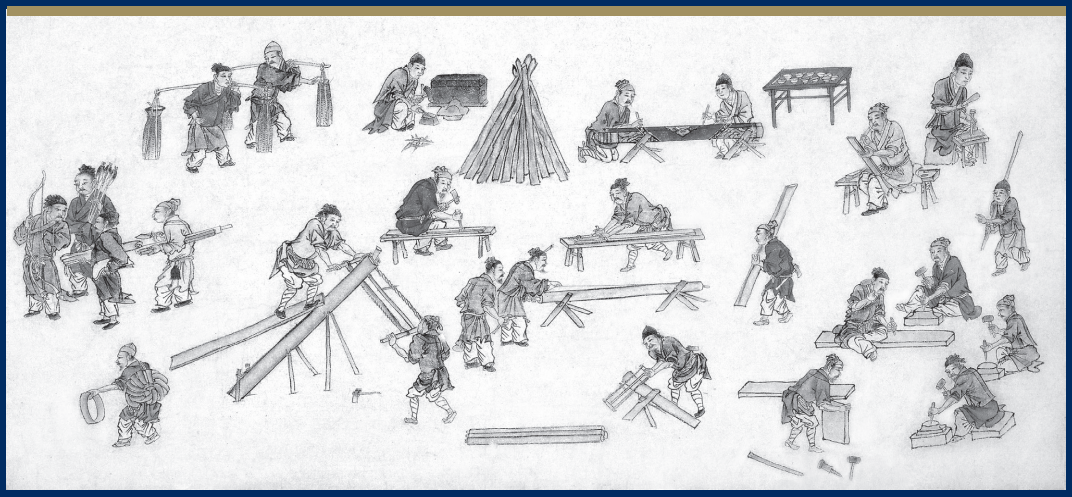
| 9 | BONN CONTRIBUTIONS TO ASIAN ARCHAEOLOGY

BCAA

Susanne Reichert

Craft Production in the Mongol Empire
Karakorum and its Artisans



CRAFT PRODUCTION IN THE MONGOL EMPIRE

Bonn Contributions to Asian Archaeology

Volume 9

Mongolian-German Karakorum Expedition

Volume 3

Edited by

Jan Bemmann

CRAFT PRODUCTION IN THE MONGOL EMPIRE

Karakorum and its Artisans

Susanne Reichert

2020
Vor- und Frühgeschichtliche Archäologie
Rheinische Friedrich-Wilhelms-Universität Bonn

345 pages, 77 figures, 26 tables, 76 plates

The publication was generously financed by
Deutsche Forschungsgemeinschaft
Geschwister Boehringer Ingelheim Stiftung für Geisteswissenschaften, Mainz

Ein Titelsatz ist bei der Deutschen Bibliothek erhältlich
(http://www.ddb.de)

Desktop Publishing and Design: Alina Bell, Volker Babucke, Likias Verlag
Cover illustration: Susanne Reichert, Tobias Pfaff; picture from Zhu Yu (Zhu Junbi) 朱玉 (朱君璧). Street Scenes in Times of Peace 太平風會圖, 14th century. The Art Institute of Chicago (licensed under CC0).
Language editing: Lesley Houchin-Miller
Image editing: Tobias Pfaff, Volker Babucke
Final editing: Ute Arents, Güde Bemmann
Printing and Binding: BELTZ Bad Langensalza GmbH

ISBN 978-3-936490-34-3

CONTENTS

PREFACE

Places farr remote, having somewhat of wonder in the distance, cause much expectation in themselues of strange matter among the vulgar, such as I supposing they should haue subject of woorthy and lardge discourse. But these are vnlike the Starres, that seeme lesse the farther off. Heere the remoteness is the greatnes [...][1]

This volume presents my Ph.-D. thesis that I submitted in May 2017 and defended on August 9 of the same year. Literature pertaining to the issues discussed within this book and published after the submission were added as far as I became aware of them.

It is not the work of a single person. I am well aware that without certain people I could never have accomplished this work, and this is the place to say thank you to those who helped me along the way: First and foremost, I am deeply indebted to my first advisor and professor of long years, Jan Bemmann; for unfailing support, for uncounted discussions, and the widening of my horizons to distant regions, great through their remoteness. And to Dr. Ernst Pohl, who let me work with "his" excavations; for his patience and not once kicking me out of his office, no matter how ludicrous or obnoxious my questions concerning the excavations in Karakorum might have been. I would also like to thank Prof. Bethany J. Walker for taking over the second advisory position, her insights and advice are much appreciated. At this point, thanks are also due to the board of my defense: Professors Jan Bemmann, Martin Bentz, Michael Schmauder, and Bethany J. Walker. I genuinely appreciate the time you invested in me and your kind reception of my defense.

