

DEVELOPMENTS OF CARTOGRAPHY IN ALBANIA

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SUMMARY

The paper estimates that the first thematic map and the first economic map were created in the 4th century BC, and not respectively, in the seventeenth century AD and in the nineteenth century AD (year 1872), as defined by today's cartographic literature.

The first geological maps of Albania, which are considered the first thematic maps of our country, were created in the years 1828 - 1879 by the naturalist A. Boue and the geologist A. Vuquesnel. But, for the first time, a complete geological map of Albania was published by Novak in year 1929, in Salzburg. In the following years, geological maps at scale of 1: 200000 were continuously published. Albania's last geological map was published in 2002.

In addition to geological maps, ethnographic, economic, etc. maps have also been published. Ethnographic maps have been published by foreign authors such as: Lejean (1861), Saks (1877), Kiepert (1876, 1882), etc., but also by Albanian authors such as: N. Lako, A. Gashi, N. Kosturi etc., which are distinguished for a somewhat objective presentation of reality. During the time interval 1847-1913, 17 ethnographic maps were published.

In the National Library of Albania (NLA) there are about 180 different thematic maps in large scale, such as: physical map, map of animals and birds, tectonic map, hydrogeological map, map of forests and pastures, land cover map, political-administrative maps, seismic map, etc., and atlases such as: climatic atlas, etc., all for Albania.

Economic maps occupy a special place in the cartographic fund of the National Library of Albania (about 38 large-scale maps). The first economic map, which is found in NLA, is the one entitled "Albania [cartographic material], Roma, 1937, with statistics from 1936-1937 for the main agricultural and livestock products and for the registration of working animals of the prefectures: Kosovo, Shkoder, Durrës, Dibër, Tirana, Elbasan, Berat, Korçë, Vlore and Gjirokastër

"Economic map of Albania - for schools", (wall map with color and size 87 x 48 cm), compiled by prof.dr. Vasil Kristo, former lecturer in the Department of Geography at the University of Tirana and published in 1963, is the first general economic map of the Republic of Albania.

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INTRODUCTION

It has already been proven that cartographic representations have been used since primitive society, before the written language (Shehu and Nikolli, 2001). Cartographic literature defines that thematic cartography developed after the seventeenth century AD, when the exact maps that served as the basis for the creation of thematic maps were created. Thus, according to this literature, one of the earliest thematic maps is that of 1607, created by Jodocus Hondius, part of his Little Atlas. The map showed the distribution of major religions (Van der Dussen, Jan and Kevin Wilson, 1995). This map was subsequently followed by a thematic globe with the same theme (1614).

An early contributor to thematic cartography in England was also the English astronomer, Edmond Halley (1656-1742). In year 1686 he created a star sketch map and published the first meteorological sketch map using basic maps. He had placed this map as part of an article he wrote about the winds of trade (Thrower, 2008).

According to the above descriptions, cartographic literature defines the seventeenth century AD as the time when the process of thematic mapping began. But on the other hand, the Chinese maps of the 4th century BC, painted in black on wooden blocks and representing places where different types of wood could be collected along with the respective distances, can be considered as the oldest economic maps in the world, as they precede the maps economic of Strabo (Hsu, Mei-ling, 1993). Meanwhile, the literature defines that the "New Map of Europe" compiled by August Friedrich Wilhelm in year 1872 is considered the earliest economic map (Robinson, 1982). On this map were marked, by means of cartographic signs special products and the most important commercial regions of all European countries.

From the above we can say that since economic maps are thematic maps, we must consider the century IV BC as the time when the first thematic maps and the first economic maps were created and not respectively, the century XVII (for thematic maps) and century XIX (year 1872) (for economic maps). However, this is a topic that should be widely discussed by cartographers and ICA to finally decide when the first thematic and economic maps were created.

DEVELOPMENT OF THEMATIC CARTOGRAPHY IN ALBANIA

Thematic maps of Albania were created after 1820. Initially, geological maps were compiled by foreign authors, then ethnographic, economic maps etc., were compiled. Economic maps have been published by Bianconi (1886), Riedels (1906), etc. Political maps published by K. Peucker in 1902 and by G. Freytags in 1913 are like Kiepert maps (Shehu and Nikolli, 2001). There are about 180 thematic maps of Albania in the National Library of Albania, of which about 38 are economic maps.

Geological maps

The first geological maps of Albania, which are considered the first thematic maps of Albania, were created in the years 1828 - 1879 by the naturalist A. Boue and the geologist A. Vuquesnel (Nikolli, 2011). But, at the Albanian Geological Service archive there are also 6 geological maps in manuscript of this period in the scales 1: 2000000 - 1: 200000, which include the whole territory of Albania. Geological maps have also been published by Viquesnell (1841,1844), Toula (1882), Nopcsa (1905,1911), Veters (1906) etc., (Shehu and Nikolli, 2001).

