

Current Research in Eurasia



Eurasien-Abteilung
des Deutschen Archäologischen Instituts
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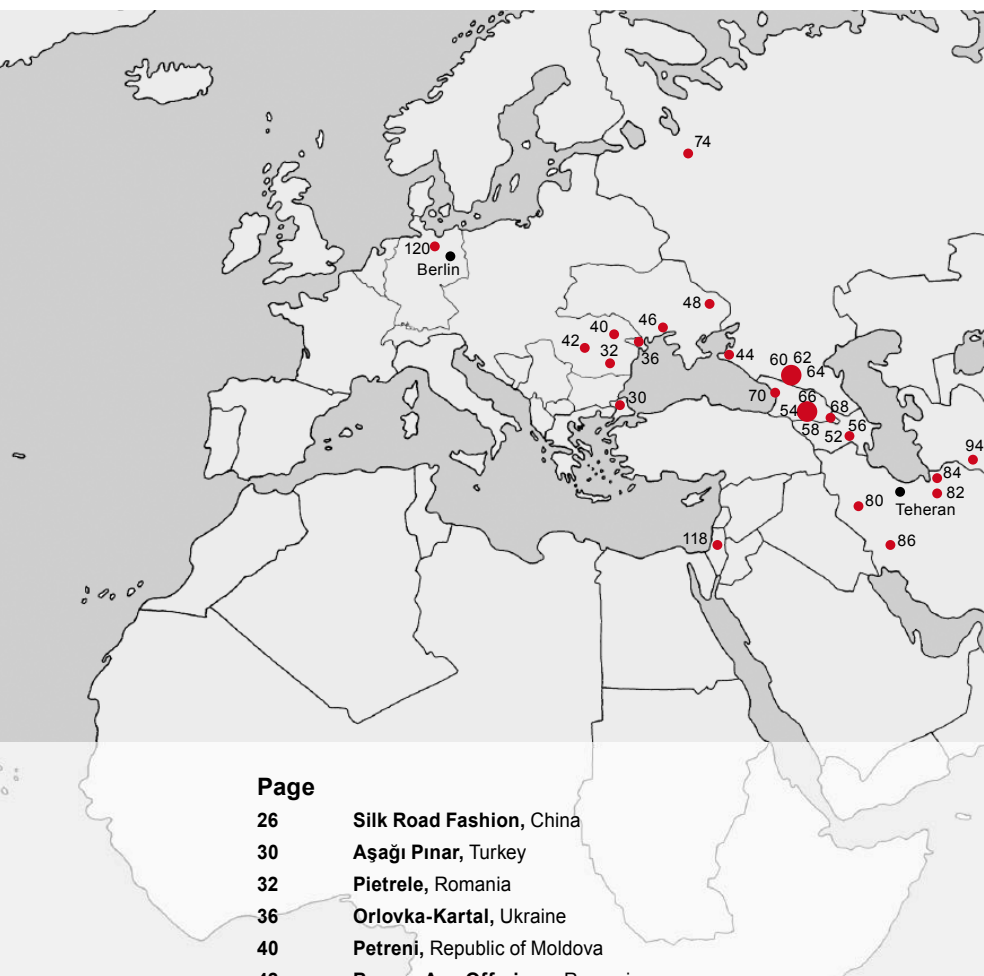
Berlin 2017

German Archaeological Institute
Eurasia Department

**Current Research
in Eurasia**

Issued by
Svend Hansen

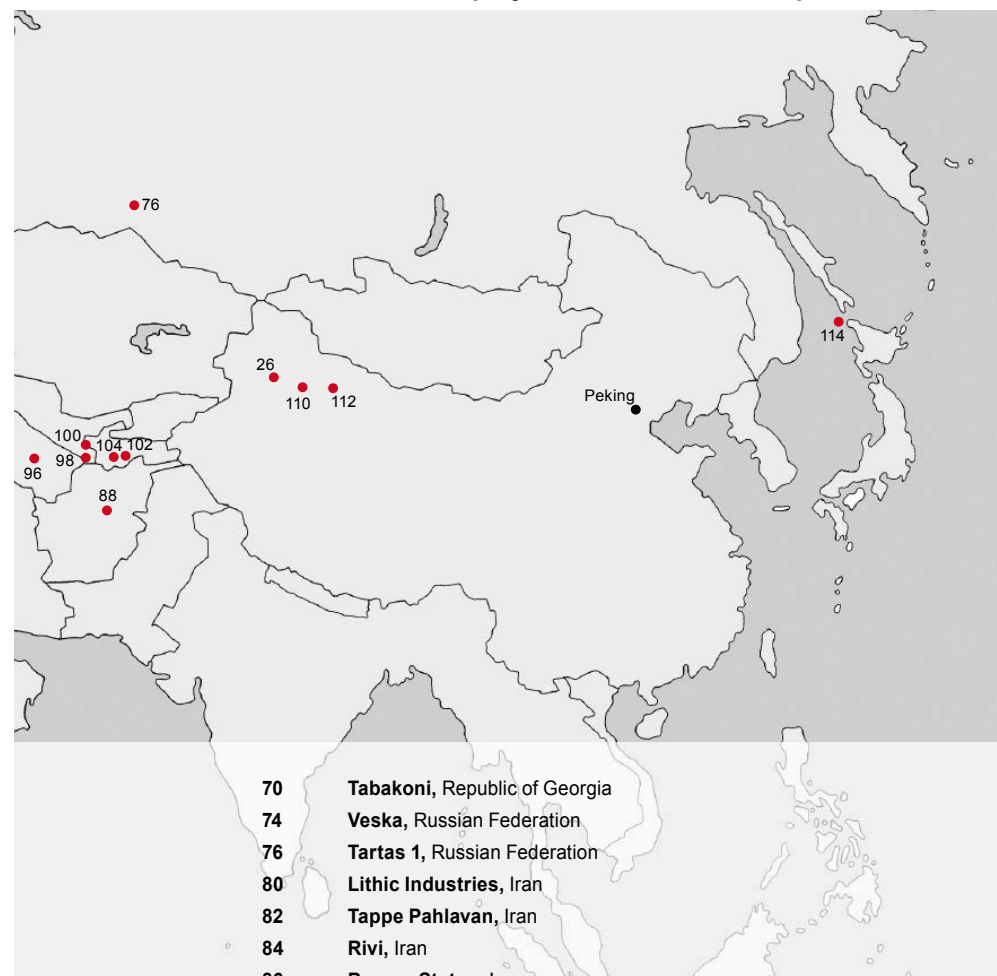
Berlin 2017



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Foreword

The founding of the Eurasia Department in 1995 was a future-oriented decision. With the end of the East-West Block confrontation the states succeeding the former Soviet Union were opened to joint research projects in the field of archaeology, an approachability that broadened the horizon of archaeology immensely. Surprising changes in the perspective of archaeological phenomena, which had long been viewed as isolated, came about and can be further anticipated in the future. Even today there are no research institutions in Europe or in the United States that compare with the Eurasia Department.

Further, a branch office in Teheran enables joint research in Iran and neighbouring countries. The branch office established in Beijing in 2009 is the starting point for research in East Asia.

Thus, the sphere of the work of the Eurasia Department reaches from the Black Sea to the Pacific Ocean, a vast geographic area indeed. Thereby, in many places very little archaeological research or none at all has been made. The scientific potential is thus enormous, as already shown by the first joint expeditions of the Eurasia Department: the first excavation ever of a Scythian sanctuary in Bajkara, Kazakhstan, and investigations of an undisturbed Scythian royal grave with numerous grave goods of gold in Aržan, Siberia. Further, research was carried out at the Bronze Age site of

Djarkutan, Uzbekistan, and at the ancient city of Tanais of the Bosphoran Empire.

The spectrum of current studies of the Eurasia Department presented in this booklet extends geographically from the western Black Sea area as far as Japan, while covering the time span from the Neolithic to the early Mediaeval period.

Thereby, due to the magnitude, only exemplary research reports on archaeological surveys, prospection and excavations can be included here.

This huge field of work offers the special opportunity to follow historical processes in space and time in their association. The strength of archaeology is that it describes historical processes from the perspective of longer periods of time and throughout greater geographic regions.

As diverse as the temporal and cultural dimensions of our research are, all the more are reciprocal interactions between technical innovations and social processes of ancient cultures of the two continents the focal point.

For even though not all, but nevertheless many, technical inventions and social processes were consequential for Prehistory and/or Antiquity in large parts of Eurasia, whose main communication axes were oriented West–East. Characteristic for technical innovations in the Eurasian sphere is the relatively rapid transfer of knowledge.

Included here are the achievements made during the Neolithic period, such as the domestication of animals and the production of ceramic vessels, or later inventions such as metallurgy and the wheel and wagon, which in turn enabled a plenitude of further technical developments.

Ever since the 3rd millennium BC the interaction between cultures of the steppe with civilisations bordering to the South played an important role in the transfer of knowledge.

All of our research is carried out in cooperation with scientific institutions in our host countries. And thus during the past 20 years the relations with archaeologists in the host countries have intensified. A scientific network has emerged, which offers great



1. Bajkara, Kazakhstan.

Thanks to refined excavation methods, the large kurgan of Bajkara proved to be a sanctuary of the Scythian times and not a grave mound. It is a singular object in Eurasian archaeology

2. Aržan, Russian Federation.

A Scythian royal grave with well-preserved burial structures and rich in golden grave goods was discovered in Kurgan 2 at Aržan

3. Tanais, Russian Federation.

View of the excavations



prospects for future international joint undertakings.

Our research also operates in countries that are marked by years-long conflict, crisis and poverty. The cultural and political dimensions of our work, thus, consist in supporting the build-up of structures for archaeological research and conservation of monuments. Examples are the restoration of the citadel and erection of a museum in Herat (Afghanistan) and at present the documentation of ancient mining in Afghanistan, undertakings that have been manifoldly fostered by the Foreign Ministry of the Federal Republic of Germany.

Our work would not be possible without the support of many sponsoring institutions, namely the

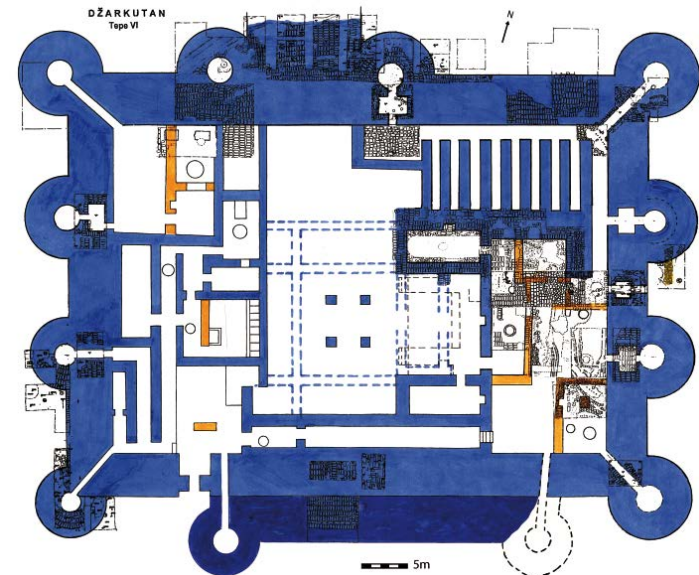
German Research Foundation, the Alexander von Humboldt Foundation, the German Academic Exchange Service, the Gerda-Henkel Foundation, the Fritz-Thyssen Foundation, the Minerva Foundation and the Federal Ministry for Education and Research. Therefore, here we wish to extend our sincere gratitude to these institutions.