I am indebted to the time and effort of four additional reviewers: Professors Thomas T. Allsen, David Robinson, Veronika Veit, and Daniel Waugh were willing to invest and I am grateful for all their advice. They helped to strengthen my arguments. Any remaining mistakes are of course solely mine.

To the Institute of History and Archaeology of the Mongolian Academy of Sciences and the archaeologists of the medieval department who supported this work with unfettered access to their archives and organizational support during my stays in Ulaanbaatar: Their support is not taken for granted, and I am thankful for the good relations we could foster with our Mongolian colleagues throughout the years. My special thanks go to Lkhagvadorzh Mönkhbaiar and Gonchigsüren Nomguunsüren. I hope that this work will contribute to our mutual endeavor to advance our understanding of Mongolian history.

The LVR-LandesMuseum Bonn supported the dissertation by providing important infrastructure from its restoration laboratory. More specifically, I thank Holger Becker and Frank Willer for sampling the crucibles, taking X-rays, and useful discussions of the objects. I also thank Michael Schmauder for supporting these endeavors.

1 Letter by Thomas Roe to the Lord Bishop of Canterbury, Adsmere, 29 January, 1615. W. Foster (ed.), The Embassy of Sir Thomas Roe to the Court of the Great Mogul, 1615–1619, as narrated in his journal and correspondence (London 1899) 122.

Dr. Radegund Hoffbauer, Dr. Jutta von der Gönna, and Kerstin Stange, Institute of Geosciences, Bonn University, identified the minerals pro bono. Thank you so much! Bernard Gratuze, University of Orléans, Dr. James Lankton and Prof. Thilo Rehren, The Cyprus Institute (at that time UCL Qatar), collaborated with me for glass analyses.

The German Academic Exchange Program (Deutscher Akademischer Austauschdienst – DAAD) made this thesis possible, as it generously funded a five-month-stay in Ulaanbaatar 2011, and again three months in 2013 for archive works. Continuous support and intellectual input, which immensely helped to shape the thesis I received as collegiate member of the Research Training Group, "Archaeology of pre-modern Economies" (DFG 1878), from 2013 to 2016. I am grateful for the support and the opportunities granted by this group. I would like to particularly thank Dr. Tobias Helms, who opened my eyes to the trove of literature in Near Eastern Archaeology and shared with me the concept of the "room-book."

To the changing colleagues in the so-called Mongolei Raum, all of them generously provided their knowledge of Mongolian archaeology and thus helped enormously with my work: Dr. Ursula Brosseder, Dr. Bryan K. Miller, Prof. Tsagaan Turbat, and Dr. Chimiddorzh Yeruul-Erdene – the potentially largest group of Mongolian archaeologists outside Mongolia. The close working environment underwent some changes, but I have hope that our network continues irrespective of physical proximity.

The implementation of the GIS for this thesis is based on endless discussions with, and was supported by, Henrike Backhaus M. A., Dr. Timo Bremer, and Tobias Gutmann M. A. Dr. Torsten Rünger should not be forgotten, most of all for taking me to Mannheim, not to mention providing me with much needed literature on slags. Figures of the finds on Plates 1–76 were most efficiently compiled and set by Caren Klemm, and revised by Tobias Pfaff M. A. All photographs of finds are mine. Drawings were done by Ganbaatar Enkhmagnai, Gisela Höhn, Alexandra Osinska, Zhamiangarav Tsambagarav, and me. Volker Babucke M. A. and Alina Bell M. A. took over the desktop publishing, thank you for your patience. I thank Dr. Anne Sklebitz, who generously allowed me to use two of her photos that she took when we were working on our dissertations in Ulaanbaatar in 2011.

To my initial copy editors, Katharina Marpe, Franziska Kothe, and Dr. Anne Segbers, who did not shy from the task of correcting the first version for submission to the faculty. Final copy editing, and more importantly, detection of any illogical connections and mistakes were efficiently, and meticulously as always, undertaken by Dr. Ute Arents and Dr. Güde Bemmann; Lesley Houchin-Miller proofread the final version. I know how painful that work can be from my own experience, and I cannot thank you enough. And again, of course all remaining mistakes and blunders are solely mine.

