

DEVELOPMENT OF ATLAS CARTOGRAPHY IN THE USSR

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Abstract: The authors start their survey giving a detailed description of the "Atlas of the Asiatic Russia" then they describe the development of a great variety of atlases elaborated by numerous scientists who could work out due to modern technologies atlases like "The Great Soviet Atlas of the World" as well as other specific atlases concerning the Antarctic continent, economic atlases, atlases of the oceans, natural resources etc., partly in collaboration with foreign scientists. In the end of their study the authors conclude that due to the geographic information system the atlas cartography will further develop and be completed.

The formation of the atlas cartography of the Soviet State can neither be comprehended nor explained without a historical tie with the creation of complex atlases in Russia. The Soviet school of the atlas cartography continues and perfects the tradition laid by the Russian cartography.

Large complex regional atlases originate in the fundamental work "Atlas of the Asiatic Russia" (1914) consumating the complex cartography in the prerevolutionary time.

The migrant administration put out "The atlas of the Asiatic Russia" in three volumes with a richly illustrated text attached. For the first time a big set of maps with 62 titles was introduced in the atlas. Two thirds of them were economic maps. A geographic characteristic of Siberia, the Far East and Central Asia was adducted there in a summary form. The maps of specific governments and regions showing the general picture of the landownership and land-tenure take the main place in the atlas. They reflect the results of the activities of ten years standing of the migrant administration touching the organisation of the land exploitation for migrants. The atlas of the Asiatic Russia has a great significance from the historic and geographical point of view. On its basis the degree of the agricultural assimilation of the Asiatic Russia by the outbreak of World War I can be judged.

At the same time the album atlas "Agricultural craft" (1914) appears in the main directorate of tillage and organisation of land exploitation. It contains numerous cartodiagrams, cartograms, graphs, diagrams accompanied by an explanatory text. The first half is devoted to the husbandry and the second one to the agricultural education, to the dissemination of the agrotechnical knowledge. The maps are notable for the colourfulness and a high quality of the polygraphic execution, but their contents are rather simple: special branch cartograms. The atlas was destined for the demonstration of potential possibilities for the development of the agriculture in the future and it was meant rather for foreign countries in order to enlist new investments than for the internal use (Preobrazhenskiy, 1987).

Private business men were engaged in the publishing side by side with state establishments. In 1859 the cartographic establishment of Ilyin started its activities, before the revolution it published mostly school atlases. In the beginning of the 20th century the publishing house of Marx takes over the leading role in the issue of world atlases. The well-known geographer Shokalskiy, one of the editors of the great world atlases of Marx collaborated with this publishing house (1905, 1909).

The Russian geographers and cartographers occupied with the creation of maps and atlases in the end of the 19th and in the beginning of the 20th century carried on their vigorous activities after the October revolution embodying the most interesting ideas and intentions.

The new time determined new approaches towards the creation of complex atlases. On the whole the stress was laid on the enlightenment of people. With this purpose new educational atlases were prepared, authors' teams pooling efforts of prominent scientists Kaiserov, Shokalskiy, Anuchin, Borzov, Sokolov, Chefranov came into being. In 1924 they compiled "The elementary atlas for the first stage schools". Since 1926 "The geographic atlas" edited by Shokalskiy, has been appearing in mass circulations. It was published in 16 and 32 tables. For the first time the atlas, containing 32 tables featured physical, soil, ethnographic, ecologic charts of the Soviet Union on one scale. The atlas in 16 tables came out 17 times up to 1933. "The geographic atlas" by Silichshenskiy prepared on the basis of maps for the Soviet encyclopaedia is of indubitable interest (1929). The atlas was a complex world. Following the methodological introduction the maps of the oceans are inserted, where the volumes of goods, traffic, and fishery are indicated. For the first time the energetic resources of the world are characterized. The compilers of the atlas noted the overload of the subject charts and their insufficient clearness.

The development of complex atlases was activated in the end of the twenties and in the beginning of the thirties when the industrialization of the country began. In that time the methodology of the economic cartography was improved, fundamental atlases of the industry of the USSR were elaborated. In 1929 the all-union council of national economy started publishing "The atlas of the industry of the USSR". It consisted of five issues: 1) the qualification (large-scale) industry; 2) the small-scale and home industry; 3) the minerals; 4) the renewed energetic resources and peat; 5) the natural conditions of the USSR and a characteristic of the labour resources (in two parts). The last issues came out in 1931. The contents of the atlas were rich in the statistical material but the economic charts were performed in a schematic way, which did not ensure the accurate territorial localisation of the cartographed phenomena.

The atlas "The industry of the USSR by the beginning of the second five year plan" (1934) was a new step in the cartography of the industry. In comparison with the first atlas of the industry it was built up according to a new principle which amounted to the refusal from the cartogram way in the representation of the cartographed object and to the transition to the portrayal of the placing of the industry by means of marks according to the enterprises with the indication of their output. In the methodological respect it exceeded "The atlas of the industry" of the year 1929 but it suffered from the absence of a general summary map of the industry, too.

