

Mackintosh School of Architecture

The Glasgow School of Art

Research Project 4

The Modernist Search for Specific Architectural and Urban Typologies in Arctic Development of XX Century.

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CHAPTER 1

INTRODUCTION

1.1 Thesis

The activity of architects, engineers and urban planners in Arctic region with changing intensity lasts for more than a century, being an integral part of formation of its environment. Even considering certain regionality of issue, architectural discourse, optimisation of structural engineering techniques, discussion of urban planning potential and development of local community did not stop. Interest towards Arctic and analysis of XX century decisions actualised in last 20 years.

This work targets at discussion of Modernist architectural and urban planning concepts of XX century, search of specific Arctic typologies and influence of Modernism on region development. To achieve this, I will cover general notion of *Arctic macroregion* joined with severely cold climate, permafrost, remoteness, specificity of urban communities, demographic indexes and indigenous lifestyle, and absence of considerable architectural heritage. It was incorporated to “Southern World” through urbanisation and modernisation, initiated by political elites of circumpolar countries (*Appendix A1*) and contained social engineering elements, including Inuit relocation (*Appendix B1*), use of specialists’ exploration virtue and changing private/public ratio for creating new Arctic community for comfortable living. Such conditions facilitated construction of pre-planned Northern cities, strong rationalisation of building approaches and radical urban and architectural transformation of environment. The analysis of paper and completed projects allowed me to work out common for different countries path from experimental domed cities with artificial environment to conventional climate-responsive settlements with outdoor spaces, characterised by reduced national particularity and acquired signs of Modernist universality. This resulted in creation of specific

typology for Arctic urbanism. Two case studies, Ralph Erskine's "Arctic City" and Soviet "Microrayon," were selected to identify similarities between Western and Soviet expressions of Arctic-specific urban typologies.

1.2 Literature Review

In my study, I used extensive search of original XX century and contemporary scholarly books and articles, that focus on Arctic architectural, construction and urban development as well as related geographic, climatic, political, economic, historic and sociological aspects in printed and digital forms. The sources are published as monographies, studies and projects published in university resources, professional journals and scientific conferences editions. Research studies and monitoring reports of intergovernmental bodies and international organisations, newspaper articles available at official websites are represented. The archive materials include XX century physical and online resources, such as dissertations, technical materials, digitalised graphic and photo works by architects. Demographic, economic and climate statistical data is found in academic studies and resources of international organisations, such as World Bank, Arctic Council (*Appendix A2*), etc.

However, some challenges were faced during assembly of literature. Due to COVID-19 restrictions opportunity for physical access and quick digitalisation of resources kept in libraries and archives of Northern cities were limited. Soviet publications and occasional works and projects for professional use had scarce number of copies in libraries and still do not have digital editions. Moreover, like "real scientists", Soviet architects preferred results of their research and design proposals to be published in brochures and professional journals,¹ that are usually available only in physical form and limited to be digitalised. Unlike untranslated Soviet

¹ Ekaterina Klemeneva, "Arctic Modernism: New Urbanisation Models for the Soviet Far North in the 1960s," in *Competing Arctic Futures: Historical and Contemporary Perspectives*, ed. Nina Wormbs, (London: Palgrave Macmillan, 2018), 232.

publications in Russian (native speaker), Scandinavian publications, untranslated in English, could not be used.

1.3 Methodology

As the main goal of the work was identification of unique features and results of elaboration of typologies, suitable for Arctic cities, understanding of their relation to Modernist ideas and circumpolar identities, critical and historical analysis approaches were selected. I used following methods: comparison, contrast, systematisation, extrapolation of practices of different countries in one region, reflection and graphic representation of assembled data. The procedure of writing the study can be summarised in five stages.

In the first stage area of study, where Arctic cities are located, was determined and the notion of *Entire Arctic*, that consists of Low Arctic, High Arctic, Subarctic and some Northern territories, was worked out.² Derived external borders are graphically presented in two final maps, that result from composition of official Arctic zonal, political borders', Arctic circle, 10°C isotherm maps, AMAP and CAFF (*Appendix A3, A4*) monitoring and SWIPA (*Appendix A5*) permafrost distribution maps, main urbanisation centres of 5,000+ residents and smaller settlements deemed important for study. Studying of Arctic people's relations with rest of World, their cultural identification and transnational consolidation was completed at this stage. The second stage embraced research of Modernist approach characteristics in Arctic building principles formulation, project design process and final realisation in 1950s – 1990s as well as social engineering manifestations and interrelation with Modernism. The third stage included extraction of most influential paper projects, analysis of their development evolution and comparison of design approaches in circumpolar countries. The listed projects graphic timeline and typological table were produced. The fourth stage studied partly and fully completed

² Peter Hemmersam, "Arctic Architectures," *Polar Records* 52, no. 4 (2016): 416.

Modernist proposals in different countries with consideration of previously formulated principles and importance of experiments and standardisation for architectural and urban results. Graphic timeline also was produced to demonstrate approved concepts and type of funding in USSR, Canada and Sweden. In the final stage of writing procedure two influential Modernist proposals from different political, social, and economic systems, *Arctic City* (R. Erskine) and Soviet *Northern Microrayon* (V. Nepokoichitsky & A. Rastorgueva), are compared to identify principal similarities, caused by climatic and structural engineering challenges, Modernist building approaches, as well as common goal of creating comfortable conditions for Arctic residents. The comparison was based on initial paper designs, partial completion in Resolute Bay, Svappavaara and Kiruna and full completion in Fermont, Norilsk and Murmansk.