Finnish Information Services for Technology during the First Half of the Twentieth Century

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Abstract

The paper presents an overview in a broad historical context of the birth and early development of Finnish documentation or information services for technological research. First steps were taken in the research center for the most important branch of the country's export industry, paper and pulp, in the 1930s, when an adjustment to global markets was necessary. The innovations were mainly adopted from Germany, but other European and American documentation experiences were also known. Sweden was an important gateway for knowledge of documentation, and the early Finnish term for documentation, *kirjallisuuspalvelu,* was adopted from the Swedish *litteraturtjänst,* which in turn probably came from the German terminology. During and after World War II the knowledge of the benefits of technical information services became more general. New information services were established in the chemical industry and in technical research, especially to compensate for the gaps caused by wartime isolation and destruction. War reparations to the Soviet Union were an important incitement to establish these services because the Soviet authorities demanded products that had not been manufactured in Finland before. After World War II the American version of documentation services became dominant in Finland as a result of trips to the United States to collect firsthand information about the developments there.

Since Finland is a small and remote country, it is necessary to present some basic facts about the country and its history to put the subject of this article into a historical context.

Until 1809 Finland was an indivisible part of the Swedish Kingdom, with the same laws, institutions, and religion. The Swedish language was used in the administrative system, the legislative system, education, and higher forms of social life, although the great majority of citizens spoke Finnish. In a sideshow of the Napoleonic wars Finland was invaded by the Russians and became in 1809 a grand duchy attached to the Russian Empire. The legislative and administrative practices of the Swedish period were, however, retained. The period under the Russian rule is called the Era of Autonomy because Finland had its own administration, parliament, and finally even an army, all of which were separate from those of Russia. The Swedish language was still used as the official language, and the upper layers of society spoke it as their mother tongue. But during the nineteenth century the Finnish language experienced a revival and gradually attained the same rights as the Swedish language. It should be mentioned that there was and still is a considerable minority of Swedish speakers in Finland (in 1900, 12.89 percent; in 2001, 5.6 percent),[1] and only a small fraction of them belonged to the ruling elite.

During the late nineteenth century Finland began to become industrialized, with sawmills and the paper and pulp industry as the chief branch of production. The relative success of the industry was partially based on the advantageous position of Finland in the Russian Empire, being protected by the Russian customs against the competition of western producers.

As a result of World War I and the Russian Revolution, Finland became independent in 1917, but the advent of independence was shadowed by a bloody civil war in the spring of 1918. Then after more than twenty years of peaceful progress, Finland entered World War II, first in an armed conflict with the Soviet Union in the winter of 1939–40 known as the Winter War. At that time the Soviet Union was allied with Germany in the so-called Molotov-Ribbentrop Pact. In the Winter

[1] Statistics Finland: Finland in Figures: Population. Available: http://www.stat.fi/tk/tp/tasku/taskue_vaesto.html#structure (accessed 6 January 2004).

War, Finland lost a large part of its territory but tried to get it back in another campaign that lasted from 1941 to 1944, when Finland again fought the Soviet Union, this time with Germany as its ally. The result was a defeat, and the loss of territory was confirmed. Heavy war indemnities were imposed by the Soviet Union, but Finland remained free.

The birth of the documentation or information services for Finnish technological research and industry is closely connected to the large historical changes I have described. It was part of the modernization of Finnish industry and economy that in its turn followed the challenges posed by outside pressures, wars, sudden changes in the market situation, and rapid technological development.

The Dawn of Documentation at KCL

World War I and the Russian Revolution were the first great turning points. The early 1900s ushered in noticeable economic and industrial growth in Finland, but very little domestic research effort was behind the growth. Methods and production technology were all imported from abroad. Only a handful of people understood the importance of scientific-technological research for the modern industry. They knew what was happening in Germany, the United States, and Sweden. A discussion began about establishing a chemical research institute in Finland, but because of the weakness of the economy this was to eventuate only under the special circumstances of World War I (Grönvik, 1966, pp. 6–8).

