Studies in the History of Geodesy and Cartography in Bulgaria

Veneta Kotseva

Studies in the History of Geodesy and Cartography in Bulgaria was published by the University of Forestry, and printed by the Military Geographic Service in Bulgaria in Bulgarian language in 2013. Two years later, the book was translated into English by Meglena Bazhdarova and published with the sponsorship of the Chamber of Graduate Surveyors and Military Geographic Service at the Ministry of Defence. The English version did not include two chapters from the Bulgarian edition: chapter XIV "The Cadastre Abroad and in Bulgaria – Introduction and Development from 1878 to 1944" and chapter XV "Vertical Planning – History and Development in Bulgaria".

The book is the result of 30 years of work by Assoc. Prof. Dr. Veneta Kotseva and her tireless research and scientific work in the fields of geodesy and cartography. The research period begins after the Russian-Turkish War (1877–1878), when Bulgaria received an extraordinary gift from the Russian military topographic corps, who made the first accurate geodetic measurements in Bulgarian lands, known as exact 'verst-maps', and also covers more recent events up to the year of the publication, 2013. In many parts of the book, the author returns to early periods where she discovers the origins of geodetic or cartographic products and activities.

The book gives a precise, detailed historical review of the Military Geographic Institute, which will celebrate its centenary in 2019. In 1920, the first two-year Geodesic School for training military topographers and surveyors was established.

Detailed information and facts are given about distinguished Bulgarian scientists, geodesists, geophysicists and mathematicians who worked at the Geographical Institute and Military-Topographic Service of Bulgaria (Ivan Valkov, Academician Vladimir Hristov, Prof. Vasil Peevski, Prof. Mihail Venedikov, and many others). These people are our teachers, scholars and predecessors, the pride of the Geodesy Guild, and some of them have achieved tremendous success at the international and national levels.

Interesting facts are mentioned in relation to the pioneers of cartography in Bulgaria; Academician Georgi Yakovlev Kirkov and Georgi Yordanov Kirkov – The Master. For example, International Workers' Day (1 May) was celebrated for the first time in Bulgaria only four years after its inauguration in Chicago. The cartographer Georgi Yordanov Kirkov played a major role in this.

The second part of the book describes the early steps and successes in native Bulgarian topography, cartography and the cadastre. The first books and textbooks written by Bulgarian military topographers were commissioned by the Ministry of War. Apart from military purposes, cartographic and geodetic products began to find other areas of application. Kotseva describes their use in statistics as far back as 1897, and shows the state structure and territory of the Principality of Bulgaria and its borders.

There are several choropleth maps depicting the demography and economy of the Principality of Bulgaria, along with valuable old maps. The author says the maps were compiled by experts of the Cartographic Institute at the General Staff of the Bulgarian Army between 1893 and 1897. The Institute was then part of the Statistical-Topographic Department of the General Staff. The rational approach of the government at that period could be an example to the current government.

In the chapter "Who was H. G. Hesapchiev, the author of the book *Geodesy and Military Topography?*" Kotseva gives detailed and interesting professional and personal responses to difficult questions.

The history and development of symbols in Bulgarian cartography is approached in an interesting way. Kotseva starts with an account by Hristofor Hesapchiev dated 1893. In it, he describes the transition from Russian to Bulgarian symbols for the purposes of military topography. Between 1897 and 9 September 1944, all normative and cartographic activities in the field of military topography and civil geodesy were entirely governed by a single institution, the Ministry of War. After 9 September 1944, these activities came under the jurisdiction of two separate departments. Later, in the 1950s and 1960s, there was another transition, from Soviet symbols to Bulgarian ones. The author gives examples of many Soviet symbols, even for objects or phenomena that did not exist in Bulgarian territory, for example, semi-shrub in deserts or semi-deserts, volcanic craters and glaciers. This incoherence was tackled by symbols issued in the 1970s and 1990s, and the number of extraneous symbols decreased from 434 to 285 for topographical maps at 1:10 000, 1:5000 and 1:2000.

Studije iz povijesti geodezije i kartografije u Bugarskoj

Veneta Koceva

Studije iz povijesti geodezije i kartografije u Bugarskoj objavilo je Šumarsko sveučilište, a tiskala Vojna geografska služba u Bugarskoj na bugarskom jeziku 2013. godine. Dvije godine kasnije knjigu je na engleski prevela Meglena Baždarova, a sponzori su bili Komora diplomiranih inženjera geodezije i Vojna geografska služba u Ministarstvu obrane. Engleska verzija ne sadrži dva poglavlja iz bugarskog izdanja: poglavlje XIV "Katastar u inozemstvu i u Bugarskoj – uvod i razvoj od 1878. do 1944." i poglavlje XV "Visinsko planiranje – povijest i razvoj u Bugarskoj".

