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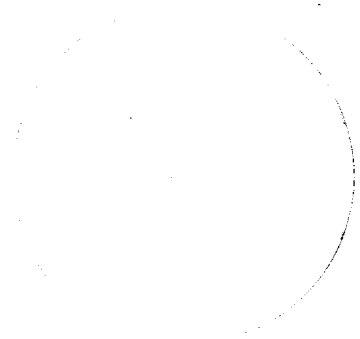
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MAP RESEARCH BULLETIN

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November 1950

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I. A NEW POPULATION MAP OF BULGARIA

Knowledge of the variations in the character of population distribution is an essential part of the basic intelligence required for foreign areas. Accurate and realistic representations of such information are needed in map form. This article presents an improvement in technique for representing the distribution of population, as illustrated by the accompanying map of Bulgaria (CIA 11639). The most complete recent information on the population of Bulgaria was used in the compilation, the official Bulgarian census of 31 December 1946. The article also includes descriptions of the population regions of Bulgaria that emerge from the use of this new technique.

A New Technique for Graphic Representation of Population Distribution

For more than half a century, geographers and cartographers have been experimenting with methods of representing population that would result in maps superior to those in general use--the dot, the isopleth, and the minor civil divisions map. The technique used in compiling the map of Bulgaria is a combination and variation of methods used by other geographers, but resembles most closely the techniques used by Alan Ogilvie in mapping the population of Greece.¹ Basically, the map is similar to the

1. See: Geographical Journal, Vol. CI, 1943, pp. 251-260. Map reproduced in simplified form in Vol. III of the Geographical Handbook on Greece published by the Naval Intelligence Division.

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minor civil divisions maps, but instead of civil divisions, regions of homogeneous population distribution are used.

The delimitation of regions of homogeneous population distribution in Bulgaria is possible because of the unusual detail of the Bulgarian census. Census figures are given by oblast, okoliya, obshtina, and populated place or locality. In preparing the map, the population of each locality was plotted on a large-scale base. By comparing this map with the sheets of the 1:100,000 map of Bulgaria, regions of comparatively uniform population distribution were established and outlined. In general, the criteria were similarity in size of village, type of settlement, location of settlement in relation to the terrain, and land use. The area of each region in square kilometers was then determined, the population of the localities within the region totaled, and the average population density of the region calculated.

In drawing regional boundaries, the area that was assumed to contribute to the support of a given village was included in the same population region as the village. In order to show more precisely the number of people actually supported by an area, urban centers are not included in the density calculations. For example, the trade and industrial activities of Ruse, the chief Danube port of Bulgaria, are supported by an area far larger than the immediate hinterland of the city. All of the centers shown in solid color are considered urban. Although towns in the 8,000 - 15,000 population range are considered primarily rural, most are market centers with some processing functions. Therefore one-fourth of the population of these towns (the fraction assumed to be urban in character) is not included in the appropriate regional density figure.

Quantitatively, the map is as accurate as the census. The accuracy of the impressions the map conveys, however,

is partly determined by the date of the topographic maps used in compilation. For the area south of latitude 40° N and a few small sections elsewhere, topographic sheets published after 1935 were consulted. These sheets show in great detail the extent of clearing and cultivation in the mountains, isolated dwellings, and the road pattern. For the rest of the country, maps based on surveys made almost 75 years ago were used. Few of these maps have been corrected and corrections that have been incorporated are not uniform from sheet to sheet. Consequently, for northern Bulgaria the relationship of one village to another and to the land is not readily discernible from the maps. The regional divisions established within areas of similar terrain therefore may not be valid in all cases.

The Population Regions

The use of population distribution regions reveals the richly varied density pattern in Bulgaria. On the basis of similarity of settlement, seven major population regions can be distinguished: (1) Danube tableland; (2) Dobrudzha; (3) Stara Planina -- north flank, crest, and south flank; (4) southern mountains; (5) upper Maritsa valley; (6) lower Maritsa-lower Tundzha valleys; and (7) west-central Bulgaria.

