წიგნთსაცავების ფონდებში დაცული მემკვიდრეობის პრევენციული კონსერვაციის შესახებ

დვალიშვილი თამარ
ხელნაწერთა ეროვნული ცენტრი

წინამდებარე სტატიაში განხილულია საფონდო და საარქივო მასალის სწორი ექსპლუატაციისა და შენახვის საკითხები. აქვე აღწერილია მიკრო-კლიმატისა და განათების ის ოპტიმალური პარამეტრები, რომლის დაცვისას ორგანული მასალები ინახება დიდი დროის განმავლობაში და არ ზარალდება, ასევე ობიექტების შენახვის და დაცვის გარკვეული პირობების დარღვევით გამოწვეული შედეგები და პროცესები, საგამოფენო ღონისძიებების ორგანიზების საკითხები. სტატია ეხება პრევენციულ კონსერვაციას, როგორც მნიშვნელოვან მიმართულებას საბიბლიოთეკო და სამუზეუმო საქმეში.

On Preventive Conversation of the Heritage Preserved in Book Depository Collections

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During the last decades preventive conservation was formed as an unalienable part of restoration, as a necessary discipline for preservation and management of historical cultural heritage. It encompasses different methods of working on objects and monuments, by means of which it is possible to stop the destructive processes in an exhibit and decrease risks related with usage and preservation to the minimum. Preventive conservation is acknowledged as one of the most important fields of restoration by museums and restoration institutions of the world, because it frequently is an alternative to the mechanical restoration of objects.

In our time on the background of political situation, natural catastrophes and ecological situation the issue of safety of cultural historical heritage becomes more and more acute. Not only monument restoration methods become important but also elaboration of such approach which will regulate many issues related with heritage preservation efficiency. Preventive conservation is the field which studies and inculcates these methods. It encompasses knowledge and experience of restorers, research of chemists, biologists, physicists, ecologists and of specialties from many other scientific fields. Major idea and a goal of the preventive conservation are to maintain physical condition of an object in its current state. One of the directions of

restoration, which is the preventive conservation, unites a wide spectrum of activities, which are directed towards the protection and reduction of damage risks for all historical monuments. This field encompasses creation of appropriate conditions for exploitationconservation of historical objects and monuments as well as direction of judicial and legislative system towards this goal. It considers protection of all objects during exploitation, storing, and exposing, moving or temporary transfer to the third party. Major attention in this direction is paid to the correct arrangement of collections, storage facilities, exposition halls, libraries and elaboration of management system, positioning and architecture of buildings and rooms, technical and material equipment of storage facility, exposition hall, and library. Also attention is needed when dealing with safety system – illumination, temperature, humidity regime maintenance, chemical analysis of the air, and composition control, maintaining neatness of storage facilities, customer norms of handling objects, exhibit conservation and elaboration and inculcation of alternative storage methods. All these are principles of preventive conservation.

Unfortunately this field is not much popular in our country. However Georgia in this regards is not an exception. Preventive measures so popular in the States and Europe are less followed in post soviet countries. Restoration of already damaged monuments is the priority. Although our awareness about necessity of conservation grows slowly when saving historicalculturalmonuments, their protection and conservation becomes important.

In this regard National Center of Manuscripts is one of the organizations which try to provide existing in depositories heritage with necessary climatic and other normative conditions, to accomplish transfer and copying of objects on new carriers. Digitalization laboratory of our center equipped with modern technical achievements enables us to accomplish this. Creation of copies of manuscripts or printed historicalcultural heritage will decrease to the minimum customer's direct contact with originals and thus will protect them from damage; it will provide us with exact copies in case an object is be lost or destroyed due to any reason.

While speaking about museum, library or archive we should realize the importance of restoration laboratories. Many libraries and museum type organizations do not have their own resources in this field. In such cases collaboration with restoration services of other organizations is necessary in order to plan equipping and arranging of storing facilities, carrying out preventive or mechanical conservation works, implementing necessary norms of exhibits' preparation for exposition and their moving.

National Center of Manuscripts has a unique restoration laboratory, which works with manuscripts and printed on different materials monuments in the direction of their research and restoration. During last 56 years its active development took place. The process of implementation of new technological base is underway. Laboratory applies modern materials and methods. All the departments of the Center cooperate closely with the laboratory. Restorers conduct depositories' monitoring during which conditions of monuments are studied and controlled. Climate is a subject of a constant control. Numerous manuscripts and printed material are stored in our cen-

ter. Majority of them are illustrated by pictorial miniatures, metal smithwork, contain wood, bone and minerals. We have photos and photo films. That's why these exhibits belong to a group of objects which are extremely sensitive and depend of climatic conditions.