Finally, but certainly not underestimated in their importance, for their continued mental support, a heartfelt thank you to my family and friends: your kimchi parcels, unexpected texts asking how I am, the constant supply of bananas, all of these and much more kept me going.

To all of these people and all of whom I could not explicitly name: my sincere thanks.

The publication was very generously funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) – 433824986, and the Geschwister Boehringer Ingelheim Stiftung für Geisteswissenschaften (Siblings Boehringer Ingelheim Foundation for the Humanities), Mainz.

Susanne Reichert Bonn, June 2020

INTRODUCTION

Today, more than half of the world's population lives in cities – with growing tendencies[2]. A trend also effective in modern-day Mongolia, where nearly half of the population lives within the capital city Ulaanbaatar, and which has led to severe environmental issues, especially air pollution. Mechanisms to cope with such large agglomerations within the steppe are insufficient. Recently the mayor of the capital restricted rural to urban migration to tackle the problematic rise in air pollution that is becoming a threat to people's health[3]. One reason for the mixed success in coping with these challenges might lie in the fact that this way of city life is a rather recent phenomenon in Mongolia. For most of its history, cities could not be deemed an integral part of pastoralist culture in Mongolia[4]. At the same time, the Orkhon Valley was elected multiple times as center by pastoral nomadic empires, as for example by the Turks, Uighurs, and finally the Mongols. Each of these polities left their marks in the archaeological landscape, most noticeably the Uighurs and Mongols who built their capitals as locally fixed settlements into this valley. Karakorum is probably the most famous among these. However, after the downfall of the Yuan dynasty in 1368 it quickly became a waste land. Why are there no continuously settled sites as we know them from other world regions? The reason for this must surely be searched in the differences between the economic systems. Economy is most commonly seen as "[t]he system of activity connected with the production, trade, and consumption of goods and services of a region, country, or other (not necessarily geographic) area" (see "economy" in Black et al. 2012). It is thus the most basic system within human societies, and as such, a permanent focus in archaeology. One can even say that the history of economic archaeology is identical with that of the discipline itself (Kerig 2013, 140).

The specific economic and ecological conditions of the Mongolian steppes differ enormously from the economies of contemporaneous societies primarily based on plant cultivation. Mobile pastoralism is the founding basis for the Mongol World Empire[5]. The ecological conditions in the Mongolian steppes do not allow for extensive farming activities. It is land-locked with a continental climate; the land is mostly characterized by semi-arid steppes. Summers are short and hot, whereas winters are long with severely low temperatures (Opp 1994; Vostokova 2005). Only 2.3 % of the

2 http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html (last access 2015-08-28).

3 http://theubpost.mn/2017/01/12/ub-mayor-restricts-rural-to-urban-migration-until-2018/ (last access 2017-01-14).

4 It should be emphasized that there is not one true concept of "the Nomad," humans adapted to the Old World arid belt ranging from northern Africa to northeast China in multiple economical lifeways which can be all subsumed under the term "nomadism". Thus, urbanism, as one special aspect in human lifeways developed likewise in multifarious ways within this global region; see e.g. Potts 2014, 1–5 for a brief outline on different concepts of pastoral nomadism.

5 A detailed discussion on mobile pastoralism can be found in Scholz 1995; see also a recent review of research on this complex by Honeychurch/Makarewicz 2016.

◀ A foggy morning in the Orkhon Valley, Mongolia (© author).

territory of modern Mongolia, which approximately covers the Yuan period province of Lingbei, is deemed suitable for plant cultivation (Kradin 2015).

The emergence of pastoralism has long been the focus of archaeological research (Frachetti 2012). This research has shown that a pastoralist economy is the so-called "default mode" of living in Mongolia. Traditionally, a good part of the population lived in self-contained households of single extended families with their yurts and herds, a highly dispersed population of low density (Fijn 2011). Animal husbandry was the main subsistence strategy (Allsen 1994, 326). The herds consisted of varying compositions of the five principal animals: horses, sheep, cattle, camels, and goats. The composition varied according to the specific regional climatic and topographical conditions as well as the available resources. This primary subsistence strategy was not only supplemented by hunting/gathering but also by small-scale farming, depending on the region, as attested by ethnographic and archaeological data (see below).

