



**THE PROJECT OF DIGITALIZATION, MICROFILMING,  
PROCESSING,  
AND USE OF SEGMENTS OF THE NIKOLA TESLA LEGACY**

**"Memory of the World" Register**

**SAVING AND SHARING THE MEMORY**

**NIKOLA TESLA MUSEUM  
Belgrade, 2008.**

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### **"Memory of the World" Register Saving and Sharing the Memory**

Ever since 1951, when the entire Nikola Tesla's legacy was moved to Belgrade, the issue of what should be done with it remained open. The basics have been swiftly and strategically worked out with the establishment of a separate institution – the Nikola Tesla Museum - with a clear mission to protect the legacy and promote the remarkable opus and achievements of Nikola Tesla's genius. After half a century of existence of this institution, it is evident that the Museum, as a medium, keeper, and promoter of the Nikola Tesla legacy, is a point of huge interest for the entire world, as well as that it should become more of a focal point for collection, exchange, and emission of good new vibrations – the ones that Nikola Tesla himself radiated.

In accordance with the definitions presented in the "Memory of the World: General Guidelines (Revised edition 2002) / prepared by Ray Edmondson. Paris: UNESCO, 2002", the Nikola Tesla legacy kept at the Nikola Tesla Museum consists of movable and immovable property.

Appreciating the universal importance of Nikola Tesla and his achievements, UNESCO included Tesla's archive into the "Memory of the World" Register, as a segment of movable documentary heritage of mankind, which is the highest form of protection for cultural property. At the national level, in 2005, the National Assembly of the Republic of Serbia adopted a decision declaring the archive materials kept by the Nikola Tesla Museum - the Nikola Tesla's personal fund - for cultural property of outstanding value. Hence, the Nikola Tesla Museum received additional confirmation, on both the national and the international level, of its two great fundamental obligations: to preserve Tesla's archives in the best possible manner, and to also provide access and exploitation of these archives to the largest possible number of people, and thus become a part of a separate and special community working incessantly and untiringly on the project "SAVING AND SHARING THE MEMORY".

In addition to diverse text-based materials, the archives also contain non-textual materials (sketches, drawings, and other technical documentation), as well as visual materials (photographic material on transparent and non-transparent substrates).

The Nikola Tesla legacy also contains other types of movable documentary heritage that consists of text-based materials, such as the personal library and the press clippings.

The immovable part of the legacy consists of a range of artifacts – objects, including two-dimensional and three-dimensional artwork, distributed over several collections.

## **RAVAGES OF TIME**

Upon its establishment, the Museum started developing its activities, and, ever since then, generations of experts have been persistently working on classification, processing, and presentation of all segments of Tesla's legacy. The permanent exhibition was opened three years after the establishment, the Museum started its publishing and exhibition activities, and commenced the job of identification, categorization, catalogization, and other forms of processing of all parts of the legacy. The first external users started arriving to the Museum - foreign and local researchers of Tesla's legacy. However, text-based and non-text based segments of movable legacy have never been made fully available to them, partially because they were undergoing the processing procedure, and, more recently, also due to the danger of perishing from physical contact and use.

Therefore, the passing of time has imposed the obligation and even imperative of submitting parts of the legacy (texts, non-textual, and visual materials) to all known and available methods of protection, in order to delay and prevent, as long as possible, the processes imposed by the passage of time, including the processes caused by all forms of exploitation of the documentation source material, including the expert processing. The transfer of textual and other materials into other forms imposed itself as a special method of protection – the creation of copies that are durable and can be used instead of the originals in the widest possible range of applications.

The basic measures for protection of any documentation are certainly the measures of physical protection, starting with the quality and equipment of storage rooms, down to the basic storage units for the material, and the material itself. All activities undertaken recently in that field were either not satisfactory or were not realized at all, and the passage of time has taken its toll. The basic equipment (storage folders and boxes for classification and preservation of the archives) succumbed to decay, and became the dwelling of unwelcome guests... This imposed another imperative – to, as soon as possible, change the current unfortunate conditions, through diverse synchronized expert interventions and measures, in a manner that demands full engagement of all resources, especially the financial ones. The whole building is in the process of phased adaptation, and one of the results will be the creation of special storage rooms for keeping and preservation of individual types of material; archive materials have been repacked into new folders and boxes, designed to the highest standards; special climatized chambers have been designed and ordered for storage and preservation of archive materials, and the project of their conservation and restoration has commenced. Basic design of devices maintaining microclimate parameters in these chambers is based on Tesla's air pump. Hence, Tesla's original documents will finally be stored under the best possible conditions, and guarded by his never patented invention!