During exposition planning selected material's condition is inspected. All this is necessary for a correct management and saving of cultural heritage.

We should know that for correct and long term storing of exhibits major danger factors are the following: 1) physical and technical-technological characteristics of the object, 2) storage conditions and regime, 3) usage and exploitation as well as natural disasters and other force major situations.

During consideration of the first point, it is necessary to note that these factors are independent from us. In this case it is necessary to consider the material used by the author, time of creation and conditions where the monument was created, age of the object. All monuments like human being have their own behavioral characters which they acquire during the time from their creation till now. Among acquired characteristics are consequent from storing and exploitation conditions diseases. Passed times leave their reflection on monuments as this happens with any animate or inanimate object in our universe.

Much attention is paid to touching of exhibits by organization staff as well as visitors and their proper usage. The main direction of treatment of depositories shall be conduction of preventive conservation works and this shall be given a great attention. Timely taken measures allow us to avoid future damage of exhibits.

In the ideal case climate should be similar in entire building where exhibits are stored or used – storing facilities, libraries, reading and exposition halls, restoration laboratories. If it is related with practical difficulties to accomplish this then every staff of the organization should try their best to create conditions as close as possible to the ideal. Much attention should be paid to storing of exhibits in a clean environment. Dust, pollution and any type of contamination may cause mechanical damage as well as infestation with insects, microorganisms and fungus.

There exist optimal parameters for microclimate established by scientific research and observations. When these parameters are maintained organic matterails are preserved for a long time and are not damaged. It is necessary to maintain these parameters:

Temperature +18(±2)°C

Humidity 55(±5)%

Limits of allowed norms are somewhat wide, during which no irreversible processes take place:

Temperature +15-24° C

Humidity 40-65%

Protection of optimal parameters is necessary. If temperature is less then +24°C and the humidity is less than 40%, dehydration, drying and mechanical damage of an object takes place. Humidity higher than 65% causes bio-contamination hazard. Combination of +24°C temperature and humidity higher than 65% is permissible for a very short time only. This kind of climatic regime creates environment which is beneficial for bio and micro organisms.

Norms of storage for microfilms and photofilms are somewhat different. Here the temperature for black and white films is 0 +12 ° C and humidity is 35-45%, for colored films 0 +5 ° C and humidity is 35-45%. In storage facilities low temperature is more allowable than high temperatures, however while moving exhibits from low temperature conditions to the relatively high temperatures acclimatization of objects should take place.

Stability of museum and storage micorclimate is crucial, because abrupt changes of temperature and humidity are much more damaging than small scale breaches and errors, however they too (small scale deviations) should not be over allowable norms, because this may lead to irreversible processes in the exhibits, especially in those object which are made from organic matter. Climatic oscillations during 24 hours should not be higher then: temperature 3° C and humidity 2% .

While breaching optimal climatic conditions destructive processes take place in the object, and risk of contamination become higher.

Paper is quite resistant towards the humidity and changes within certain limits don't cause irreversible processes in it, but after long term exposition to humidity chemical changes take place in the fiber structure of a paper. Hazard of biodegradation rises also. Migration of microorganisms with the air current is possible. As we know, sterile environment doesn't exist naturally. When beneficial conditions appear spores and microorganisms start their development. Conditions like this are encountered during violation of temperature regimes, when abundant quantity of food substances like dust, fat, paper itself, glue etc. can be found on the polluted surfaces of objects by micro organisms. This is why results of temperature regime violation can be deplorable.

Parchment is absorbent material. At high humidity it absorbs huge amount of water and gets saturated by it, obtains transparency, its area and volume increase, molding and rotting process takes place. At low humidity parchment starts drying and deforming. On its surface wrinkles, folds and cracks appear. Parchment paper can decrease in volume by ¾ and this process slowly becomes irreversible. If damp parchment papers get dried they may get conjoined, and their separation becomes necessary.

Painting strata, in our case miniatures, get damaged by high and low humidity too. During deforming of paper of parchment painting looses grip with the base and cracks, stratifies, and then falls off. Connecting layer soaks if growing damp, its structure changes and pigments get damaged. Colors of miniature change, and spots and stains appear. During incorrect storage metal works and minerals are damaged too. Metal becomes brittle, humidity provokes rusting process; minerals fade, loose transparency and brightness, may crack and fall off their holsters.

Contemporary approach of preventive conservation considers such methods as keeping objects in acid free packing, namely in PH neutral cardboard folders, envelopes and containers, or vacuum packing special polyethylene wrappings. Materials which are not in frequent use are wrapped in polyethylene. This method still is not inculcated in our country, but it is yet very widely applied in Europe and States.

