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On The History Of Training Of Cartographers In Uzbekistan (20s-30s Of The XX Century)

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ABSTRACT

The article is devoted to the study of the work done in Uzbekistan in the field of cartography in the 20-30s of the XX century, the creation of educational maps and network atlases. The article describes the emergence of cartographic scientists, scientific societies and institutions engaged in cartography, the problems in their activities, information on the shortcomings.

KEYWORDS

Geodesy, cartography, USSR, Aerial Photography, Cartography Engineers, Land Cadastre, Aerial Survey, the Great Soviet Atlas, geobotanical maps, small-scale maps, Sredazvodkhoz, cotton sovkhozes

INTRODUCTION

The great achievements in the development of Soviet cartography are mainly due to the thorough training of personnel, the organization of systematic scientific research and, consequently, the formation of cartography as an independent science. In 1917 the Faculty of Geodesy was opened at the USSR Landscape Institute, and in 1923 the first higher school of cartography appeared.

Another condition for the growth of cartographic production was the development of equipment and new methods of work that would increase labor productivity. Aviation photography has undergone radical changes in topographic work and geographical research. Its systematic introduction into production in the USSR dates back to 1923, when the first aviation research company was established. Aerial photography has helped to significantly increase labor productivity; the opportunity to conduct specific research in areas that were previously difficult to access; finally opened up new ways of enriching and improving topographic and thematic maps due to the

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objectivity of aerial photography and the clear presentation of the interrelationships between the various elements of the landscape[5].

The first higher school of cartography in the Union was established in 1923 at the Faculty of Geodesy of the Moscow Institute of Land Cadastre (now the Moscow Institute of Geodesy, Aerial Photography and Cartography Engineers) and in 1929–1930 at the Department of Geography of Moscow and Leningrad Universities. The opening of cartography specialties allowed cartographers to have a broader understanding of engineering training, cartography production technology. Although there is a certain difference between the two schools of cartography, they were based on the general idea that if a cartographer does not understand the essence of any area on a map, he cannot describe it correctly unless he sees its characteristic features. Later, the training of specialist cartographers was organized in other universities.

The research activity, which initially developed mainly in higher education, was further strengthened in 1928 with the establishment of the Central Research Institute of Geodesy, Aerial Survey and Cartography, as well as other research institutes.

All this contributed to the formation of cartography as a special field of knowledge. In the 1920s, his tasks included the development of scientific and technical methods and processes for compiling and reproducing maps, which was a major step forward compared to previous pure geometric interpretations of cartography. However, while more emphasis was placed on mapping methods, the study of their nature was overshadowed, although it was important to develop their methods, collect, analyze, and evaluate resources to create new maps. This difference was especially noticeable when Soviet cartography began to create major cartographic works, such as the Great Soviet Atlas of the World.

Prominent figures in Soviet science were the surveyor F.N. Krasovsky and the geographer A.A. Borzov's influence ensured that cartographers were trained on a solid geodetic and geographical basis. In 1929–1930, cartographic work expanded rapidly, and cartographic specialties were established in the geography departments of Moscow and Leningrad universities.

In 1930 the Faculty of Geodesy of the Institute of Land Cadastre was merged with the Moscow Institute of Geodesy, then in 1936 the Moscow Institute of Geodesy, Aerial Photography and Cartography Engineers was merged with the Faculty of Special Cartography. Later, training of cartographers was organized in other universities. Secondary qualified cartographers graduated from topographic technical schools with cartographic departments.

From the late 1930s onwards, cartography began to be considered as a science that studied cartographic maps (as a special method of representing reality) and processes[4]. All this contributed to the formation and development of cartography as a science.

Significant work has been done in Uzbekistan in this regard. In particular, the Central Asian State University (now the National University of Uzbekistan) in the 1920s created original geological, hydrogeological, soil-geobotanical and other maps based on scientific imagination, which played an important role in thematic cartography not only in Uzbekistan but also in Central Asia. In particular, in 1920–1932, the Institute of Soil Science and Geobotany at the University compiled soil and vegetation maps of almost the entire territory of Uzbekistan on the basis of field expedition materials[3]. In 1923, the institute staff N.A. Dimo, R.I. Abolin, M.A.