## **IN GUTENBERG'S FOOTSTEPS**

The Museum has recognized the publication of documentation as a reliable, recognized, and widely accepted strategy of saving and sharing the memory, and it is an imperative to ensure protection and availability of documentation; in that sense, emphasis has been put on the publishing and exhibition activities. The range of classical publications and several new editions presenting both the content and the

visuals of original documents, are enhanced with a separate edition of exhibition catalogues. These catalogues are not just accompanying the exhibitions in question, because they contain additional artifacts from the movable segment of the legacy that have not been exhibited, which makes each of them into more of a special form of monograph edition. A careful observer would also not miss the fact that a large number of documents, until recently unknown and unpublished, has been made available to the public through the wide-ranging publishing and exhibition activities of the Museum, and especially the latest ones.

A significant number of publications using original documentation, as well as works and products in the field of still photography and moving pictures, in international, commercial, and non-commercial production, should certainly be added to the mentioned Museum promotional activities for Tesla's monumental body of work. Striving to meet each reasonable and documented request that complies with the prescribed procedure and the pre-defined conditions, the Museum has been and is providing the documentation from Tesla's legacy to a large number of institutions and individuals in the required form of copies or transcripts (analog or digital), firmly believing that this is just one further method of "sharing the memory" - the memory contained in Tesla's legacy.

## **ENTERING THE DIGITAL WORLD**

The Museum's efforts and activities over a wide range of fields, especially the ones realized during 2006 and 2007 (over 50 exhibitions in Serbia and abroad, 20 new expert and popular publications, continuous update of the Museum website, 3D animations of Tesla's patents, etc.) have been realized in such a scope, and above all in such a high quality, because the development strategy of the Museum has been defined based on the use and active monitoring of the latest technological achievements, especially in the IT branch. The informatization of the Museum thus became another imperative - not the informatization in itself, but as a function of the Museum's strategic goals and mission, especially in the areas where the support of information technology really improves work and introduces new possibilities.

Tesla's legacy consists of diverse materials, and their processing is covered by several branches – archivistics, museology, librarianship, and, lately, also information technology. It is undisputed that the information technology support found and confirmed its place in the field of professional processing of cultural heritage, and displayed numerous comparative advantages over classical methods of processing, especially in the field of entering, processing, and managing textual metadata on documentation materials.

However, the latest developments in information technology have introduced another possibility: by transferring movable documentation material into digital images using structured computer tools linking the identified metadata about the material, one can create digital collections, analogous by their content to the originals, but with far greater and more efficient search and exploitation capabilities. In the fields dealing with protection of cultural heritage, previously widely accepted technology of transferring the original documents to microfilms apparently obtained serious competition. The current state of affairs shows that the time to replace one technology with the other is not yet upon us, but they can and should be used in parallel, with redistribution of basic functions. Digital copies should be made

primarily for exploitation, because, under certain conditions, they have a number of comparative advantages over microfilms, and the microfilms remain the best method of protection due to their undisputable durability.

The analysis of the previous concept of digitalization, through microfilming and scanning of microfilmed images, established that the largest part of the documentation scanned in such a manner cannot be used for presentation (such as exhibitions, publications) required for practically all activities of the Museum. Microfilms remain limited to black and white display and use on screen, while their prints have the quality of a standard black and white copy. This means that such a concept is not excluding the use of original documents. The requirement for multiple future contacts with documents in order to obtain digital images for a wider range of applications remains, if nothing else, due to partial illegibility of pictures obtained from microfilms.

Hence, that version of hybrid digitalization (original > microfilm > digital image) was put under scrutiny, and, in the beginning of 2006, the Museum started searching for some other method that would satisfy, and conform to, all the high requirements at play. The solution existed, and was just becoming available on the local market of IT services. It is based on a reversed process, compared to the previous one – the originals are scanned and/or photographed digitally to obtain digital images (in color), which are then transferred to microfilms (in black-and-white). But is this really better in itself, and can it provide the required results over a shorter time period than the previous version of hybrid digitalization? All collected expertise and limited experiences by others, as well as tests, have shown that this is the method that can and should be used for further processing of all segments of Nikola Tesla's legacy that the method is applicable to.

On the other hand remains the serious issue of general planning for such a demanding and responsible task, as well as of IT support for the procedures that should precede, complement, and follow the immediate technological process of digitalization - because, if not properly prepared, monitored and reviewed within the existing time and space limitations, and in accordance with other available resources, the method in itself may not be an improvement. On the contrary, as any poorly planned process of copying, it may produce yet another collection that requires a long and laborious procedure of processing and preparation before exploitation.