For storage, consumption and exposition besides of temperature and humidity we must pay attention to the speed of air current. It shouldn't exceed 0.1-0.2 m/m. Air current change is permissible slowly, without sharp jumps. In a room where the exhibit is placed there shouldn't be a draught wind. To move objects from one place to another it is necessary to place them in protecting boxes. It is desirable, if reading and depository halls are not located on a long distance from each other. If a distance is big then objects shall be transported by special elevators. Exhibits shall be moved from a depository space to other space with small carts in protecting boxes.

It is known that illumination is an important factor for exhibit storage and their exploitation during exhibitions. Natural and artificial light consists of visible light, ultraviolet and infrared rays. We should try to minimize influence of the most harmful ultraviolet rays. We should minimize heat infrared rays and limit visible light

Ultraviolet lighting damages painting and causes photo-damage to a paper, and its subsequent dissolution. Paper becomes yellow, looses mechanical solidity, becomes brittle, and dries. Approximately in 2-4 months under the active influence of light a paper looses 60% of its solidity.

Different materials have different stability towards the light. Paper is the least resistant among them. It must be taken into account that contemporary papers are less stable towards harmful influences. Parchment is not stable towards lights either. As a result of heat waves it deforms, changes colors, changes fiber structures. The most stable materials for light are metal and wood.

For instable materials allowable lighting is 30-50-lux. For stable materials allowable limit is 50-70 lux. We must take into account that the same kind of damage may be caused by sharp and short-term light and by weak but long term illumination. Lighting is measured in lux (lumens), 1 lux means that 1 lux light current falls on 1 square meter of surface. Long term lighting changes paper's, ink's, parchment's and painting's condition, causes chemical reactions and damages them. It is established that if lighting of 150 lux will be lit for 9 hours a day, it would need 10 years to cause visible changes, and if we decrease this illumination 3 times and make it 50 lux then this time increases to 65 years.

Organization of expositions is very important and demands special attention, because it considers "exhibit preservation in extreme situations". During planning of exposition interests of the object itself and peculiarities of its safety should be taken into account first of all, and not the ideas and imaginations of decorators, artists and exposition organizers. This is an important factor in order to keep heritage and to prolong time of their existence. Environment, climate, illumination, Shaw-cases, any detail which might seem not very important at the first glance need to be considered with attention.

Recommended for exposition of books and manuscripts time shouldn't exceed 3 months even in ideal conditions when climatic and lighting norms are protected. Unwanted conditions shorten this term drastically. Selection of lighting for exposition shall be entrusted to specialists. It is necessary to use special suppressing filters and films for ultraviolet radiation. It is impermissible to place lighting next to an exhibit. It must be installed outside of glass-

cases which protect exhibits, to void falling of light rays directly onto an exhibit. Each glasscase creates micro climate, this is why it must be arranged in a way which equally maintains temperature and humidity and doesn't let excessive illumination. Before placing the exhibit in a glasscase we must measure inner temperature and humidity of glasscase and exposition space. It is desirable to keep an exhibit brought out from a depository in a special box before an exposition, to let it to go through acclimatization and adjust to a new environmental regime. It must be taken into account that all exhibits "breath" – absorb heat and moisture and after give it out. This is why in glass case humidity is always higher than it is in outer space. These parameters change during a day too. Change depends on a part of a day, weather changes, and quantity of visitors. Taking into a consideration all these factors is a necessary condition. It is impermissible to place exhibits in ambient light, because the sun light contains ultraviolet rays in a great quantity.

During exposition of objects in many cases demands become mutually excluding between protectors and exposition workers. Expositions intend to show exhibits from their best side, which frequently works against their protection norms. In such cases it is necessary to find an optimal solution.

In many countries there is a strictly followed rule according to which a viewer which enters an exposition hall when approaching exhibit in glass case turns the light on. This protects exhibit from damage and conserves electric energy. It is possible to interchange exhibits if they are exposed for a long time. In case of manuscript books, it is desirable to turn another page. If condition of exhibit is not satisfactory, it is not recommended to expose it. According to the spread practice, it may be replaced by copies and moldings.

Reader is obligated to use protection gloves when using manuscripts, old printed books, archive materials, to avoid mechanical damage and pollution of objects. Placement of exhibits on special supports provides correct opening of pages and excludes their contact with a table surface.

Development of preventive conservation gives us a possibility to protect our cultural heritage, manage it correctly and prolong their time of existence.

While working in any field we should operate with the principles of exhibit safety. Our aim is not only research and study but also preservation of the past that has reached us for future generations.