World War I brought with it changing circumstances for Finnish industry. Contacts to the western markets were blocked during the war, but the engineering and pulp and paper industries thrived thanks to orders from Russia. The paper industry was totally adapted to the Russian markets in terms of both quality and standard measures. As a result of the "mobilization boom" the prices of industrial products rose, and money flooded into the country. There was enough money left for investments in and donations to public utilities. This situation led to the establishment of the private chemical research center, the Finnish Pulp and Paper Research Institute, or Keskuslaboratorio-Centrallaboratorium, in 1916 (Grönvik,1966). Today it is known as KCL.[2]

After World War I and the Russian Revolution, Finnish industry changed dramatically. The Russian markets were completely closed. Finland's export industry (sawmill products and pulp and paper) was forced to redirect its export efforts to the tough markets in the West, where a much higher quality of products and also new standard measures and packaging practices were required. In essence, these circumstances forced Finland's integration into the global market. They also presented new challenges to KCL, where routine quality measurements gradually gave way to more important research tasks in order to improve the standard and quality of the products being produced to comply with the requirements of new clients (Grönvik, 1966).

Thus, a potential demand emerged for new information in the context of chemical research, but it took twenty years before the first concrete signs of specialized documentation activities became visible at KCL. The first systematic steps toward creating specialized information services were taken at KCL in 1937. The initiator of these information services was a chemist, Bertil Nybergh, who became deputy chief of KCL in 1936. He had previously led the Chemical Laboratory of the Finnish Defense (Enkvist, 1955).

KCL had of course had a library from the start, but in 1937, when Nybergh became deputy director, the number of journals subscribed to was not more than 35. The number began to rise quickly, until in 1952 it reached 190. The difference between traditional library work and modern documentation work lies not only in the number of publications dealt with but also in what is done with them: are they only acquired, cataloged, and put on the shelves, or are they actively analyzed, indexed, abstracted, circulated, and made the basis for systematic information searches? The documentation orientation was the novelty that Nybergh brought with him to KCL. Later he was among the pioneers who tried to make advanced documentation practices more widely applied in other technical and industrial research institutions.

Soon after he was appointed deputy director of KCL, Nybergh wanted to initiate regular monitoring of the contents of journals. The chief of one of the research departments, a chemical engineer, Anna (Nita) Grönvik, was assigned this task along with documenting important matters that she discovered in a loose-leaf collection. The base of documentation work, an index of journal articles, began to develop (Grönvik, 1966).

It is not known precisely where Nybergh's idea of creating a documentation service came from. The idea certainly did not come from the Finnish library world, where library work was done in a traditional manner,

[2] For current general information see the Web site of KCL. Available: http://www.kcl.fi/ (accessed 6 January 2004).

even in the most important library in the field of technology, the Library of the Institute of Technology in Helsinki (today the Helsinki University of Technology). There was, however, one exception that may have influenced him. The Central Library of the Finnish National Defense in Helsinki was a forerunner in establishing an efficient journal circulation and review system. That library was established in 1925, and the review system was formalized by an order of the General Staff in 1927 (Hongisto, 1991). The initiator of the system was the first librarian of the institution, Emerik Olsoni, whose son, Karl-Emerik Olsoni, became the leading Finnish pioneer in the field of documentation after World War II. Since Nybergh was, before entering KCL, chief of the Chemical Laboratory of the Finnish Defense, he may have been familiar with the system at the Central Library.

On the other hand, it is natural to assume that Nybergh discussed ideas about documentation with his contacts abroad. It was in the field of chemistry where the first ideas about documentation services began to appear in big industrial countries. Furthermore, Nybergh's mother tongue was Swedish, and so he belonged to the important Swedish-speaking minority in Finland, as did Anna Grönvik. A large proportion of the leading scientists and engineers were at that time Swedish speakers, and because of that they naturally had active contacts with their colleagues in Sweden, Denmark, and Norway. Sweden was the leading industrial country in Scandinavia and inevitably ahead of Finland in the field of technical information services. As early as 1936 a Swedish association for technical documentation services, Tekniska Litteratursällskapet, was founded, which eventually served as a model for a similar Finnish association.

The terminology used for information services in Finland was imported both from the English and the Swedish languages. *Documentation* became *dokumentation* in Swedish and *dokumentaatio* in Finnish. In Sweden another term to describe the activities was also coined: *litteraturtjänst,* or "literature service," which in Finnish became directly translated as *kirjallisuuspalvelu.* The term *litteraturtjänst* refers to the work done by specialists in the field, graduate engineers or chemical scientists, in providing selected and analyzed information about literature and the contents of documents to their colleagues. This was not the work of librarians who were thought only to acquire the documents, catalog them mechanically, and put them on the library shelves.

