Mohrhardt's actions in attempting to bridge the divide between American documentalists and librarians included integrating documentation into libraries, rallying librarians to embrace information networking, and inspiring international cooperation between library and documentation organizations. The chronicle of Mohrhardt's career reveals an important library leader whose accomplishments serve as a backdrop for his legacy. Throughout all of his activities, Mohrhardt sought to bring librarians and documentalists together and to make sure that they were dealing with the problems of scientists and scientific communication. His leadership was, in part, aimed at making librarians visible in the field of scientific communications.

As a consummate librarian, Mohrhardt's career was founded on the traditional practices of bibliography and collections development. During his career he worked in research and academic libraries, in documentation services, in library management, and for private foundations. He was an active leader in national and international professional organizations and in federal scientific committee work. By the middle of his career in the early 1960s, Mohrhardt moved in policy and planning circles where librarians were sometimes overlooked. Arguably, this precedent has made it easier for future librarians to participate in federal information policy and planning. Through his published papers and speeches, Mohrhardt has left a trail that shows how his experience as a library administrator deepened his belief in large-scale cooperative networks and their promise for supporting scientific communication. In these works one hears his passion for libraries, a fundamental regard for meeting the needs of library users, and expectation for librarianship to have a prominent role in scientific and technical communication.

Mohrhardt's work on international projects underscored his belief that the problems in access to information moved from local to national to international scope very quickly. That is, the need for access to information being produced in other countries was essential to the growth of science. He was pioneering in his efforts to bring librarianship to the forefront of scientific communication and vice versa. He saw this as an international endeavor and believed that its success was tied to the development of national information systems.

It might be argued today that we need librarian diplomats like Mohrhardt to bridge the library and information science disciplines. These diplomats will be able to facilitate conversations between scientists, archivists, publishers, and LIS practitioners to solve scientific communication problems much in the way that Mohrhardt did in his day. Solutions to such information problems will continue to require application of domain expertise, library expertise, and information science principles and techniques. Automated or technology-driven approaches continue to be insufficient in solving

all the problems we face in organizing and managing information. The expansion of disciplines and the splintering effects of specialization continue, even as science requires greater interaction among the disciplines and specialties than in Mohrhardt's time. It can be argued that the nature of problems in documenting, organizing, and retrieving materials from information systems in the sciences remains unchanged. These problems are fundamental to librarianship and information science, and it will be essential for both librarians and information scientists to be part of the development and use of these emerging systems.

Acknowledgements

Notes
1. Robert Vosper (1993) used the terms "diplomat" and "emissary" to describe Mohrhardt. His public role was that of a diplomat in that he was skilled in international relations and had a talent for bringing people and resources together to solve problems.
2. In addition to the background information gathered from standard sources such as *Who's Who in Library Service* and *Current Biography Yearbook*, biographical material in this paper included what was found in press releases, organizational reports, and historical reports from the NAL. It is important to note that sources like *Who's Who in America* rely on subjects to screen and update their own entries, which means that readers are limited to the kinds of data the publication requests and what the subjects want to be known.
3. "Washington and Lee's Librarian," *Alumni Magazine,* Washington and Lee University, p. 4. Mohrhardt's Manuscripts, National Agricultural Library Special Collections.
4. Department of Commerce Web site. Retrieved April 22, 2004, from http://www.commerce. gov/milestones.html.
5. Statement of James H. Billington, The Librarian of Congress; Testimony before the Subcommittee on Technology, Committee on Science, United States House of Representatives, September 14, 1999. Retrieved April 22, 2004, from http://www.house.gov/science/billington_091499.htm.
6. Personal communication with C. L. Green, November 20, 2002. Publications Office of the Research Library, Brookhaven National Laboratory.
7. Unpublished letter from Foster Mohrhardt to Verner Clapp, October 25, 1956. Library of Congress, Manuscripts Division. Papers from the Council on Library Resources.
8. Cross-reference to a memo to Dr. S. D. Cornell of the National Research Council from R S. Roberts, Admin. Asst. Secy., USDA, June 15, 1960. National Archives.
9. Personal Member Papers, Foster E. Mohrhardt, 1964–1975. Series No. 97/1/25; Box 1. ALA Archives, University of Illinois Library Archives.
10. Remarks made by F. E. Mohrhardt, Director, NAL, at the Meeting of Agricultural and Biological Sciences Subsection, ACRL, Miami, Florida, June 19, 1962. Box: Mohrhardt Manuscripts, Special Collections, NAL.
11. Memo, Foster E. Mohrhardt, November 7, 1963. National Archives, Record Group 16.
12. Letter from Foster Mohrhardt to Verner Clapp, October 25, 1956. Library of Congress, Manuscripts Division. Papers from the Council on Library Resources.

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