In the years 1903 - 1912, A. Marteli created a geological map of Vlora in the scale 1: 200000, which he published in Rome in 1912. F. Nopcsa, after several years of study, published in Budapest (1916) the geological map of Northern Albania in the scale 1: 200000. Also, geological maps of different regions of Albania were processed and published by various geologists, such as: Weters, Hammer, Roth, Telegt, Goebel etc., (Shehu and Nikolli, 2001; Shehu and Nikolli, 2005). We also mention here the map in the scale 1: 200000 entitled "Geological map of Southeast Albania", published in Paris in 1921 by J. Bourcart. For the first time, a geological map of the whole Albanian territory was published in Salzburg in 1929 by Novak. In 1943, S. Zuberi prepared in manuscript the geological map of Albania in the scale 1: 200000. In 1950, E.A. Stankjev and Z.A. Mishunina and E.A. Ivanova prepared the geological map of Albania along with explanatory notes, in the scale 1: 200000, for use in the oil industry. This map was published in 1957 in Leningrad with a limited number of copies.

A group of Albanian geologists (T. Biçoku et al.), compiled (1967) and published in Tirana, in Albanian and in French, the geological map of Albania in the scale 1: 200000 together with the explanatory texts (1970, 1971).

In 1990, the third geological map was published, entitled "Geological Map of the Socialist People's Republic of Albania" in the scale 1: 200000, compiled by a group of geologists (R. Shehu, etc.). In 2000, under the chairmanship of

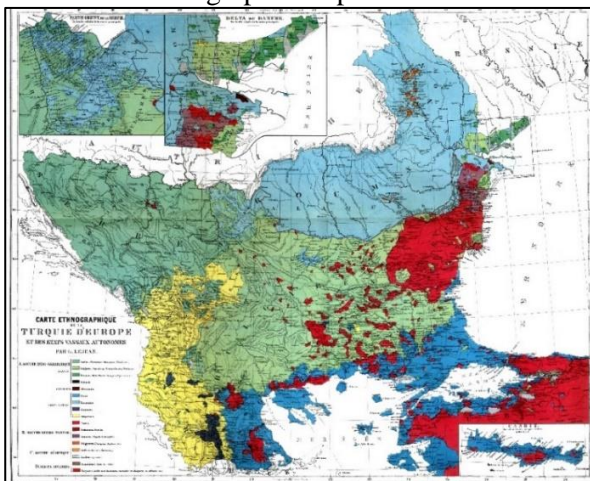
A. Xhomos, etc., was compiled the geological map of Albania at the scale of 1: 200000, which was published in 2002 and was named "Geological Map of Albania".

In addition to the geological maps in the scale 1: 200000, maps of various scales have been compiled, which have remained unpublished and are in the Albanian Geological Service archive and that of the Institute of Geological Research. From 1997, the publication of the series of geological maps in the scale 1: 25000 based on topographic maps began.

The publication of geological maps is continuing to this day in order, all the information gathered, to make known to the scientific world and the public. In addition, work is underway to digitize these maps, creating multi-purpose digital interactive maps that can be used electronically via GIS. Hydrogeological, metallogenetic, geophysical maps in the scale 1: 200000 etc., have also been published .

Ethnographic maps

As a result of numerous historical events during the century XIX (such as the declaration of independence of some Balkan states and their desires to take from our lands considerable territories, etc.), we have important cartographic publications and especially publications of ethnographic maps. The latter have played an important role, as documents that have influenced in the protection of the remaining Albanian territories. We mention here the ethnographic maps published by Lejean (1861) (map 2.2.1), Saks (1877), Kiepert (1876, 1882), etc., but especially the ethnographic maps published by Albanian authors such as: N. Lako (map 2.2. 2), A. Gashi, N. Kosturi, etc. ., which are distinguished for indisputable truth (Shehu and Nikolli, 2001; Shehu and Nikolli, 2005). There are 5 ethnographic maps of N. Lako in the National Library of Albania.



Map 1. Guillaume Lejean's Ethnic map of European Turkey and its vassal states. 1861



Map 2. N. Lako. "Ethnographic Map of Albania" was published in 1913 in Paris.

During the XIX-XX centuries, F.W. Putzger has published many historical and ethnographic maps and atlases, in which the Albanian lands are presented in a large scale. We mention here the atlas entitled "Historischer Weltatlas", the content of whose maps is also found in other historical atlases (mainly in black and white) (Shehu and Nikolli, 2001).