The traditional mobile home of Mongolian herders, the yurt (the Mongolian *ger*), was similar to those used today, as can be gleaned from the description by John of Plano Carpini, emissary of Pope Innocent IV to the Mongol court in 1245–1247: "Their dwelling-places are round like tents and are made of twigs and slender sticks. At the top in the middle there is a round opening which lets in the light, and is also to enable the smoke to escape, for they always make their fire in the middle. Both the sides and the roof are covered with felt, and the doors are also made of felt. […] Wherever they go, be it to war or anywhere else, they always take their dwellings with them" (Dawson 1980 [1955], 8).

There is no sole fixed migration pattern: Mongol pastoralists move with their herds two to four times a year on average, with the frequency and extent of area covered highly subject to the geographical conditions. In the productive Khangai steppes, part of which form the Orkhon Valley, Mongolian pastoralists wander within 2–15 km from their summer pastures in the wide river valleys to more protected valleys higher up in the mountains in winter. In the Gobi Desert, the pattern extends to up to 70 km. This principal pattern is described in the historical texts by European travelers such as William of Rubruck and Marco Polo. The same pattern is also seen in ethnographic comparisons and is evident in the archaeological site distributions[6].

As Thomas T. Allsen put it in 1994, a pure nomadic economy is a hypothetical construct, not a social reality. In his view, the pastoralists cannot be seen without their relation to sedentary neighbors[7]. From the perspective of the written sources, the interactions between pastoralists and sedentary neighbors are based on an exchange of paying tribute (furs, hides, horses) to the neighboring sedentary state and receiving "bestowals" (grain, metal implements, luxury items, silk) in return. If the Chinese refused this peaceful exchange the pastoralists threatened violence to enforce their right to pay tribute. An alternative to this strict dichotomy is offered by Nicola Di Cosmo who sees no basis for these raids being carried out of economic need but rather as outlet for "inter-nomadic warfare" (Di Cosmo 2015, 51; see also Scheidel 2011). Exchange patterns were also established with their neighbors to the north, where the so-called people of the forest lived, the *hoy-in irgen* (Allsen 2006a, 141 with further literature). The retrieval of gyrfalcons from Siberia, a highly esteemed bird for hunting at the Mongol court, is an example for these relations[8]. Craft production as one subsystem of production, and the control thereof, has long been recognized as crucial in complex state

6 Atwood 2015, 299–301; Houle/Broderick 2011; Kradin 2015, 22; Simukov 1933; 1934.

7 Most influential Khazanov 1994; see also Sinor 1990a; Lattimore 1938/1962.

8 *Secret History of the Mongols* (in the following short SHM) chapter 10, § 239, de Rachewiltz 2004, 163–165.

societies (Brumfiel/Earle 1987; Earle 1997). The relation between mobile pastoralists' economies and the craft production sector in what today is Mongolia, however, has not yet been thoroughly addressed (Reichert 2018; see also pp. 27–36). In line with other archaeological studies of craft production, I understand this system as the production of "noncomestible, tangible goods, not foods, services, or ephemeral products like poetry or music" (Costin 2005, 1033). I add movable goods, though, and other areas such as construction work are excluded from this study[9].

Questions surrounding production can be tackled from two perspectives. First, from production sites themselves, which Cathy L. Costin calls "direct evidence" (Costin 1991, 18–25). Installations, tools, raw materials, blanks, and semi-finished objects are commonly taken as witness to the local manufacture of goods. Second, evidence can come from the manufactured goods themselves (Costin 1991, 32–33). Via material analyses (manufacturing techniques, chemical composition, artistic styles), one can infer where the raw material originated, and at best, even discern with varying degrees of probability where the item had been manufactured. Other categories, which are more difficult to detect, involve standardization of the products, efficiency and skill of the workers. Here, however, a major issue arises: Often, the place where an object was found is simplistically equaled to its place of production, which can result in misleading interpretations[10]. Emphasis will be therefore placed on the former kind of evidence. Three sets of chemical analyses of material from Karakorum (see R. Schwab in this volume pp. 239–243; Park/Reichert 2015; Rehren et al. in preparation) will, however, provide perspectives on the second approach.

