

CONTEMPORARY CARTOGRAPHY FOR CHILDREN IN BULGARIA

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Introduction

The science of cartography is connected with and is useful to many other sciences. Maps can be used by a wide spectrum of people, from young children, to specialists such as engineers, the military and others. There is no human activity where a map cannot find an application. The importance of mapping in everyday society is growing with the new economic and social conditions.

In Bulgaria maps, for both pre-school and primary schoolchildren, are not well developed. Maps for young primary school children (aged 6-9) has been neglected by cartographers in Bulgaria, who consider children of this age to be too young to take bearings from maps or use them as aids to assimilate school material. But is this really so? Research into young children's understanding and reading of maps has demonstrated that young pupils aged 6-9 years can show an extraordinary interest in and knowledge of given map tasks [1]. Thus, creating maps according the "children's pattern", could be a great challenge for them as well as for the cartographers. In addition, perhaps using the maps as a different way of communication with children can be explored, and new ways of reaching their consciousness and psyche can be found.

The maps that are made for secondary school students are related to the subjects being studied, and the information is represented on topographic base. The symbol system used for these base maps is the standard one associated with topographic maps. The symbol systems for the thematic content are geometric figures and map diagrams. As their association with the represented objects and phenomena is rarely required, such symbolization creates reading and interpretation difficulties to inexperienced users. In addition, the aesthetic outlook of the maps does not encourage either interest or studiousness in the students.

Importance of the children's mapping to children for shaping their views and understanding reality

Children's mapping can play a major role in developing their visions of real objects of the world, and their understanding of processes and phenomena. Mapping phenomena over time can be viewed as having a patriotic component since it permits the study of Bulgaria's past and present and evolution.

For the creation of good and useful maps for children it is necessary to identify what activities children are capable of performing with maps. On the other hand, an appropriate child's map could provide children a way to study the true reality. Maps for children help their users get a pictorial image of the various subjects and phenomena as well as create a correct view of the world's geography and history. There are no formulas for creating a "nice" child's map, which will give them an appetite for exquisite or beautiful graphics and provide answers to their questions. It's not easy for an adult to identify what a child's map should look like, nor identify a common set of accepted rules for their design. It is important to identify what children like. It is also critical to explore children's notions and images of their environments. With the children's help the mapmaker can arrive at a presentation which will attract children's interest.

Experimental work with children in devising maps for their education

To investigate children's imagination and their understanding of maps, experiments with 80 first- and second-year school primary pupils in Sofia were conducted. As Bulgarian children of this age are not acquainted with the reading and using maps, the results and the analysis of the research are very useful for the professional cartographers.



Figure 1: A child's drawing of their route from home to school

For their first task the pupils are asked to draw their journey from home to school the road along with all the features they encountered on this route (e.g., buildings, trees, playgrounds, etc.). They did surprisingly well in the 20 minutes allotted to this task. The layouts produced, which were carefully drawn and detailed, demonstrated concern for the location and orientation of objects, without knowing about things such as scale. Children drew the school, a nearby football playground, park, church, parking places and the playgrounds situated between the blocks of flats. All children without any errors wrote the numbers of the blocks of flats. Only a few children drew far away objects. Of great interest were the symbols used to represent the different features; a slide for the playground, a loaf of bread for the bakery, a ball for the football playground and a new-born baby for the maternity home. Part of Mario's drawing (seven years of age) appear as Figure 1. This research leads to the conclusion that when making maps for children aged 6-9 cartographers should not choose standard cartography symbols, but consider adopting symbols that correspond to how children perceive and think about the objects and phenomena. The association of the symbol with the object should incorporate its most characteristic feature as well as be easy to remember and learn.

Another research task revealed the children's layout and good taste for graphical drawing. Outline maps of Bulgaria were presented to the pupils who were asked to replace the text (such as: sunny, rainy, cloudy or windy), which characterized the weather forecast in different places of the country, with appropriate symbols. Again the results showed understanding and interest. The children drew maps, which greatly resembled those that can be seen everyday on television weather forecasts. These maps are viewed for only a short period of time during which period the viewer must extract all the information portrayed [2]. It appears that television weather maps are very easy for children to understand and remember, as the symbols are clear and closely resemble an image of the objects and phenomena they represent. Television weather maps also provide an opportunity for the viewer to receive "the optimum quantity of information for the minimum of time, minimum area and maximum percentage of sound memorizing" [3].