The number of visitors at the exhibitions “Gold of the Scythians” in Berlin (2007) or “Alexander the Great and the Opening of the World” in Mannheim (2009) impressively documented the great depth of public interest for the archaeology of Eurasia. For us and our scientific partners this is an incentive to assume research on the two continents as the archaeological challenge of the 21st century.

4. Herat, Afghanistan. Renowned since Antiquity, the city of Herat and the citadel, among others, were the object of multifaceted investigations



5. Djarkutan, Tepe VI, Uzbekistan (1st half of the 2nd millennium BC). Reconstructed ground plan of a monumental mud brick building (residence or temple) dated to the Bronze Age





Teheran Branch Office

The German Archaeological Institute has carried out archaeological field work in Iran since the year 1959, starting with excavations in the Sassanid sanctuary of Takht-e Soleyman.

Afterwards, in 1961 the DAI founded an individual Teheran department, from which comprehensive excavations in Firouzabad, Bisotun and Bastam, as well as extensive prospection and documentation campaigns in several parts of Iran were coordinated.

In 1996 this centre in Teheran became the branch office of the Eurasia Department, and since 2000 has formed the basis for new field research in cooperation with Iranian scientists.

The 50th anniversary of the Branch Office and the joint research cooperations that it has supported was celebrated with the exhibition "Tehran 50" in the State Museums of Berlin.

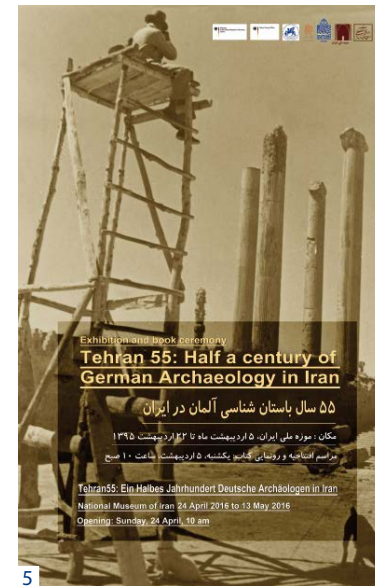
The Branch Office is located in the district Elahiye in Teheran, which provides room for bureaus, draught rooms, a library, as well as meetings and gatherings between German scientists and Iranian colleagues.

With the founding of the Branch Office the specialised library was expanded and now encompasses ca. 12,000 volumes, which cover different collection areas, such as archaeology and art history of the Near East, ancient history, Iranian studies and the archaeology and history of Islam.

The library is open to German as well as Iranian colleagues and is also used by universities in Teheran for teaching courses.

The photo archives of the original Teheran department are now preserved in the Eurasia Department in Berlin. The archives comprise ca. 40,000 negatives of photographs of the most important sites in Iran. Part of this documentation is available online in the databank Arachne under www.arachne.uni-koeln.de.

The Branch Office in Teheran serves as the basis station for field expeditions and museum work, which since 2000 have increasingly gained importance. The interdisciplinary research project on early copper and silver industry in Arisman (2000–2004) has been completed, yet further studies on the archaeological material continue. Rescue excavations in the Bolaghi Valley are being conducted in cooperation with the Iranian Cultural Heritage, Handicrafts and Tourism Organisation (ICHTO) (2005–2006), through which four settlements and areas of craft activities of the 5th millennium BC could be investigated. They are being evaluated at present and a comprehensive study on Neolithic and Copper Age lithic industries conducted, supported by the National Museum in Teheran and the older holdings preserved there.



1. Entrance of the Branch Office in Teheran
2. Library of the Branch Office in Teheran
3. The site of Tappe Pahlavan
4. The site of Arisman
5. Banner of the exhibition shown in the Iranian National Museum in April-May 2016 „Tehran55: half a century of German Archaeology in Iran“
- 6.7. Showrooms of the exhibition Tehran55
8. Archive of the Tehran Branch: expedition of Erich Boehringer to Iran in the 1960ies (detail)



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Xiaocheng Chen

Beijing Branch Office

1. View inside the Beijing Branch Office
2. Scientists in the project "Silk Road Fashion" in the Museum in Turfan, Uyghur Autonomous Region, Xinjiang, People's Republic of China
3. Cover of conference volume
4. Title page of the workbook on East Asia archaeology, "The Great Walls of China"
5. Handout for the open day at the German Embassy Beijing, June 2016



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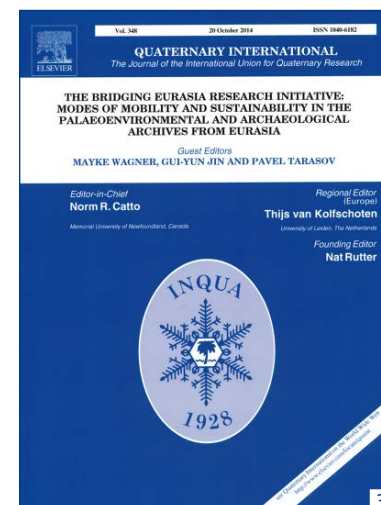
In November 2009 the former president of the German Archaeological Institute (DAI), Prof. Dr. Hans-Joachim Gehrke, and then-director of the Chinese Academy of Cultural Heritage of the People's Republic of China, Mr. Gu Yucai, signed a long-term agreement on the cooperation between both research institutions.

The DAI took this occasion to found its representation in Beijing and to rent an office in the German Centre Beijing. With this, the German Archaeological Institute became the first and only foreign research institution concerned with archaeology and the conservation of historical monuments with a fixed establishment in China.

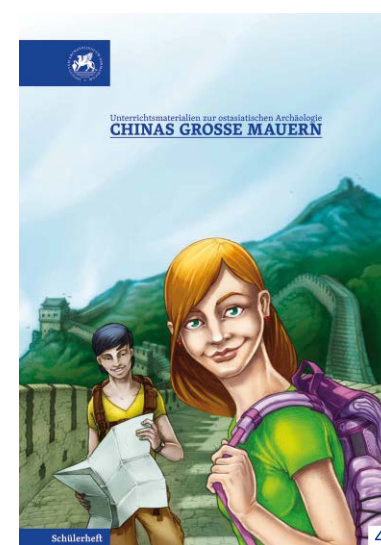
The Branch Office of the DAI in Beijing functions as an important bridge in cooperative work between Germany and China. More intensively than ever before, culture historical comparisons can be undertaken, language barriers can be surmounted, and together horizons can be broadened. Research projects correspond to the long-term aim of intensively covering East Asia through trans-regional comparisons. The focal point thereby is basic questions concerning the history of humankind, as formulated in the research cluster of the DAI: for example, when and under which environmental and climatic conditions did humankind begin to change from gathering food to producing

foodstuffs in northeastern Asia? What plants and animals were domesticized locally, and which cultigens were introduced from other regions? These questions are central to the DAI's work in China and Japan. Current research on the settlement history of the island of Hokkaido is conducted in close cooperation with the Baikal-Hokkaido Archaeology Project of the University of Alberta, Canada. An international conference in Hakodate was organised together with the Japanese-German Center Berlin. The education of future scientists is an important part of our work. Young Chinese archaeologists are mediated to German universities, where they are trained in areas like surveying and conservation. German Ph.D. candidates preparing their dissertation in China have scientific advisors there. Members of the Beijing Branch Office translate research results from Chinese into German and/or English for the scientific community and, for example, introduce new museums to the wider public.

In its series of publications "Archaeology in China and East Asia" the Branch Office presents cutting-edge research on the history of knowledge, technology, trade and exchange, human environment interaction, art and culture in China and in Central and East Asia. Together with the German Embassy School in Beijing, the Branch Office provides material for instruction on East Asian archaeology as a supplement to the subjects of history, geography and art. For example, current research results in archaeology and conservation of monuments are used in the workbooks "The Great Walls of China" and "The Silk Roads". The attendant manual for teachers includes worksheets for photocopying, solutions and additional information. Further material for preparing lectures is available for free-downloading at www.bridging-eurasia.org/de/node/307.



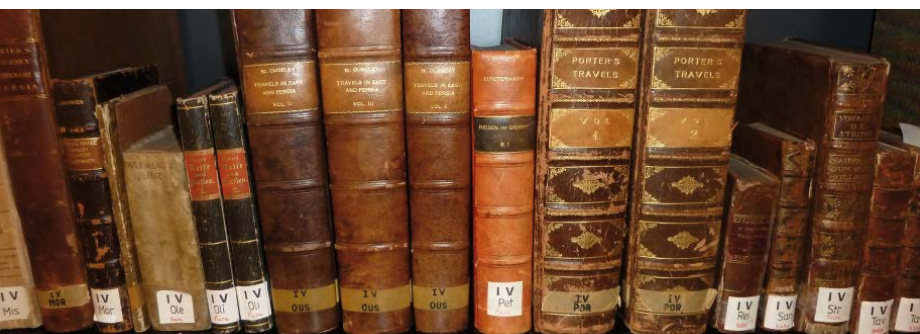
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The Library of the Eurasia Department: Invitation to the realm of books

Archaeology is thought of by many as a spade science. From this point of view archaeologists would spend the greater part of their working life digging at excavations. On the contrary, despite all electronic media, the site of the library is and remains the most important place of work for archaeologists. Namely, in order to carry out scientific work and to assess and order archaeological phenomena comprehensively archaeologists must spend a few weeks to months studying literature in our library.

Comprising ca. 92,000 volumes (of which 12,000 are in Teheran and 1500 in Beijing), the library of the Eurasia Department is the leading institution in Europe for the archaeology of Eurasia. Without a doubt, in view of our collection area "Eurasian Archaeology" we hold a singular position. Concerning the former Soviet Union the library has become the most important focal address for scientists from the successor states, because in Berlin literature is available in an incomparable completeness. The earlier regular exchange of literature that took place between individual states of the former Soviet Union has subsided in some cases.

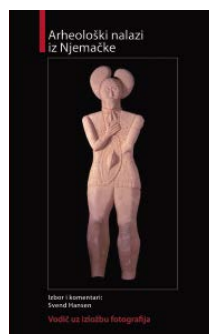
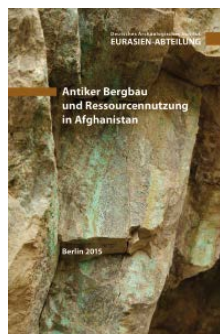
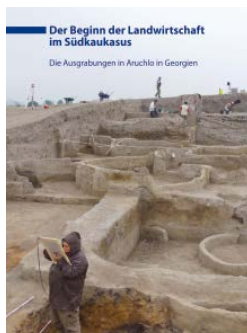
The collection area of the library encompasses, in addition, works on the pre- and early history of Europe, with a focus on the eastern and northern parts. A further substantial collection area is concerned with methods and theory in archaeology.

New acquisitions for our library derive only to a small extent from orders from the catalogues of specialised book sellers. A large number of new acquisitions are brought by guests in the Department as gifts or in exchange, as well as by colleagues from their travels in host countries. Without this personal engagement we could not maintain this offer on publications to our readers. The furtherance of exchange relations for publications is of central significance for the future development of the library of the Eurasia Department.

The Eurasia Department issues two journals and several series of monographs. These publications present the results of our ongoing research as well as important results of research conducted by colleagues from host countries. This invaluable fundus enables us to enlarge the number of exchange partners worldwide. Our research results are accessible to interested readers in many countries only through trading scientific treatises.

The holdings of the library are provided in the online network of DAI libraries ZENON (opac.dainst.de), insofar as electronically recorded.