The Danube Tableland

The Danube tableland stretches almost across Bulgaria north of a line from Vratsa in the west to Stalin (Varna) in the east. The characteristic density of the tableland is about 75 people per square kilometer. The homogeneity is illustrated by the block of land from Vidin eastward to Pleven, which has a population density of 70-85 people per square kilometer. This area is a fertile, fairly level upland cut by shallow

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north-south valleys. The agglomerated settlement characteristic of Bulgaria is well developed. The villages, most of which have a population of 2,000 or more, are located in the valleys where there is shelter and an adequate water supply. In preparing the map, the area was originally divided into eight population distribution regions that corresponded in general to the upper and lower sections of the valleys. Since the population densities for all eight were within the 70-85 people per square kilometer density group, they were combined into a single unit.

To the east, the valley of the Yantra has a noticeably higher density. The Yantra drains a large area of the Stara Planina and its foothills, including the densely populated Tŭrnovo-Gorna Oryakhovitsa basin. Both of these towns are industrial centers according to Bulgarian standards. Tŭrnovo, once the Bulgarian capital, occupies a commanding site on the banks of the Yantra on the main road to Shipka Pass. In addition to the usual grain fields, vineyards, commercial vegetable gardens, and sugar beet fields occupy the basin.

Dobrudzha

Southeast of Ruse is a belt of land with a density of 55-70 people per square kilometer, which is the transition zone between the Danubian tableland and the Dobrudzha. The Dobrudzha itself is a dry, steppe-like country scarred by a network of ravines, particularly in the western section. Most of the gullies are seasonal watercourses. The typical landscape is mile on mile of wheat fields interrupted here and there by clusters of small, square, tile-roofed houses. The progressive decrease in population density eastward from the Danube appears to be correlated with an increase

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in aridity. Departure of Turks and Rumanians from the Dobrudzha because of boundary changes and the Bulgarian government policy towards national minorities has also contributed to the low densities. The census labels many villages "abandoned."

Stara Planina

The area with a population density of less than 10 per square kilometer that stretches almost across the middle of Bulgaria from east to west follows the crest of the Stara Planina, with two southern extensions along the crests of the Sredna Gora and Sŭrnena Gora. The Stara Planina is a worn, rounded chain of mountains most of which do not exceed 5,000 feet in elevation; the highest point is about 7,800 feet. East of Sliven the mountains are interrupted, and knots of hills continue to the Black Sea.

The landscape to the south of the crest of the Stara Planina differs markedly from that on the north. On the south, there is a precipitous drop to the densely populated, flat-floored valleys of Karlovo and Kazanlŭk at elevations of 900 to 1,000 feet. The valleys are intensively cultivated, with field crops on the lowlands and with vineyards and roses, the specialty of the valley, on the slopes.

North of the mountain crest is a wide band of foothills and low mountains with a typical density of 45 people per square kilometer. Four areas of considerably higher density stand out -- two around Gabrovo and Sevlievo near the center of Bulgaria, and two areas farther west, which center on the towns of Troyan and Botevgrad (which have populations of less than 8,000).

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Sevlievo lies in a bend of the Rositsa River where the stream flows across a small open basin. Around the town the land is almost flat, but in the western extension of the basin alluvial fans slope upward from the river. The entire area is cleared and is ringed with villages. Vineyards line the south-and west-facing slopes. The population pattern of the Botevgrad area is similar to that around Sevlievo. Gabrovo and Troyan, however, are actually in the mountains. The dense settlement dates from Turkish times, when the Bulgarians fled to the hills to escape the close surveillance of the Turkish chifliks of the plains. Settlements extend like fingers along each of the small streams. The villages and separate farmsteads are characteristically surrounded by plum orchards. Small hillside fields are sown to corn and wheat. The people also raise considerable numbers of livestock, chiefly sheep. In summer, the animals are driven to the high pastures of the Stara Planina, but available maps do not indicate even temporary settlement in that area. In this respect, the population distribution regions in the Stara Planina show only where the people live, not the areas from which they gain their livelihood.