Karakorum, located in the Orkhon Valley, central Mongolia (see Fig. 1), once was capital of the Mongol Empire, the largest contiguous land empire in world history, and serves as perfect case study to approach the question of craft production and its relation to the political economy[11]. The main body of the city is surrounded by a comparatively shallow rampart, the defensive worth of which had been questioned (Kiselev/Merpert 1965b, 173). This area of approximately 1.65 km^2 displays a densely developed structure of building mounds within the southern and central parts that loosens towards the northern extent. This northern area might have been used as camping grounds with yurts as traditionally used by the pastoral people (Kiselev/Merpert 1965a, 126). The settled area, however, does not stop at the surrounding wall. The developed area stretches outside the main body, which can be easily seen on topographical surveys (Hüttel/Erdenebat 2011, 65 Fig. 5) and even on conventional satellite imagery. The overall extent still needs to be determined. According to possibly interpolated written sources founded by Chinggis Khan (c. 1161–1227) in 1220[12], the

9 Although Cathy L. Costin rightfully amended this view to counter its bias stemming from modern western thought, her broader concept of crafts "as any transformational process involving skill (knowledge, talent or proficiency, effort), aesthetics, and cultural meaning and consider the results of that crafting (verb) to be crafts (noun)" (Costin 2005, 1033–1034), she does not apply this view on her own analysis. The broader sphere of transformative crafts that is not discussed within this study covers for example cooking.

10 Kiselev/Merpert 1965b, 178; 1965c, Fig. 117 for example reconstruct water-powered bellows within the handicraft quarter of Karakorum based on topographical characteristics that are taken as evidence for channels in order to explain the occurrence of cast iron implements as only mechanically driven bellows allow for temperatures needed for the melting of iron to work cast iron (see also earlier Kiselev 1957, 99). There is no factual basis for these assumptions in the excavated areas in that part of the city: there are no water channels leading to furnaces. Although future research might still find prove of their existence, as of yet, their assumption must be deemed forced at best. The alternative explanation that the items were manufactured elsewhere and brought to Karakorum is not considered by Kiselev.

11 See Dschingis Khan 2005, 31–32 Maps 3–6 for maps of the Chinggisid conquests during the 13th century. Morgan 2007 provides a concise introduction into the history of the Mongol Empire and its successor states.

12 For a detailed discussion on the disagreement among written sources on Chinggis Khan's year of birth see Hung 1951, 475–478.

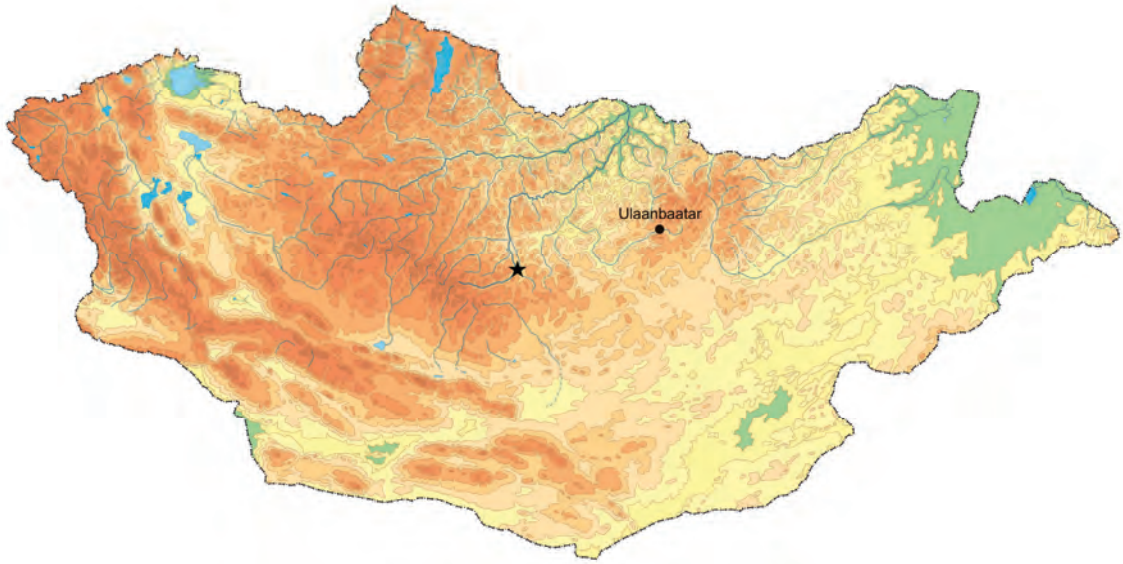


Fig. 1. Karakorum's location in modern-day Mongolia (size of Mongolia: 1,566,000 km²) (© Bonn University).