It seems that the term *litteraturtjänst,* direct equivalents of which were not in use in English and French, was adopted from German, a sign that the dominant gateway of contacts for the Nordic countries in the field of documentation, as in most other fields, was Germany. When the Swedish association for technical documentation was established in January 1936, the principal guest speaker was Albert Predeek, head of the library of the Technische Hochschule, Berlin, and a pioneer in technical documentation in Germany. His lecture was published in Swedish translation in the Swedish journal *Teknisk Tidskrift*. It is true that the term *litteraturtjänst* does not appear in Predeek's translated text, but it seems to be a fusion of two terms that he uses: *litteraturupplysningstjänst* and *litteraturanskaffningstjänst* (Predeek, 1936, p. 264). The German equivalents are *Literaturnachweisung* and *Nachweisungsdienst* (reference service) and *Beschaffungsdienst* (acquisition service), terms that Predeek used in a German article in 1936 (cited by Behrends, 1995, p. 156). *Litteraturtjänst* was used by Hilda S. Lindstedt, a Swedish librarian, who also spoke at a seminar in connection with the establishment of the Swedish association (1936, p. 445). After that it was used frequently by Swedish (for example, Odqvist, 1937; Velander, 1939) and eventually Finnish writers. While remembering the importance of the German connection, we must also bear in mind that both Predeek and Lindstedt were well aware of the developments in documentation in Britain, the United States, and France (see also Odqvist, 1937). After World War II the dominance of Britain and the United States overshadowed all other directions.

One of the symbols of the new approach to making information available was the adoption of decimal classification in the form of the Universal Decimal Classification (UDC), although it was not always considered comprehensive enough. At KCL the UDC was used as the classification system for general articles, but in the core areas of the center a specially developed indexing system was in use. This compromise, according to Grönvik (1947, p. 38), may have appeared peculiar but was nevertheless quite functional.

Even traditional library operations were assigned to Grönvik. To help in this work, a part-time typist was located in the documentation department. In 1939 an assistant librarian was appointed, first part-time and then full-time. After World War II an additional assistant with knowledge of the Russian language was appointed (Grönvik, 1966).

Documentation activities at KCL took many years to find their permanent shape. In this way KCL did experimental development work that benefited other

institutions that did not begin their documentation activities until after World War II. The first monthly review of journal contents was presented to KCL managers in the fall of 1937. The war caused some irregularity in this activity. In 1942 an unsuccessful attempt was made to initiate regular meetings of managers and department chiefs, which would have facilitated the distribution of the service. This practice did not become regular at the time (Kertomus, 1942). From the beginning of 1947 regular meetings with reviews of the literature were held with the researchers, alternating weekly between pulp and paper industrial questions and other articles of interest to the institution. Before each meeting a list of articles was distributed with index terms and translations of titles in lesser-known languages. The reviews were also sent to the member factories.

Grönvik was the usual reviewer. She was well equipped for this task because of her vast knowledge of the field, but her workload grew too heavy. She still had at least one research department to supervise on top of the documentation work. In 1949 her work was reorganized so that she could concentrate solely on the library and documentation services. After World War II extensive reviews of a number of special problems were compiled; they were called "monographs." The documentation department did the preliminary work, but the final compilation was done by an assistant of the research department who was specialized in the field. Of course, literature searches were done regularly on demand (Kertomus, 1947; Grönvik, 1966).

Chemical Information Services

During the first decades of Finnish independence the long-term aim was to build a native chemical industry. Plants for producing sulfuric acid and superphosphate were established and plans to build a nitrogen plant were made, but World War II prevented their realization. For Finland wartime meant isolation from the rest of the world, and during this time the shortcomings in the industry became apparent. Many needs had to be satisfied with surrogates. The hunt for surrogates also affected research at KCL, where, for example, lubricants were made of tar. An equally serious shortcoming was isolation from the sources of knowledge: the acquisition of literature and study tours were disrupted.