In addition to the maps mentioned above by foreign authors, there are many other maps published in various parts of the world. During the time interval 1847-1913 alone, 17 ethnographic maps were published (Shehu and Nikolli, 2001).

Thematic maps of Albania after the Second World War

If topographic maps have covered the entire territory of the Republic of Albania, even in large scale (while in many developed countries of the world this requirement was not met), thematic maps have been missing in the required amount, especially in meeting the requirements of schools and many scientific institutions of Albania.

After World War II, thematic cartography in Albania was developed mainly by the former Enterprise of Teaching, Cultural and Sports Tools «Hamid Shijaku», Tirana; the former Center for Geographical Studies of the Academy of Sciences of Albania and private units (after the 1990s) (Shehu and Nikolli, 2001).

In the period 1954 - 1958, the former Enterprise of Teaching, Cultural and Sports Tools "Hamid Shijaku", Tirana, has published about 20 wall maps, including the physical map of Albania in the scale 1: 300000 and the atlases of Albania for primary schools. After 1963, many teaching maps and other cartographic products were published, such as: "Economic Albania", "Atlas of Albania" (for primary schools), "Geographical Atlas" for 8-year schools, etc. (Shehu and Nikolli, 2001).

In the '70 years of century XX are published many physical maps, political-administrative maps and other topics, as well as school geographical atlases. Whereas, in the 80' years of this century, three-dimensional maps, relief models (in plastic-opaque measures) and thematic atlases were published, such as: map of animals and birds, geological map, tectonic map, hydrogeological map, forest and pasture map, physical map, political-administrative map, seismic map, etc., all of these for Albania and in scale 1: 200000. A work of great importance is the Climate Atlas of Albania, published by the former Enterprise of Teaching Tools, compiled by the former Hydrometeorological Institute and which is the most dignified capital work in the field of Albanian thematic cartography (Shehu and Nikolli, 2001). The former Enterprise of Teaching Tools also functioned in the '90 of century XX,

by publishing new maps and republishing old maps, in function of the messages that state and private institutions have had. Currently, this enterprise is no longer functioning.

Since 1986, when it was established, the former Center for Geographical Studies of the Albania's Sciences Academy has published a series of thematic maps and three-dimensional models of Albania. We mention here the political-administrative map of Albania in the scale 1: 200000 and 14 geographical atlases of the tourist potential of the Albanian coastal area and of some mountainous areas of Albania (Shehu and Nikolli, 2001).

One of the most successful achievements of the former Center for Geographical Studies is the creation for the first time, of a land cover map, in the scale 1: 100000, for the entire territory of Albania, according to the CORINE program. The creation of this map, utilizing (for the first time) satellite images, corrected and transformed to the scale 1: 100000, was completed in 1999 (Shehu and Nikolli, 2007). Currently, the Center for Geographical Studies no longer functions.

Thematic maps and other thematic cartographic products are published today by various private units, which are numerous. Already, the private sector is present in Albania's major cities.

However, in the cartographic products of these private units, many inaccuracies and errors are noticed (Nicolli, 2011), the elimination of which requires a close cooperation between cartographers and geographers and GIS specialists.

Economic maps

Economic maps have a special place in the cartographic fund of the National Library of Albania. Thus, we mention: Albania [cartographic material], Rome, 1937, with statistics from 1936-1937 for the main agricultural and livestock products and for the registration of work animals of the prefectures of Kosovo, Shkodra, Durres, Dibra, Tirana, Elbasan, Berat, Korça, Vlora and Gjirokastra; Economic Map of the Republic of Albania, Albania [cartographic material], in the scale 1: 500000 published in 1960 and 1978 by the former Enterprise of Teaching, Cultural and Sports Tools "Hamid Shijaku", Tirana (which reflects the situation in 1938), etc.

Later, in continuation, many other maps with economic content were published, such as: sheep - goats [cartographic material], in the scale 1: 420000, Tirana 1976; Electrification of Albania [cartographic material], Tirana 1970; light industry - economic map in the scale 1: 420000, Tirana 1972 and a series of other thematic maps that representing the chemical industry, construction materials industry, glass and ceramics industry, mineral industry, food industry, agriculture, livestock, etc., all these products of the

former Enterprise of Teaching, Cultural and Sports Tools "Hamid Shijaku", Tirana. When it ended the electrification of Albania, on October 25, 1970, the former Enterprise of Teaching, Cultural and Sports Tools "Hamid Shijaku" published the map of electrification of Albania in the scale 1: 200000 (Shehu and Nikolli, 2001).