Southern Mountains

In the southern mountain region, which is a far greater barrier to transit and colonization than is the Stara Planina, prevailing population densities are less than 25 per square kilometer. The mountains extend from the Yugoslav border south of Gorna Dzhumaya eastward to the Black Sea. The northernmost extension reaches almost to Sofiya.

The Strandzha range, which borders the Black Sea in southeastern Bulgaria, is neither lofty nor rugged. Fairly abundant rainfall has favored a heavy forest cover, and small,

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poor villages, in some places 20 miles apart, are scattered through the forest. The infertile soils of the clearings yield a meager harvest of hardy grains.

The low-density area south of Plovdiv corresponds to the central Rodopi. The central Rodopi and the even more sparsely inhabited western Rodopi and Rila mountains to the west are areas of exceedingly rugged terrain and difficult communications. A little lumbering and some livestock raising constitute the only economic activities of the area. The mountain communities are high and isolated. Unlike the rest of the southern mountains, the eastern Rodopi Mountains are honeycombed with settlements. Most of the villages are small if not tiny, rarely consisting of more than 50 families and often of fewer than 10.

The map shows several mountain areas that differ sharply from the prevailing mountain densities, including some valleys south of Sofiya and the basins of Petrich and Nevrokop. The valley is at an altitude of 3,000 feet and has a rigorous climate, it is covered with glacial gravel rather than alluvium, and there is almost no production of specialty crops. The economy is primarily pastoral. The basin of Petrich, on the other hand, is one of the major industrial crop sections of Bulgaria and produces opium poppies, cotton, tobacco, vines, and rice.

Upper Maritsa Valley and Lower Maritsa-Lower Tundzha Valleys

In population density (85 to 100 people per square kilometer) and in crop combinations, the upper Maritsa valley resembles the basin of Petrich. Poppies are not raised, but rice is grown in the marshy bed of the Maritsa near Plovdiv and Pazardzhik. Cotton has been introduced on a large scale in the Plovdiv-Svilengrad-Nova Zagora triangle. Almost the entire valley is under cultivation as far east as Chirpan, but on the

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sandier soils toward Khaskovo brushwood thickets are intermingled with the grain fields. From the lower Maritsa to the lower Tundzha to the Black Sea, the landscape changes subtly. An increasingly large proportion of the land is devoted to cereals, especially wheat; the large compact villages are spaced farther apart.

West Central Bulgaria

Population densities in west central Bulgaria are the same or even higher than in the lower Tundzha area, although the high western section appears to be far less favorable for settlement. Most of the basin of Sofiya, for example, which has a density of more than 100 people per square kilometer, is covered with poor brown forest soils and a large part of the area is hilly. The presence of Sofiya, with a population in the metropolitan area of 435,000, accounts in part for the high rural density. The city offers a growing demand for farm products and increased employment opportunities for farm families. West and southwest of Sofiya the countryside consists primarily of rough hills. Rye and maslin (rye and wheat mixed) are more important than wheat or corn. Except in the more southerly basins of Kyustendil and Marek, where some tobacco is raised and there are vineyards and orchards, the production of specialty crops is negligible.

II. PAN AMERICAN INSTITUTE OF GEOGRAPHY AND HISTORY
FIFTH GENERAL ASSEMBLY

At the invitation of the Chilean Government, the Fifth General Assembly of the Pan American Institute of Geography and History (PAIGH) is convening in Santiago, Chile, from October 16 to October 27, 1950. At the same time and as an integral part of the Assembly, there will be Consultations on Cartography, History and Geography. Delegates and representatives from all of the American states are attending.

The PAIGH is an Inter-American Specialized Organization as defined by the provisions of the Charter of the Organization of American States, and is the first such agency to enter into formal agreement with the OAS. The purpose of the PAIGH--to promote inter-American support and cooperation in geographic, historic, and cartographic problems--has been substantially furthered throughout the 20 years since the Institute was established.