designated place had been developed under his successors Ögödei and Möngke Khan since 1235[13]. It was thus a planned city, erected from scratch. From then, it served as administrative and fiscal center of the empire (Allsen 1996, 121). What becomes apparent from this circumstance is that there is no lasting tradition of fixed habitation sites that Ögödei could have used as capital city within the Mongol heartland. Fixed settlements, to avoid the term "city," are a recurring but intermittent phenomenon in the Mongolian steppes. Although the Mongol khans could surely have used a pre-existing town in the territories further west that they had conquered thus far, they consciously decided to found their own city. The decline of Karakorum is not yet archaeologically determined with any certainty. After capital status was transferred to Shangdu in 1260, the city kept administrative and ideological meaning. However, sources reporting that Batu Möngke Dagan Khan (1470–1543) temporarily raised its status to capital again at the beginning of the 16th century, need to be treated with caution. In 1586, after the city had probably been long abandoned, the large monastery Erdene Zuu was built on top of what we now assume to have been the palace area with construction material from the city[14].

The ever-growing empire was faced with previously unneeded administrative and political tasks. The Mongol nobility solved this problem by filling these positions with capable foreigners, whom they mobilized and relocated as needed. Numerous written sources tell us the story of how the Mongols followed a policy of mercy towards craftsmen and other specialists during their conquests

13 Karakorum's founding date has been intensely discussed in research, starting with a first controversy on its correct localization as different readings of Juvainī led to confusion with Kharabalgasun; see Abel-Rémusat 1825; Pelliot 1925. The bilingual inscription from 1346 passed on in literary and epigraphic fragments in Erdene Zuu as well as the *Yuan Shi* helped to identify the wasteland north of Erdene Zuu as the locale of Karakorum and attributes the decision to found a city in the Orkhon Valley to Chinggis Khan, while actual building activities started only later in 1235; Abramowski 1976, 130; Cleaves 1952; Munkhtulga 2005. It is therefore important to clearly differentiate between these two phases in the city's genesis; Di Cosmo 2014/15, 69–70; Hüttel 2007b, 286–287; Pelliot 1959, 167; Pohl 2009, 513.

14 See Hüttel/Erdenebat 2011; Kiselev/Merpert 1965a; for contradicting view see Brandt/Gutschow 2003, 41.

after 1216 (Allsen 1997; 2002; 2015). The cosmopolitan air of Karakorum was distinctly described by William of Rubruck, who stayed several months in the city in 1254: "It contains two quarters [vici]: one for the Saracens, where there are bazaars and where many traders gather due to the constant proximity of the camp and to the great number of envoys; the other is the quarter of the Cataians [i.e., Chinese], who are all craftsmen" (Jackson 1990, 221). This description encouraged archaeologists to look for traces of production in Karakorum. Scholars of history emphasize reciprocal exchanges of goods, ideas, and techniques between the Islamic West and the Chinese East, which were decisively supported by the Mongol rulers (Allsen 2002; 2009). Thus, one must ask to what extent was Karakorum as capital city part of these exchange networks.

Although the written tradition informs us on general terms about the structure of Karakorum and its population's origins and activities, detailed descriptions about their daily life or, for example, technological production processes, are sparse. Furthermore, as every written source suffers from bias, these reports cannot be taken as simple facts. At this stage, archaeology comes into play to provide an alternative view to these sources, besides describing a structural and cultural history of its own. In the case study of Karakorum, the excavations by Bonn University from 2000 to 2005, led by Prof. Helmut R. Roth (local field director Ernst Pohl), contribute a solid material basis to address economic questions. The excavations were conducted under the framework of the Mongolian-German Karakorum Expedition (*Mongolisch-Deutsche Karakorum Expedition*, in the following short MDKE), a research collaboration between Bonn University and the Commission of general and comparative archaeology of the German Archaeological Institute (*Kommission für Allgemeine und Vergleichende Archäologie des Deutschen Archäologischen Instituts*), now Commission of Archaeology of Non-European Cultures (*Kommission für die Archäologie Außereuropäischer Kulturen* – in the following shortly as KAAK) on the German side and the Archaeological Institute of the Mongolian Academy of Sciences on the Mongolian side[15].

