

The cooperative system for the management and long-term preservation of the modern Bohemical book collections

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Abstract:

Valid Czech Legislation prescribes all the Czech libraries to hold their book collections permanently. However, is it possible to proclaim that this statute is the true guarantee of the book heritage preservation for the future? In the near past the answer was simple – NO! There was no precise evidence about the documents, which are contained in the preservation collections of the Czech Libraries, because of various approaches to these collections. There was very limited access for the mass conservation processes e.g. deacidification, book binding or digital reformatting. There were no systematic surveys of the physical book conditions. National Library of the Czech Republic collections management experts identified that the system for building, enrichment and management of the modern preservation collections is required. A few years ago the unique cooperative system of the management and long-term preservation of the modern book collections among the biggest Czech libraries has been launched.

Keywords: collection management, preservation, digital reformatting, conservation processes

Introduction

Book collections have the priceless value because of their significance for the historical heritage. Libraries themselves belong to the essential pillars that keep our culture and local identity alive, provide the ground sources for the research, serve as the institutions for lifelong learning, professional events and other activities enhancing our intellectual skills. The network of the Czech libraries is very wide and open for new challenges connected especially with the digital revolution. In general, libraries are capable to follow current trends in the ways, how to promote their content and preserve the digital data for the future. This transformation gives them new life in the virtual space of information and declares their mission for the general society needs. However, libraries should not forget to their traditional role as the institutions responsible for the preserving of our heritage in printed form, what is getting a little bit out of their scope including the limited access to the appropriate funding.

This is getting harder and harder especially in the case of modern collection. State authorities will prefer to invest money for the restoration of old prints or manuscripts – it is popular, marvellous for promotional activities and easily understandable by the public. In the comparison to the old prints and manuscripts – which are inherently unique – the number of modern collections is growing, while the historical collections are accruing very rarely. Nowadays modern collections make up more than 90% of library collections worldwide and this number will be increasing. The question is – how to keep them alive for future generation, how to choose in such a big number of volumes the right ones for the conservation and reformatting processes and how to manage all the necessary steps for their long-term preservation without wasting money and human power. These questions were asked by the Czech librarians more than five years ago, when the great opportunity for the National Policy of the Traditional Bohemical Printed Documents Preservation and Accessibility creation arose. This year, the first five-year part of the plan is getting to the end and it is time to summarize the achieved results and open the discussion for the future plans for next five-years.

Initial Czech Situation Description

Long-term preservation of the national modern books culture heritage depends at the most on four preservation collections, which are built and managed by three the most significant Czech libraries. All these collections have been established on the principle of the legal deposit – the copies, which are received from the publishers free of charge on the basis of the valid legislation and have to be kept forever. But this premise seems not to be valid. Two copies are stored in the National Library of the Czech Republic, one in the Moravian Library in Brno and the last copy in the Research Library in Olomouc. Only National Archival Collection of the National Library has the true archival character: it is used only in exceptional cases for reading, when no other copy of the requested document is available in all the Czech public libraries. The second collection, called Universal Library Collection, is used for the public access to the documents, especially in in-house mode. Two collections situated in Brno and Olomouc has the similar way of using. A sufficient number of copies is kept in the system of state institutions and their geographical distribution belongs to the basic fundamental assumptions for the preservation of the individual copies, because in this case it is impossible to rely on the books located in private hands. Until recent, there were no tools capable to count the number of existing copies, which was essential especially in the case of last surviving issues, although these unique works should be restored, deacidificated and digitized on the first place, with the effort to get another copy, no matter the price or time. Other negative aspects affecting the book heritage preservation have been connected to the limited budgets and lack of methodological support in this area. This situation was caused by the political situation in former Czechoslovakia after 1948, when the importance of the libraries in the society declined. There was no funding mechanisms for new library buildings and depositories, there was only a limited budget for the acquisition and everyday operation of the libraries. Many books were also damaged because of their hostile content. Other books were kept in unsuitable physical conditions, in old castles or factory halls, there were not money for the regular restoration and conservation interventions. That means that preservation books collections of modern literature are relatively complete only for the last twenty years. On the other hand a high number of books coming from the 19th century and from first half of the 20th century are missing unfortunately.

