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Comparative Characteristics of the Traditional Method in Preparing Cards for Edition and Using Computer Technologies

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Annotation. This article discusses the results of a comparison of two methods for creating maps when preparing them for publication - this is the traditional method using photocopy frames, centrifuges, phototypesetters designed to make dissected positives on plastic according to the elements of the map content, and the method using the AGFA AVANXIS IV digital station for making digital card positives. The concept of blue copies, colorful samples, phototypesetter and digital cards, which are obtained using computer technology programs, is given. The concept of photocopying processes is described when creating publishing originals made by the traditional method and with the help of computer technology.

Key words: blueprint frame, phototypesetter, centrifuge, publisher's original, engraving, line, background, halftone map elements, AGFA AVANXIS IV digital station, Panorama program, CMYK color model.

Introduction. New technologies make it possible to diversify the ways of depicting, change the styles of card design, use the effects of machine graphics and computer design, apply animations and multimedia tools. Desktop electronic publishing high-resolution mapping systems quickly multiply the compiled maps in the required number of copies [1].

With the production of the publishing original and some auxiliary materials necessary in the process of publication, the process of compiling maps, its design and preparation for publication ends [8].

The main tasks facing the domestic cartographic production include: meeting the needs of the population and the country's economy in geographical maps and atlases of various types and purposes, improving the quality of cartographic products, and reducing production costs.

The complexity of the publication of geographical maps and atlases within the framework of existing printing technologies is determined by the variety of multicolor background, line and halftone elements that form the basis of cartographic materials.

Today we can say that a new phenomenon has arisen in cartography - "computer cartography". It combines various areas based on the use of computer equipment and technologies: geoinformation mapping, digital mapping, three-dimensional modeling, Internet technologies, publishing systems, etc.

The disadvantages of traditional technology are labor intensity, material consumption, cumbersomeness of the technological process.

Modern computer methods can reduce costs compared to traditional ones, improve the quality of cartographic products, and significantly reduce the production cycle in time. Therefore, the compilation and preparation of maps for publication at the present time must be carried out through the integrated use of allmeans of computer cartography [2].

The purpose and objectives of the work. The aim of the article is to compare the technologies of preparation for the publication of geographical maps and atlases by offset method using the traditional method and the use of computer technology to improve the efficiency of production and the quality of

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products. The painstaking manual work of preparing maps for publication has been replaced by a complex of preparing maps for publication using GIS technologies.

Body. Cartography, as the science of displaying and studying the phenomena of nature and society through cartographic images, is one of those areas where the introduction of computer technology entails significant changes in technology.

To convey the diversity of the content of the map, the following visual means are used:

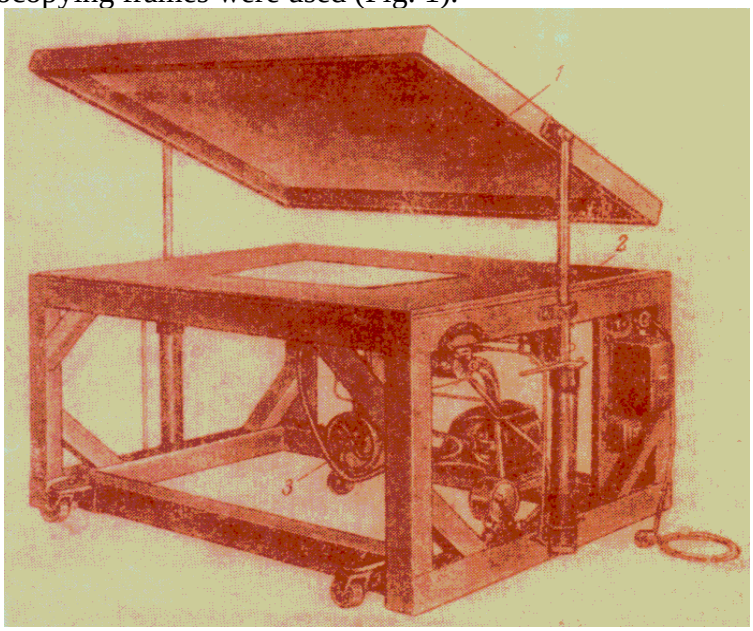
- dashed (dots, lines, off-scale symbols, inscriptions);
- background (fills and grids);
- halftone (hillshade, icons of special content).

special content).

Ways to create line publishing originals.

Until recently, when computer technology was not used, line publishing originals were created by engraving.

Engraving consisted in removing the opaque engraving layer from the surface of the transparent base to create a difference in optical densities. In mechanical engraving, this layer was removed with engraving tools. After removing this layer, a negative image was obtained [6]. For the manufacture of publishing originals on plastic, photocopying frames were used (Fig. 1).