Knjiga je rezultat tridesetogodišnjeg rada izv. prof. dr. Venete Koceve i njezina neumornog istraživanja i znanstvenog rada u području geodezije i kartografije. Razdoblje istraživanja započinje nakon Rusko-turskog rata (1877–1878) kad je Bugarska dobila izvanredan dar od ruskog vojnog topografskog korpusa koji je prvi obavio točna geodetska mjerenja u bugarskim zemljama – točne "verstkarte", a zatim obuhvaća i novija događanja sve do 2013. godine. U mnogim dijelovima knjige autorica se vraća ranim razdobljima u kojima otkriva porijeklo geodetskih i kartografskih proizvoda i aktivnosti.

Knjiga daje precizan i detaljan povijesni pregled Vojno geografskog instituta koji će proslaviti stotu obljetnicu 2019. godine. Godine 1920. osnovana je prva dvogodišnja geodetska škola za obuku vojnih topografa i geodeta.

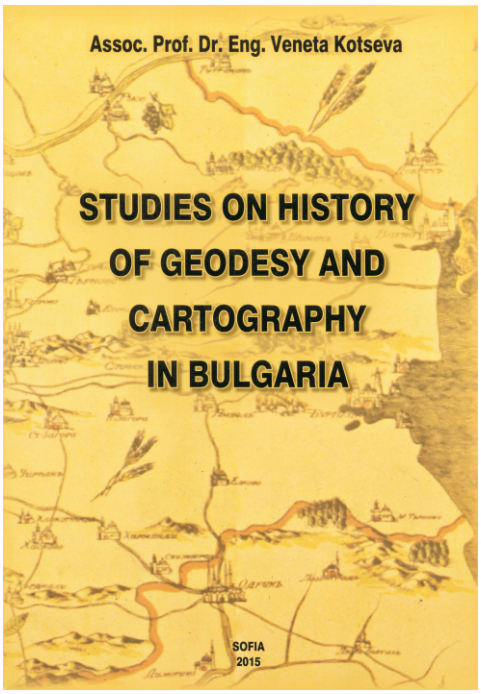
Dane su detaljne informacije i činjenice o uglednim bugarskim znanstvenicima, geodetima, geofizičarima i matematičarima koji su radili u Geografskom institutu i bugarskoj Vojnotopografskoj službi (Ivan Valkov, akademik Vladimir Hristov, prof. Vasil Peevski, prof. Mihail Venedikov i mnogi drugi). Te su osobe naši učitelji, znanstvenici i prethodnici, ponos geodetske struke, a neki od njih su postigli ogroman uspjeh na međunarodnoj i nacionalnoj razini.

O pionirima kartografije u Bugarskoj kao što su akademik Georgi Jakovljev Kirkov i Georgi Jordanov Kirkov – Majstor navode se zanimljive činjenice. Na primjer, Međunarodni praznik rada (1. svibnja) proslavljen je prvi put u Bugarskoj samo četiri godine nakon osnivanja u Chicagu. Kartograf Georgi Jordanov Kirkov odigrao je pritom veliku ulogu.

Drugi dio knjige opisuje rane korake i uspjehe domaće bugarske topografije, kartografije i katastra. Prvu knjigu i udžbenik što su je napisali bugarski vojni topografi naručilo je Ministarstvo rata. Osim u vojne svrhe, kartografski i geodetski proizvodi počeli su pronalaziti i druga područja primjene. Koceva opisuje njihovu uporabu u statistici još 1897., a pokazuje državnu strukturu i teritorij Kneževine Bugarske i njezinih granica.

Postoji nekoliko koropletnih karata s prikazom demografije i gospodarstva Kneževine Bugarske, a tu je i nekoliko vrijednih starih karata. Autorica kaže da su karte izradili stručnjaci Kartografskog instituta u Glavnom stožeru bugarske vojske između 1893. i 1897. Institut je tada bio dio Statističko-topografskog odjela Glavnog stožera. Racionalan pristup vlade u to doba mogao bi biti primjer sadašnjoj vladi.

U poglavlju "Tko je bio H. G. Hesapčiev, autor knjige *Geodezija i vojna topografija*?" Koceva daje detaljne i zanimljive stručne i osobne odgovore na teška pitanja.