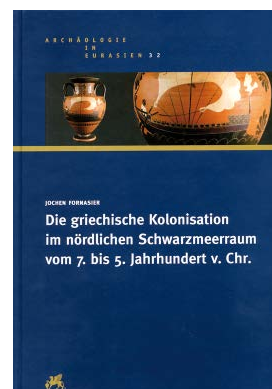
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Publications of the Eurasia Department

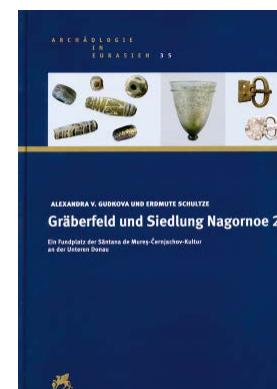
Current research in the areas of the Eurasia Department's work is published in two journals, Eurasia Antiqua and Archäologische Mitteilungen aus Iran und Turan (AMIT).

Results of our research studies as well as those of colleagues in the host countries are published in several series of monographs.

The printed book maintains its place in archaeology. A book on chemistry issued in 1890 has long been relocated from the Institute of Chemistry's library to the library of the Institute of the History of Science. Archaeologists are accustomed to using old books, for most finds were published only once and, therefore, they must frequently refer to the original or initial reports. Nevertheless, electronic media have gained increasing importance, and the online availability to our books and journals anywhere in the world has opened new perspectives for future networks, which are perhaps not yet known to us today. We have therefore undertaken essential changes. Two years after their issuance, our journals and books are made available online. Many special publications can already be accessed electronically on our home page (www.dainst.org). In addition, current information and descriptions of our research projects are also found in our home page.



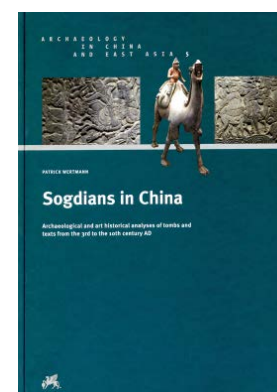
Archäologie in Eurasien



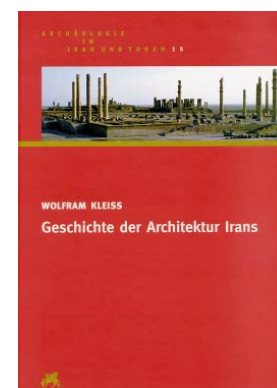
Eurasia Antiqua



Archaeology in China and East Asia



Archäologische Mitteilungen aus Iran und Turan



Archäologie in Iran und Turan



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Fostering scientific exchange

Archaeology is an international discipline and lives on scientific exchange that extends beyond borders. The Eurasia Department feels especially obligated within the sphere of its possibility to foster a multisided scientific exchange and furtherance of work in the library by inviting guests. With success the Eurasia Department has endeavoured to attain scholarships from the Alexander von Humboldt Foundation, the German Academic Exchange Service (DAAD), the Gerda-Henkel Foundation and other funding institutions in order to enable young scientists from our guest countries to carry out research in Berlin.

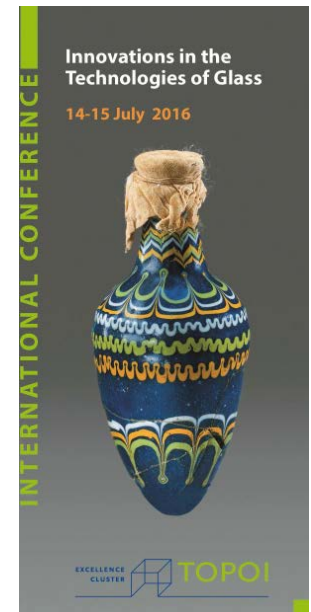
As part of their duties as honorary professors and private lecturers, members of the Eurasia Department give lectures at universities in Germany and as guest professors abroad. They also act as advisors in numerous master and doctoral theses. They also participated with an international team of advisors within the framework of the Innovative Training Networks "Forging Identities", part of the Marie Curie Actions of the European Union, together with partners from the universities in Aarhus, Göteborg, Cambridge, Southampton and Kiel. Within the past years the Eurasia Department has organised a number of international conferences, which served to make known the most recent research results and scientific communication about our existing cooperations. In many cases we were

able to carry out conferences with partner institutions (Tbilissi, Teheran, Budapest, Iasi), which were particularly suited for including interested specialists and students in these countries.

The international colloquium "The Iron Age in Southern Central Asia", held in June 2014, brought together scientists from East and West. The conference "Bronzezeit im Kaukasus" (The Bronze Age in the Caucasus) took place in December 2014, in final accordance with the Humboldt partnership with the Sochumi University in Tbilissi.

In December 2015, the International Conference: "Prehistoric Networks in the longue durée: Palaeolithic Innovations enabling the Neolithic Revolution" was held together with the Max Planck Institute for the History of Science. In 2016 a conference about the Gumelnița culture and its eastern neighbours was held in Iași organised together with the Institute of Archaeology.

In June 2017 the Eurasia Department together with the Brandenburg Office for the Conservation of Monuments will organise the second conference on the the grave mound at Seddin.



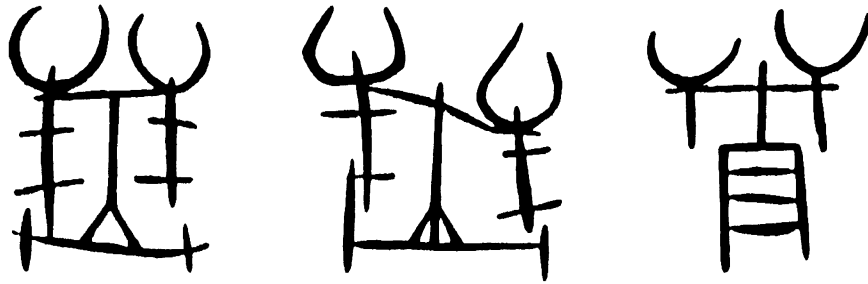
1. The signing of a German-French cooperation agreement
2. Aruchlo. Conference participants visiting the excavation



A topographic map of Europe and Africa, rendered in a light beige color with darker brown shading to indicate elevation and terrain. The map shows the outlines of continents, major rivers, and mountain ranges. A dark blue horizontal bar is positioned across the middle of the image, partially obscuring the map.

INTERACTIVE RESEARCH





1

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Florian Klimscha
Jürgen Renn

■ Cooperation partners

Prof. Dr. Jürgen Renn, Max
Planck Institute for the History of
Science

Excellence Cluster TOPOI,
Area D6

■ Funding provided by

German Research Foundation
(DFG), Excellence Cluster TOPOI

Digital atlas of innovations

Until quite recently, the civilisations of the Orient were thought to have been the centre of the development of key technologies such as the wheel and wagon. In the diffusionist model that goes back to V. Gordon Childe, these technical innovations spread from the “centre” into the “peripheries”. With the establishment of chronologies basing on 14C datings, these theoretical models became dubious. Evidence for the wheel was widespread between Mesopotamia and the North Sea around ca. 3500 BC, but we are unable to determine where exactly it was invented.

The Atlas of Innovations begins at this point: It is a working tool through which the oldest evidence for techniques is illustrated cartographically. It is not solely a form of representation, but at the same time a heuristic means for recognising the individual regions in which techniques and knowledge were available, interconnected and possibly developed together.

The Atlas of Innovations presents the oldest evidence for specific key technologies. Due to the repartition patterns of archaeological finds and their datings, larger timespans of several hundred years must be taken into account. By means of a time bar varied older evidence for a given technique can be differentially shown. The Atlas is not merely a means of graphic presentation; through

the interconnection of several features on a map, it is possible to make visible regional groups of techniques, that is, in a broader sense, behavioural patterns.

By means of the Atlas and with a sufficient basis of data, innovation receptive or rejecting regions can be identified. The strong orientation towards tradition of pre-modern societies and their supposed rejecting attitude towards innovations can now be placed under critical examination. Changes in such milieus are all the more in need of explanation, for traditional societies that do not underlie an inclination for constant renewals are not open to innovations without a special reason.

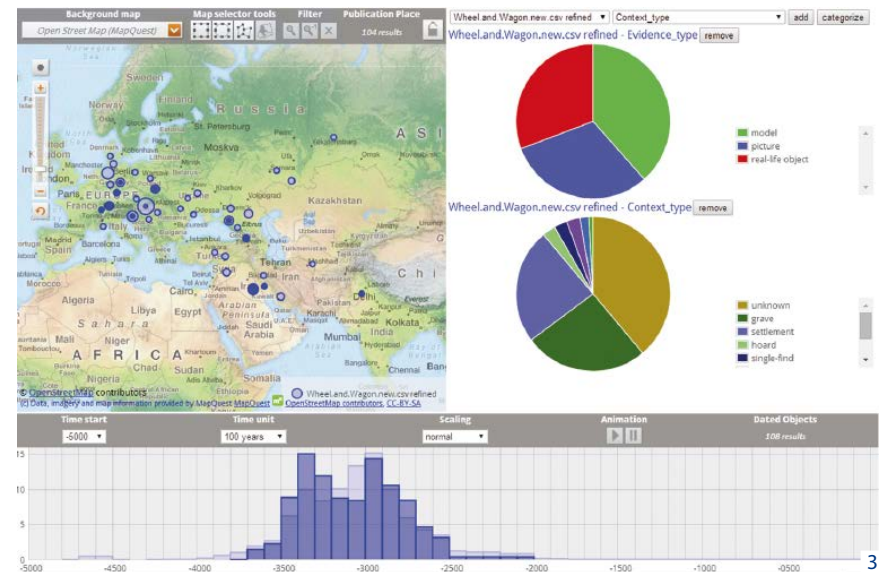
Therefore, the social dimension of such processes and the question “For whom was it advantageous?” are directly linked with the Atlas. How were innovative developments in technologies steered? Which social groups were interested in the implementation of new techniques?

Thus, for establishing and developing the field of ancient social history of technology, the Atlas of Innovations is an important working instrument.



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1. Teams of cattle, petroglyph, Kamennaya Mogila
2. Wheels of a wooden wagon from Ananuri (Georgia) Kurgan 3 dated around 2400 BCE
3. Example of a page in the Digital Atlas



3



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Patrick Wertmann

■ Cooperation partners

Chinese Academy of Cultural Heritage

Xinjiang Uygur Autonomous Region, Bureau of Cultural Heritage
Natural Sciences Unit at the German Archaeological Institute (DAI), head office

Free University Berlin, Art History of East Asia

Free University Berlin, Institute of Geological Sciences

Berlin-Brandenburg Academy of Sciences, Turfan Studies

Martin Luther University, Halle, Chair of Organic Chemistry

State Office for Heritage Management and Archaeology Saxony-Anhalt, State Museum of Prehistory

Adam Mickiewicz University, Poznań, Radiocarbon Laboratory
LVR-LandesMuseum Bonn

■ Funding provided by

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Silk Road Fashion: Communication through apparel during the 1st millennium BC in eastern Central Asia

"Clothes make the man", yet seldom do they withstand the passing of millennia. The climate in western China is so dry that trousers, skirts and kaftans, boots and leather coats have often been retrieved in archaeological excavations in an almost complete state. In the present project a group of five German project partners in cooperation with the Chinese Academy for Cultural Heritage and the Xinjiang Bureau of Cultural Heritage endeavour to reconstruct technical and physical knowledge, social structures, resource accessibility and trade networks that existed in eastern Central Asia from ca. 1200 BC to AD 300. Methods in archaeology, research on textile and leather, pigment analysis, kinds of ornamentation, analysis of patterns, palaeopathology, research on vegetation and climate, cultural anthropology and linguistics are all employed in investigating the clothing and furnishings in Xinjiang.