In 1942 a delegation of the Engineering Society of Finland proposed to the minister of finance, Väinö Tanner, that a committee be nominated to explore the possibilities of creating a new chemical industry. The minister acted swiftly and a Committee for the Chemical Industry was set up. In due course the committee submitted a report. Prior to this, however, some of its members, among them Nybergh, had designed a central organization to promote cooperation in the chemical industry. Their blueprint for this organization contained many extensive propositions that reflected the needs of wartime, but from the point of view of my paper the most interesting was the emphasis on monitoring the development of the chemical industry abroad "through literature, patents and personal contacts" (Kemian Keskusliitto, 1944, p. 4). It is safe to assume that during wartime the models used for the organization of information services were adopted from Germany.

The Central Chemical Association of the Finnish Chemical Industry was established in 1943. Its members were industrial companies and research centers. Bertil Nybergh was an influential member of the board until his death in 1954. The secretary of the association was another energetic man, Yrjö Talvitie. From its beginning in 1943 the association collected chemical journals, books, and a register of patents. The following year a library was established.

The documentation service of the association began effectively in 1945. Based on the UDC (or rather its German version, UDK), Yrjö Talvitie designed a classification for chemical-technological literature as well as an index for it. The annual report of 1945 announced that

> there is, following this system, under way in the office of the association the cataloging on cards of interesting journal articles and other literature published since 1940. The aim is to continue cataloging in order to produce a detailed catalog on the literature in each branch for the personnel and members of the association. The main emphasis is on chemical technology, but other titles that interest industry and business also are included. For its members the office of the association has typewritten duplicates of the classification system and the index of the classification terms as well as search cards with titles printed by hand. So far 15 orders have arrived. (Kemian Keskusliitto, 1946, p. 12)

The journal of the association, *Teknillisen kemian aikakauslehti* (Journal of Industrial Chemistry), published lists and abstracts of journal articles classified according to the UDC. In the mid-1950s the number of classified articles was reported to be about 14,000. Abstracts were provided for the most interesting articles and approximately 400 books were reviewed each year. In 1955, 1,500 titles of Russian articles were published

in Swedish "to help applied chemists in other Scandinavian countries in the difficult task of keeping up with the Russian literature" (Törnudd, 1955, p. 5). The lists of article titles were transferred to cards and filed in the association's library. Similar cards were also sent to some other libraries in order to form classified cumulative indexes. No index was published. This file was the most frequently consulted reference tool of the association (Törnudd, 1955, 1983).

A chemical engineer was given the task of taking care of the documentation service, to help the manager, and to edit the association's journal. During the following years the documentation service became more and more prominent in the work of the association. In 1949 the office was divided into two sections: one for running the business, and the other for documentation and editing the journal. The chief of the latter section was Eeva Wartiovaara, a chemical engineer, who since 1947 had edited the association's journal. Another chemical engineer, Elin Törnudd, was appointed to take care of the information service and assist the editor. She later became the head of the Library of the Helsinki University of Technology and a prominent person in the field of information policy.

The documentation services of the association included not only the provision of loans and copies of articles from its own collection but also the request of copies of articles and books from abroad. They also included journal circulation and the selective dissemination of information to member firms and institutions according to their interest profiles. Fact finding was a daily business. Larger reports on the literature were also compiled. The services included translations from foreign languages into Finnish and vice versa and terminological assistance to the press. As late as 1954 the information service of the association delivered more interlibrary loans and article copies to the industry than any other Finnish information service, including the information services of the State Technical Research Center and the Helsinki Institute of Technology. Törnudd, who in the meantime had studied information science at the Carnegie Institute of Technology, presented an account of the association's activities at the International Conference on Chemical Documentation in London in 1955, where it appeared that the Finnish service was advanced even by international comparison. She conducted an investigation among the patrons to find out how extensively the title announcement service was used. In this way she became the pioneer of user studies in Finnish information science (Törnudd, 1955; 1983, p. 556). Later she published a larger study on the use of scientific literature and reference services by Danish and Finnish scientists and engineers engaged in research and development (Törnudd, 1959).

The extensive information service activities of the Central Chemical Association along with those of KCL may have been a source of inspiration for others to follow.

