

PRESENTATION OF THE COLLECTION  
"CARTOGRAPHIC THINKING AND MAP SEMIOTICS"

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**Abstract**

This book has arisen out of the work of a group of researchers who, over the last few years, have collaborated on the discussion paper series KARTOSEMIOTIK/ KARTOSEMIOTIKA. It is dedicated to the Colloquium "Present-day problems of cartosemiotics" (Dresden, Oktober 1994) and to the 17th ICA Cartographic Conference (Barcelona, September 1995). It contains three studies on general points of cartosemiotics as a component of theoretical cartography.

**1 Pravda, Jan: Cartographic thinking, map language and map semiotics.**

**1.1 Cartographic thinking and its development**

Several scholars, among them the present author, have recently studied the development of theoretical cartography on the basis of selected monographs and articles published during the current century. Their findings are presented in five diagrams, which are compared and analyzed. All these diagrams reveal an intensive development of theoretical cartography since the beginning of the 1960s, which can be interpreted as an immediate consequence of the establishment of the International Cartographic Association. Although the selection of publications for such analyses cannot be quite free from subjectivity, literary sources do constitute useful and interesting indicators of the quantitative - and in part also the qualitative - development of theoretical thinking in cartography.

In qualitative terms, current cartographic thought is characterized by various trends, conceptions, and schools. In particular, many cartographers recognize that there is a map language and study it in the framework of map semiotics.

**1.2 Trends, conceptions, and schools**

By a trend we mean, in theoretical cartography, an orientation in the development of a branch of the discipline. A trend is based on a single idea or opinion or on a small set of separate ideas, and these are often only partly elaborated.

A conception is a relatively comprehensive set of ideas which are organized in a system. J.Pravda distinguishes general and particular cartographic conceptions. According to A.M.Berlyant, theoretical conceptions are always of a general nature.

If some author or some cartographic centre generates several thoughts, trends or even conceptions, such developments may give rise to a theoretical (scientific) school.

### **1.3 Map language**

Map language can be defined, at the present time, as a system of map signs and rules of their use. The knowledge of this system enables anyone who wishes to do so (i.e. not only cartographers) to express spatial information in map form and/or to read and understand the map contents which are denoted by signs of map language. There are currently three conceptualizations of map language: Lyutiy's, Pravda's and Schlichtmann's.

### **1.4 Map semiotics**

Map semiotics is a body of knowledge at the contact of semiotics and cartography. Three approaches to map semiotics are distinguished: (1) the graphic-semiotic approach of J.Bertin, (2) U.Freitag's approach, oriented to the branches of C.Morris's semiotics, and (3) the map-language approach referred to in the preceding paragraph.

## **2 Schlichtmann, Hansgeorg: Map symbolism revisited: units, order, and contexts**

### **2.1 Introduction**

Map symbolism (also called map language) is the type of semiotic systems on which map making and map use are based. It has been quite well studied over the past quarter century. The present author's conception of map symbolism - there are other conceptions - has first been published a decade ago [2] and has since then been broadened and refined.

### **2.2 Map symbolism: units and their order**

A first set of research problems relates to the internal, structural traits of map symbolism. The sign universe under study has parts with different characteristics. Two high-level distinctions are basic to its analysis. (1) Map symbolism comprises both plan-related and plan-free components. In its plan (i.e. spatial) component, further, space is treated - as the case may be - either as continuous or as discretized. (2) The sign inventory of a map includes images of objects (i.e. of facts) and "artifactual" signs, which have been created primarily as instruments of communication. These two sets of signs are conceptually different but empirically intertwined. In systematically studying the sign universe of map symbolism, one must deal with the following topics: sign units and their definition, components of the code (which makes signs possible), phenomena of sign combination, and the relational order which gives rise to systems of signs.

### 2.3 Map symbolism in perspective

Having studied map symbolism, as it were, from within and as a self-contained system, one must further consider it in the contexts of sign creation and sign use. Both contexts influence structural traits of the sign universe. The discussion of sign creation (or sign production) concerns the nature of the concepts and percepts which function, respectively, as contents and expressions; it further concerns processes of sign production. With respect to sign use, the following topics are of interest: major phenomena about which information is conveyed, functions of the sign universe, the role of reality (especially in the image component of map symbolism), and the influence of map use on sign production. This influence, in particular, is well known: sets of symbols are frequently constructed so that intended map-use operations are facilitated.

## 3 Wolodtschenko, Alexander: Cartosemiotics - component of theoretical cartography

### 3.1 How cartosemiotics was revitalized?

Borrowings of semiotic ideas in cartography refer to the beginning of the sixties. Aspects of information theory were gaining great applied importance especially within the researching and design of cartographic sign systems. To my mind, the seventies and the eighties can be characterized for theoretical cartography as a period of "militant cartography", and it was not so easy to write a monograph or an article on map language at that time. But towards the end of the eighties, the argument between cognitive and communicative paradigms calmed down and with that favourable conditions for studies of map language were created. At the beginning of the nineties, the rejuvenation of cartosemiotics took place. The international correspondence seminar organized by Jan Pravda (Bratislava) and Alexander Wolodtschenko (Dresden), has given research of map language new impetus. In 1991, the idea produced the collection "KARTOSEMIOTIK 1-4" [1] with articles in German and Russian. It was the internal communication of cartographers from different countries, which has become one of the new forms of expressing theoretical cartographic thinking.

### 3.2 Research directions of map language

From the analysis of the map language literature it can be stated that the problems of map language are a new and still rather scantily explored section of theoretical cartography.

Five directions of research into map language are identified and described [3]: the semiotic, linguistic, and formal-logical directions, the cybernetic and sublanguage-related one. At the present moment only three of five basic directions, that is, the semiotical, linguistic and the cybernetical one, are active.

### 3.3 Components of map language

Modern theoretical cartography reflects different directions of scientific cartographic activity. Theoretical elaborations on map language are among the important development in modern cartography.

In research of map language, several attempts to describe the organization of map language on the base of concrete criteria and approaches can be referred to. The author proposes a structural model of a theory of map language, which includes semiotic and linguistic components. It is proposed to accept this structural model as a working model which can serve for further semiotic-linguistic research.

#### References

- [1] Pravda, J./Wolodtschenko, A.(Hrsg.), 1991-1993. KARTOSEMIOTIK/ KARTOSEMIOTIKA, Internationales Korrespondenz-Seminar, H. 1-4, Bratislava/Dresden, 1991-1993.
- [2] Schlichtmann, H., 1985. Characteristic traits of the semiotic system "map symbolism". The cartographic journal, vol. 22, pp. 23-30, London.
- [3] Wolodtschenko, A., 1991. Zu Forschungsrichtungen der Kartensprache. Vermessungstechnik (39) 3, pp.86-88, Berlin.