The manner in which clothes are worn today, somewhat taken for granted, the normality and even exclusive customised as well as mass production of textiles have caused the geniality and innovative achievements in the production of textile clothing to be forgotten. The course from the woolly sheep to a kaftan demands contemplation and planning. In order to spin thread, weave it into a surface

and apply this two-dimensional cloth to a three-dimensional – human – body requires mathematical knowledge and a great capacity for abstract thinking, comparable with architecture. The project's aim is to follow the development of this technical know-how during a time window of ca. 1500 years in a geographic centre of European-Asian cultural contacts.

The oldest known finds of clothing under study in this project derive from the scarcely known indigenous population in the regions Turfan and Hami. Dated to the 7th–3rd centuries BC, the clothes might have belonged to local shepherds, but also to migrating mobile herdsman. Finds of the 3rd–1st centuries BC presumably display traces of Xiongnu nomads, while later finds of the 1st century BC to 3rd century AD show cultural influences of migrating and passing travellers from China, the Roman Empire, Parthia, Sogdia, the Kushan Empire with Saka city-states on the southern rim of the Tarim Basin.

Analyses of the material and documentation of finds contribute to developing sustainable methods for the physical preservation of the cultural heritage in Xinjiang and to its virtual accessibility worldwide. Thereby, education and training of Chinese conservators as well as the production of teaching material are given high priority.



1. Urumqi, Museum of the Autonomous Region Xinjiang. First view of the 2700-year old wool cap found in Zaghunluq.

2. Urumqi, Archaeological Institute of the Autonomous Region Xinjiang. Documentation of a ca. 1800-year old silk dress found in Niya.

3. Urumqi, Archaeological Institute of the Autonomous Region Xinjiang. Taking samples for pigment analyses.

4. Hami, Museum, examination of a ca. 2800-year old fur coat found in Wupu.

5. Urumqi, Archaeological Institute of the Autonomous Region Xinjiang. Camels woven into a band of a ca. 2000-year old skirt found in Sampula.



WESTERN AND NORTHERN BLACK SEA AREA





1

30 Svend Hansen

Excavations in Aşağı Pınar, Turkish Thrace: the beginnings of agricultural life in Southeast Europe

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Since 1993 archaeological investigations have taken place at the ca. 3 m-high Neolithic settlement mound Aşağı Pınar, which is located near the source of a spring in the present day town of Kırklareli in the European part of Turkey. With an expanse of almost 4000 m² of excavated surface, the site counts as one of among the most comprehensively documented prehistoric settlements in Southeast Europe.

While the focus of the first excavation campaigns was on the Middle and Late Neolithic settlement, synchronous with Karanovo III (layer 5) and IV (layers 2–4), since 2003 it has been directed especially towards the settlement's Early Neolithic genesis. The beginnings can be divided into three phases, which can be linked with the two later horizons of phases Karanovo I and II. Finds from Aşağı Pınar enable relations with northwestern Anatolia to be discerned. The Karanovo-II period layer 6 in Aşağı Pınar is distinguished by burnt structures built in the rammed earth method, arranged in a semi-circle, and holding extraordinarily well-preserved find contexts. These find their clearest parallels in west Anatolian Ilıpınar, yet the archaeological finds can be linked to the area of Bulgaria as well. Until now ten rooms arranged in a row to a length of 50 m have been uncovered. The absence of entran-



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es in the area of the house foundations, traces of posts and intermediate ceilings in a collapsed state all point to a multi-storied building. Thereby, the lower rooms seem to have been accessed from above by ladders. Found inside the buildings were numerous ovens, hearths, clay benches and platforms, as well as silos and vessels that are indicative of an immense storage capacity. Radiocarbon datings place the settlement in the 58th–57th century BC. The subsequent layer 7, which can be linked with Karanovo I through its thin-walled, red polished and white painted pottery, was greatly destroyed through a later settlement, but the walking horizons and remains of buildings and installations could be documented there as well. A ditch with mud facing inside is quite noteworthy: it obviously formed a boundary for the settlement in the South and later determined the orientation of building in layer 6. The hitherto oldest settlement layer 8 is distinguished by the absence of painted pottery and indicates a date prior to 6000 BC. All of the settlement layers are characterised by the appearance of high-quality anthropomorphic statuettes.



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1. Figurine from phase Aşağı Pınar (AP) phase 7

2. Figurine from phase Aşağı Pınar (AP) phase 5

3. Ditch in Aşağı Pınar (AP) 7

4. View of the excavation in Aşağı Pınar



4



1

32 Svend Hansen
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■ Funding provided by

German Research Foundation (DFG)

Pietrele on the Lower Danube River. A settlement from the 5th millennium BC

The Copper Age in Southeast Europe is one of the most dynamic periods of time in the cultural development in Europe. The novel metal not only gave its name to this archaeological epoch, but also initiated undoubtedly profound changes following the beginning of a rural economy.

During the past ten years fundamental new findings could be attained in the settlement of Pietrele located on the Lower Danube River. The correlation of archaeological excavation and comprehensive reconstruction of the landscape has proved quite successful and enables a completely new picture to be made of the events that occurred there during the 5th millennium BC.

The settlement was not situated on the rim of a meadow, but at the edge of a large lake, which extended from Giurgiu in the West to at least Oltenița in the East, and possibly even much farther; it was at least as large as Lake Constance. This lake supplied the inhabitants with a substantial part of their daily nourishment, as shown by analyses of animal bones and fish remains. Small fish were caught with nets and hooks, while large ones were hunted with harpunes. The lake facilitated transport and exchange of raw materials such as silex, heavy grinding stones, large clay vessels and much more. This body of water connected large settlements on the northern shore,

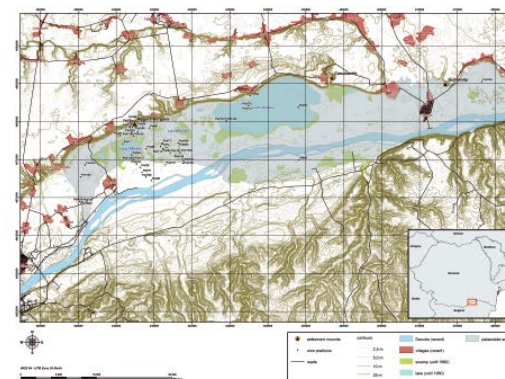


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which were surely involved in close exchange with northern Bulgaria, as attested by very similar pottery.

The site of Pietrele already attracted populaces of the Middle and Late Neolithic from ca. 5200 BC onwards. According to the pottery the settlement was permanently inhabited until ca. 4250 BC. For a time span of 350 years, between ca. 4600 and 4250 BC the flat settlement was built around the mound. The end of habitation in ca. 4250 BC might have been connected with the collapse of the lake's ecosystem due to excessive organic matter.

Pietrele represents a unique archive for understanding the change from the Neolithic period to the Copper Age, which evidently was associated with a completely new economy. New techniques can be recognised in pottery production and likewise in stone tools and harpunes for fishing. Furthermore, there was a sudden increase in the number of anthropomorphic statuettes made of bone or clay in the Copper Age. In the next three years research will be focused on the Neolithic settlement of Pietrele.



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1. View of the settlement mound
2. Harpunes for hunting game and large fish
3. Figurine measuring 25 cm in height
4. A 1.20 m tall pithos
5. The estimated expanse of a large lake



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34 Tilmann Vachta
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■ Funding provided by

Research grant from the German
Archaeological Institute (DAI)



2

A Bronze Age fortified complex near Pietrele on the lower Danube River

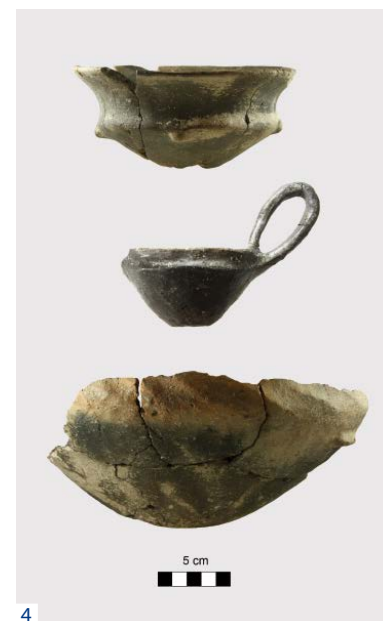
In the course of excavations at the Copper Age tell settlement of Pietrele in 2006, images from the American Corona satellite were evaluated. Thereby, an obviously artificial, ring-shaped structure, ca. 175 x 150 m in size, was detected at a distance of 680 m from the tell. The satellite images as well as the location pointed to a circular ditch complex of fortified character. The complex lies on the top of a steep Danube terrace and encompasses a narrow spur projecting towards the East. It can be accessed only from the West. The proximity of this complex to the Copper Age tell settlement implied an association between the two sites, and so in 2007 the complex was measured and prospected geomagnetically. During the campaigns in 2010 and 2013 two 40-m long trenches were installed, in some places to a depth of 3.8 m, so that the bottom of the ditch was reached. It was revealed that the ditch was a wide, stepped structure, whose deepest point lay at 3.5 m depth. Excavations brought to light find contexts and abundant material of the Bronze Age. The comprehensive results now call for appropriate study, presentation and evaluation. Proof of a fortified settlement on the lower Danube River is indeed noteworthy for the Bronze Age, only partially fortified settlement of Popești, located ca. 60 km to the North has been better investigated in that area until now.

The archaeological material attests to intensive activities within the area of the fortress: masses of finds such as burnt clay from houses and animal bones, well over 43 kg of pottery including whole vessels and fragments that can be reconstructed, 41 small finds such as a bronze knife, arrowheads and silex tools. Spindle whorls and loom weights are evidence for textile production. Other finds are comprised of pounding and grinding stones, bone tools as well as various raw materials, such as clay spheres and boar tusks. As a whole the find contexts signify habitation and economic activities in the complex. The material was viewed and documented in 2015. Therefore, the temporal placement of pottery in the Bronze Age can already be cautiously outlined. Part of the pottery can be assigned to phases IV and V of the Tei culture of the end of the Middle Bronze Age. Numerous similar pieces correspond with the periods Ha A and B. Based on the pottery, the complex can be assigned to the time between ca. 16th and 9th century BC. Further study of the ceramics will enable a more precise date to be attained and a focus of activity to be determined.

Essential for further evaluation are 14C analyses of the bone material that has already been identified, as well as investigations of the surrounding landscape with regard to its condition at the time of the complex's existence. Geoarchaeological investigations in earlier campaigns have achieved a remarkable reconstruction of the prehistoric landscape around Pietrele, which in absolute chronology also includes the Bronze Age. The existence of a very large lake with a length of 60 km on the lower Danube River could be proven. The history of settlement activities in this region during prehistoric times is closely linked with this ancient lake and its development. It likely played a decisive role in the economy and communication of Bronze Age settlement. By taking these results into consideration, for the first time a detailed reconstruction of the landscape for a Bronze Age site on the lower Danube River could be presented.



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1. View from the East of the spur of land; the yellow field lies inside the complex
2. Bronze knife from the ditch
3. Satellite image of the Bronze Age fortified complex
4. Late Bronze Age vessel



1

36 Blagoje Govedarica

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■ Funding provided by

German Research Foundation (DFG)



2

The settlement complex of Orlovka-Kartal and the Early Copper Age in the northwestern Black Sea area

The joint project including scientists from Germany, Moldova and the Ukraine is devoted to investigating the cultural system of the Early Copper Age as expressed in the steppe of the northwestern Black Sea area. The focus of investigations is the interactions of the Bolgrad-Aldeni Culture and the group 'Sceptre Bearers', that is, contact between the two cultural spheres of Carpatho-Balkan farmers and steppe nomads, which incorporated and marked the development of this local early Eneolithic site.

