

On the Closing of the Scientific Library of the Finnish Meteorological Institute

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Abstract

The scientific library of the Finnish Meteorological Institute and the Finnish Institute of Marine Research was closed in the spring of 2009. The collections were spread among the libraries of Helsinki University, Finnish Environmental Institute and National stock library of Kuopio. Some material was destroyed. In this article, I discuss the consequences of the operation to the working conditions of this special research community, the position of books in scientific work and the change in the use of information at the age of digitalization, benefits and disadvantages of centralization and the ethics of decision making. The study is supported by a questionnaire on the attitudes of the former users of the closed library.

Introduction

The special library of the Finnish Meteorological Institute (FMI) and the Finnish Institute of Marine Research (FIMR) was closed in spring 2009. Centralized collections on marine and atmospheric sciences were spread among neighboring libraries and the storage library. Personnel were informed afterwards and only when the lending had already been banned.

In this article the changing role of libraries, books and new sources of information in scientific work are discussed. I start with the history of the 160-year-old library, describe how important it was for its users and explore consequences to the working conditions of the research community based on answers to anonymous questionnaire prepared to study the case.

As part of the Finnish State Productivity Programme independent state research institutes have been merged, the last decision having been the closing of the FIMR in

spring 2009. The FIMR activities were shared by FMI and the Finnish Environmental Institute (FEI). There are further plans to merge institutes or laboratories of state institutes.

In the beginning of 2010, a new law released universities from the control of the Ministry of Education. The number of universities dropped from 21 to 17. The library of Helsinki University became an independent institute and the collections of small faculty libraries will be centralized into four campus libraries.

The FMI library was merged partly with the Kumpula Campus library of Helsinki University, although the FMI researchers do not have full access to the electronic materials there. It is predicted that most of the state research institutes will lose their libraries in future. I discuss the consequences of this development and assess if and how the internet can handle all information needs in scientific work.

History of the FMI library: The Magnetic Observatory

FMI's predecessor, Magnetic Observatory of the Alexander University, was established in 1838, in the same year as the Finnish Society of Sciences and Letters (here the Society). The Russian Academy of Sciences intended to extend geomagnetic measurements westwards. At the time magnetism was considered as a mysterious force which might offer answers to the questions left open by the Newtonian-mechanistic explanation on the world.

The first head of the institute J.J. Nervander (1805-1848) was a versatile intellectual and cultural figure and a poet. Together with the national poet Runeberg he was one of the founders of the Finnish Literature Society and Helsingfors Morgonblad, where both acted as its first journalists in the 1830s. Nervander was also one of the founders and the director of the Finnish Art Society.

The observations were started in 1844 and the library was founded around 1847. Nervander received his salary by acting as a professor of physics at the University. 12

university students carried out measurements around the clock. The Observatory published the results in its own name, unlike the other Russian Observatories.

As a correspondent member of the Russian Academy of Sciences, Nervander maintained international contacts. In 1848 he received half of the Demidoff prize from his publication "Observations faites al'Observatoire Magnétiques et Météorologique de Helsingfors, sous la direction de J.J. Nervander". The Society supported the work by collecting measurements from other institutes, making independent measurements and equipping stations with devices. The threat of a flood in St. Petersburg (the most severe one occurred in 1824) and wintertime sea transport also called for marine observations.

In 1853 U.S. and several European countries including Russia agreed in Brussels on the creation of a uniform meteorological observation network. Since 1859, the Magnetic Observatory received telegrams on European weather via St. Petersburg. A telegraph cable laid in the Atlantic in 1858 made intercontinental exchange of information possible.

The Meteorological Central Office

In the late 1800s, Russia tightened its grip on the autonomous Finland and there were plans to subordinate the Observatory under the St. Petersburg Laboratory of Physics. In 1874, the Finnish Parliament agreed to, and the Tsar Alexander II confirmed, the transfer of the Magnetic Observatory from the University to the Society. The Meteorological Central Office was founded in 1881 as one of the last Finnish autonomy-validating regulations in Russia.