These two research examples demonstrate that a new way of devising maps for children must be found through experiments, inquiries, and research involving children. Children's ideas and proposals could be used to make "child-oriented maps" geared mostly for them. Experiments and analysis with children of different age show that the recognition of cartographic images undergo an enormous development during the years of early school training. When creating maps for the youngest pupils, large symbols closely connected with the object and incorporating highly contrast colors are preferable.



Figure 2: Symbols of different objects drawn by 8 years old children

In another experiment, the children's perception and understanding when reading maps were examined. Second-year elementary school pupils were asked to show how they would draw the following objects and phenomena at a particular map location: a church, a battle, a stadium, a polio clinic, a school, a kindergarten, etc. A sample of the responses appear as Figure 2 and which shows how some pupils drew original symbols in addition to some of the more traditional representations. For example, 40 percent of the children represented the polio clinic with a cross, and the remaining 60 percent drew an ambulance or a syringe. The football playground was represented with a ball by almost all of the children. The Kindergarten was often associated with slides or cradles, and the most common representation for the post office was an envelope. Some inventive children used an open book, a blackboard or a pen to symbolize the school. Although children's imagination and fantasy can be very rich and original the symbols were logical representations of the objects.

The children understood the tasks and showed great interest in the experiments. They found the tasks amusing and entertaining and put a lot of creative work into their exercises. For these reasons their abilities and ideas should not be underestimated. On the contrary, their graphics should be analyzed and researched more thoroughly, so that it becomes possible for their input to be used more effectively by specialists when creating maps that can be used in children's education.

Conclusions and experimental realization of children's ideas

The following conclusions are based on the experiments undertaken with first- and second-year elementary pupils about their understanding of reality and views of representing objects and phenomena on maps:

1. Children from the earliest grades show a great interest in graphic experiments and a desire and ability to use maps in their education.
2. The maps designed for children should be age appropriate.
3. Children should be actively involved in the inquiries and experiments designed to find the shortest route towards providing maps they can work with.
4. The information provided to children by maps should be amusing, understandable, and easily accessible. It should also be designed to give a broad and diversified view of the phenomenon and objects as well as stimulate the creation of children's perception and knowledge of the true reality.
5. Attractive and amusing map symbols appropriate for a child's age should be used.

The maps should be aesthetically and artistically drawn with highly contrasting colors, and pictorial images.

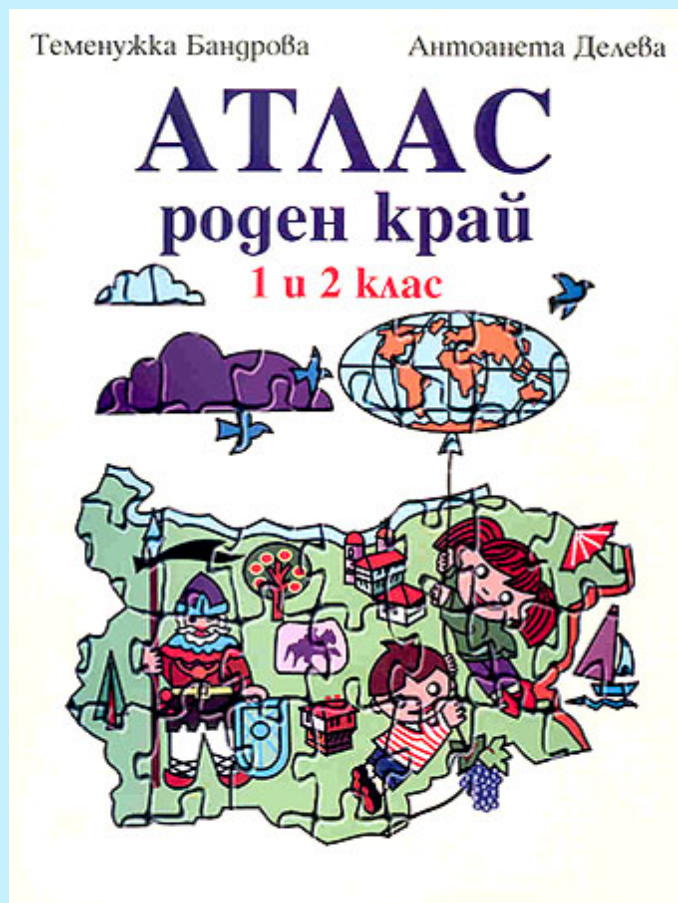


Figure 3: Atlas "Roden crai"

The atlas "Roden crai" (Figure 3), designed for first and second year primary students in Bulgarian schools, could be viewed as a realization of all the experiment works. Two of maps in atlas are shown in Figure 4. The information provided by the atlas, which conforms to the school curriculum, has been enriched for the most studious children. The atlas has two parts - geographical and historical. The main character draws the child's attention to the main ideas. Interesting games, a puzzle and a crossword are used to test the students acquired knowledge. In future education programs, new lines of contemporary cartography such as multimedia mapping and 3D photo-realistic maps could be used. These tools might assist teachers and increase children's interest for the subject matter.