In the cartographic fund of NLA there are about 180 thematic maps, of which 38 are economic maps. To date, hundreds of economic maps of Albania have been published by state institutions and private enterprises. Of importance is the economic map of Albania that is currently in the Library of Congress, compiled by prof.dr. Vasil Kristo. It is a complete map and deserves special attention for all the values it carries.

“ECONOMIC MAP OF ALBANIA” (FOR SCHOOLS) IN THE SCALE 1: 400000, COMPILED BY PROF.DR. VASIL KRISTO AND PUBLISHED IN 1963

Economic map of Albania - for schools, (wall map, with color and dimensions 87 x 48 cm), was compiled in 1963 by prof.dr. Vasil Kristo, former lecturer in the Department of Geography at the University of Tirana and was published in late 1963 by the former Enterprise of Teaching and Sports Tools "Hamid Shijaku", Tirana (map 3.1.).

This is a general economic (statistical map) which represents all the main branches of the economy and it is the first complete general economic map of Albania. It contains mathematical, geographical and editorial elements. To compile this map, the author has collected a lot of data, analyzed and grouped them and presented them graphically. He has studied the content of special economic maps, previously published, and based on cartographic principles and criteria has correctly presented all the main indicators that characterized the economy of Albania at the time of compiling the map.

The author has paid special attention to detailing the objects of the economy and presenting those economic elements that are important and related to the predetermination of the map (for schools). The map shows the industrial centers, industry (in scalable graphics), agriculture and livestock, trees and forests, mineral resources, power plants, seaports, forests, etc.

This map shows detailed hydrography, road network, forests and borders. Less detailed are the inhabited centers, other elements of vegetation and relief. The road network is just as complete as on topographic maps in the same scale because it plays a special role in the development of the economy. The map contains a very detailed and simple legend to be understood by school students.

The author has classified industrial centers into 4 groups and then successfully used the methodology of the diagrams where circles with different radii represent the industry as a whole, while the sectors with which the circles are divided, represent special branches of industry such as metal processing industry, chemical industry, construction materials industry, glass and ceramics industry, wood and wood processing industry, light industry, food industry, polygraphic industry, oil processing industry and other different industries. The ordering of the various branches of industry, within geometric figures, has been done in a studied manner, starting from a certain direction for all figures. At first, the branches of heavy industry were placed in circles, then those of light industry, according to the importance they occupy in the country's economy, etc. The size of industry objects is shown by relative values.

Zones that provide the raw material (e.g., cotton planting areas, sugar beets, etc.) and those where the finished product goes, are given on the map by means of the areas. The geographical position of the mineral deposits is shown on the map by the method of symbols (for objects) and by the method of the areas (for mineral-bearing areas). We emphasize that in school maps, the cartographic signs of the mineral deposits are almost standard. Qualitative changes of mineral resources have been shown using different colors and shapes of symbols and areas. For fuel have been used dark colors, for the metallic minerals – red color, for the chemical industry – purple color, for building materials – orange color and for others – blue color. The hydropower plants have been shown by a star with sky color, inside of which is a broken, white arrow. The same signs are used for power plants, but the color is red, etc.

Agricultural crops such as cotton, sugar beets, olives, etc., are presented on the map by means of special cartographic signs compiled by the author himself. Natural signs have been used successfully, the size of which has been calculated in proportion to the statistical indicators of agricultural crops.

This map is the first of its kind compiled by an Albanian author in Albania. The map satisfies the scientific and methodological requirements of cartography for easy use by pre-university school students and university students. It is important to remember that at the time when this map is compiled, digital techniques were completely lacking and all calculations and graphic constructions are done manually. Therefore, for the technical and technological conditions of the time when it was created, this map is a great achievement.



Map 3.1. Albania's economic map: for schools. Compiled in 1963 by prof.dr. Vasil Kristo.

CONCLUSIONS

We think that a discussion should be opened about the time when the first thematic maps and the first economic maps were created. By the analysis of cartographic literature, it turns out that we must consider the 4th century BC as the time when the first thematic maps and the first economic maps were created and not respectively the century XVII (for thematic maps) and century XIX (1872) (for economic maps).

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Economic maps have a special place in the cartographic fund of the National Library of Albania (about 38 economic maps in the large-scale).

“Economic map of Albania: for schools”, (wall map, with color and size 87 x 48 cm), compiled by prof.dr. Vasil Kristo (former lecturer in the Department of Geography at the University of Tirana) and published in 1963, is the first and most accurate general economic map of the Republic of Albania. It was compiled at a time when digital techniques were completely lacking, and all calculations and graphic constructions were done manually. Therefore, for the technical and technological conditions of the time when it was created, this map is a great achievement.

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