### **STEP BY STEP...**

The first of all issues to be defined was the priority list at the level of the collections of movable documentation, as well as within them, and immediately thereafter – the sequence of procedures and methods to be applied.

The collection selected as the highest priority was the Tesla's archive, registered in the Museum as the Personal Fund of Nikola Tesla – LFNT. The processing and transfer procedure of the original documents in this collection was well under way - transfer to microfilms, and then to the digital form by scanning of microfilms. Within that collection, the absolute priority was given to the segment (basic qualification group: ACTIVITY, or, colloquially SCIENTIFIC WORK) that has not been microfilmed in the previous round, is large and very significant due to its content, and in every other respect. At the same time, the priority was also given to the segment of

collection of photographs on opaque backgrounds – positive photographs, primarily due to the very large number of requests for exploitation of that part of the collection (for internal and external users).

Ever since the museum has been established, probably the hardest task was to process and prepare that collection (LFNT) for public use. Why was that the hardest task, despite the well-known fact that this collection is not very voluminous? The key to the problem was the fact that it is an extremely complex and diverse collection, reflecting the exceptionality of Tesla as a person. To tackle such a collection is probably one of the hardest tasks for experts in archivistics and related sciences. Simply put, no rule or known methodology could have been applied to this collection of documents without hesitation. The time spent processing this segment of Tesla's legacy from the establishment of the Museum until this day is the time spent searching for solutions that are suitable for the material and its creator.

Next on the list of priorities were the press clippings, which are a separate collection. Irrespective of the indisputable significance of this collection, the mere fact that it was most at risk because of the frailty of the material (printing paper) was a requirement to submit it to all methods of processing and protection.

Tesla's personal library is a collection processed in accordance with the rules and standards of librarianship, and it is the third in the queue for the measures of protection, and especially for digitalization.

The general rule adopted at the Museum is that no action is taken without a developed project, which, based on the established conditions, must contain all procedural and methodological elements, especially regarding the IT support matters through all phases of work.

All of the above shows that the job of protection and preparing for exploitation is planned and implemented in steps, with the basic idea that, after each completed phase, each particular segment of the legacy, or even part of a collection and the documentation prepared for exploitation, is made available to the scientific, expert and other public, primarily in digital form, but with information related to each of the collections gathered in accordance with the highest standards and best practices of applied sciences. It should be kept in mind that all planned and undertaken activities have processed the segments of Tesla's legacy unevenly, using both classical (analogue) and IT methods. Some time should pass before the processing steps are synchronized and adapted to the steps of the new methodology, directing the general striving towards the point of origin - an integral source of data and information, the way Tesla created and used it. This is, from the current perspective and knowledge about the goals that the Museum as an expert institution should and must achieve, the very serious next step.

## **TOWARDS THE FINAL GOAL**

The Nikola Tesla Museum, as a complex institution for protection of national heritage, accepts the vision of a "permanent and universal availability of documentation heritage" as a goal it should strive to, but certainly partakes in the destiny of many similar institutions in respect of the specific limitations imposed on the availability of every part of parts of Nikola Tesla's legacy. These limitations are due to:

- a) Local legislation (the procedure of obtaining a permit for foreign citizens),
- b) Physical condition of individual segments of the legacy, jeopardizing their integrity in case of further exploitation in original form,
- c) Unavailability of individual parts of movable legacy for public use,
- d) Limitations and, at the moment, lack of space and adequate equipment for exploitation within the Museum.

As it can be seen from all of the above, the Museum, first of all thanks to the understanding and the practical measures of its founder, the Assembly of the City of Belgrade, is introducing comprehensive and continuous activities covering all issues listed above except the one under item a), with the goal of gradually lifting the remaining limitations in the coming short-term period.

The first results of these activities can be expected before the end of 2008, when, among other things, the first inventories of the Nikola Tesla's archives will be available to the public, which is the essential premise for any form of exploitation. Until then, the plans of the Museum are to normatively and practically regulate the basic issues of exploitation of the segments of Nikola Tesla's legacy, especially for the archive collections, under all regimens, including online use - which is a completely new, attractive, but a very sensitive option. In that sense, the Museum is going to consult individual UNESCO agencies, and a careful assessment of exhibitions and practices of institutions having similar collections included in the Memory of the World Register is already under way.

Until then, the Museum will continue to respond to individual scientific, research, and commercial requests as much as it is possible with the resources at its disposal, as it did in the past. At the same time, it is using all available methods to inform the public about the development and status of projects covering the goal of saving and sharing the memory contained in Tesla's legacy.