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Orlov, M.N. Voskresenskiy, K.M. Klavdienko compiled the first survey soil map of Central Asia at a scale of 1: 1,000,000. This card was reworked in 1927 and was also exhibited at the Washington International Congress. From 1920 to 1931, the institute conducted more than 150 expeditions in Central Asia, compiling special soil and plant maps with scales of 1, 2, 5, 10, and scales of 1:50 000, 1: 100 000, 1: 500 000, most of them on a colored background, published topographically.

In 1926, scientists from Central Asian State University received a B.A. Fedchenko and O.E. Knorring created the Turkestan Vegetation Map, one of the first geobotanical maps of the Soviet era. E.P. Korovin also developed a 1: 3,000,000 scale map of Central Asia and South Kazakhstan in 1933. In the 1930s, this work continued and I.I. Granitov and Sh.M. Agababyan Uzbek Plants 1: 500,000 scale, I.I. Granitov developed geobotanical maps of the South-West Kyzylkum vegetation at a scale of 1: 200,000. Published in 1926, D.V. Nalivkin's book "Essays on the Geology of Turkestan" includes a 40-gauge geological map.

The development of methods of stereo drawing of relief by Soviet scientists and the creation of a number of photogrammetric instruments necessary for this played a major role in the development of the science of cartography. The development of cartographic work has led to the growth of topographic knowledge of the country. Numerous sheets of topographic maps at scales of 1:25 000, 1:50 000 and 1: 100 000 were produced, while various special and general geographical maps of medium and small scale were created to meet the different needs of the national economy. In 1927, a reference map of the European part of the USSR was published at a scale of 1: 1,500,000, and in 1929, a map of the Asian part of the USSR was published horizontally at a scale of 1: 5,000,000. These maps served as reference maps for various institutions and were the basis for other small-scale maps. After that, work will begin on the creation of 1: 500,000 and 1: 1 000 000 scale maps and a number of special maps, in particular geological and economic maps. In 1929, the "Industrial Atlas of the USSR" was published with a collection of maps for various industries[2].

While the Central Asian republics were very simply depicted on all maps until the 1920s, there were almost no maps about our country. Therefore, the work on creating new cards has begun. However, due to the fact that the work was not carried out in an organized manner and the plan was not followed, the necessary documents arrived late. Some of them are considered to be inaccurate, which leads to errors in the direction. Lack of contracts, urgency and uncertain numbers have led to unnecessary costs. A clear example is the mistakes of the Sredazvodkhoz (Central Asian Water Resources) administration. The lack of groundwater drawings would have affected crop yields in the organization of the necessary irrigation works. It was necessary to ensure the accuracy of economic statistical work in order to correct errors and properly organize topogeodesic work. Because these reports were conducted separately, the areas given to the organizations in general were not photographed. Some areas were photographed two or three times. Most of the pictures could not be used because they were taken at the wrong scale[6].

In the late 20s and early 30s of the XX century, scientists of the USSR Institute of Soil Science and Geobotany M.A. Orlov Uzbekistan's, M.A. Pankov Tajikistan's, K.M. Klavdienko created survey soil maps of Karakalpakstan, Turkmenistan and Kyrgyzstan, and the whole of Central Asia. According to N.V. Kimberg, in 1931–1932, the staff of the institute drew 1: 100,000 scale soil maps of about 30 cotton sovkhozes (200,000 hectares) in Central Asia[1].

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In short, Uzbekistan in the period up to the 30s of the XX century has not yet been fully studied in a comprehensive way. This was due to the insufficient formation of local cartographic personnel, the lack of typological views about the components of nature, the fact that they form a whole on the basis of natural-geographical laws, and that they are constantly interacting. As a result, mapping in perfect condition was not scientifically possible. However, the research served as a conceptual basis for future perfect maps.

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