Due to the extraordinary engagement of the project's participants, a cooperation formed that covered the fields of archaeology, climate research, archaeobotany, archaeozoology and anthropology. We had the singular opportunity to systematically excavate the site of Orlovka-Kartal near Reny, the sole multi-layered and well stratified settlement yet known in the steppes of the northwestern Black Sea area. Moreover, we were also able to initiate research at the no less important sites of Cealic near Taraclia and Koşary near Odessa.

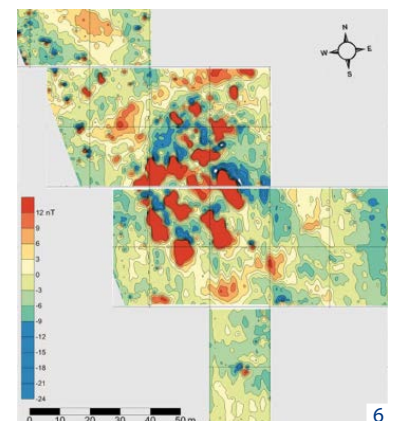
Excavations in Orlovka-Kartal were carried out on the central plateau of the settlement and in the necropolis. A stratigraphic sequence one to six metres thick was revealed on the central plateau, which held – among others – layers rich in finds

of the Early Copper Age Bolgrad-Aldeni culture. In the necropolis nine single graves of the late Copper Age were found in scattered arrangement.

Palynological and geomorphological investigations undertaken at the settlement and the nearby lakes Jalpug and Kagul brought forth results for assessing environmental conditions during the middle Holocene. In order to learn more precisely about the surroundings of Orlovka-Kartal, a survey was carried out in the terrain to the north on the lower Prut River and in the Budzhak steppe.

Archaeological and geophysical prospection in the area of Cealic revealed traces of two settlements of the Bolgrad-Aldeni culture (in Cealic and Chioselia Mare). Subsequent excavation in Cealic resulted in a great variety of archaeological material and structures in a very well-preserved settlement belonging to this culture.

Until now excavations at the site of Gorodishte near the village of Koshary have recovered 14 closely positioned graves under the ancient Greek settlement. The burials held a total of 19 deceased members of the Early Copper Age cultural group of the 'Sceptre-Bearers'. Although only part of this necropolis has been brought to light, it nevertheless represents the hitherto largest known burial place of this group. The complete evaluation of research results is still ongoing, but initial analyses already show that investigations in this area are indeed pioneer work, which for the first time ever allow a thorough study of the cultural and historical development of the steppe in the northwestern Black Sea area during the 5th millennium BC.



1. Orlovka-Kartal, excavation on the citadel plateau
2. Cealic, anthropomorphic figurine
3. Sites that have been archaeologically investigated
4. Koshary, graves 12 and 14
5. Cealic, excavation of surface area 1
6. Geomagnetic image of the settlement of Cealic



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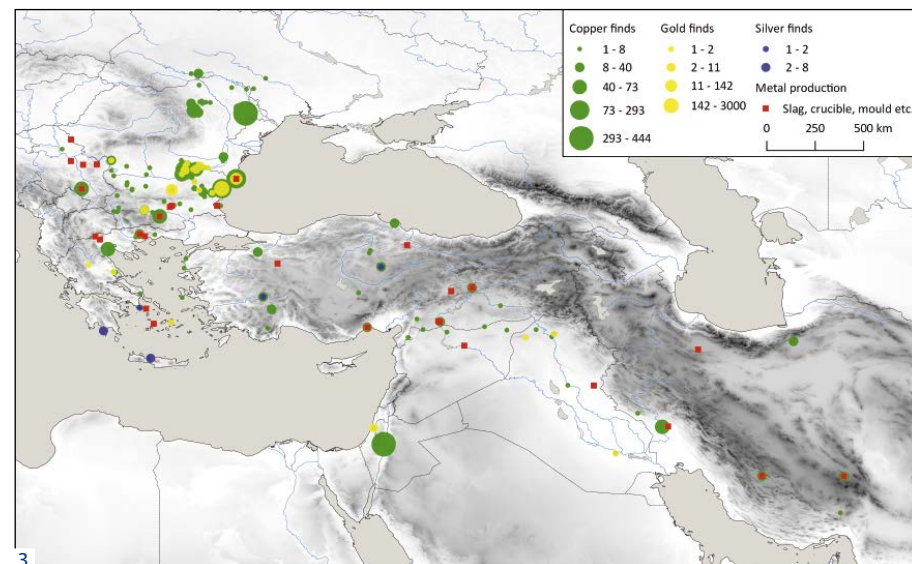
Balkan – Near Eastern Connections in the 5th millennium BC

During the 5th millennium BC, a vast geography including southeastern Europe, Anatolia and the Near East, was the stage for rapid transformations of existing social structures, which had been established since the spread of the Neolithic from its heartlands in the Near East and Central Anatolia. This large-scale social change is represented in the archaeological record through changing settlement patterns, burial customs and accelerated developments in metallurgical practices and pottery making.

Although this large-scale social change is evident both in the Near East and the Balkans, its markers reflect both similarities and striking contrasts. Near Eastern communities during the 5th millennium BC developed early signs of a centralized economy through the advances in long-distance trade networks and administration. It is during this period that public structures, either secular or ritual, appear in many settlements. As the archaeological evidence increases with recent excavations and surveys in the area, it becomes clear that the roots of urban communities of the 4th millennium BC are to be sought in the preceding millennium. Southeastern Europe, on one hand, bears similar elements to the Near East, such as the rapid development of metallurgy and specialized crafts. An important shift in settlement patterns and the



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emergence of tell settlements correspond to the beginning of the 5th millennium BC, coeval with the evidence in burials that can be interpreted as signs of social stratification. On the other hand, lack of features such as public buildings, monumental architecture and administrative technologies point to a different trajectory or mode of social change in comparison with the Near Eastern communities of the same period.

The aim of this Ph.D. project is to compile the data regarding certain aspects of the structures of settlements and cemeteries of the period in association with the finds that are linked to metallurgical practices and pottery making. The dataset, together with a 14C database for chronological framework, will be analyzed using GIS in order to provide a better understanding of the dynamics of social change that occurred throughout the 5th millennium BC over an extensive area and the probable supra-regional interactions that might have been an important factor in the process.

- 1 *Tangâru, a Copper Age tell settlement in southern Romania*
- 2 *Copper hammer-axe from Transylvania*
- 3 *Map of the sites mentioned for the 5th millennium BC*
- 4 *Copper chisels from the tell settlement of Ruse in Bulgaria*



4



40 Regina Uhl

Investigations at a mega-settlement of the Cucuteni-Tripolye-Culture in Petreni, Republic of Moldova

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During the 4th millennium BC, so-called mega-settlements covering up to 320 hectares in surface began to appear in the northwestern Black Sea area. Round or oval in pattern the settlements display buildings arranged in concentric or radial order; in view of their form and size they represent a peculiar phenomenon that is without parallel in contemporary cultural groups. They are considered as indicative of social change, sometimes even addressed as proto-urban centres. Signs of a socio-economic change in the Carpathian-Balkan sphere, and also the emergence of early city-states in Mesopotamia render this interpretation as plausible; however, based on archaeological evidence alone this clarification does not apply consistently. The number of houses within the settlements as determined by geophysical prospection has led to an estimated population of several thousand inhabitants. This number, however, must remain hypothetical, as long as it is unclear which buildings were contemporary and what function they had: namely, which structures were economic units and which one served as dwellings, and where were animals kept.

Work at the site of Petreni in the Bălţi steppe (Raion Drochia, Republic of Moldova) should bring to light details about the internal settlement dynam-



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ics, in which a dense network of chronological data can be gained and economic aspects of the use of resources can be revealed. With a surface area of 30 ha and 600 m in diameter, Petreni is one of the smaller mega-settlements in the western distribution area. Geophysical prospection shows two rings of houses with the front side facing the centre of the settlement. Grouped around the second ring are radially arranged rows of houses, which are surrounded by a ditch. Severely burnt parts of buildings and molten pottery indicate that these houses were destroyed in conflagrations with temperatures reaching 1000–1200°C. The burnt remains have revealed ovens as well as details about their construction in wattle-and-daub technique. Furthermore, test trenches made in the south-eastern area of the settlement have recovered a multitude of finds, pottery, figurines and stone tools being among these.



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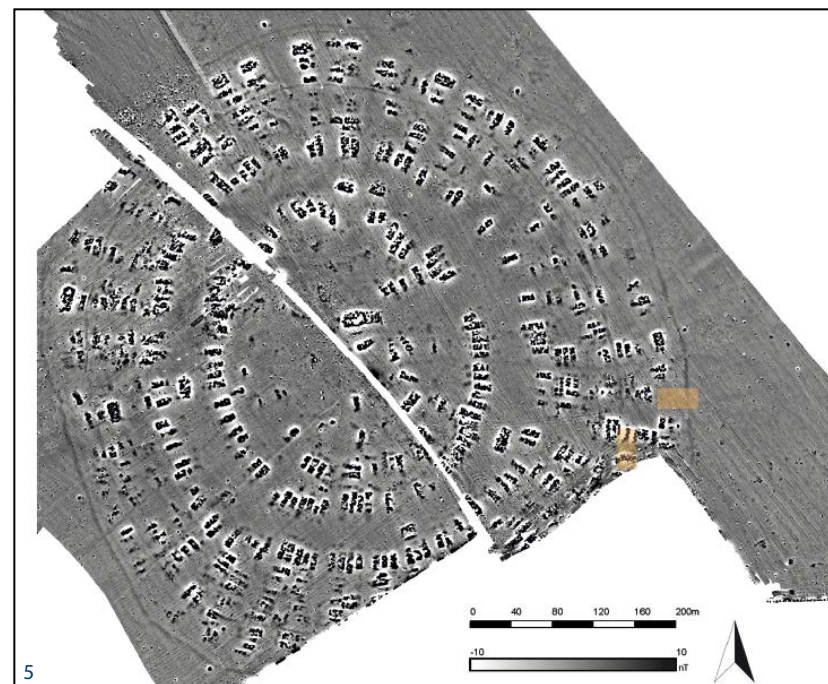
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1. Petreni. Beginning of excavation.

2. Documenting a pit.

3. Construction of a wall with mud bricks, standing in the former, inner ditch of the settlement

4. Painted bowl with zoomorphic depiction
5. Settlement plan according to geophysical surveys, beige = excavation area



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42 Tilmann Vachta

Metal analyses of Bronze Age votive offerings in Romania

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Székely Nemzeti Múzeum Sepsiszentgyörgy/Muzeul Național Secuiesc Sfântu Gheorghe

■ Funding provided by

Fritz Thyssen Foundation

The Bronze Age in the northern Carpathian Basin is characterised archaeologically by a wealth of metal objects, which were buried either in larger or smaller numbers as hoards. This density of such troves, thus, distinguishes the region as a centre of the Bronze Age custom of deposition between the Atlantic Ocean and the Caucasus mountains. The interpretation of Bronze Age hoards was long a matter of debate. Today we may state that hoards and single finds are depositions of votive offerings to supernatural powers. This perspective has brought new questions to the fore. It has been shown that the kinds of objects present in hoards are not coincidental or random, but rather constitute ensembles whose composition is regulated. By comparing the contents of hoards, several models of hoards can be identified and described according to their changes through time. Furthermore, the sites for deposition were neither coincidental nor random. Only specific topographical situations were chosen for the deposition of dedicated objects. Therefore, it is possible to describe the course of depositions as a social practice in the northern Carpathian Basin.

