

STATE AND PROSPECTS OF THE SCIENTIFIC PRESERVATION OF CARTOGRAPHIC MATERIALS

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Abstract: The collection of cartographic documents stored in the Russian State Library is the country's greatest one, sought after by specialists and researchers in various fields of knowledge. The preservation of this unique cartographic stock is a part of the complex and many aspects of the problem of the preservation of holdings of the Russian State Library.

The specificity of the storage of cartographic documents proceeding from the technological peculiarities of this given kind of documents, the technical equipment, researches in the conservation of documents are also specific.

Restoration of cartographic documents, principles of the selection of documents for the restoration, priority of the restoration work:, variety of methods and ways of the renewal of documents, differentiated approach towards the choice of methods and ways for the restoration of cartographic documents, quality estimation of the accomplished restoration operations are discussed.

Training restorers, continuing professional education of keepers of cartographic documents is an important question.

The collections of the Russian State Library (RSL) are unique, not only in terms of volume and value (the Library boasts of hundreds of valuable collections), but in the universality of themes, chronological depth, language coverage and diversity of types of the collected documents too. The collection of cartographic publications is one of the largest collections of this kind in the country.

Practically every day, the librarians are faced with this dilemma: to use a certain publication or to conserve it. A decision in favour of the first or second variant, impedes the possibility of the successful realisation of the other variant. The consequence of the limitation of usage of the collection, a measure which favours a longer period of preservation, is a lower level of satisfaction of the users' demands, but the intensive usage of documents leads to the worsening of their physical state. The only way out of this situation is to preserve the documents in

order that they be used, yet used in a way which would favour their preservation. This means that a balanced conception of preservation and the availability of the collections should be worked out.

The ensuring of preservation of documents is the main functional task of libraries, archives, museums and other organisations which store cartographic documents. The pooling of their efforts, and the coordinated work of specialists in different fields : chemist, biologists, physicists, and the integration of sciences, brought about a situation in which the conservation of documents developed into a specific subject field of integrated knowledge, which is limited by the circle of functional tasks and founded on contemporary conceptions of natural sciences. Problems dealing with the conservation of paper-based documents were studied and developed particularly intensively. In the last two decades or so, the level of these activities reached a high degree of theoretical generalisation, which made it possible to assess the speed and mechanism of the ageing of paper to forecast its longevity, and to create new durable cellulose-paper materials and successfully solve problems of restoration and bioprotection of documents.

Restoration represents an important aspect of activities, directed toward the support of preservation of documents. Restoration of cartographic documents on a paper base can be realised through different methods. Some of these methods originated long ago and were improved empirically ; they finally crystallised and today they occupy a firm place in the restoration practice. Other methods appeared relatively recently, and since they were based on a sound scientific foundation, they found their way into the restoration practice too. This came about due to a number of advantages that they possessed and they are already replacing some old and tested methods, The most deeply inset « classic » or traditional method of restoration calls, as a rule, for tedious manual labour and includes many separate and various procedures (the preparation of the document for restoration, the reconstruction of the missing parts, the mending of tears and fractures, etc.

The classic method of strengthening fragile and deteriorated cartographic materials on a paper base includes two methods, which are technically much alike though they use different materials. In the first instance, cloth (gauze or coarse calico) is used, whereas in the second instance, thin paper is applied. However, in both cases glue, made of wheat flour is used. Along with the positive aspects (strengthening of the structure of the document, consolidation of the base, a well nigh ideal levelling of the surface, and removal of fractures), the classic method of restoration has a number of substantial shortcomings (appearance of lustre and of a « mirror-like » surface, the loss of natural indications of the age of the document). When the document is reinforced either by cloth or by paper, the

weight and volume of the restored document increase two-fold, and sometimes even three-fold, Besides this, the quality of restoration is determined not only by the technical aspect, but by the fact how the restoration will affect the subsequent longevity of the document. The classic method, with the application of flour glue, dresses the documents with carbohydrates which are easily assimilated by mold fungi and this circumstance increases the danger of the infection of documents. That is why if the mycological analysis shows the presence of live spores of the fungi on the document, obligatory disinfecting is performed prior to the restoration. Moreover, the method of disinfecting should be chosen individually for each document.

In order to create bioprotection, non-volatile antimycotic agents are used The neutralisation of acidity and the buffering of excessively acidified paper, particularly with the application of a chalk suspension, creates a certain reserve of mycotic resistance in the document.