The excavations of Bonn University in the middle of the city, south of the central crossroads, from 2000 to 2005 exposed several workshops with evidence for iron, bronze[16], bone, glass, and precious stones works, attested by slags, crucibles, tools, and installations such as furnaces. Massive occupational layers of 4-meters-depth were detected in this area (exposed area about 400 m^2). A thorough analysis of the workshops is of eminent importance for assessing the function and the supra-regional significance of the city at its height. These excavations have been unmatched in their scope and archaeological substance in archaeological research of walled sites in Mongolia. They allow a detailed view into the lifestyle of the city center's population in the 13th and 14th century. Results have been presented so far in several preliminary reports and papers on specific aspects (Roth/Erdenebat 2002; Bemmann et al. 2010a). The variability of the local crafts is astonishing and allows previously unknown avenues of analysis such as a possible communal use of production installations and distribution. This study addresses the economic structures of the Mongol Empire at its heart by analyzing the economic sector of craft production at Karakorum and its intricately

15 On the development of this bilateral research cooperation see Bemmann et al. 2010b; Hüttel 2004, 179; 2005b. Excavations und following research were generously funded by the Ministry of Science and Education of the state of North Rhine-Westphalia (*Ministerium für Schule und Bildung des Landes Nordrhein-Westfalen*; 2000–2001), the Directorate General for Culture and Communication of the Federal Foreign Office (*Abteilung Kultur und Kommunikation des Auswärtigen Amtes*; 2002), and the Federal Ministry of Education and Research (*Bundesministerium für Bildung und Forschung*; 2003–2005) as well as the German Academic Exchange Service (*Deutscher Akademischer Austauschdienst*, DAAD); Pohl 2009, 506 fn. 1; Roth 2002c, 25.

16 Throughout this study, the term "bronze" is used to designate any copper-based alloy irrespective of the contents of tin, arsenic, or other admixtures. There are no analyses of the chemical composition of bronze artifacts from this collection.

linked pattern with the political history. The overarching question derives from the assumption that Karakorum had no substantial backing within pastoral society but was founded and kept alive out of political reasons. What was the economic function of the city under these circumstances, and how can the production in the city center be characterized?

The examination of the current state of research in archaeological, as well as historical disciplines, will portray not only the basis of the analysis but also possible desiderata.

As the emergence of cities in steppe environments is starkly differentiated from other world regions, Karakorum offers cause to reexamine urban models. As a first approach to this question, an analysis of the location factors is presented: What is the natural setting of Karakorum and to what extent could it feed the population of the city?

Several fundamental methods for the subsequent analysis of the archaeological material will be detailed, ranging from methods on spatial analyses of intra-site approaches to the organization of craft production. A GIS-based intra-site analysis will be used as a means for the identification of the find distribution, and patterns by which workshop areas will be defined and described in diachronic perspective. Another basic concept deals with the combination of archaeology with historical sources. What is the relation between archaeological and textual sources and how can they be combined fruitfully? Where applicable, historical sources are consulted alongside the archaeological analysis to provide a dense description in the sense of Clifford Geertz (1993, 3–30). However, a critical reexamination of the historical accounts is needed beforehand in order to evaluate possible political agendas and tendencies of their authors.

The main focus lies on the site-centric analysis of the excavations by Bonn University in the middle of Karakorum, since the present study marks the first comprehensive discussion of a handicraft quarter in Mongolian archaeology. The site-centric approach was chosen to allow for greater detail with the hope the work will be useful for future references to this subject.

The first major analytical step of the verification of the stratigraphic and temporal sequence of the areas excavated by Bonn University and thus forming the foundations for the present study has been published elsewhere (see Reichert 2019). The second task comprises the core of this thesis: the identification and description of the workshops in the city center. What kind of workshops can be identified? What did they produce and for whom? How does this picture change over time?

Technological aspects comprise a second body of examination. Is it possible to reconstruct production processes based on the preserved half-finished objects, tools, and installations? Where possible, manufacturing techniques and work processes will be examined with the help of scientific analyses. The scale of production for the different workshops will be critically addressed, as the find material reveals no evident clues to the output of the workshops.