The 1950 meetings include a reconvening of Committees which have been working on plans formulated at earlier Consultations and General Assemblies. The following meetings have been held to date:

Preparatory Assembly	Mexico City	1929
Inaugural Assembly	Rio de Janeiro	1932
II General Assembly	Washington, D.C.	1935
III General Assembly	Lima	1941
1st Consultation on Cartography	Washington, D.C.	1943
2nd Consultation on Cartography	Rio de Janeiro	1944

IV General Assembly	Caracas	1946
3rd Consultation on Cartography	Caracas	1946
1st Consultation on History	Mexico City	1947
4th Consultation on Cartography	Buenos Aires	1948
1st Consultation on Geography	Rio de Janeiro	1949

The Fifth General Assembly is the first to include Consultations on History and Geography. Commissions on History and Geography were created at the IV General Assembly in Caracas. In the future, Consultations will be held in conjunction with the General Assembly (scheduled to meet every four years) and also at intervals of one to two years during the intervening periods.

The meetings in Santiago are divided into two broad categories: (1) Administrative and financial problems, to be handled by the full Assembly; and (2) scientific work, which will be carried on by the Consultations through discussion sessions of the various committees of the Commissions. As of 15 August, these committees and their chairmen were as follows:

Cartography Commission:

Geodesy: Capt. C. L. GARNER, Retired (USA)
(retiring chairman)
Gravity and Geomagnetism: Ing. Ricardo MONGES
LOPEZ (Mexico)
Seismology: Ing. Frederico GREVE SCHLEGER
(Chile)
Topographic Maps and Aerophotogrammetry: Coronel
Pedro Roberto QUIROGA (Argentina)

Aeronautical Charts: Col. Paul C. SCHAUER (USA)
Hydrography: Vice Almirante Antonio GUIMARAES (Brazil)
Tides: Capitan de Corbeta Luis M. GIMENEZ
(Argentina)
Special Maps: Dr. Gerardo GANET ALVAREZ (Cuba)
Urban Surveys: Dr. Eduardo ALVAREZ GUTIERREZ
(Colombia)

Geography Commission:

Settlement and Colonization: Dr. Wreford WATSON
(Canada)
Land Inventory and Use Surveys: Dr. Preston E.
JAMES (USA)
Geography of the Americas: Dr. Federico A. DAUS
(Argentina)
Teaching and Methodology of Geography: Dr. Carlos
DELGADO DE CARVHALHO (Brazil)

History Commission:

Archives: Dr. Emeterio S. SANTOVENIA (Cuba)
Folklore: Dr. Luis E. VALCARCEL (Peru)
Emancipation Movement: Dr. Cristobal L. MENDOZA
(Venezuela)
Program of the History of Americas and Revision
of Texts: Dr. Ricardo PICCIRILLI (Argentina)
History of Ideas: Dr. Leopoldo ZEA (Mexico)

The Consultations, including the scientific meetings, are being held during the week following the First Plenary Session of the Assembly and continue into the following week. The programs include national reports on progress made in each country

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since its last report was presented, discussion of action taken on resolutions made at previous meetings, and proposals for new or further action needed within the field of activity of each committee. It is anticipated that the national reports on cartographic progress, which are prepared uniformly by all countries, will be outstanding contributions to our general knowledge of mapping in the Americas. Conclusions and resolutions of each Consultation will be formulated for presentation at the Final Plenary Session on Friday, October 27.

As has been the custom at previous meetings, field excursions to nearby regions will be conducted after the formal meetings are concluded, thus permitting visiting members to examine, at first hand, the variety of problems confronting Chile.

Concurrent with the meetings are Expositions on Cartography, Geography, and History to which member countries are contributing.

International and regional organizations, as well as national societies, academies, and universities were invited to send representatives to the 1950 meetings of the PAIGH. Among the international organizations invited are UN, UNESCO, ICAO, FAO, OAS, Indian Institute, International Council of Scientific Unions, International Hydrographic Bureau, the International Union of Geodesy and Geophysics, the International Society of Photogrammetry, and the International Geographical Union.