This forms the background for the focus of the project: determining the chemical composition of the metal objects. Two larger series of samples from Romanian museums are to be evaluated and pub-



lished. This enables us to take a look literally under the surface of the bronze objects. In the course of the Bronze Age metal ores from different ore-bearing zones were used, each of which possesses its own characteristic proportion of trace elements. This so-called signature is specific to specific times, making it possible to determine the chronological position of even small bronze fragments. This provides conclusions about the collection processes of individual hoards, too.

A second point concerns intentional metal additions. With the spread of the use of tin bronze at the beginning of the 2nd millennium BC, the development of Bronze Age metallurgy was in no way completed. Quite the opposite, metal analyses attest continued innovative processes. This applies, on one hand, to alloys that are specific to certain objects. For example, axes consistently contain higher amounts of tin and are harder than sickles. A high amount of tin rendered a golden sheen, especially to ornaments, although today it is covered by patina. On the other hand, it can be shown that at the end of the Bronze Age there was a gradual decrease in the tin contents in objects. Also, other kinds of copper were used, which indicates economic developments on a broader scale. Thus, metal analyses shed new light on the history of hoards and hoarding in the northern Carpathian Basin.



1. A centre of deposition activities: digital model of the terrain of the Maramureș Basin

2. Late Bronze Age axe from Sieu, made of almost pure copper

3. Bronze sword from Lăpuș. The grip and the blade are made of differing alloys

4. Relationships of trace elements in objects of the older, later and late Bronze Age





1

44 Udo Schlotzhauer

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2

Greek colonisation in the Cimmerian Bosporus: Landscape archaeology in the Northern Pontus area

The designation 'Northern Pontus' circumscribes the most northeastern and in many aspects perhaps the most extreme settlement area that was reached and settled during the so-called Greek colonisation by traders, merchants, adventurers and pioneers. The Greeks had been situated there, on the periphery of the Greek oecumene, since the end of the 7th century BC, neighbouring not only sedentary and semi-nomadic indigenous peoples, but also in contact with the mounted nomads, the Scythians.

Since 2007 the Eurasia Department together with the State Historical Museum in Moscow have carried out an international and interdisciplinary project, whose focus of study is the historic phenomenon of Greek colonisation of the Cimmerian Bosporus. The project is aimed at a better understanding of the development of Greek colonies of the Bosporus, founded by important Ionian cities on the west coast of present-day Turkey, and at comprehending their transformation into one of the first Greek territorial states, the Bosporan Empire. Long a subject of academic research, here this line of inquiry is approached with a broad spectrum of interdisciplinary methods. Alongside archaeological excavations and surveys are geophysical prospections, technical surveying and

recording, as well as archaeometric investigations on stones, pottery, bones and plants. The results of all of these areas of research are combined to make a new evaluation of ancient political history, of society and its environment at that time. In particular, the interdisciplinary work together with geoarchaeologists as well as philologists and scholars of ancient history, who study historical geography, led to far-reaching new recognitions: a completely new reconstruction of the landscape put much of the hitherto known historical geography in the region into question. In fact, it was long assumed that only one maritime channel (the Bosporus) existed between Crimea and the Caucasus, but instead there were two 'Bosporoi' as well as one large main island. This reconstruction, thus, does not contradict any longer ancient descriptions by Herodotus, Strabon, Pomponius Mela and others; contrary to former reconstructions it links all known sources of information in accord. One of the most far-reaching results of this new reconstruction of ancient conditions is that the hitherto assumed area of colonisation extended much farther to the East. Until now most of the areas lying east of the waterway from Kerch' were generally neglected in research studies. Yet even more sites mentioned in ancient written sources are sure to be found there, such as Sindikos Limen, Kimmerion, the Apaturion sanctuary, sites which so far have been incorrectly localised, like Hermonassa which was thought to be on the west coast of the present-day Strait of Kerch' at the place of the modern town of Taman. The ancient city that has been excavated here throughout the past one hundred years must be reconsidered and assessed anew.



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1. Present-day inland lake near Akhtanisovskaya

2. Reconstruction of the landscape of the 5th century BC with the second eastern waterway, the Kuban Bosporus

3. Geoarchaeologists when taking out a drill-core

4. Golubitskaya 2. North Ionian Clazomenian amphora, 6th century BC.

5. Golubitskaya 2. The upper mobile stone (handstone) of a hand mill

6. Strelka 2. Geodetic plan combined with geomagnetic results and archaeological excavation areas



6



Grey wheel-made ceramics of the first centuries AD in the Lower Bug River Area, Ukraine

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■ Funding provided by

German Research Foundation (DFG), Excellence Cluster TOPOI

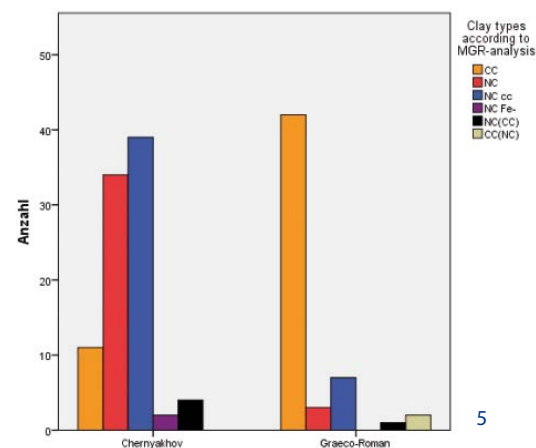
The project is part of a broader research mission concerned with the development of wheel-made pottery in central and eastern European barbaricum during Imperial Roman times. Until now, for this project of the Excellence Cluster TOPOI finds from Olbia and its surroundings have been compiled and will soon be augmented by grey-ware pottery of the Chernyakhov culture, found in the settlement of Voitenki.

Grey-ware vessels belong to the spectrum of pottery found in the polis of Olbia Pontica and its chora on the lower Bug River. In the 3rd century AD the area of the polis was destroyed during the so-called Gothic wars, abandoned and later settled once again. At that time the chora encompassed only 5–10 km around the city. The remaining surroundings were settled at the end of the 3rd century by members of the Chernyakhov culture, which is likewise characterised by wheel-made grey-ware pottery. Therefore, ceramic analyses are part of the project, devoted to investigating the production of grey-ware and the economic relations that existed between this ancient centre and its surroundings during Roman times.

First the ceramic was divided according to archaeological methods into two main formal spectrums: Greek-Roman and Chernyakhov. The Greek-Ro-



man pottery comprises bowls, pitchers and jugs, while the Chernyakhov spectrum includes – aside from this kind of tableware – also pots as kitchenware. Macroscopic comparison of both spectra shows many technical similarities. Therefore, scientific analyses of the ceramic material can throw new light on production techniques and the origins of the vessels. With a portable device X-ray fluorescent analyses were carried out on 284 samples from vessels from Olbia and from nine other sites, in order to determine the chemical composition of the samples. Thereafter, using further methods like MGR-analyses (Matrix Groups by Refiring), thin-section microscopic examination types of clay could be ascertained. A combination of all results show that a specific type of clay predominating in the samples of the Greek-Roman spectrum, which came from one production workshop and was found in samples from almost all of the investigated sites in the chora of the 1st – 3rd centuries AD. By contrast, samples of the Chernyakhov spectrum from every site display specific types of clay, which are indicative of local pottery production during the 3rd / 4th century AD. These results, consequently, provide a clearly improved approach for further evaluations.



1. Polis of Olbia
2. Olbia. Vase fragment of the Chernyakhov pottery spectrum
3. Kozyrka. Jug of the Greek-Roman pottery spectrum
4. Stanislav. Pot of the Chernyakhov spectrum
5. Distribution of types of clay in the ceramic spectrum, according to scientific analyses



1

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History of settlement and regional infrastructure in the area of the Dnieper-Seversky Donets watershed, Ukraine, during the 3rd–5th century AD

During late Imperial Roman times and the beginning of the Migration period, comprehensive settlement activities took place in the expanse of the watershed between the Dnieper and the Seversky-Donets rivers, processes in which the Chernyakhov and Kiev cultures as well as nomadic Sarmatian tribes were involved. This was followed by the early Slav Penkovka culture. This project is concerned with research on the history of settlement and the landscape as well as cultural transfer in this region. Until now research has been devoted foremost to the Chernyakhov culture, which was widespread there in the 4th and beginning of the 5th centuries AD. Based on older investigations, current excavations and prospection have gained a more exact picture of settlement during this time. In some areas that have been systematically prospected through terrain surveys it could be noted that the distance between individual settlements was only a few kilometres, which implies an overall dense settlement. Habitation sites were situated mainly upon chernosem and encompassed surface areas of 2.5–17 hectares.

In view of the differences in settlement size it can be assumed that there were some individual settlements that represented the main settlement in a microregion. One such site is presumably the



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settlement of Voitenki 1, where excavations of the University of Kharkov began in 2004. These excavations are supported and the investigations there are involved in the project. Thus far, remains of several buildings, settlement pits and four pottery kilns as well as 215 cremation or inhumation graves of the cemetery have been uncovered. The site is distinguished not only by its impressive size, but also by the abundance of metal and glass finds. In addition, the position of settlement sites allows initial statements to be made about the regional and long-distance connections. The location of some settlements on larger rivers suggests connections by means of waterways. Other settlements like Voitenki lie in the area of the watershed between the Dnieper and the Seversky-Donets rivers, which is well-known as a land connection since the 16th century and which might have played this role already in the 3rd–5th centuries. Especially imported objects like amphorae, glass beakers and others are indicators of the ties that the inhabitants might have had to trade routes.



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1. Terrain prospection near Okhochee
2. Shlyakhevo 2. Surface finds from a newly discovered settlement
3. Terrain prospection in the area of Zmiyov
4. Voitenki, settlement. Piles of pieces of daub.
5. Voitenki. Finds from grave 96
6. Voitenki. Grave 96



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CAUCASUS





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52 Andrea Ricci

A Neolithic landscape in the Southern Caucasus – Research in the Mil Plain, Republic of Azerbaijan

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■ Funding provided by

German Research Foundation (DFG) / Agence Nationale de la Recherche, programme: Kura in Motion



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Begun in 2009 and continued since 2010 within the projects “Ancient Kura” and “Kura in Motion”, this research in the Mil Plain is devoted to the investigation and study of Neolithic and later sites, which emerged around 6000 BCE and represent the earliest sedentary settlement in this region. The focus of the investigation is directed towards questions about human-environmental dynamics since the beginning of sedentism and is enhanced by a comprehensive programme of scientific methods. Thereby, several settlement sites located in close proximity are being investigated.

The site of Kamiltepe is a visible settlement mound, whose construction is grouped around a monumental circular platform built of hand-shaped mud bricks and whose function remains a puzzle as of yet. The attendant archaeological finds comprise handmade, distinctively painted pottery, which has parallels in northwestern Iran and along the southern coast of the Caspian Sea.

A second site, MPS 4, dates a few hundred years earlier and displays a complex consisting of four concentric ditches. Transverse walls divided the ditches into sections of differing functions. Some sections lack any finds, whereas others yielded a rich inventory, possibly of domestic character. Discovered in the latter sections were – among oth-

ers – small schematic clay figurines and a larger human figure with incised and jabbed decoration. A circular structure preserved between the ditches represents an older building phase. Here, thousands of shell fragments from the Caspian Sea and small drill heads made of flint attest the production of disc-shaped beads out of shell. A third site is MPS 5, a shallow mound displaying a dense construction of mud brick houses, in which a number of schematic clay figurines were found.

The sites lie in close proximity, yet are temporally distinguished, each representing only a short span of time within the 6th millennium BCE. Whether or not the individual phases derive from their brief use during certain seasons of the year, or from a change in location after a short time – for example, due to a decrease in soil fertility – cannot be determined yet. Inhabitants of the Mil Plain made use of a broad spectrum of domesticated animals and plants; wild natural resources were not selectively used. One particular kind of wild game was the little bustard (*Tetrax tetrax*), a migratory bird present in the southern Caucasus. Some bones of sturgeon were also found at Kamiltepe, indicating that large fish were consumed there.



