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Present condition and proposal for conservation of old maps in Bulgaria

Keywords: digital conservation of maps; scanning; internet access of maps

Summary
The original old cartographic publications and products are considered in the report in the aspect of their importance as historical documents, conservation, usage and methodology of experiments and studying in schools and universities. Classification of these maps is submitted and some proposals are done on this base for their digital conservation.

GEOPAN Company is the first one in Bulgaria that created archives and it is converting paper version of old maps existing in Bulgaria in digital formats. In the paper the authors propose a way to improve the conservation of old maps, their Internet access and usage from different users for different purposes. An example for collecting, keeping and Internet access to old maps from the world map collection is shown. Regular exhibitions of old maps of Bulgaria and the region are made permanently in different cities in the country. Recently they were made by original exponents and now after their converting in digital forms they are presented in high-quality copies. There was established an educational program “How are the maps created?” It is developed by the National Polytechnic Museum and it is presented to students who learn geography in high schools.

Mapping of Balkan Peninsula and Bulgaria

Many researches and descriptions of Balkan Peninsula are made from the antiquity. But the created ancient and mediaeval geographical maps are in small scale. They are incomplete and inaccurate maps in their contents. In the end of XVII c. and after the great researches of Mercator, Sanson, Snellius and other great researchers and scientists in the history of science, the beginning of accurate geodetic measurements is established. After that we can found the modern methods of map creation. Some trips to different part of the world, also in Ottoman Imperia have been started. The main purpose has been defined as the supplying of “white territory” on existing maps with cartographic information. Geodetic measurements are made during the Russian-Turkish war. On this base some more accurate and precise maps are compiled. They contain the territories belong to the present Bulgarian territory. The first map compiled in Bulgarian language is appeared in the middle of XIX c. Its title is “Map of Present Bulgaria, Thrace and Macedonia and their territories in 4 sheets”. The sources are taken by the French cartographer Lapie and the map is compiled by the Bulgarian cartographer Alexander h. Ruset in Strasburg in 1843 (see Figure 1). The famous researchers Ami Boué, Feliks Kanitz and others contributed also to mapping of Balkan Peninsula.

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The period of the last Russian-Turkish war in 1877-78 and first years of establishing of new Bulgarian state on Balkan Peninsula can be considered as the beginning of modern Bulgarian cartography. During the war and one year after that Russian topographic corpus did the first detailed measurements and large-scale mapping on the territory of Bulgaria. As a result of the topographic – geodetic works, multi-sheets map of the country in the scale 1:42 000 has been done (see Figure 2). After that the maps in the scale 1:126 000 and 1:210 000 and other have been compiled.
Old maps collected in the Bulgarian museums and monasteries

Many old maps and atlases are collected in the National Polytechnic Museum. Some original maps are the following:

1. Geographical map of Ottoman Imperia by Giacomo Gantelli da Vignolla, Roma, 1679;
2. Geographical map of Balkans, 1692-1694;
3. Plan of Sofia on engineering fabric, produced in occasion of 20 years of Prince Ferdinand ascension in Bulgarian throne. Produced by Toma Pishntachev, 1907, presenting the Sofia in 1887;
4. Plan of old Sofia in 1879 and its regulation project in 1881 by Toma Pishntachev;
5. Anniversary map of electric centrals and power transmission lines in Kingdom Bulgaria. It is produced in occasion 20 years of King Boris III ascension in Bulgarian Throne 1918-1938, Scale 1: 400 000; Publisher: Ministry of social buildings, roads and urbanization;
6. Anniversary map of road and railway network in Kingdom Bulgaria. It is created in occasion of 20 years celebration of Car Boris III ascension in Bulgarian Throne 1918 - 1938, Scale 1: 400 000; Publisher: Ministry of social buildings, roads and urbanization;
7. Military atlas (40 maps of the territory of military operations (First World War), Publisher: Times;
8. Map of Macedonia, Scale 1:300 000 by D. Yaranov and D. Stoyanov, 1933;
9. Map “Kingdom Bulgaria and Central Balkans from Adriatic to Black Sea”, Scale 1:864 000, Published in Vienna, June, 1913;
10. Map of Bulgaria (used maps of Russian and Austrian General headquarters) by A. Krivoshiev; Publisher Hr. G. Danov, Plovdiv, Bulgaria, 1892.

A great number of topographic maps from the end of XIX and the beggining of XX centuries are kept in the Museum. They are created on the base of first topographic sheets (verstovki) made by Russian Topographic corpus. School geographical maps from 20-30 years of XX century, published in Bulgaria, Military maps, Large-scaled plans of different objects with technical meaning also are kept in the Polytechnic Museum in Sofia.