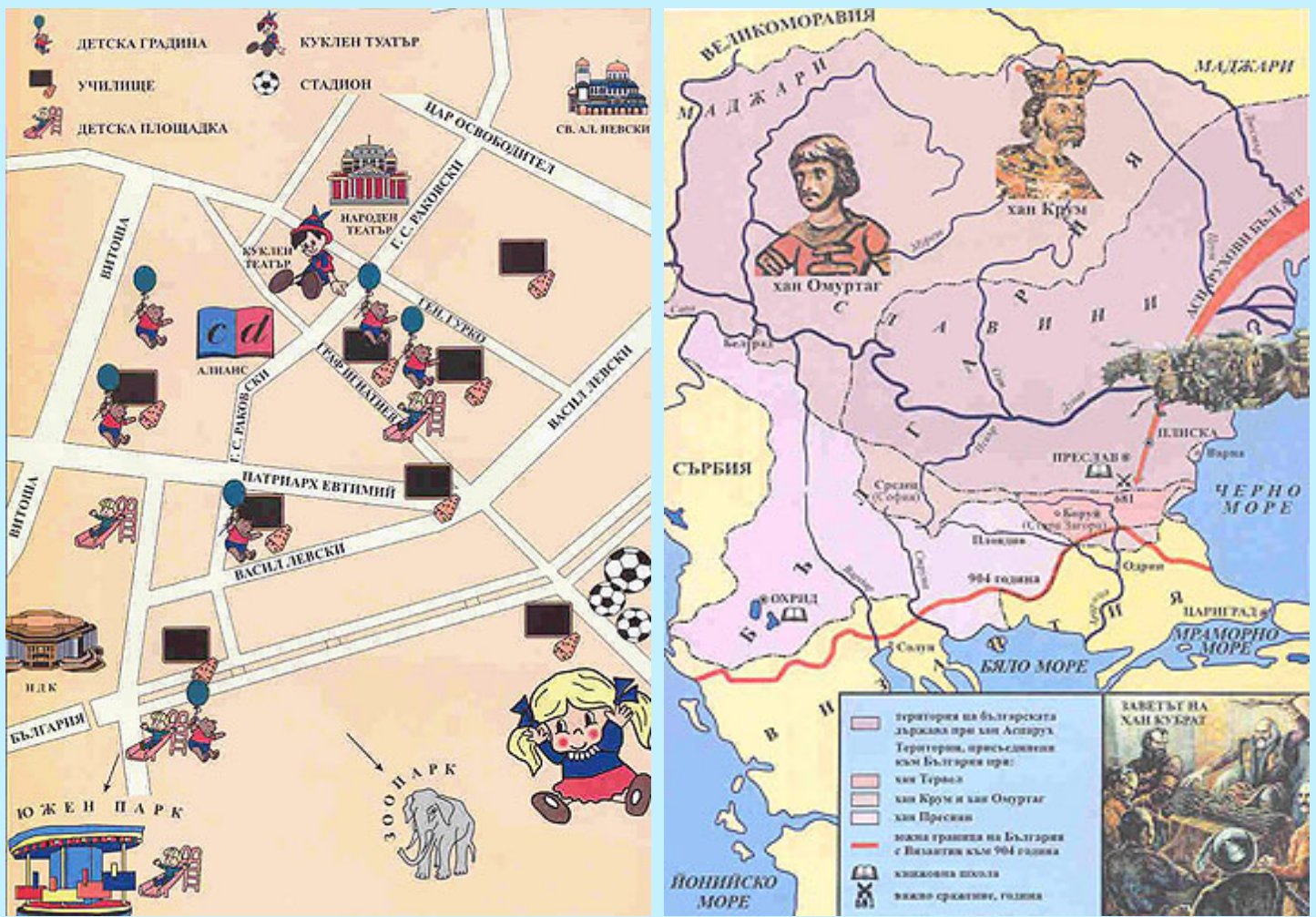


Figure 4: Pages from the atlas "Roden crai"

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