Rice. 1. The photocopying frame was used for photocopying in the manufacture of positives in the preparation of maps for publication

The special plastic in the photocopying frame was exposed to light and then processed in special chemical solutions, then the plastic was dried at certain speeds in a centrifuge. These processes were long in time, because five or six positives on plastic were processed on one sheet and a highly qualified photo laboratory assistant was required [9].

With the introduction of computer equipment and technologies in cartographic production in the preparation of maps for publication, the list and content of production processes for creating cartographic products have changed significantly, and the technique used inthis has become less cumbersome, the processes have become less material-intensive. 2).

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Rice. 2. Workplace for creating publishing originals of the digital topographic map AGFA AVANXIS IV

In the "Panorama" programs, after digitizing cartographic products, the Preparation for publication function is used, which is intended for the design of maps in accordance with the requirements for the publication of maps, the preparation of diagrams, atlases and the formation of dissected map images for offset printing.

The **Prepare for Publishing feature pane** contains the following tasks:

- Arrangement of conventional symbols along a linear object
- Filling an areal object with conventional symbols
- Filling objects with signs
- Setting the line thickness
- Handling Feature Intersections
- Special sorting
- Zoom in on a diagram along an object
- Forming a map legend
- Save the map legend
- Set up standard outline layouts
- Formation of the outline design
- Dividing a map into printed pages
- Цветоделение CMYK

The **Preparation for publication** function panel is designed to solve the problems of improving the visibility of a printed map, taking into account the requirements for the design of maps, the preparation of diagrams, atlases and the formation of dissected map images for offset printing.

The dashboard contains the following tasks:

- Arrangement of conventional symbols along a linear object
- Filling the area object with conventional symbols
- Filling objects with signs

Preparation of maps for publication is performed by converting the map to CMYK TIFF (CMYK BMP). The resulting files can be processed in QuarkXPress, Corel Photo - Paint, etc. systems in order to obtain four one-bitimages of the CMYK model used in offset printing [3].

Color models

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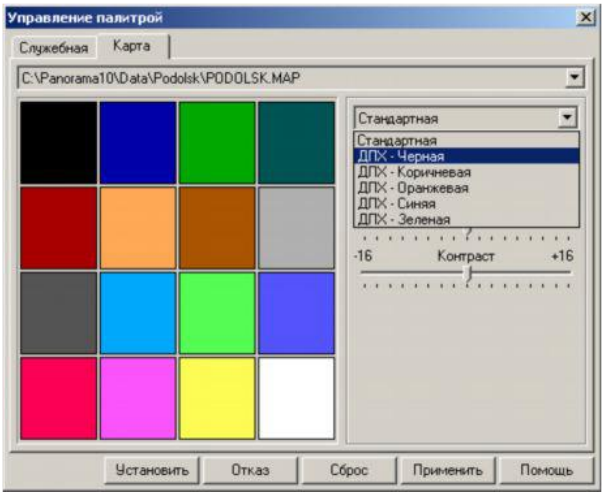
RGB model. The RGB color model (R – Red, G – Green, B – Blue) is used to describe colors visible in transmitted or direct light.

Model CMY (CMYK). The CMY color model (C – Cyan – cyan, M – Magenta – magenta, Y – Yellow – yellow) is used to describe the colors visible in reflected light (for example, for the color of paint applied to paper). 3).



Rice. 3. Generate color-separated originals in the CMYK palette

The formationof colors is carried out for each element of the content of the map.

At the present stage of development of cartographic production, in the process of compiling and preparing maps and atlases for publication, computer software andhardware tools are widely used, which can significantly improve the quality of cartographic products, as well as reduce its cost.

Findings. The analysis of the preparation of maps for publication by the traditional method and using computer technologies and modern hardware and the proposed methodology for assessing the functionalityof the software, in relation to the requirements for preparing maps for publication by offset method, allow you to optimally organize the production cycle of creating maps and atlases The following conclusions can be drawn:

- when using computer technology in the preparation of maps for publication, the production of blue copies, the design of the image of background paints with paints and subsequent reproduction were excluded from the technological processes;
- there is no need for photolaboratory work, and this in turn leads to a reduction in the cost of materials (chemicals, plastic), labor productivity increases, which is a very important factor;
- high accuracy of combining the image of positives with the main map, which is not achievable withmanual execution.
- when using digital technologies, there is no need to purchase bulky photocopying frames, centrifuges and, accordingly, large rooms for this equipment;
- acceleration of the passage of cartographic materials along the entire technological chain;
- the ability to create any kind of printing and graphic products.

In general, it should be noted that the main advantage of using computer technology in preparing maps for publication is quality, automation, reliability, and reducing the cost of cartographic products.

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