In the same period complex regional atlases of separate territories were created. Among them "the atlas of the Moscow region" (1933) and "The atlas of the Leningrad region and the Karjala autonomous Soviet socialist republic" (1934) were the most significant ones. "The atlas of the Moscow region" edited by Baransky and Kamenetskiy was compiled in the Moscow university. The atlas gave an extensive description of the region, of the peculiarities of its nature and economy, elucidated the economical and cultural development of the given territory. In the atlas such geographic methods of the cartography were developed which had been scarcely or even not at all used previously. From the methodological point of view it became a turning point in the Soviet complex cartography.

"The atlas of the Leningrad region and the Karjala autonomous Soviet socialist complex republic" distinguished itself by a great diversity of subjects, but the choice of the modes of the cartography was rather scanty. The central place in the atlas was taken by the section "The industry" made of thirty bigger and lesser maps indicating the location of the marks in absolute unbroken dimension.

"The great Soviet atlas of the world" had an enormous significance for the development of the atlas cartography in the USSR. Lenin's instructions con-

cerning the creation of a complex atlas of the world - the completeness of the contents, the demonstration of the phenomena in the historical development - were assumed as basis of its elaboration.

The first volume of the atlas appeared in 1937. It consisted of two parts: 1) a world map; 2) a map of the USSR on the whole. The first contained numerous physical maps, economic and political maps and the second part contained a characteristic of the Soviet Union of the same versatility. The atlas was notable for its novelty and variety of methods of the cartographic representation.

The second volume of the atlas came out in 1940, it contained maps of the regions of the USSR of two types: general geographic and general economic maps. The economic maps of the atlas excelled in extreme complexity and minuteness concerning the picture of the main branches of the economy.

As for its collection of maps of the USSR "The great Soviet atlas of the world" can be deemed the first national atlas of the Soviet Union.

The compilation of complex atlases recommenced after World War H. The second congress of the geographical society of the USSR (1947) and the posterior elaboration of theoretical fundamentals of this problem as a multilateral reflexion of natural and social economic phenomena had a significance of principle for the renaissance of the complex cartography. Since then the development of the atlas cartography has been bound up with the name of Salishchev who has made a sizable contribution to the creation of several profound world atlas. "The sea atlas" in three volumes (1950, 1953, 1959), "The physical geographic atlas of the world" (1964), "The world atlas" (1954) were high water marks of that time.

"The sea atlas" was conceived as far back as in the prewar years. Shokalskiy spoke about the expediency of the creation of such work in 1939. The book representing a code and a generalisation of a vast amount of material for the study of the World ocean and different seas summed up research of more than 15 years standing.

The first volume of the atlas consisted of navigation geographic charts and it was noted for the shapeliness of the system, the coordination of the scales, the unity of bathymetric and hypsometric scales.

The second volume reflected the aggregate and the interaction of the main physical geographic phenomena in the World ocean.

The third volume dealt with the naval history.

The large desk "World atlas" (1954) was a profound publication based on general geographic detailed maps of all continents and countries of the world. Its strong

point is the even coverage by maps of the entire surface of the planet. Besides it is the first atlas showing the relief of the sea bed. The production roused vivid interest abroad and therefore its second edition (1967) was put out in two versions in Russia and Latin.

"The physical geographic atlas of the world" was a unique cartographic production. It was composed on the basis of the processing of an enormous amount of new materials and both Soviet and foreign researchers took a keen interest in it.

In the USA a translation of its legend and of the explanatory text came as an independent book in 1965.

The Atlas of the Antarctic region" published in 1966 was the first complex atlas of the Antarctic continent and of the ocean playing around it. It was a stride in the study of the Earth. Its second volume (1969) included general conclusions of the results of Soviet and foreign research of many years standing.

In the postwar years a number of atlases of popular nature have come out in the Soviet Union side by side with fundamental scientific reference atlases of the world. Among them are "The geographic atlas for teachers of the secondary school (1954 1986) the complex "Atlas of the USSR" (1962, 1969, 1986), in the last years "The geographic reference atlas" was published (1987).

In the same time union republics have commenced preparing their national atlases. They are "The atlas of the USSR" (1958). "The atlas of the Armenian SSR" (1961), "The Atlas of the Ukrainian SSR and of the Moldavian SSR" (1962), "The atlas of the Azerbaijanian SSR" (1964), "The atlas of the Georgian SSR" (1964), "The atlas of the Tadjik SSR" (1968). The successful compilation of the atlases of republics has been going on.

Thus the national cartography of the USSR develops on the level of republican atlases.