Documentation in the Service of Reconstruction

The huge war indemnity to the Soviet Union was a great strain on, but also a stimulus for, the Finnish economy and especially the metal industry. It also gave a direct boost to the idea of developing efficient technical information services because many of the products that the Soviet Union demanded had not been produced in Finland before. Effective measures were implemented to ensure the acquisition of the information needed by the industry producing goods to be handed over to the Soviet Union. Among these measures were rebuilding the Library of the Helsinki Institute of Technology (today the Helsinki University of Technology), which had been completely destroyed in an air raid, and making information services more widely available than before. In relation to the latter point the information services of the Chemical Association and KCL, although extensive, were still either internal or limited to member firms and institutions.

An influential committee, Valtion teknillinen keskuskirjastokomitea (Committee on the State Technical Central Library), was set up to plan the reconstruction of the Library of the Helsinki Institute of Technology. The committee aimed at transforming it into a Technological Central Library for the state and stressed the importance of having immediately a generally available documentation service. In a reflection of the urgency that was felt about this issue, the committee recommended that a separate department for information services be set up in the State Technical Research Center (Valtion teknillinen tutkimuslaitos, or VTT), which had been established in 1942 during the war as an independent research center but which was closely tied to the Helsinki Institute of Technology (Michelsen, 1993, p. 83).[3] Following this proposal, in 1947 a department meant to serve the technical information needs

[3] K.-E. Michelsen's work is a general history of the State Institute for Technical Research in the context of the national research system; he also mentions briefly the development of the information services (Michelsen, 1993, especially pp. 137, 139, 222–223).

of all branches of industrial research was established at the VTT.

Bertil Nybergh was again a member of this committee, as was Yrjö Talvitie of the Chemical Association. The secretary of the committee was Karl-Emerik Olsoni, who became the first chief of the Department of Information Services at VTT. At the start no special funds supported the work of the department, but Edvard Wegelius, the chief of the metallurgical laboratory and later chief of the whole research center, arranged for funding from monies donated to the center by a shipping company. The department was also given the task of editing the center's publications. This role was reflected in its name: the Department for Publications and Literature Service (Wegelius, 1947; Olsoni, 1987; Michelsen, 1993, p. 137).

The state budget for 1948 allocated funds for personnel for the information service. The government justified the allocation with the statement "that the information service of the Center could monitor the progress of technology in various fields and that the researchers could use their time effectively in the laboratory while the information service takes care of the monitoring of the international literature" (Hallituksen esitys, 1947, p. 280). The position of chief of information service was created in 1949. The job requirements for this position were extremely high: for example, besides other competencies, knowledge of Finnish, Swedish, and four other languages was required. Such requirements could only be fulfilled by a person as cosmopolitan as Olsoni. Not long after his appointment, however, Olsoni went to the United States to study library science and eventually stayed there working, for example, at the Library of Congress. He was succeeded by Taimi Terä, who in turn was succeeded in 1956 by Eeva Wartiovaara (Michelsen, 1993, pp. 222–223).

When he was presenting the work of the Technical Research Center in 1949, Edvard Wegelius described the benefits of information services in part based on his trip to the United States:

> The Center has a special Department for Literature Service that also takes care of the dissemination of the research results of the Center. The importance of a technical information service for research and industrial development in general cannot be overestimated. It seems that at the American research institutions it is nowadays forbidden to proceed with any research task before the information service has provided information on what other researchers in the world have accomplished in the field. One cannot but envy all the means that an American researcher has available—abstract and reference files, microfilms and photostatic copies of most recent publications in the field and a trained personnel for the compilation of literature searches. In this field we have a lot to do. But we are not asleep either. (p. 9, translation from the Finnish original)

Wegelius referred to the extensive plans that had been drawn up in Finland and the prospects of cooperation that were emerging, such as through the Finnish Association for Literature Service (or Documentation), which was established in 1947 and followed the example of the corresponding Swedish association that had already been established before World War II.

The Finnish Association for Literature Service

There was feverish activity in Finnish society after World War II, and many traditional and old-fashioned practices were challenged. It is not in vain that the early postwar years in Finland have been compared with the New Deal in the United States during the 1930s. For academic and research libraries reconstruction after the war presented demanding tasks: restoring the evacuated collections, serving the flood of students returning from the front, and filling the gaps caused by many years of isolation. *Documentation* or *information service* became one of the catchwords of the time, because it seemed to represent a necessary rationalization of libraries and in the transmission of information in general. The creation of such services was a solution suggested for the information problems facing a range of institutions, large and small libraries, and research centers.