National Policy of the Traditional Bohemical Printed Documents Preservation and Accessibility

On the basis of not so good situation collections management experts from the National Library of the Czech Republic and other libraries with the preservation duties identified in 2010 that the system for building, enrichment and management of the modern preservation collections is needed. In this time, new Czech Libraries Development Strategy was formed. The first step was to summarize the existing situation and design the next steps for the future. Based on this overview the National Policy of the Traditional Bohemical Printed Documents Preservation and Accessibility for 2011-2015 was established. Among the main objectives of this document belonged to propose the economic analysis of the policy realization, create the first automatic tools to help the libraries to refill their preservation collections and manage their work with the special aim to the reformatting and conservation procedures. Besides this ground achievements the aim of the policy was also to prepare compulsory methodological documents in the area of the modern collection management and start to create cooperative system for the libraries interested in the area of the long-term preservation of their collections.

At the same time - when above mentioned national policy was established - National Library of the Czech Republic propose the research project called „Building the cooperative system for the creation and management of modern preservation book’s collections in the Czech Republic and the development of needed tools“. Fortunately this project was successfully agreed and funded by financial mechanism called NAKI organized by the Ministry of Culture of the Czech Republic for 2012-2015. This was the initial project, which should bring mentioned visions into the reality.

First results used in modern library collections management practice

A) Virtual Deposit Library Web Service

The first step of the coherent efforts to preserve the modern book collections for the future was to find the better way, how to refill them with the books, which are missing or there is only a limited amount of copies located in libraries. The most common way, how the public libraries have solved this issue, were the lists of books offered by them for disposing their holdings to other public libraries. Unfortunately the level of usability was not high, because the information were shared in many different ways, e. g. html files, xls sheets, docx documents or xml outputs from catalogues. Second problem was connected with the incredible big amount of records of the offered documents. The most of these lists usually contains thousands of books. That caused the big issue for acquisition - to check the presence of all the titles of the lists in the content of the own collection. Practically this left only two options. Take everything, or nothing. If the second way shall be used, many volumes that were often not represented in the preservation collections were lost for good. The key benefit of the Virtual Deposit Library was to prevent these losses, increase the efficiency of refilling preservation collections from lists of eliminated books and try to simplify the process of acquisition of the missing books by the automation of the processes using the software solutions.

Basic condition of the automated replenishment via the application is to precise mapping the number of copies stored in libraries to the information about their holdings. That is very difficult because of various condition and number of records in the library catalogues. The statuses mandatory for harvesting to the Virtual deposit library were determined, after that the data were mapped to a single unique profile and unify. Concurrently, detailed algorithms to compare the results from individual harvests and sort them were established. For all above mentioned steps the clear data coming from library catalogues are essential. Unfortunately,

the opposite reality is true one, especially in the case of information about library units. The huge mess in data inputs coming from involved libraries makes the everyday work very hard. During some harvest even had happened, that in the harvested data various information about the number of propagation objects (e. g. umbrellas) were involved. For the expected results it is still necessary to check the duplicities and deduplicate them and finally adjust the new profiles suitable for other libraries. This process seems to be never-ending story, because single harvests must occur in regular cycles to ensure the up-to-dateness of the database content.

All the important business models are involved in the application from early beginning. Virtual Deposit Library contains automated functions to evaluate the number of copies hold by every single participated library, with the accent to the libraries with the preservation duties, which will be standing in top of the wish list. When collections are refilling from delivered offers, National Archival Collection of the National Library of the Czech Republic, as the most important conservation collection in the country, is preferred automatically. Preserve collections of other public libraries are standing at the rear of the hierarchy, behind the sources for the future creation of the physical deposit library, which is designed for replenishing the lost or otherwise destroyed copies. Books, which will not cover any of above mentioned criterions, are determined to the process of destructive digitization, what guarantees maximum extraction of acquired resources from the lists and also the gifts.