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1. Kamiltepe, view from the West towards the façade of the mud brick platform, ca. 5500 BC

2. Kamiltepe, charred seeds of barley, Neolithic

3. Kamiltepe, painted ceramic bottle, ca. 5500 BC

4. Kamiltepe, bird bones of a little bustard, ca. 5500 BC

5. Site MPS 4, shell fragments, semi-finished pieces and silex drill heads from the bead workshop, ca. 6000 BC

6. Site MPS 5, schematic clay figurine, ca. 5600 BC



1

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■ Funding provided by

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Recherche, programme: Kura in
Motion

Kura in Motion, Aruchlo: A settlement of the earliest farmers in the Southern Caucasus

The spread of rural agriculture in the Southern Caucasus transpired at the beginning of the 6th millennium BC, according to the present state of knowledge. Settlements established at that time are characterised by circular structures, which were repeatedly renewed or built completely anew, so that consequently a settlement mound gradually arose. The mound at Aruchlo lies only a few hundred metres north of the terrace in a meadow landscape, where the rivers Chrami and Mašavera converge and then flow into the Kura River at the border to Azerbaijan.

Recent excavations there, ongoing since 2005, have brought forth important new recognitions about the construction history on the mound. Houses were built of plano-convex, unfired mud bricks, which were made either of brown or yellow clay. A regularity in the use of brown or yellow clay could not be recognised. The walls of the structures were finally covered with plaster up to 2-cm thick. Excavations enabled the history of house construction to be followed in detail.

According to the present state of dating, the oldest structure dates to the time of 5877–5731 calBC, while the youngest structure was erected between 5472 and 5296 calBC. The inhabitants' subsistence was based on domesticated animals like



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cattle, sheep/goat and pigs. Emmer was the predominant grain.

A great number of stone artefacts served a wide variety of activities. There were relatively standardised, large basalt mills, which were likely made by specialists, along with numerous river pebbles, whose form had been specifically sought out. By contrast, all blades used as knives and sickles were made from obsidian, which occurs at Lake Paravani, 70 km north of Aruchlo. The pottery repertoire comprises simple open forms, some of which can display knobs or even anthropomorphic motifs.

The greatest surprise during the past four years was the identification of at least ten ditches, which had been dug into the settlement layers and soon after filled with debris. The meaning of these ditches has not been resolved yet. They could have served for unknown practical reasons, but just as well for ritual purposes. They did not function as defence or irrigation measures. As a rule very little pottery was found in the ditches; on the other hand, relatively many axes and other tools made of antler, for example, the characteristic spoons, were recovered.



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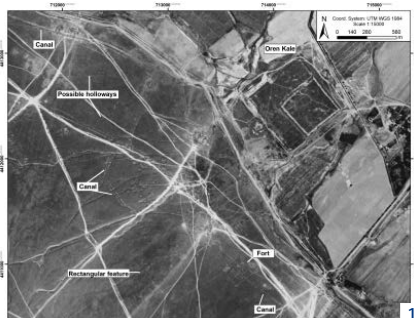


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1. View of the settlement mound
2. The largest clay vessels are ca. 40 cm high
3. Houses built of brown bricks
4. Spoons made of antler
5. Ditches and round buildings in summer 2015



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56 Andrea Ricci

Landscape investigations in the Southern Caucasus

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■ Funding provided by

German Research Foundation (DFG) / Agence Nationale de la Recherche, programme Kura in Motion

National Geographic Society – Northern Europe Grant, for research on irrigation systems

Since 2010 geoarchaeological investigations have been undertaken in the environs of the Neolithic sites of Kamiltepe in the Mil Plain in Azerbaijan and Aruchlo in the Republic of Georgia. Through the implementation of remote sensing data such as satellite images, followed by intensive ground surveys on foot or on horseback crucial knowledge could be gained about the cultural landscape of these regions.

In the Mil Plain, a total of 174 sites have been so far documented. A great number of them dates to the 6th millennium BCE. The majority of these late Neolithic occupations are small shallow mounds, located preferably along watercourses, often at a distance of ca. 1–2 km from one another. Test trenches at site MPS 103, Imamqulu Tepe, revealed Neolithic architecture directly below the surface with standing storage vessels in situ and one burial of a child. A large piece of obsidian weighing 12.7 kg found at MPS 90 underscores supra-regional networks in the distribution of raw materials; namely, this obsidian stems from the Lesser Caucasus.

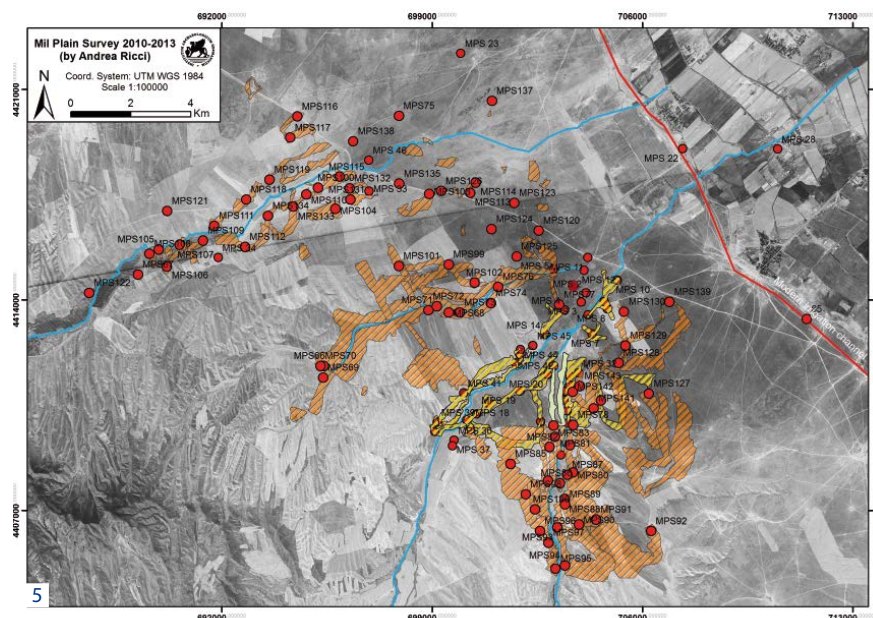
Several sites of the 6th millennium BC, contemporary with Aruchlo, were documented in the Kve-mo-Kartli region, as well as further settlements dating to ancient and early Islamic times.

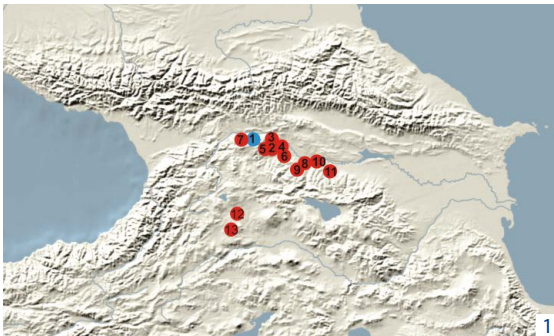
In addition, satellite images of the Mil Plain show



large linear features, behind which ancient water channels and roadways are concealed. The region was intensively irrigated as of the Sassanid times, and individual settlements grew into cities; as of the 8th century AD at the latest they were fortified. Spectacular finds such as a hoard found at MPS 90 containing 580 copper coins dated to the end of the 11th century AD demonstrate the wealth of the medieval cities. Ören Qala expanding over 36 hectares was one of these local medieval regional capitals. The city was supplied with water by means of large and deep canals that required constant maintenance. Most likely, the canal remained in use until the Mongol invasion in the 13th century AD, when also Ören Qala itself was abandoned.

1. *Ören Qala and surroundings, image of the Corona Satellite DS1110, May 24, 1970*
2. *Surveying the Mil Plain on horseback*
3. *Site MPS 90. 585 coins of the 11th century AD*
4. *Excavation section through an ancient irrigation canal*
5. *Sites and areas in an image of the Corona Satellite DS1110, May 24, 1970*





Investigations on the development of domestic architecture in the Southern Caucasus during the 6th to 3rd millennia BC

1. Distribution of the Šomutepe-Šulaveri culture: 1 Aruchlo I
- 2 Shulaveris-gora;
- 3 Imiris-gora;
- 4 Gadachrilis-gora;
- 5 Dangreuli-gora;
- 6 Khramis Didi-gora;
- 7 Mashaveras-gora;
- 8 Shomutepe;
- 9 Toyretepe;
- 10 Gargalar-tepesi;
- 11 Göytepe;
- 12 Artashen;
- 13 Aknashen-Khatunarkh

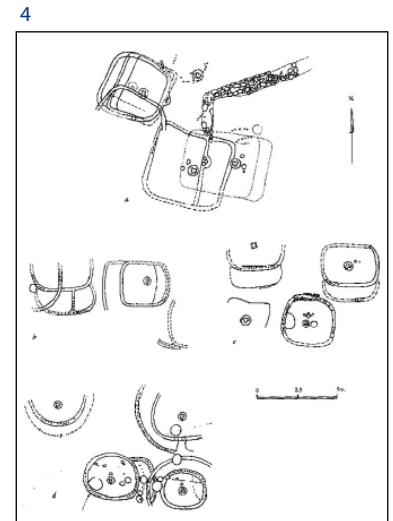
The beginning of the Neolithic way of life in the southern Caucasus is associated with a cultural phenomenon that is known among researchers as the “Šomutepe-Šulaveri culture”. The principal point of the culture’s dissemination lies on the middle course of the Kura River. One of the largest settlement sites of this cultural group is Aruchlo I, where the Eurasia Department has undertaken archaeological investigations since 2005. Discoveries concerning house architecture in Aruchlo I have enabled fully new insights in construction methods and settlement structure of the Šomutepe-Šulaveri culture to be attained. Concerned here are circular structures built of plano-convex mud bricks and arranged like a honeycomb next to one another so as to form a whole complex of houses. For the first time the use of wood and other organic material could be attested. Furthermore, it could be shown that the construction of Šomutepe-Šulaveri settlements was more dense than hitherto thought. Typical for the earliest settlement phase in the neighbouring Mil and Mugan steppes are mostly rectangular structures, but some round mud brick structures were present too. This phase is represented by recent research of the Eurasia Department in Kamiltepe and its surroundings. The marked differ-

ences in material culture can be deduced as due to differences in social development. The differences in architecture are possibly due to different functional or social factors.

The subsequent period, the Chalcolithic, in the Southern Caucasus has received little attention in research until now and has not been adequately defined. It has been suggested that Chalcolithic sites contrary to Neolithic settlements were mostly single-phased. Circular structures appear at the same time as rectangular ones. Furthermore, the first buildings with several rooms appear. Building material consists mainly of mud bricks or pisé (rammed earth).

The Kura-Arax culture of the Early Bronze Age signifies a remarkable cultural upheaval throughout the entire southern Caucasus. The founding of new settlements and the enormous expansion of settlement areas as of the last quarter of the 4th millennium BC is associated with the use of various ecological resources, a variety that is clearly reflected in the architecture. The architecture of the Kura-Arax culture is marked by a multiplicity in ground plans and building techniques and displays a strongly regional character: post-frame houses with wattle-and-daub are typical in the regions Šida Kartli and Javakheti, whereas mud brick buildings predominate in other regions of the Southern Caucasus. In mountainous areas stone is mainly employed as building material, seldom bricks.

The aim of this project is to present the development of house forms, building techniques and settlement concepts in view of the economic activities, cultural organisation and social structure of prehistoric population in the Southern Caucasus. Further, the project intends to reconstruct the appearance and of the function of archaeological building contexts with the aid of morphologically and technically comparable ethnographic examples.