One of the elements behind the sudden expansion in the awareness of the benefits of a documentation service may have been the shared experiences of librarians and scientists during the war. All able men had served in the armed forces, and many women did volunteer work, such as nursing or air surveillance. A number of librarians and scientists had served in the army intelligence. Olsoni was one of them. When he wrote about the documentation service in 1948, he said that *literature service* was a vogue term and described the role of the department for information service as a sort of "brains trust": "its meaning to the institution is the same as that of the intelligence department for an army." According to Olsoni, "in great industrial countries there have evolved, attached to industrial, research and various state institutions, departments that have many names, such

as 'Intelligence Section,' 'Information Office' or 'Library Service.' . . . Regardless of names their activities are based on the library of the institution" (p. 10).

Another concept that gained popularity in the postwar years was "scientific management." According to a specialist in the field, knowledge of the benefits of time and motion studies as tools of scientific management had spread far and wide during the war. He also described the State Technical Research Center as "a special organ for rationalizing technical research" (Niini, 1948, pp. 92, 95).[4] In this light it is not unexpected that the establishment of information services in firms and research centers was justified by rationalization. Olsoni crystallized this idea wittily: "Literature service is the division of labour and rationalization of white-collar work" (Olsoni, 1948, p. 8).

The gospel of documentation also took root among the leaders of the business world. Heikki Huhtamäki, successful founder of a food industry empire, wrote in 1945:

> Modern industry cannot do without a library. To keep up-to-date the top and middle-level managers must follow the development of their field in different countries, which is easiest accomplished by professional literature and journals. But it is not enough that books and journals are acquired—we also must organize a "library service," the circulation of journals, reviewing of the books, creation of reference files etc., by which the information reaches those who need it. (p. 104)

He was to express similar interest later in the documentation movement. He spoke in 1947 about the importance of technical research and scientific literature for the industry at a seminar arranged by the newly established Finnish Association for Literature Service ("Suomen kirjallisuuspalvelun seura," 1947).

The number of people involved in information services grew rapidly after the war. A survey conducted in the late 1940s to find out the extent of technical information services available in Finland showed that even during the war years and immediately after many institutions, research centers, and company libraries had started to remodel the services provided by their libraries into modern information services. The ten most important organizations in this regard were KCL, the Central Chemical Association, the State Technical Research Center, A. Ahlström Osakeyhtiö (heavy industries company), the Biochemical Research Center (owned by the cooperative dairy industry), Enso-Gutzeit Oy (paper and pulp company), the Board of Patents and Registers (state authority), Serlachius et Co (paper and pulp company), the State Metal Factories (a state-owned firm), and Wärtsilä Oy (heavy industries company).

Most of these organizations had only limited experience with an information service of narrow scope. Only the two institutions already mentioned, KCL and the Central Chemical Association, were more advanced, but the concept of information service was now known everywhere (*Valtion teknillisen keskuskirjastokomitean mietintö,* 1947, Annex 3).

Thus, many people working in technical libraries, information services, and journals were eager to come together in the Finnish Association for Literature Service when it was established at a meeting in May 1947. A prime mover in its establishment was Karl-Emerik Olsoni. There were two persons who further developed the idea with Olsoni: Anna Grönvik of KCL and Heimo Leskelä, manager of the Engineering Society of Finland. The immediate model for the association was the Swedish Society for Technical Documentation, established in 1936. But the membership of the Finnish counterpart became more general than in the Swedish Association. The Finnish association also included people working in nontechnological firms and institutions, such as librarians in business schools who were eager to accept the challenge of developing information services (Okko, 1972).

The Finnish Association for Literature Service today is called the Finnish Society for Information Services (Tietopalveluseura ry—Samfundet för Informationtjänst i Finland).[5] The first chair of the association was the director of the State Technical Research Center, Edvard Wegelius. He served as chair for twenty-three years. He also served as a council member in the International Federation of Documentation (FID), representing all Nordic member associations. Grönvik was also a longtime member of the board of the association and Olsoni its first secretary. In June 1948 he attended the FID conference in Bern, where the Finnish association was accepted as a member of the federation (Okko, 1972).