Observations were published in the Meteorological yearbook, occasionally in monthly publications, series and in several newspapers. Scientific collaboration since the first World Conference on Meteorology in Vienna in 1873 and during the first Polar Year 1882-1883 increased international literature exchange. The Observatory's main building in Kaisaniemi served as a library around 1902 where the magnetic measurements had to be ended because the newly built electric tram wires nearby disturbed the results.

Finland became independent in 1918. Meteorological and Marine Research Institutes were separated from the Society. In the 1910s the series *Mitteilungen der Meteorologisch Zentralanstalt* began to appear, then *Studies of Earth Magnetism* and later one by one other serial publications. Each new release increased the international exchange of research publications.

The new weather house was completed in 1966, but moving away from the old observatory began already in 1956 as the library's roof had collapsed, somehow staying in place only on bookshelves. Activities were spread to temporary locations and some of the books had to be moved from one place to another whilst waiting for the completion of the new library.

The Library in the Weather House, 1966-2005

The first full-time librarian started in 1969. The library got an assistant and an information expert, formed new connections, launched long-distance services and served its field as official central library of geosciences. Collections grew fast. Classification was made partly by research staff.

In the 1980s printed weather maps were no longer sent to neighboring countries. Publication series were reduced, observations were moved to databases and meteorological data became liable to charge. Due to China's Cultural Revolution, the Soviet Union's disintegration and public sector savings during Reagan's period, delivery of publications from those countries ceased almost completely. Availability of electronic material reduced the need for inter-library lending and the free or fee-based information service of the library turned partly into commercial customer service.

FMI is a pioneer in computing in Finland. Already in 1959 computing time was rented from the Post Bank. The library received its first PC at the end of the 1980s and an integrated library system in 1990. FMI joined the common information system of university libraries (Helka) in 1997.

American Meteorological Society journals were the first ordered also in electronic form in 1999. FinELib (National Electronic Library) activities were established in 2000.

Electronic material increased, NetMot replaced the paper-based dictionaries and traditional lending declined.

Dynamicum, the new home of the FMI (2005-)

Already in a Government Committee's 1951 report it was proposed to combine the FMI, FIMR and Hydrological Bureau to one Geophysical research institute locating under one roof. In autumn 2005 FMI and FIMR moved to a shared office building, the Dynamicum at Kumpula University Campus.

The weather house library consisted of 502 m² and 1200 shelf meters. In Dynamicum the library got less space. The librarians had to reduce collections. The number of subscribed serial publications fell from 461 to 120 in 2004, in Dynamicum to 41 in 2006, and to 16 in 2009. In 2004, the monograph titles were reduced by 14% and the library appropriation was dropped by one third.

When moving to Dynamicum, the departments reference libraries were merged to the main library. Reporting to the research library statistics database was stopped and the library's own acquisition budget was removed altogether. The library was placed in the ground floor of an open atrium.

Closure of the Library

The State Productivity Programme began in 2003, forcing Finnish government agencies to undertake an extensive streamlining of their operations. Although the labor share of GDP fell from 6.9% to 3% and the share of government spending from 29.2% to 12.9% in the period 1970-2009, further savings created specifically by releasing public sector staff to the private sector have been imposed. At the FMI, staff is recommended to exchange their holiday pay to free time and produce more work in less time. Yet massive investments in supercomputers and weather radar systems are being made.

As stated above, following the implementation of a new University Act in 2009, the Finnish universities are no longer controlled by the State. In this re-arrangement, the Helsinki University library became an independent institution in early 2010. All

collections of the faculty libraries are being centralized to four campus libraries. The university library now has 158 libraries less than 20 years ago.

In Finland, the public libraries are positioned in the ministry of education. Special libraries of State institutions, like the library of the FMI, have an outlaw status because they fall under the auspices of various ministries. The facility management can decide how the library services are developed. If the management of an institute wants to axe the 160-year-old cultural institution and to break up collections to save money, it may do so without hindrance.

FMI and FIMR are state research organizations under the Ministry of Traffic and Communications. Thus they are subject to savings according to the State Productivity Programme. Besides streamlining, institutions are merged and regionalized. In spite of all scientific statements the government and parliament decided in 2008 to abolish the more than 90-year-old FIMR in 2009, and divided its activities between the FMI and the FEI.