Despite a number of negative points, the classic method has played and continues to play a positive role in restoration practice, since it has increased the life-time of many documents and has, in this way, made them available for study and use.

The prevalence of a large amount of documents written or printed on paper, which age rather quickly, has created a critical situation. Many large libraries see the solution of this problem in the augmentation of restoration activities and their mechanisation, and so today mechanised methods are being intensively developed.

The method of strengthening documents practised simultaneously with the restoration of the missing parts with the help of pulp (the « filing-up method ») immediately on its introduction into restoration practice, showed itself to be a progressive and economic technique. The sheet casting machine used at the Research Centre for Conservation and Restoration of documents is a right-angled metal tank with an open top a conic lower part which is connected with a vacuum plant. The sheet-casting mould is used for the reconstruction of the missing parts of the sheet. However, it has its limits since it can be used only for the restoration of those cartographic materials the format of which does not exceed the size of the surface of the mould.

The process of lamination (the covering of the paper with a layer of film) is also used in the conservation and restoration of cartographic materials. Lamination may be ordinary or double, i.e. it can be applied to only one side of the document or to both sides. For small format documents, two-sided lamination is used since after the reinforcement of only one side of the documents, the paper may twist by reason of the different degree of tensioning of the surfaces of the two sides

Extremely fragile documents are additionally strengthened with mica tape or thin cloth. The film is placed between the paper and the reinforcing material which serves as an adhesive substance. The lamination method is suitable for the restoration of cartographic materials with a text printed on both sides.

Lamination is, in the main, a « curing » method and it should not be used widely and without due control. This method is recommended for documents which are in such a poor state that they cannot be restored by any other method.

However, even in such extreme cases, certain measures directed toward the removal of negative effects - dirt, acidity, micro-organisms, first of all, should be taken prior to the lamination. Before beginning the lamination, it is necessary to remove all factors of destruction (the reasons and their consequences), which exist within the document itself. If this is not done, these factors, in combination with the process of lamination, can even become stronger and in this way make the restoration useless.

The method of restoration, consisting in the splitting (or the separating into layers) of the document and the reinforcing of it from the inside with strong papers originated more than a hundred years ago, when there were very few craftsmen, who had restoration skill and they kept the secret on some of their techniques. The transparent paper, which was in those times used for the gluing of fractures of the document, veiled the text and lessened its readability. That was the reason why restorers aimed to find such a method of restoration which would make it possible to save a document with a text printed on both its sides without changing its outward appearance. The idea of a restoration method, which envisaged the splitting of the paper sheet and its strengthening from the inside seems tempting. It is successfully used in the restoration of cartographic materials with the text printed on both sides. The use of Japanese silk paper or the domestic mica-tape paper lends the document greater stability and guarantees its longevity. However this method calls for great skill and virtuosity on the part of the restorer.

Such are the main methods and devices used by the Research Centre for Conservation and Restoration of Documents in Moscow. It should be stressed here, that going by the state of the document, which the specialist assesses in the course of a visual, microscope and chemical analysis, he chooses the most optimal method of restoration for each concrete document.

The problem of support of preservation of library documents in their contemporary form is a complex and multi-aspect one. There are many approaches to the problem and it cannot be solved only through the efforts of separate, even large libraries, archives and other related institutions. It is obvious today that the

complex solution of all problems of conservation of documents at the present stage, the extension of research, and of organisational and pragmatic issues, will be possible only if an integrated system of protection of documents will be developed. The Research Centre considers the working out of such a system to be the main direction of functional studies in the field of preservation of library collections. This work on the system includes the forecasting of the state (physical, chemical and biological) of library collections, modelling of processes of document storage, establishment of principles of organisation and functioning of the ecological system in a closed space (the depository), creation of durable and bioresistant materials, with especially prescribed properties, for the conservation of documents.

The development and extension of activities, involved with the preservation of library collections, calls for the support of these activities by highly qualified specialists, who are able to realise the entire complex of measures for the conservation of documents. The specific nature of the profession of the conservator and the restorer of documents lies in the fact that along with skill, a highly artistic restoration calls for knowledge in the field of chemistry and physics, biology and bibliology, art and history. Starting with this year, the first school for the training of conservators and restorers of documents, for archives, museums and libraries has begun to function within the framework of the Research Centre for Conservation and Restoration of Documents.

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