Since the beginning of the sixties the creation of the regional atlases of territories has been under wide development. Under leadership of Salishchev a problem laboratory of the complex cartography functions at the Moscow university. Large centres of atlas cartography are forming in Leningrad, Irkutsk, Kiev, Tbilisi, Yerevan, Tashkent, Vilnius and others.

The atlases of the Irkutsk region (1962), the Kustanai region (1963), the Transbaikalian territory (1962) can serve as examples of regional atlases. The first two atlases composed by the Moscow university and the last one by the Institute of Geography of the Siberian branch of the Academy of Sciences of the USSR.

Fundamental regional atlases are notable for the completeness and diversity of subjects (up to 500 maps), the depth of the elaboration of the geographic cartographic representation of natural and social economic complexes, a high degree of detail and concretization of the picture, the exposure of spatial conformities of a phenomenon, the inclusion of subjects of applied and estimating nature, synthetic maps and others.

Side by side with fundamental atlases numerous regional and territorial atlases dedicated to the local lore and meant for the general public come out in the USSR.

The preparation and publication of "The atlas of the ocean" (the Pacific ocean, 1974; the Atlantic and Indian oceans, 1977; the Arctic ocean, 1980) were a significant event in the Soviet and world atlas cartography. On the whole the atlases convey an exceedingly broad and deep characteristic of the World ocean: from the relief of the sea bed and the structure of the Earth to the transport lines of communication, medical geographic conditions and the placing of the population. In 1986 the fundamental "Atlas of the Arctic region" with an all round characteristic of the given territory came out.

In the eighties the complex atlas cartography enriched itself by new methods using the distant sounding of the Earth from space. Results of the application of new methods are recounted in several publications "Natural resources of the central Pamirs on the basis of space survey" (1983), "Natural resources of the Kalmuck ASSR" (1966). They represent series of mutually coordinated subject maps, reflecting the placing, qualitative and quantitative characteristics of natural resources and ecological conditions.

Several complex national and subject atlases "The national atlas of Cuba" (1970), "The national atlas of the Mongolian People's Republic" (1990), "The atlas of the climate and surface water of the MPR" (1985), "The atlas of the lake of Khubsugul" (1989) exemplify fruitful international cooperation.

"The decipherment of many zone aerospace photographs" (1982) "The decipherment of many zone aerospace photographs. The scanning system "Fragment" (1988) created together with the academy of sciences in Berlin can be rated as important methodological text books touching the use of space photographs.

In the last years some profound subject atlases were put out in the USSR. "The atlas of the lithological paleogeographic maps of the world" (1989) is one of them. The atlas is compiled on the basis of a broad range of maps of lithological formations of the continents (the scale to be 1:25000000) and the oceans (the scale to be 1:35000000). Such a global approach was possible as a result of the fulfilment of a programme of deep water boring. Besides a large published material both on the

territory of the USSR and on other countries were generalised. Legends to the maps are both in Russian and English.

"The atlas of Gondwanaland. Paleotectonic maps" (1987) can serve as an important contribution to the geologic cartography. It adduces the latest data about the history of the Earth and shows a picture of its development. New original publications on no par with earlier ones appear. "The atlas of agriculture of the Yakut ASSR" (1989) takes a special place among them. It generalised an enormous factual material not only concerning the agriculture, but also concerning the nature and the economy on the whole.

For the first time the atlas "The health resorts and health resort resources of the Georgian SSR" (1989) was created. The atlas is versatile concerning its contents, it consists of six sections. They convey a general characteristic of the national environment and acquaint with health resort resources of the republic. A text in three languages (Georgian, Russian, English) accompanies the atlas and due to this fact the atlas is accessible to both Soviet and foreign specialists.

The Institute of Geography of the Academy of Sciences of the USSR completes the creation of such profound complex prognostic atlases as "The atlas of the natural environment and natural resources of the world" and "The atlas of snow and ice resources of the world".

In prospect the creation of national atlases of the USSR and RSFSR should be seen. In particular the new series of the maps of the USSR "For the institutions of higher learnings" and a new series of soil maps open up information and methodological approaches to these publications.

Problems, experience, outlooks of the atlas cartography were generalised in several transactions: on the atlas cartography on the whole (Churkin, 1979), on national atlases (Salishchev, 1960), regional atlases (Salishchev, 1976) and others. Soviet research in national and regional atlases has won recognition in the world atlas cartography.

The nearest outlooks of the atlas cartography in the USSR are tied up with the system development of the contents of atlases and with the improvement of their creation.

In the contents of atlases a trend is beginning to show towards the development side by side with factological characteristics of the cartography of the system structure, the interrelationship, dynamics and synthesis of the phenomena, resource and ecological evaluations and others.

Within the methodology of the elaboration of atlases the use of the materials of space survey and of the computerisation with the application of mathematical cartographic modelling, by means of the automation and the digital cartography promises alluring prospects.

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