In March 2009, the FMI management decided to close the library of the FMI. The decision was made by a small group. The information specialist proposed to maintain a small reference library in the auditorium corner, but this was not allowed. A lending ban came into effect three days after the decision. FMI staff were informed afterwards that the library will be developed into a cost-effective electronic service.

The following week the University Library people arrived to evaluate the material. Researchers were not allowed to reserve any books from the collections or select which material was to be moved to the Kumpula Campus library, to the stock library in Kuopio or to be removed. No query of the user needs was made. All handbooks were lost. Meteorological Research had managed to put in a lobby a few shelves with private books of professors. But these books, too, were ordered to be carried to the cellar in the spring of 2009.

The Kumpula Campus library, with which the FMI's library was partially merged, was formed in 2001 by combining Helsinki University's faculty libraries of physics, geophysics, geology, chemistry, geography and meteorology. The mathematics and

statistics, computer science and seismology libraries moved to the new science library in the spring of 2004, followed by the astronomy collections in 2009.

A third of the FMI printed monographs (2220 titles) were transferred to the Kumpula Campus library, the rest to the stock library. The Kumpula library took some series, for example WMO publications, and completed the missing numbers of their scientific journal collections with the FMI material. The Kumpula library did not receive any additional space for the FMI collections. FIMR library was mainly moved to FEI, while a small set of marine books was left in a small storage room without windows.

FMI is a member of many international organizations and has received a lot of e.g. WMO, ECMWF's, EUMETSAT's, EMEP and NILU reports, which were centrally available in the library. Now accumulation of those publications is ceased. Some old reports were transferred to the campus library, but the University may not get new ones because it does not have similar relationships with international organizations. Conference publications, earlier recorded in the library catalogues although researchers could keep them, are no longer accessible either.

The value and quality of the material lost is difficult to assess because the books were listed in the University library catalogue, separate registers have not been kept since 1997, and manual catalogues were destroyed during the transfer to Dynamicum. According to librarian Ritva Hänninen, the FMI collections still contained in 2005 books from the early 1800s. Where are the historical serial publications received by exchange with other meteorological institutes? The FMI library owned 38729 storage units of serial publications in 2003 according to the statistical data base.

The FMI Library survey 2010

As a part of this publication preparatory work, the author conducted, with Dr. Pekka Alenius, a questionnaire probing the consequences of the closure to the entire staff of the institute. It was supported by all FMI trade unions. The respondents were informed that the results will be used in planning improvements in the information services and for an article in a journal concerning information ethics.

The questionnaire was completed anonymously using webropol service in Finnish and in English. Of the 38 questions, 13 were open so that people could express their opinion in their own words. The questions concerned user information service needs, relative importance of different library services, ability to contribute to the closing decision and evaluation of the Kumpula Campus library replacing FMI's own library.

The National Library has studied the library use, the latest results available being from the year 2008. It collected information on the use of library services, customer satisfaction and service implications. In the 2008 survey the Dynamicum library was evaluated by 57 people. In the Helsinki University Library user survey of 2005 only 3% of the users of the Faculty of Mathematics and Natural Sciences responded, one person from Kumpula library. Only 0.6% of the library users of the whole University replied.

In 2008 the users rated the importance of the Dynamicum library on a scale of 1-5 to 4. 75-91% answered that library services had helped them to find the requested data, improved and streamlined their work and other activities somewhat or significantly; 54% responded that library services promoted new ideas. This library was found to be important for the research.

In 2010, a total of 70 people responded even though the library was already lost. Two thirds were men and 71% researchers. The numerous comments in the 2010 survey indicated that opinions on library vary from positive via indifferent towards negative.

Some criticized the way the library had been overridden in the planning of the new house, and stressed that books also have aesthetic significance. Some respondents, who had participated in the library's closure, were satisfied that the lobby floor was freed when the library was closed. Actually the lobby is still empty and only a few parties have been organized there.