The screenshot shows the front page of the Virtual Deposit Library service. The header includes the title "Virtuální depozitní knihovna" and a subtitle "Kooperativní systém pro budování a správu novodobých konzervačních knižních sbírek v České Republice". There are search and export buttons. The main content area displays search results for a specific book, "Překlad a překládání /". The results are grouped by ISBN and show a table with columns for signature, status, library name, volume/issue number, and year. The table shows several entries with statuses like "absentní" (absent) and "prezenční" (present). Below the table, there is a section for "Mercury in boreal forest lake ecosystems /" and another section for "Stanovení útlumových vlastností pryžových podložek při rázovém zatížení : autoreferát doktorské disertační práce /".

Fig. Nr. 1. The front page of the Virtual Deposit Library service with the information about number of copies located in Czech Libraries.

The tool itself is built on the technical solutions that have been used long time in the National Library of the Czech Republic software environment as Oracle database, application framework Relief or search mechanism MS FAST. Operations connected with large scale data operations are simplified by Czech National Bibliography number, which prescribes unique identifier of a physical document.

B) Methodological support

During the last years the special needs of the libraries for the methodological support was declared. The libraries wanted to have especially the ground methodology concerned the practical issues in the area of the modern library collections enhancement, management and long-term preservation, which might be useful for them within the negotiations with their founders and politicians about the support for the constructions of the new depositories or as the practical defence of the budget costs. Three methodologies were prepared so far and approved by the Ministry of Culture of the Czech Republic. The first one called “Methodology for the modern book collection’s physical conditions surveys” aim is to help the libraries to define best- practices, how to measure the real physical conditions of modern books located in their repositories. To be capable to organize the best possible ways of long-term preservation, conservation and restoration actions it is necessary to have overall picture about the conditions of the documents. Some of the modern books and newspapers are endangered now. Based on the surveys, round 30% of modern documents are in the critical condition. One of the main purposes is the fact, that documents produced after 1850 are printed on the poor quality materials, which are badly influenced by degradation processes. The colour is transform to yellow or brown tones and change the mechanical characteristics – break themselves or brittle. The goal is to treat as much documents in the shortest time. Systematic surveys make sense for the planning of conservation activities including mass procedures so as deacidification or digitization. Second methodology named “Methodology for the estimation of the minimal number of book copies necessary to store in the system of the libraries with conservation duties” is used as the guide for the separate software application describe later. Its purpose is to help to predict, how many copies of the various documents should be stored in the system of the Czech libraries to keep them for the future generations. The last one – the most summarizing – methodology is called “Methodology for the modern library collections enhancement, management and long-term preservation”. Its main outputs can be summarized to the ground four areas : to establish the most important principles for the modern library collections management including the existing methods prescribing by the legislation, to specify the exact role of the libraries having the conservation duties, to determinate mandatory parameters for the long-term preservation of the printed text based on the international recommendation and finally to implement modern practices and business models to the routine library life. All the published recommendations and requirements must be implemented systematically, in the step-by-step mode, which enables to manage these principles without a sudden increase of the budget.

C) Mathematical formula for the recalculating of the optimal amount of copies stored in the system of libraries having preservation duties

One of the most important factors for the long-term preservation of the traditional paper documents is a number of copies that must be stored in the system of libraries having preservation duties. The key object is to predict their lifetime, which allows to count the exact numbers that guarantee the preservation of at least one copy of the book for the specified time with the higher degree of objectivity. This is solved via the highly specialized tool working with special data about the durability so as Preservation Index (PI) or Time Weighted Preservation Index (TWPI). The lifetime and loss rates help the libraries to identify the risks during preservation, improve the systematic care about the collections and costs calculations. There is a direct relationship for the various organic materials between the surrounding environmental conditions – especially temperature and relative humidity - and the degradation itself. Simply said: the higher Preservation Index, the better situation for books. With such a complicated calculation (with many variables) it is necessary to ignore many parameters because the overall scale of their impact is pointless. It should concentrate on the

essential parameters and the parameters that we know and we are able to describe somehow or quantify. The same works for the lifetime of organic materials comprising the books, such as paper, textiles, various binders etc. It is necessary to involved also the variables describing the everyday dealing with books - number of annual losses, the frequency of borrowing, type of damage, the use of copies (microfilm, digital copy) and so on. However, during the formula creation there are often missed the data that are necessary to quantify these variables or are not obviously observed e. g. the relation between the number of loans and the number of annual losses of documents.

