

# Positivism reflections in Soviet cartography

German Titov <sup>a,\*</sup>, Irina Lurie <sup>a</sup>

<sup>a</sup> *Lomonosov Moscow State University, German Titov - [titovgs@my.msu.ru](mailto:titovgs@my.msu.ru), Irina Lurie - [lurie@geogr.msu.ru](mailto:lurie@geogr.msu.ru)*

\* Corresponding author

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## Abstract:

There is a strong concept that Soviet cartography was driven by Marxist-Leninist dialectical materialism (Ignateva, Kraak, 2023). This paper discusses that apart from ideological reverences Soviet cartography was mostly positivist science in epistemological sense. An attempt has been made to rely on English-language articles by Soviet cartographers (mostly translated from Russian-language sources).

In the 1940s, in the Soviet Union the concept of cognitive cartography was formed. It defined cartography as “the science of cognition of ambient reality through cartographic modeling” and a map as “a graphic-symbolic model of reality” (Salichtchev, 1970, p. 83; Berlyant, 1994, p. 280). Even these definitions make it possible to consider cartography as a positivist science (Park et al., 2020).

Berlyant developed the concept of a cognitive cartographic image as a psychophysiological layer of map perception, in response to advancements in semiotics theory and the study of graphics on maps and their visual perception. This concept addresses the emergence of new information in the system of creating and using maps. The integration of the psychological aspect into modeling reality suggests parallels with empiriocriticism.

Bocharov and Lyutyty made a step towards logical positivism in cartography with the development of the theory of the map language, as cited by Berlyant (1994, pp. 283; Salichtchev, 1970, p. 84; Lyutyty, 1984). Similar to how logical positivism aimed to strictly formalize scientific statements, the map language was designed to formalize the content of a map.

The reflections of positivism found in the evolution of Soviet cartography allow us to see the real proximity of Soviet cartography to positivism. Without dwelling on the evidence of the positivist approach in Soviet-era mapping, it's notable that the theory of cartography that was carefully crafted on the principles of dialectical materialism by Aslanikashvili and termed metacartography (Berlyant, 1994, pp. 281-282) faced criticism. It was seen as overly philosophical and detached from reality, even though its theoretical value remained undisputed (Salishchev, 1970, pp. 83-84).

If cartography in the USSR was built on the epistemological basis of positivism, why were Soviet and Western cartography irreconcilable? When discussing the differences in cartography, let's recall the debate between Morrison and Salishchev (Salishchev, 1984; Morrison, 1984; Salishchev, 1985). A careful study of the discussion between the representative of Western cartography and the representative of Soviet cartography shows that they share the same epistemological basis and debate specifics or ideological subjects. Considering Salishchev's definition of a map as the fundamental essence of cartography, “...models which reproduce this or that aspect of reality in a generalized and graphic form” (Salishchev, 1973, p. 110), it is easy to find similarities with Robinson's “proper map” (Robinson, Petchenik, 1976, pp. 17–23).

This paper presents a bird's-eye view of the rational reconstruction of positivism's reflection in Soviet cartography. While each topic warrants its own study, this overarching perspective provides a fresh look at the evolution of theoretical cartography in the 20th century, as well as the relationship between Western and Soviet cartography

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