The number of association members did not grow very quickly during the first ten years: in 1956 there

[4] For a general history of the rationalization movement in Finland see Michelsen (2001).

[5] For current general information see the Web site of Tietopalveluseura (Finnish Society for Information Services). Available: http://www.tietopalveluseura.fi (accessed 6 January 2004).

were eighty-nine individual and nineteen institutional members (today the number of individual members is around a thousand). The relatively small number of members during the first years, however, must not conceal the dynamism that the association and its members brought to the Finnish library and information field. Both the public librarians and librarians in academic libraries had an organization of their own: the former was the Finnish Library Association established in 1910, and the latter was the Association of Academic and Research Libraries established in 1929. The determination to establish yet another association suggests how strong was the need to show that a new profession was born, conscious of its distinctness from traditional librarianship.

One of the most important tasks of the association was to take part in the development of the UDC and translate and edit a Finnish-language version of the classification. A "DK-section" of the association was established in 1949. The Finnish edition was published in 1956. Another prominent characteristic of the association in its first decades was Nordic cooperation. There were frequent lecturing tours, joint Nordic courses, symposia, and other meetings. Experts from other Nordic countries came to lecture in Finnish courses for information officers. The first course was organized in 1951 to train librarians in industrial libraries. The second was a UDC course in 1957. During the 1950s many members of the Finnish association took part in documentation courses organized by the Nordic cooperative organization in the field of science and technology, Nordforsk, but some also attended purely Swedish courses (Okko, 1972). In addition, a number of Finnish librarians, engineers, and scientists wanting to become information specialists went to study in the United States, especially through the Amerikan Suomen lainan apurahat (ASLA)-Fulbright scholar system, which was (and is) a version of the American Fulbright program for Finland (see Copeland et al., 1983; *Shaping Nations,* 1999; Mäkinen, 2001).

Conclusion

During the first part of the twentieth century, information services for Finnish industry and technical research evolved dramatically. While it may seem that nothing came before them, they did not come out of nowhere. As information services do not exist for their own sake but as a functional part of the research system, it is natural that changes in research in science and technology especially were decisive in generating specialized information services. Important stimuli came from challenges posed by great national and international crises, especially the two World Wars, when changes in the market situation or demands from the authorities forced industrial companies in Finland to develop new products or improve the quality of old products. There was a need for new research and subsequently a need for new information. Traditional library methods were no longer adequate; a deeper analysis of the contents of publications had become necessary to make possible more effective information searches.

In developing information services, Finnish experts followed the example of their western neighbors, the Swedes, who in many areas such as technical research and information services were miles ahead of Finns. Later, new initiatives were also acquired directly from the United States and in part from Great Britain. It also is natural that the first initiatives to establish an up-to-date information service in chemical technological research appeared in the most important branch of Finnish industry, paper and pulp, to secure the access of Finnish products to the global markets. The wartime situation involved a sort of forced rationalization of production and research, which was important in bringing the knowledge of the benefits of information services to the consciousness both of those who decided about the money and those who took care of the actual work, that is, librarians and information officers.

After the war the concept and term of information services (or literature service) attained a kind of vogue status, and the associated activities were adopted in many firms and institutions. The number of people involved in information services grew, and a need for cooperation emerged. This took the form of an association. The association followed the example of the Swedes but adopted a wider scope of membership. Nordic cooperation and influences from the United States characterized the development of information services during the 1950s. This proved to be an incubation time before a new renaissance of information services in the 1960s.

In conclusion it seems to me that in explaining the emergence and development of the Finnish technical information services, one must note the challenges of wars and other international crises and their consequences for the Finnish economy and industrial production, as well as the determination that arose to face those challenges; the examples provided by other countries, especially Sweden, Germany, Britain, and the United States; the dynamic role of key persons; and the importance of Nordic cooperation.

The fate of a small country depends on its ability to

take advantage of international scientific and technical advances. The realization of this fact can often be a result of painful experiences. With luck and determination it is possible to learn from such experiences. The start of technical information services in Finland was slow, but as soon as the need for this kind of activity in the fields that were considered strategic was realized, the Finns took a firm grasp of the opportunities. They have never let them go.

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