Because of the fact this issue has not been solved in Czech Republic so far, the formula will be updated based on its use and the process of acquisition of the additional quantitative data, which might be relevant for the calculating. Currently more statistic data from library catalogues about the revisions and circulation of the books are expected.

Fig. Nr. 2. Preservation Index calculation.

D) Modern Collection Systematic Surveys

Systematic surveys of modern Bohemical collections take place in the National Library of Czech Republic for more than five years. Gradually also Moravian Library Brno and Research Library in Olomouc started with the surveys. Individual measurements are recorded to the application known as the "Central Knowledge Base of Examined Documents". This application is used exclusively for monitoring the physical condition of library collections and is connected via API to other library services. During the measurements different parameters affecting the physical state of the document are considered (book bindings, the level of paper degradation, pH level, using material and type of the ink etc.). Based on this processes, the systematic decisions about the way of the treatment can be define - reparation, conservation or restoration works, storing in protective boxes, deacidification or reformatting. Currently, the database contains more than 200,000 records.

E) Deacidification

The biggest problem, limiting the long-term preservation of the modern physical units, is connected with the degradation of the acid paper, especially in the case of newspapers. The only way of restoring thus documents is the massive deacidification. This is the specific chemical treatment, when free acid located in the paper structure is neutralized or removed. During the process of acid neutralization their catalytic effect is cancelled and so called alkaline reserve based on magnesium or calcium is inserted to the paper. Alkaline reserve enables to create a special reserve for the future, because it neutralizes the acid formed in the paper layers due its natural aging or absorption from the surrounding. The technology of deacidification renew the chemical stability of the paper, abolish catalytic effect of acids and slow the degradation of the paper down.

National Library of the Czech Republic is testing various deacidification technologies for more than 5 years. During this period, library researchers had a great opportunity to try different techniques – Papersave, Papersave Swiss or ZFB:2. Based on this experience and exact measurements National Library of the Czech Republic started to use ZFB:2 technology, which is solved by the external service in Leipzig.



Fig. Nr. 3. Example of the endangered periodical, Foto: Petra Vávrová

The deacidification is supported from the Ministry of Culture of the Czech Republic via Public Information Services of Libraries program funding. Every single public library now has the opportunity to get the budget for deacidification, when proves the effectiveness of this need. There are also first visions to create bigger deacidification unit somewhere in the Czech Republic and start the process for the bigger amount of Czech libraries. Of course, the acquisition of suitable equipment is very expensive (including suspensions acquiring), so the deeper cooperation is mandatory together with the management of the selection. The first step how to monitor the deacidification efforts is the Registry of the deacidified documents creation. Its development will be closed this year, and after the period of testing the Registry will be open for libraries – with the various ways of their data imports.

F) Provenance Signs Surveys

Almost all the big national and university libraries in Central Europe region functioned in the past as the central state institutions for book collections depositing. This was essential especially during the eventful periods of the national states formation, during the World War

II., and the events related to the settlement with its effects to society and the establishment of totalitarian regimes. During such a rushed times the culture heritage artefacts were transfer all around the Europe, change the ownership or were lost forever. With the exception of the Judaical documents no one cared about their structure, original property or their importance for the history. These books may be often the last and only evidence of the existence of their original holders (individuals, universities, civil fellowships, factories etc.), which ceased to exist during the 20th century and can be traced just through the provenance signs, stamps or various inscriptions. So far, most of these collections have never been properly catalogued and mapped out (in rare instances the only available documentation were partial card catalogues that did not reflect their actual physical amount). For these reasons are these interesting collections not accessible. The work is enormous. Starting with the retro conversion of the old records or processing the new records into the library catalogues to undertake the depth archival investigation to open this area of librarianship to general public and scholarly institutions (universities and researchers) to study these dreadful events. A background stories gained by studying those printed documents and by archival research requires presenting them adequately via specialized web inter-discipline portals and educational activities. That can contribute to the interdisciplinary cooperation between various culture heritage institutions.