Written sources hint at a high degree of elite control over craft production. By implication, we need to ask how this high degree of political dependence affects the economy of the city when the political system is in turmoil, as for example at the end of the Yuan dynasty. How is the production sector organized in the sense of Cathy Costin's work (1991) on the specialization of craftsmanship?

Another important part of the thesis questions agency: Who were the producers and for whom did they produce? To answer these questions, it is necessary to broaden the view and incorporate comparative data from other parts of the Mongol Empire and possibly beyond. Likely regions of provenance of raw materials on the one hand and intellectual properties on the other, such as furnace techniques, will be discussed. These results will be reviewed in the light of written sources. Cultural assignations for example (as William of Rubruck attributed the quarter of the craftsmen to the Chinese) can be seen through the lens of the archaeological record.

This chapter will conclude with an account of the trade system as described by historical research. How far did wider imperial policies towards trade and merchants possibly affect the city's econ-

omy? Finally, a synthesis is provided to summarize and merge the different aspects into a concise picture. Especially interdependent patterns between the political system and economical structures of the city will be addressed.

"Mongolia" is used here as the territory of the modern state of Mongolia. Of course, modern boundaries are not in line with historical realms of empires, as the Mongol Empire saw several transformations concerning its size and political division. Archaeological sites are stated within the boundaries of modern countries. This thesis is foremost concerned with the capital itself. To answer broader questions, the geographical scope needs to be widened accordingly[17]. For understanding Karakorum in its natural setting, the Orkhon Valley is taken into consideration. For supra-regional relations within the empire as a first step, the Yuan province Lingbei, of which Karakorum formed the capital throughout the existence of the dynasty, is its most important frame for comparison. The "global" region from the Chinese Sea to the Middle East – the Great Mongol Empire – cannot be viewed as one political body due to the system of appanages, the consignment of territories to heirs during the Great Khan's lifetime. The Mongolian Empire is rather to be seen as a confederation of largely self-governed, autonomous khanates[18] under one supreme ruler, the Qa'gan, who nominally assumed rule over all, but had in fact only limited power over the different parts of the empire except for his central area, which came to be the Yuan Empire under Khublai Khan in 1272 (Mote 1994, 624). And even here his actual power only extended as far as his central province with the capital Dadu (modern Beijing) (Franke/Twitchett 1994b, 27).

This larger area was surely integrated into a large commercial and communicative space, which evokes associations to the widely known concept of the "Silkroads." Its interconnectedness and strength consisted, however, in the peacefulness within the empire and was submitted to fluctuations (Kim 2015). For example, the jam-system (in Mongolian or yam in Turkic), the famous postal system of horse relay stations, was not efficient throughout the complete empire but had several discontinuations (Shim 2014; 2017). The greater empire can only be alluded to. The concentration on Karakorum also sets the temporal scope of this thesis, from its beginnings in – according to texts – the 1220s/30s to its decline, probably in the early decades of the 15th century.

The discussion of Karakorum's manufacturing activities from the described perspectives aims to approach a comprehensive picture of the productive sector of the city's economy to determine its unique circumstances compared to the known structures from the Mongolian steppe and to ascertain its significance for the ruling elite.

17 A study that covers a broad geographical space and with that many diverse languages with different script systems is faced with differing transcriptions for every script in research literature. Consistency of transcriptions within one work, however, is the aim. Transcriptions into the Latin system were therefore unified using the following systems and diverting forms were only kept when they occur in quotations. For Chinese, the internationally accepted standard of Pinyin was applied. For modern Russian and Mongolian Cyrillic scripts a simplified version of the transcription system of the Library of Congress, Washington/DC, was used, the Mongolian letters "Ө/ө" and "Y/ү" were simplified as "Ö/ö" and "Ü/ü" respectively; Russian: http://www.loc.gov/catdir/cpso/romanization/russian.pdf; Mongolian: http://www.loc.gov/catdir/cpso/romanization/nonslav.pdf (both last access 2014-02-04). The Persian and Arabic were taken from the cited publications as the transliteration could not be verified.

18 Biran 2014/15, 27 speaks of a united empire from 1206 to 1260, afterwards the empire disintegrated into four successor states centered in China, Iran, Central Asia and the Volga region. See also Farquhar 1981. Hodong Kim argues against this traditional view of a separation into successor states highly influenced by the viewpoint of Chinese sources, while still granting the different *uluses* political independence (Kim 2009, 30–36; 2015).