Povijesti i razvoju znakova u bugarskoj kartografiji prilazi se na zanimljiv način. Koceva počinje jednim izvještajem Hristofora Hesapčieva iz 1893. godine. U njemu on opisuje prijelaz s ruskih na bugarske znakove za potrebe vojne topografije. Između 1897. i 9. rujna 1944. sve normativne i kartografske aktivnosti u području vojne topografije i civilne geodezije u cijelosti su pod upravom jedne ustanove - Ministarstva rata. Nakon 9. rujna 1944. te su aktivnosti prešle u dva odvojena odjela. Kasnije, 50. i 60. godina 20. stoljeća, još je jedan prijelaz iz sovjetskih kartografskih znakova u bugarske. Autorica daje primjere mnogih sovjetskih znakova, čak i za objekte ili pojave koji nisu postojali na

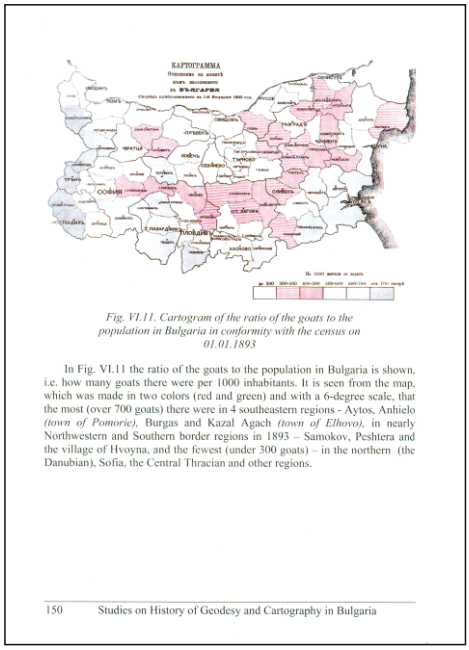


Fig. VI.11. Cartogram of the ratio of the goats to the population in Bulgaria in conformity with the census on 01.01.1893

In Fig. VI.11 the ratio of the goats to the population in Bulgaria is shown, i.e. how many goats there were per 1000 inhabitants. It is seen from the map, which was made in two colors (red and green) and with a 6-degree scale, that the most (over 700 goats) there were in 4 southeastern regions - Aytos, Anhielo *(town of Pomorie)*, Burgas and Kazal Agach *(town of Elhovo)*, in nearly Northwestern and Southern border regions in 1893 – Samokov, Peshtera and the village of Hvoyna, and the fewest (under 300 goats) – in the northern (the Danubian), Sofia, the Central Thracian and other regions.

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In the next part, Kotseva describes mapping relief using contour lines, giving detailed definitions and going back to 1697, when the first isobaths were depicted by Dutch cartographers. One chapter deals with the first geographic map in Bulgarian, made by Alexander Hadji Russet in 1843. It was dedicated to Professor B. Cohen on the tenth anniversary of his death. Another section is devoted to the first relief map of Bulgaria, made in 1902 by General-Lieutenant Kiril Boyadzhiev.

The third part of the book describes the first regulation territorial, urban and cadastral activities in Bulgarian cities. There is a lot about the history of Sofia and the way its first urban plans – cadastral, regulation plans and town planning – were drawn up, along with the history of the most symbolic buildings in central Sofia and its modernization as a European city. The historical development of the city of Plovdiv is also accompanied by interesting information and photographs.

In the Bulgarian edition of the book, the development of the cadastre is depicted both abroad from ancient times, and in the country from 1878 to 1944. The beginning of the cadastre in Bulgaria (1928–1944), according to the work of Prof. M. Venedikov, is presented, with the development of triangulation, and the chapter ends with plans for land redistribution made during the final years of the reviewed period.

Vertical planning is explained through its historical development and Bulgarian application, including the special place of disciplines studied in Bulgarian universities. The geodetic aspects of the history of urban planning, regulation and vertical planning of historical settlements in Bulgarian lands are discussed in the next part of the book. The author takes a "look at the archaeological facts from a geodesic point of view".

Finally, Kotseva acknowledges professional organisations related to geodesy and cartography in Bulgaria. The first group of engineer-surveyors in the BEAS (Bulgarian Engineering and Architectural Society) was founded in 1922, and in 1965 the Scientific and Technical Union of Bulgarian Surveyors and Land Managers was established, renamed in 1990 the Union of Surveyors and Land Managers in Bulgaria. Particular attention is paid to the Association of Geodesic Companies founded in 1997, the Chamber of Graduate Surveyors in Bulgaria founded in 2006 and the Bulgarian Cartographic Association founded in 2011. She describes their structure, activities and organized events.