However, 56% of respondents did not accept the closure of the library as a public space. According to 62 % of respondents, the closing hampered research substantially or made it difficult to acquire knowledge, and reduced the reading of books. The share of persons answering 'I don't know' or 'indifferent' varied between 3-30 %, depending on the questions; 67% saw reference libraries as important or very important.

Some suspected that research excellence cannot be obtained solely by relying on the latest electronic publications and the internet. A specialized library was considered important for young researchers, whose educational background is in the general natural sciences. Without books, some felt they will lose the opportunity to get an overall picture of meteorology. Referred articles can be misleading, can contain incorrect information and information that is too fragmented to provide an overall picture of any broad scientific question.

54 % of respondents considered that the closure was carried out very badly or poorly; one person thought it was carried out very well; and 46 % reported that they had lost some books and material necessary for their work.

43% of respondents thought that the campus library replaced the Dynamicum library poorly - or not at all. Reasons given were: FMI researchers cannot influence the procurement, data acquisition will take considerably more time, and seeking information is difficult and less effective when handbooks are transferred to a different building or to the stock library. New conference publications remain now in the shelves of individual researchers because no-one is collecting them anymore.

FMI employees do not have the same rights to the Campus Library's electronic materials as the students and the university staff. It is not possible to read electronic material of the University from the FMI internal network. One must move physically to the library to access their content. There it is forbidden to copy e-articles to a memory stick or to send them by e-mail to oneself; only printed articles can be taken out of the library. Printing takes time. And persons keeping electronic archives must scan the paper prints once again. FMI library was also available every day 24 h/day, while the university library is not. While writing this article, the library was closed for three weeks. Kumpula resources have been intended for university use.

28 % of respondents felt that special libraries are of minor importance and a large multi-disciplinary campus library is sufficient to replace them. Some respondents were students who had full access to the university e-material. Other persons to whom the library's closure did not have any affect used library services rarely or occasionally.

This conclusion is found by sorting answers in the webropol- generated excel-file. With webropol it is not possible to make a completely anonymous questionnaire.

Some users doubted that the new acquisitions will contain material to meet their exact needs. When all literature is centralized into one limited space, it becomes increasingly difficult to manage a balanced distribution of books among the different disciplines. For example, novelty books on air quality were not found at all in Kumpula in spring 2010, although FMI has a big research department in the field. On the other hand people had found that historic material, old newspapers and gray publications are missing from the new campus library. Old materials from the merged special libraries were probably sent to the stock library. And people who work in FMI's offices outside of Helsinki complained about the fact that access to electronic material at the university library requires a visit to the library building.

The closing of FMI's library led to a change in the acquisition of novelty books; over 80% of respondents reported that they bought them instead of borrowing and 24% paid for the books themselves. New books were not listed on any catalogues, because people were afraid that they would have to give them to the university library. Half of the respondent reported that they do not have enough money to pay for the books.

Half of the respondents estimated that there are not enough electronic journals. The majority did not use electronic books, nor did they know whether there are any available and if they need a password to access them. Printed books were considered twice as important as electronic books. Internet search engines and electronic journal portals were named as the main channels of information now.

40 % wanted a comfortable reading and meeting corner, a public space with new literature (also in Finnish), where one could relax in an intellectual environment broadening one's scientific views and getting new ideas. One person commented: "the library can be perceived as a central, quiet force; it seems that those who were closing it did not understand its very essence".

Consequences of the closure from an ethical point of view

Basically, the old collections of the FMI library are recorded in scientific library databases and they can be borrowed from the campus library or through it from the stock library. But, the library's valuable position in guarding the centralized special collections of its own field was lost. The collections do not grow anymore.

Maybe the most unethical feature in the library closure was that the management operated like behind the back of the library users, the closing being performed without any open debate and the staff informed afterwards. This is opposed to the values of the institute - the decision process was undemocratic and increased fatigue and frustration, which grew up already when the FIMR was closed among the staff.

The survey results indicate, that the inequity in access to information has increased, because not everyone has money to purchase new books. It is also against the State spending policy that if lending declines researchers who purchase books for their own use do not enter them in any registries.