Fig. Nr. 4. Some provenance signs from the National Library of the Czech Republic collections, Foto: Tomas Foltyn.

Support coming from the governmental bodies

No one of the above mentioned activities can be realized without strong support coming from the Ministry of Culture of the Czech Republic. Their help is coming from two different ways – financial and organizational. The financial support is spread via the Research & Development Division of the Ministry of Culture through the NAKI program. Based on this funding the „Building the cooperative system for the creation and management of modern preservation book’s collections in the Czech Republic and the development of needed tools“ project was launched in 2011 with the end in 2015. In the frame of this R&D project, many of the described solutions were developed. Second very important funding – for all the Czech public libraries – is coming via the Public Information Services in Libraries program (VISK

7). The biggest importance of this program is the fact, that it is widely open with the yearly possibility to submit the projects. From the early beginning it was aimed to the support of digitization of the documents endangered by the degradation of the paper, but now the aim is much broader – the support of deacidification, conservation and restoration, physical documents surveys and also limited amount of research is permitted. In the relation to the organizational support the possibility to involve all the ground activities to the strategic document – General Strategy for the Czech Libraries Development 2011-2015, subsequent General Strategy for the Czech Libraries Development 2016-2020 or the National State Cultural Policy of the Czech Republic for 2016-2020 – is also essential.

All of described activities are designed to minimize damages on the cultural heritage, for effective protection of the printed literary treasures and for better management of the Bohemical collections. These activities are characteristic to the libraries. They define their status in a wide range of memory institutions. However, there are still different barriers. Unfortunately, some of them are hardly influenced, so as the limits associated with costs, which are essential for continuous support. That is something, what is impossible to fix just via governmental support. Every single library and its founder should make the best not to underrate this issue.

Future activities

Of course, there are still a lot of things to do. First step is to continue in the research and development activities. National Library of the Czech Republic, Moravian Library in Brno and Research Library in Olomouc submitted in 2015 new project called “IN-PROVE : the creation of the integrated environment for the surveys, protection, research and recording of the modern library documents that belong to Bohemical conservation collections”, which was successfully approved and will support the development till 2020. The main goal of the project is to build up the integrated environment for the professional work with the conservation collections. The researchers will map also still unknown numbers and structure of the Czech newspapers regional versions, try to prepare specialized solution for virtual uniting of the formal personal libraries based on the provenance signs and update the practices for the recalculating of the optimal amount of copies stored in Czech Libraries. One of the most expected outputs is to create deep analysis about the Central Deposit Library and National Methodical and Conservation Centre for Modern Documents establishing. This analysis will cover not only the practical and organizational questions, but provide also macroeconomic data. Both analysis are essential steps for the future negotiations with funders and all the public libraries are waiting for their results. Further steps to improve the Public Information Services in Libraries program content will be made as well. The first objective, for 2016 and 2017, is to enrich the program for the possibility of the audio-visual artefacts digitization, especially of the shellac phonograph records, which are very endangered by the destruction of the physical carrier. All the mentioned steps are in the full accordance with all the described strategic documents, what allows them to reach the reality.

Conclusion

Long-term preservation of the modern Bohemical documents should be guarantee by highly professional system of institutions. All of them have to get brightly define responsibilities matching their own role. Of course – different approaches will be used in the municipal libraries, where the books are used for everyday circulation, in the research and university libraries, where the printed documents are used for education or in the libraries with conservation duties responsible for keeping the national identity for the future generation. The general aim should lead to the same target – to strengthen the active cooperation among the Czech libraries also in the area of printed documents, sharing the digitization results and

bibliographical metadata and effective books acquisition. Of course, necessary tools shall be developed and widely accessible and there should be no barriers in the valid legislation and financial support. On the other hand, many things, which enables to automate the conservation processes, can be fixed by everyday cooperation and proper work. The right example are inconsistencies in the application of persistent identifiers (Czech National Bibliography or URN:NBN numbers) causing many troubles connected with records merging. That is something what can be done without any powerful support.

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