Other maps are kept in the map archive of National library, National and regional Museums, private collections, as well as in the General Department of Archives at the council of Ministers of Republic of Bulgaria. All of them are in paper version and also most of them are not visible for visitors in the museums. The first globe was crated by Neofit Rilski and it is kept in Rila Monastery and its copy in National Museum of History in Sofia (see Figure 3). They are used by scientists and researchers. The National Polytechnic Museum proposed also scientific excursion, named “How are the maps created?” The aim is the acquainting with old maps and cartography for students from high schools.

Exhibition “Mapping of Bulgaria during Russian-Turkish war 1877-78”

The exhibition “Mapping of Bulgaria during Russian-Turkish war 1877-78” consists 3 parts: mapping of Bulgarian territories before, during and after the war. The first part consist reproduction of fragment of Peutinger map – Roma traveling map from II c. It is called by name of its discoverer in VI c. This is the first known map with the territory of present Bulgarian one. There are also fragments of antique and mediaeval maps representing Balkan Peninsula and small-scaled geographical maps. All of them are produced before the war.

The second part represents the activities of Russian military topographers: creation of geodetic base – triangulation network and measuring of liberate territory. It is shown the triangulation network as well as scheme of map sheets which compose the topographic map in a scale 1: 42000. The measuring is done by 2 groups of specialist: East and West corpus – they were responsible for East and West part of
the country. The general command is done by General Mihail N. Lebedev. He leads also astronomic -
geodetic measurement of triangulation network. The main place in the exhibition is for the original map
sheets in scale 1:42 000. They are published in 1 color and the main purpose is military usage and also
they are not precise designed cartographic products. But they are used as a detailed cartographic base for
all later produced precise and well done map products in different scales. For example the maps in 1:126
000 and 1:210 000 are created in St. Petersburg on the base considered above. These maps in the means
of details, precise and design are not worse than other ones created and published in European countries
with long cartographic traditions. The most popular map in the exhibition is “Map of Bulgaria with ad-
joining territories” in scale 1:420 000 by A. Krivosheev, published after the Liberation by Publish house
“Hr. G. Danov”, Plovdiv city. The sources are getting from the Russian topographic map sheets for the
territory of Bulgaria and from Austrian topographic maps for neighbors territories. The detailed legend
and high-quality design of map elements and contents define this map as the best European cartographic
product representing Bulgaria and Balkan Peninsula in the end of XIX c. This map is used long time for
civil needs and as a school map.

![Fig. 3 The first Bulgarian globe, made by Neofit Rilski](image)

The first steps of Bulgarian cartographers are described in the last, third part of the exhibition. The to-
pographic section at General Headquarters of Bulgarian army was established by the decree of King
Ferdinand. After some reorganization the section becomes Military Geographic Institute at Ministry of
war. The new basic institution is responsible for astronomic-geodetic, topographic and cartographic ac-
tivities of the country. First cartographic steps are based on pre-publishing of Russian topographic maps
in metric system created in 1889. After that the new topographic and geographic maps in different scales
has been compiled for the needs of economic, education and military.
Such exhibitions are made in different cities, Universities, social places. The difficulty in their organization is the presentation of the original maps’ expositions and their protection. The first company that started to scan old maps available in Bulgaria is Geopan Ltd. and they have organized many exhibitions with high-quality copies. Some more detailed information about the company could be found in the next point.

International trade and cultural center “Geopan”

International trade and cultural center “Geopan” is established in 1992 and it is one of the basic organization together with General Department of Archives in Bulgaria that work on popularization of old maps and cartographic history. It is one of the base centers for congress and exhibition activities in South-East Bulgaria. It created digital archive “Thrace” (“Trakiya”) and it was presented in Thracian University in Edirne city, Turkey with the cooperation of Bourgas Free University. In the period 2001-2002 were held many exhibitions:

• Bourgas and the Bay in old maps, photos and geographical descriptions;
• Strandza in the cartography and travel notes from the antiquity to XIX c;
• Tsarevo and its port in old maps; Rhodope Mountains in old maps and others.

This company has made the first step in conservation of old maps and cartographic products, available in Bulgarian museums and Monasteries.

The next 2 steps are proposed by authors: classification of the old maps and their representation in Internet with free access.

Classification of old maps and cartographic products

The classification of the old cartographic products available in Bulgaria should be shown in a table variant and in the same time they should be done as suitable tools for Internet use. The latest technological trend is Tmap servingT in which maps can be consulted via the Internet. This aim has lead to an interactive approach, which enables users to extract relevant information directly upon querying the map servers (http://telsat.belspo.be/whp/Warsaw/warsaw-cartography.html).

The classification should be done by the scale, contents, territory, and time of creation, their users and purposes, color representation. The maps will appear in some categories and on this way will be ready for Internet use by user friendly approach.