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III. BRIEF NOTICES

A. Revision of CIA Map of India and Pakistan.

The map entitled India and Pakistan -- 1950 (CIA 11461), which shows the political divisions of India and Pakistan, appeared in Map Research Bulletin No. 15, April 1950. The map has now been revised on the basis of information secured since the compilation of the original edition. The revised edition was published under the number CIA 11461 (First Revision 7-50) and is available for distribution at the CIA Map Library.

B. Maps and Description of French Cameroons.

"Atlas du Cameroun," published by the government of the French Cameroons, was printed in Paris either in late 1949 or in early 1950. The atlas includes eight maps, with explanatory texts. Only seven maps are in the copy of the atlas that was received by the CIA Map Library; the one of the urban area of Douala is missing.

All of the maps were compiled from official French sources and include the most accurate information available. The fractional scales given on maps 1-5, however, are incorrect; map 6 has no scale indicated, and the accuracy of the scale on map 7 cannot be checked.

The maps included in the CIA copy of the atlas, their dates, and their corrected scales are as follows:

1. Cameroun: Carte Administrative; 1:3,120,000; 1946
2. Cameroun: Carte Géologique; 1:3,128,000; 1946

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3. Cameroun: Carte des Races; 1:3,128,000; 1946
4. Cameroun: Densité de la Population par Région; 1:3,128,000; 1946
5. Cameroun: Carte des Communications; 1:3,100,000; 1946
6. Chemin de Fer du Cameroun: Plan de Modernisation du Réseau; no scale; 1947
7. Croquis Cartographique des Régions du Wouri et de la Sanaga Maritime; 1:200,000; 1948

C. Railroads of French Colonies.

"Géographie des Chemins de Fer Français," Vol. 4, France Lointaine, Librairie Chaix, Paris, February 1950, CIA Library Call No. 6M/6 755.2 .L3 v.4.

Maps in this recently published volume present detailed data on the railroads of all the French overseas colonies except French North Africa, which are treated in volume 3 of the same series. In format, volume 4 is similar to the other three volumes which were reviewed in Map Research Bulletin No. 15, April 1950.

Multicolored maps of Indochina and of the Hanoi and Saigon areas and monochrome maps of the other colonies show alignment and gauge of the railroads and location of the principal stations. Large- and medium-scale monochrome maps give more detailed treatment of the sections of the lines that are for some reason unique. Profiles are included for many of the lines.

D. Surveying and Mapping in Zanzibar.

The Land Survey Office of the Zanzibar Protectorate produces maps only as they are needed to fulfill local requirements; none are made for general distribution. Copies of many of the maps, however, have recently been obtained for map library collections in Washington.

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A series of 51 sheets that covers all of Zanzibar Island at the scale of 1:10,560 was made from a survey completed in 1932 and was printed during the period 1933-37 (AMS Call No. 34 0-3-30-62504-10). Subsequent cadastral work was based on the same data as the 1:10,560 series. A two-sheet series at 1:63,360 was published in 1947 and a series at 1:125,000 in 1942 (CIA Call Nos. 39102 and 63278).

The basic survey of Pemba Island, conducted in 1911-1912, resulted in the publication by the GSGS in 1913 of a two-sheet map at 1:63,360. The sheets were reissued in 1942, with roads revised from aerial photography and information supplied by the senior surveyor of the Protectorate (CIA Call No. 3086).

In 1943, planimetric maps that cover both Pemba and Zanzibar at 1:126,720 were published by the Land Survey Office. These maps have been used subsequently as bases on which specialized data have been overprinted. The GSGS and the British East Africa Command have also produced maps of both Zanzibar and Pemba.

Within the last few years, city plans of Zanzibar Town have been published at several scales ranging from 1:2,500 to 1:20,000. For the most part, they are based on or checked against a photo-mosaic at 1:5,000 published in 1947 (CIA Call No. 66800).

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