

## ROLE OF ART TRAINING IN CARTOGRAPHIC EDUCATION

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### Abstract

Art training of cartographic engineers always plays an important role. A cartographer should master the technique of pictorial landscape while designing a map, have a high level of drawing training, be able to make cartographic products with highly esthetic properties and consumer qualities.

Training of students at the Department of Drawing and Map Designing of Moscow State University of Geodesy and Cartography has its purpose to develop creative abilities of students, improve their artistic style and taste. The traditions of the black-and-white drawing and artistic schools, formed in the Konstantinov Land Surveying Institute, contribute greatly to it.

The paper enlists main courses which are given to the students and directed to improve and widen art training in general training of cartographic students.

The Cartographic faculty of Moscow State University of Geodesy and Cartography was founded on the basis of the Konstantinov Land Surveying Institute. It became independent in 1936.

The purpose of making the faculty was to meet the demands of the cartographic industry for cartographic engineers. For many years the faculty has been a higher educational institution that has trained over 3,000 qualified specialists. Its graduates work at various enterprises and cartographic factories, research institutes, expeditions, ministries and governmental departments. Students from abroad after graduating from the faculty work in a number of countries of Europe, Asia, Africa and Latin America.

At present there are three departments at the faculty: the Cartographic Department, the Department of Drawing and Map Designing, and the Department of Map Publishing Technology and Reprography. The Department of Drawing and Map Designing plays an important role in art training of cartographers. From historical point of view it always attracted considerable attention at the University. It was as early as 1779 when the main subjects for the Konstantinov Institute students were Black-and-White Drawing and Calligraphy. The 1843-44 Syllabus included also the course named "The art of drawing map and plan signs, symbols and legends". The reason for all these subjects was the then land reform of Russia. As a rule, at that time land plans and their color design were made by hand.

The 1905-06 academic year saw the synopsis of "Topographic Drawing", in 1909 there was written "Short Practice in drawing plans, making inscriptions on them and coloring them". One of the authors of the above said books was Prof. Pyotr P. Levitski (1859 - 1930), a graduate of the Land Surveying Institute. The period from 1796 to 1915 can be defined as that of formation of Russian drawing school at the Konstantinov Land Surveying Institute. And P.P.Levitski can be called its founder.

Even now kept in the drawing room of the Department of Drawing and Map Designing are works signed by Prof. Levitski. High drawing features of the works by Levitski's

students are illustrative examples of the students' art education, the development of their creative abilities. Throughout fifty years Levitski taught drawing arts at the University. His main courses were topographic drawing and calligraphy.

The numerous papers written by Levitski in the field of black-and-white drawing include "An album of signs and symbols for land plans", "A Manual on developing large-letter calligraphy", "An Album of decoration-elements samples for calligraphy", "A Manual on drawing out plans" [ 5 ].

Among the first teachers of black-and-white drawing was Vladimir N. Adrianov (1875 - 1938), a talented cartographer and remarkable black-and-white artist [ 1 ]. In 1934 V. N. Adrianov supervised the design of the Large Soviet Atlas of the World (abbreviated in Russian as "BSAM"). For it he worked out and designed a special font called "BSAM italics". V. Adrianov brought up many generations of cartographers, developing in them high artistic requirements to map designing. Up till now students have been studying the BSMA italics, it has become classic because of its proportions, as it is nicely readable and very economical as well.

In the 1930-ies the drawing school of the University was further developed by N. Yermonski and V. Chusov.

A great role in improving art training of students is played by artistic color drawing. From the very beginning this subject was obligatory for students of the Land Surveying Institute, but step by step it took the form of a circle, and now it has become an optional subject for students of the Cartographic faculty.

Art training is an integral element of the student's education. While designing cartographic products one should be able to estimate artistic design and esthetic properties of existing maps and atlases too.

The traditions and high level of the graphic school formed in the Land Surveying Institute are preserved in the modern subjects: "Cartographic drawing" and "Map designing". An outstanding contribution to the theory and practice of map designing is made by Pyotr Skvortsov (1895 - 1975) and Pyotr Koldaev (1905 - 1990).

Pyotr Koldaev studied the problems of light and shade, color depiction of relief, map hachures. He contributed notably to their theory and practice.

From 1935 to 1970 was the period of formation of home school of artistic design of maps. P. Skvortsov, a talented artist, cartographer and scientist, is rightly considered to be its father. He conducted fundamental investigations into color plasticity and color depiction of relief. He worked out a classification of hypsometric scales which included a group of pictorial scales [ 4 ]. A unique landscape-relief map made by Skvortsov's students under his supervision and showing the European part of Russia decorates the University reading hall now [ 2 ].

Under his leadership and with his direct participation there were designed numerous pictorial maps. Among them a mosaic USSR map made of semi-precious stones, it is kept in one of the Hermitage halls now. The unique feature of design methodology of pictorial landscape maps is an organic merging of strict principles of designing cartographic products and those of landscape painting [ 3 ]. His highly artistic works could have occupied a noteworthy place in the best museums of Russia. Being a gifted teacher he was always surrounded by students. He tried constantly to do his best to improve their art training. Unaccountable map sketches supervised by him are kept today at the Department of Drawing and Map Designing and serve as excellent visual aids for training students.

Skvortsov's artistic school of map designing is being extended by his numerous students and followers. His scientific and methodology ideas in the field of pictorial map designing are implemented in the course "Color design of maps", which is given at the University at present.

The idea of working out pictorial scales for showing the relief on maps was borne by P. Skvortsov on the basis of his own observations and sketches. In his memoirs where he describes his work on landscape maps he writes the following: "During my trips to the Caucasus I used to make a lot of sketches of mountainous landscapes, but a majority of them were made either from a short distance and represented a great variety of color shades or, quite the reverse, from a too long distance, when everything was covered by haze.

The first sketches were made early in the morning, then - every three hours throughout the day. From them we can see the colors of the mountains changing gradually due to the day time, which makes it possible to find out the common color range. It can be defined as light ochreish color passing to brown-green at the bottom, with presence of blue-violet shades of not bright coloring. It was these sketches that made the basis for the coloring of mountainous landscapes". [ 5 ]

The example given above proves the great role, art training of cartographers plays in working out map designs. And now the students of the cartographic specialty resort very often to the works of P. Skvortsov at their classes of color designing of relief.

With the development of science and technology, decoration elements of map started to disappear, but the art training of cartographic engineers still remains very actual. Computer map design is more and more widely introduced into map production, but no computer can substitute for man while choosing means for depicting map contents and selecting harmonious color combinations.

At present just another turn of interest to artistic design of maps is taking place. Cartographers-designers are searching for new original approaches to map designing to improve the esthetic level of map perception. Attractiveness, clearness, aestheticism - these are the qualities that would never loss their importance for users of cartographic products.

The following courses help to improve the art training of students of the Department of Drawing and Map Designing:

1. Color studying and designing of map background,
2. Light-and-shade design of relief ,
3. Color design of relief,
4. Compilation and design of map products,
5. Fundamentals of drawing, painting and composition,
6. Artistic map design.

The purpose of the courses named is to help students master the theory and practical methods of designing maps, various in contents and functions. The logical sequence in studying these courses helps them get to know how to use properly drawing tools and pens, and water colors.

The Departments of the Cartographic faculty constantly observe the traditions of the University drawing and artistic schools. At the end of their studying students are to prepare and submit a diploma work. And they design an original map as an appendix to it. It shows a high level of their art and graphic training.

Thus, art training of cartographic engineers would constantly be of great importance, and besides, it will always help to develop students harmonically, contributing notably to

making and designing cartographic products, both rich in contents and attractive in appearances.

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