The following scheme (see Table 1) is done as a proposal for classification of cartographic products:

<table>
<thead>
<tr>
<th>Old cartographic products</th>
<th>Atlases</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topographic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- large scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- middle scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- small scale</td>
<td></td>
<td></td>
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<tr>
<td>Geographical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- geographical</td>
<td></td>
<td></td>
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<tr>
<td>- military</td>
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<td></td>
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<tr>
<td>- history</td>
<td></td>
<td></td>
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<tr>
<td>General</td>
<td></td>
<td></td>
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<tr>
<td>- primary</td>
<td></td>
<td></td>
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<tr>
<td>- secondary</td>
<td></td>
<td></td>
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<tr>
<td>- high</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School</td>
<td></td>
<td></td>
</tr>
<tr>
<td>City plans</td>
<td></td>
<td></td>
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<tr>
<td>Wall maps</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1 Classification of old cartographic products
Resolution and authority

These two questions: about the resolution and authority, are the most important when the process of creation of web page is started.

One example of resolution decision is the presentation the maps in different variants. It was done in creation of web page where users can find the Map of Grand Canyon National Park.

In this case users can select desired zoom level and window size from the options below: the Zoom View window and then click on the image. Some explanations are done as: “To move up, down, left, or right within a zoom level, click near the edge of the image in the Zoom View or select an area in the Navigator View. The red box on the Navigator View indicates the area of the image being viewed in the Zoom View”.

Zoom In  Zoom Out  Full Image

Window size  256 x 256  400 x 400  600 x 400  640 x 480  Initial (292 x 166)

In the biggest format we should propose reasonable compression, for example using JPEG2000 technology. The problems on the authority could be done according the national law and international contracts. Some of maps could not be presented in the high resolution; other ones could be presented not in all territories and so on. Decisions about every case should be done separately.

An example for map collection, preservation and using them via Internet

The example is taken from one of American web cites for map collection and the mission of the Library of Congress is to make its resources available and useful to Congress and the American people and to sustain and preserve a universal collection of knowledge and creativity for future generations. The goal of the Library's National Digital Library Program is to offer broad public access to a wide range of historical and cultural documents as a contribution to education and lifelong learning.

The Library of Congress presents these documents as part of the record of the past. These primary historical documents reflect the attitudes, perspectives, and beliefs of different times. The Library of Congress does not endorse the views expressed in these collections, which may contain materials offensive to some readers.

The following maps of Texas and the surrounding territories are online in the United States Digital Map Library, and are available for you to download.

Texas State Maps
- Texas 1820 -1836 Texas Map, Atlas of American History (1943). Drawn under the supervision of Carlos E. Castañeda, Published by Charles Scribner's Sons (222kb)
- Texas 1844

Texas County Maps

Figure 4 shows the main page of this web presentation of maps. The Geography and Map Division of the Library of Congress holds more than 4.5 million items, of which Map Collections represents only a small fraction, those that have been converted to digital form.

The focus of Map Collections is American and Cartographic Treasures of the Library of Congress. These images were created from maps and atlases and, in general, are restricted to items that are not covered by copyright protection.
Map Collections is organized according to seven major categories. Because a map will be assigned to only one category, unless it is part of more than one core collection, searching Map Collections at this level will provide the most complete results since the indexes for all categories are searched simultaneously.
A proposal for conservation of old maps in Bulgaria and their use via Internet - National site for map conservation in Internet connection

According to the access of old maps from the world, each country could participate by own site of the national map library. The Conservation also requests that the maps will be provided with enough resolution for screen researches. It means that the maps should be scanned in 72 dpi and their dimensions should be kept. For their publication 300 dpi are necessary, so the copyrights will be relatively kept.

The main site could be developed by UNECKO representative or other International organization, which will care for improvement, development and keep high quality of represented cartographic products. The high-quality maps in publish resolution could be offered in the Internet market. The main page could have different design approaches and one of them is shown in Figure 5.

Conclusions and directions for future work

There are available thousands old maps in Bulgaria and the access to them for presentations and researches is really difficult. Over more the time is working negatively to their conservation and keeping. This imposes their scanning in the near future and conservation using the modern technologies. The proposal to use via Internet will lead to the next advantages:

- popularization of history of cartography;
- easy use of cartographic materials in education: one and the same product could be presented in many places in Bulgaria and in abroad in one and the same time virtually;
- no limits for researchers: for example, prognostic and discoveries activities;
- deliveries of the value cartographic products under authority conditions;
- saving and keeping of national history by maps;
- modern way to keep, safe and use national archives.

The creation of web page of National map library for old maps will create impulse for developing of regional web page or to make good e-connections with other national web representatives. The development of the web page could be done also in increasing it to national cartography web page in which the most modern products created in Bulgaria will be included.

References


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