We are in an intermediate stage of the electronic library; printed books are still necessary for the scientific work. If the same information, which is centrally compiled in books, is sought by reading individual articles in the web, multiple amounts of material have to be processed. The web-environment is chaotic and contains enormous amount of fragmented information. The main criterion for a new article to be accepted is that it contains new knowledge. This requirement of presenting one detailed piece of data published in a single paper among all the millions of other publications means generally that the information content of a single article is very limited.

We can also ask what happened to creativity when a place for meeting others and to seek information or just take an intelligent break disappeared. Scientific imagination could be expanded by picking up information from reliable books of the adjacent sciences. For a multi-scientific establishment like FMI, easily available interdisciplinary information just for scientific curiosity and serendipity is essential. The Institute hires a lot of physicists and chemists, whose training does not include meteorology, but who should use meteorological information in their work.

The availability of materials at the University library is already weak and, according to the director of the Kumpula Campus Library, Hannele Fabritius, the situation may get worse as the campus library has a large and growing number of users but insufficient funding and number of permanent staff. Around 6000 undergraduate and about 700 postgraduate students in addition to the university staff use it. When more than 700 FMI users were attached to the campus library, resources were not increased.

I also wonder how much literature is wasted in centralization of libraries. The stock library does not keep multiple copies of books, so where are the duplicate copies removed to and what happens to them? Is there a secret bonfire of books held somewhere?

Importance of the book in the current Information Society

According to the Rynänen report for the European Parliament (1998), the mission of libraries is to provide citizens equitable access to knowledge and culture: without any library services, scientific research is impossible, while the improvement of these services raises the quality and quantity level of scientific results substantially. Decrease of scientific libraries in order to attain financial savings is against the EU's objectives.

For Jarmo Saarti, the library is an essential tool in the broad dissemination of scientific results. The rapid shift to digital distribution of materials, however, has moved the basic task of the library workers from collection maintainers to assistants, who should ensure peoples' access to sources of information. Libraries' holdings should be developed from book stocks to quiet reading and group working rooms, to living rooms, where information retrieval is handled electronically and where people are seen and meet others. Such places had not yet been found by the respondents to the FMI questionnaire in Kumpula Campus library, but they hoped to have such a place like a book café in Dynamicum. This is especially so because FMI researchers cannot really use the e-material of the university.

The increase in digital material and internet services is not replacing the libraries. Only the way people acquire information will change. A variety of databases, registries and full text e-books are available on the internet, and the internet also provides, for

example, video and audio conference services and e-learning platforms. Alongside a traditional library containing printed material, a new digital library, at least equal in use, has emerged.

Electronic material available for the FMI staff now covers mainly scientific serials and reports. In the 2002-2004 library database statistics, 170 electronic books are mentioned. It is possible that some other e-material is classified as an e-book; in the 2005 statistics they disappear. In 2009, the Kumpula Campus library had 39 e-books, but those cannot be used from the FMI network. Parts of the international research reports can be found online, but users have to search them by themselves from the internet jungle. And, no new scientific e-books within the scope of the institute are freely available.

According to Mikael Bök Google has scanned more than 12 M records, and *www.openlibrary.org* should offer close to one million e-books. In May 2010, I did some experimental navigation in the openorg-library, whereby I was able to find 311 meteorological e-books. However, without exception, these books had been written before World War II; 62% had been published before the year 1900.

Kai Ekholm, the director and chief librarian of the National Library of Finland, lists a number of reasons why the internet is not a library. Less than 1 % of the material of the National library of Finland can be found in the internet, and most of the collections will never be available through its channels. No-one has the resources to digitalize all of the desired material. Copyright legislation will also prevent the unlimited digital delivery of literature. There is no quality control on all internet data. E-books and e-papers are not cheap. The internet is not available to everyone. The internet does not necessarily present liberty or freedom, it can also be used to manipulate people and societies and it can be easily used to control the free flow of information and ideas and to censor and corrupt information and production of some forms of knowledge. The internet will complement libraries, not replace them. Libraries and books have a long and valuable history. Libraries are not only book repositories; they also have other uses. On the other hand, digitalization is excellent as it will save paper technologies which might not otherwise be preserved and survive.