The book has plenty of pictures and graphics – portraits, posters, monuments, buildings, instruments and more. It can be found in the University of Forestry bookstore.

We would like to express our gratitude to Assoc. Prof. Kotseva for bringing together in one book the entire historical experience, activity and potential of the Bulgarian Geodesy Guild. As we get to know our own story (and hopefully learn from it), it will encourage us as surveyors and cartographers to prosper and promote our profession.

Temenoujka Bandrova ■

bugarskom teritoriju, na primjer polugrm u pustinji ili polupustinji, vulkanski krater i ledenjak. Taj je nesklad riješen s pomoću znakova izdanih 70. i 90. godina 20. st., a broj znakova smanjio se s 434 na 285 za topografske karte 1:10 000, 1:5000 i 1:2000.

U sljedećem dijelu knjige Koceva opisuje kartiranje reljefa s pomoću izohipsa, daje detaljne definicije i vraća se u 1697. kad su prve izobate crtali nizozemski kartografi. Jedno se poglavlje bavi prvom geografskom kartom Bugarske koju je izradio Alexander Hadži Russet 1843. godine. To je poglavlje posvećeno prof. B. Cohenu u povodu desete godišnjice njegove smrti. Drugi dio bavi se prvom reljefnom kartom Bugarske koju je 1902. godine izradio general-poručnik Kiril Bojadžiev.

Treći dio knjige opisuje prvi propis teritorijalne, urbane i katastarske aktivnosti u bugarskim gradovima. Donosi puno o povijesti Sofije i o načinima kako su nacrtani prvi planovi gradova – katastarski, planovi razvoja i urbanističkog planiranja, uz povijest većine značajnih zgrada u središtu Sofije i njezina osuvremenjivanja kao europskoga grada. Povijesni razvoj grada Plovdiva također je popraćen zanimljivim informacijama i fotografijama.

U bugarskom izdanju knjige prikazan je razvoj katastra, kako u inozemstvu od davnina, tako i u zemlji od 1878. do 1944. Prikazan je početak katastra u Bugarskoj (1928. – 1944.), prema radu prof. M. Venedikova, s razvojem triangulacije, a poglavlje završava planovima za preraspodjelu zemljišta tijekom posljednje godine prikazanog razdoblja.

Visinsko planiranje objašnjeno je svojim povijesnim razvojem i bugarskom primjenom, posebno uključujući discipline koje se studiraju na bugarskim sveučilištima. Geodetski aspekti povijesti urbanizma, regulacije i visinskog planiranja povijesnih naselja u bugarskim zemljama raspravljeni su u sljedećem dijelu knjige. Autorica "gleda na arheološke činjenice iz geodetskog stajališta".

Napokon, Koceva zahvaljuje stručnim organizacijama vezanima uz geodeziju i kartografiju u Bugarskoj. Prva grupa inženjera-geodeta u Bugarskom inženjerskom i arhitektonskom društvu osnovana je 1922., a 1965. uspostavljen je Znanstveni i tehnički savez bugarskih geodeta i menadžera zemljišta, koji je 1990. preimenovan u Savez geodeta i menadžera u Bugarskoj. Posebnu pozornost posvećuje Udruzi geodetskih tvrtki koja je osnovana 1997. godine, Komori diplomiranih geodeta u Bugarskoj, osnovanoj 2006. i Bugarskom kartografskom društvu, osnovanom 2011. godine. Opisuje njihovu strukturu, aktivnosti i organizirana događanja.

Fig. XII.20. Part of the plan of Big Sofia of 1938 of Prof. Adolf Musman

XII.6 Conclusion

It may be said in conclusion that the first Chief Architect of Sofia, the first designer of the young capital Sofia and of a number of remarkable buildings in it – Anton Kolar "signed with his pen" in the image of our capital and this

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Knjiga sadrži mnogo slika i grafičkih prikaza – portreta, plakata, spomenika, zgrada, instrumenata i dr. Knjiga se može nabaviti u knjižari Sveučilišta šumarstva.

Željeli bismo izraziti svoju zahvalnost izv. prof. Kocevoj što je u jednoj knjizi uspjela skupiti cijelo povijesno iskustvo, aktivnosti i potencijal bugarske geodetske struke. Poznajemo li svoju vlastitu povijest (a nadam se i učimo od nje), to će nas ohrabriti kao geodete i kartografe u napredovanju i promicanju struke.

Temenoujka Bandrova ■