The web contains a lot of material which cannot be accessed by general-purpose search engines such as Google. According to Devine and Eggen-Sider this invisible web is about 500 times the size of the visible web. Search engine creators make decisions (including ideological ones) about what content will serve most of their users most of the time. Web searching programs, web spiders, locate and store the material in a way that makes possible fast and easy retrieval, but they are designed to follow links from one site to another. Unless the web site is linked to from another site, web spiders do not find it. They do not find web sites with non-indexed protocols and they cannot retrieve data from databases. They create an own web surface, which contains material filtered by the selection criteria of the search program.

Other difficulties lay in the quality and amount of material found. The number of documents in web has increased by many orders of magnitude, but the user's ability to read them has not.

In order to use the internet well in the scientific world, the available online information should be systematically classified; data which is used should be reliable and it should not disappear by mistake, by unethical design, by change of a server, by a virus or some computer attack or hack. Now the knowledge embedded in the web is dispersed; finding information is often haphazard, and information searches produce also a large number of worthless and unreliable material.

The organization of the digital content on the internet (e.g., via social bookmarks as well as by creating rational search engines from chaotic amount of material) is still a challenge. Phil Bradley among others describes how the web should be used. The work to develop tools and guides for better and more efficient use of the internet is going on. But the state of this work does not legitimize any library closings; they are still needed.

Postscript

The main reason for the library's closure was the cost saving politics. According to information specialist Esko Puheloinen, FMI needed to display to the Ministry synergy advantages after moving to Kumpula as the new office building was expensive. He

also mentioned that the changed user needs were partly a factor because lending had decreased when the number of e-journals increased.

The library was closed mainly due to the State Productivity Programme requirements to reduce the number of employees. This does not explain, however, why it was forbidden to keep some handbooks available in any place, and why the small collection of books of professors at the meteorological research had to be taken down to the cellar.

Personally, I think that there is another reason, connected to the change in the professional field of the management. Researchers who make experimental work have got a rather high number of leading positions at the FMI. Model results are accepted to journals only if the results are verified with measurements, but experimental work is accepted as such. Most of the aerosol measurements were for a long time not connected to regular background station network activities, as it was intended. Experimentalists produced plenty of private and group publications using results of short measurement campaigns. Those results might also be important, because the gap of knowledge in effect of aerosols on climate change is very high.

Some scientists also follow a somewhat questionable publication practice. In some aerosol conference proceedings one can find a single writers name in a high volume of papers. At Helsinki University, during one course of scientific writing, all of the students had to present an unfinished paper. After giving them feedback, the professor put his name on every publication. It is rather common, although against the ethical publication rules of the FMI, that people in leading positions put (or are asked to put) their names to papers written by their colleagues, as 'honorable authors'.

While the main criterion of getting a leading position in the scientific community is the number of publications, there is a danger that too many persons with this kind of background can be filtered to the leading positions. All experimentalists do not need books or historical publications, the latest articles are sufficient, if their research branch is young.

People have a very personal relationship to the books and to the library, which they feel is their own. This can be seen in the response rates of the National Library studies; the hit rates were much higher at the FMI than among the university people. This relationship is broken when the books are sent to libraries which are not open to the general public. The number of books sent annually to the storage library in Kuopio has increased from around 45000 to 70000 from 2002 to 2008. The storage library contains over 1.3 M printed monographs (in storage units) and over 1.25 M serial publications in 2009.

I'm very sad that the FMI library was closed. We have 3 saunas, a big gym and a separate aerobics room, and a terrific number of conference rooms, but apparently we have no space for handbooks.

The poet Nervander would also have been sad, I believe. Libraries host a spirit of intelligence and civilization which can never be replaced with a computer-connected environment, whatever its efficiency. It is easy to retrieve data fast from the internet, but to understand it one needs a quiet environment, a library.

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The writer is a physicist working at the FMI. Her words do not represent an official opinion, statement, or stance of the Finnish Meteorological Institute.

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