2. MPS 4. Circular structure
3. Aruchlo I. Circular structure X and building complex III
4. Khisanaant Gora



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Excavations at the Maikop-period burial mound "Marfa" in the Northern Caucasus

In the summer of 2012 research was undertaken at the large kurgan of Marfa within the framework of a partnership between the Eurasia Department and the Institute for Preventive Archaeology and Cultural Heritage 'Nasledie' (Stavropol). At first, geophysical prospection was conducted in order to gain an idea about the construction of this monument.

In 2013, in addition to work at the kurgan, for the first time in the northern Caucasus investigations were carried out in the immediate vicinity, the so-called periphery. Thereby, two encircling ditches, a surface paved with earthen blocks, traces of ritual activities and even graves were discovered. Likewise for the first time in the northern Caucasus it could be proven that this kurgan was not composed simply of heaped-up earth, but instead represents an architectonic structure: the mound was built of layers of earthen blocks and then covered with two layers of grass sod. These observations in the field were confirmed by pedological investigations and laboratory analyses. On the north side of the kurgan remains of a room were uncovered, which consisted of three walls of earthen blocks and a partly preserved floor paved with earthen blocks.

The oldest graves in the kurgan belong to the Maikop culture. They were superimposed by a group



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of graves of the North Caucasus culture and the Catacomb culture. Similar to graves of the Maikop culture, most of the latter two were built over by constructions of stamped earth. The kurgan held 60 burials, representing the entire Bronze Age in central North Caucasus. The publication of the excavation results is now being prepared. Furthermore, palaeoanthropological, genetic and other laboratory analyses are planned. 14C-datings of the graves enabled us to establish the absolute chronology for the northern Caucasus, which has been lacking until now.

1. Marfa kurgan. Catacomb burial. Ram Figurine.
2. Surface, plastered with earthen blocks.
3. Burial. Majkop-culture.
4. Burial. North-Caucasus-culture.
5. Burial. Catacomb-culture.
6. Geomagnetic image



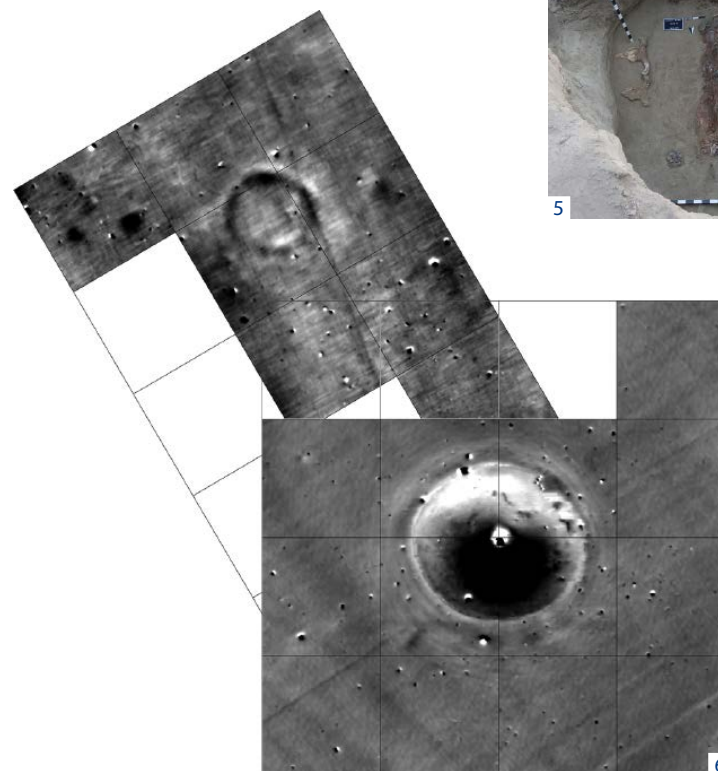
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■ Funding provided by

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BIOARCAUCASUS – Bioarchaeological studies of Bronze Age populations in the North Caucasus (Russia)

Bioarchaeological research focusing on the human body as an archive of historical information is a rapidly growing field in archaeology. The analysis of stable isotopes stored in the human bones reveals aspects of human diet and lifestyle beyond the reach of archaeology or even classical physical anthropology. Nevertheless, cultural techniques, social practises and daily routines result in traces of activities, e.g. in form of skeletal markers, and a modern palaeopathological focus can enlarge the information about such activities, the health and demographic conditions of a population considerably. New research in the genetic ancestry of modern populations advance bioarchaeological information to whole populations and open entirely new questions for archaeological research.

Using excellent material from case studies in the Northern Caucasus, an international and multidisciplinary research group headed by the Eurasia department started pilot projects in this new field of research. The key approach is to combine novel bioarchaeological data such as information on stable isotopes or ancient DNA and archaeological information in order to add a new level of information to ongoing debates about subsistence and mobility in the Eurasian steppe zone. The project will be among the first studies on representative

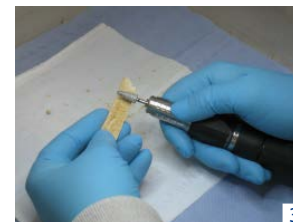
archaeological material from a variety of Bronze Age cultures in the North Caucasus and beyond. It will provide new insights into subsistence patterns, mobility and also migration in the steppe based on a representative dataset, thus going far beyond existing case studies.

Caucasia has always been a bridge linking the civilisations of the Near East and Eurasia. In the Bronze Age, the Caucasus played a crucial role as a source of metals and as an area of transfer of technological and social innovations into the steppe and Europe. Hundreds of generations have left a vast number of burial mounds in these areas. The North Caucasus is a crucial study area, since it unites aspects of steppe and non-steppe environments and has been an important region in the development and transfer of new ideas and technologies in Eurasia. Targeted isotope analyses of modern and archaeological environmental samples will help to characterize regional variation of carbon and nitrogen isotope ratios. As a result, isotopic maps, so called 'isoscapes', will be subsumed, which can be used as background information for the interpretation of data from humans, who probably once lived on and from the land in the vicinity of their burial places. This will introduce light stable isotope analyses in the area beyond dietary reconstruction, help to identify non-local individuals in burial communities, and widen the methodological canon of mobility studies.

The study of ancient DNA from Bronze Age sites in the Caucasus will incorporate this geographically important bridge between the Near East, Eurasia and Europe in the actual studies of prehistoric genetic ancestry. The combination of bioarchaeological and archaeological perspectives can answer questions about the dispersal of ancient populations and shed light on individual relationships amongst the prehistoric people buried in one monument. Moreover, it also challenges many paradigms of the humanities as such.



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1. A typical burial mound in the North Caucasus

2. Sampling for DNA analysis

3. Preparation of isotope samples in the laboratory

4. Skeleton from a North Caucasian Bronze Age burial



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Landscape archaeology in the Caucasus – Multidisciplinary studies on the oldest pasture economy of the Old World

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■ Funding provided by

German Research Foundation (DFG)

Caucasia is one of the most multifaceted cultural landscapes in western Eurasia. Today most of the higher mountain ranges of North Caucasia are not inhabited, and only seasonally mountain pastoralists drive their herds into these remote areas. Yet, during the 2nd millennium BC an important cultural landscape emerged there, whose population presumably created the hitherto oldest known combined mountain economy system in the Old World. The reorganisation of sedentary populaces in the early 2nd millennium BC after a longer period of a mobile way of life is one characteristic of Late Bronze Age societies of Eurasia. Signs of this change are permanently inhabited settlements with complex stone architecture, one spectacular representative – the monuments near Kislovodsk. This landscape was unknown until 2006, when a systematic surveying program was initiated by the Eurasia Department and the Russian cooperation partners. By means of modern remote sensing methods more than 200 settlement sites and 80 other archaeological features could be recorded. All of the sites are located at heights of over 1400 metres on a flat, high plateau. Geophysics, an innovative analysis of soil microorganisms, and excavations enabled the identification of functional areas in places and buildings, thus confirming the

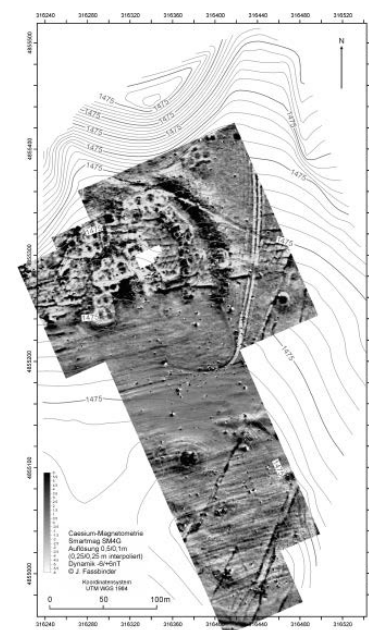


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existence of multifunctional living-stall houses. The characteristic form of mountain settlements is perfectly adapted to an economy focused on raising livestock. The large houses are grouped in a circle around an open space. They form small villages, in which herds of livestock could be kept in a central place or inside the dwellings with partitioned stalls. Investigations on the whole have shown that intensive settlement in the mountains as of the 14th century BC was an enduring, dynamic process between the mountains and the steppe. As early as the 3rd millennium BC the mountain area was already regularly visited by mobile groups of people. During the mid 2nd millennium BC some of these groups became sedentary and built the first linear settlements that were still in the tradition of mobile architecture. These initial settlers presumably came from the North Caucasus piedmonts and partly from the lower Kuban or Don River catchments. Settlement of the high plateau was at a peak from the 14th/13th until into the 10th centuries BC. The development of a classic combined mountain-pasture economic system, in which livestock was kept in settlements during the winter and herded to mountain pastures during the summer, likely led to the enormous increase in the population. The reason why the populace did not settle in the valleys at that time as well is still unclear, despite intensive research. Only at the turn to the 1st millennium BC settlements start to emerge in all neighbouring valleys. Recent studies by Russian colleagues show that the inhabitants of these new settlements in the valleys practiced intensive crop cultivation.



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1. The high plateaus of the Greater Caucasus range. In the background Mount El'brus, 5642 m asl
2. Two-room living-stall house in the settlement of Kabardinka 2
3. Magnetometric measurement of the settlement Kabardinka 2 and the nearby burial mounds
4. The settlement of Pokunsyrt 13, view from the opposite slope and an aerial view



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Bronze Age ritual causeways on the Trialeti Plateau

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The Trialeti mountains of the Lesser Caucasus gave their name to a Bronze Age culture in the southern Caucasus, the Trialeti culture, which is synonymous with the Middle Bronze Age (ca. 2500–1700 BC) as well.

This range is distinguished by its varied relief, encompassing high mountains and high plateaus. One larger geographic unit is the 1500–1900-metre high Tsalka plateau, which is divided into several valley basins. The largest of the basins is that of Beshtasheni, which holds the reservoir of Tsalka. Before the basin filled with water, in the 1930s B. A. Kuftin documented dozens of monumental, richly furnished grave mounds (kurgans) and excavated some of them.

As a consequence of a drop in the reservoir's water level in the 1990s, the kurgans already excavated by Kuftin became accessible once again, and also graves unknown until then. Thereby, a wholly novel discovery was made of paved and precisely oriented roads, which led to some of these "grave complexes". In one particular case the "ritual or processional street" was 356 m long and up to ca. 6 m wide. Aside from the "streets", there were further constructions that belonged to the interior (wood and stone structures) and to the exterior (stone circles, so-called cromlechs, or rectangular enclosures) of the burial complexes.

Thus, it can be assumed that represented here are not only burials but also cultic buildings.

In order to study these find contexts, the smaller kurgan no. LI (diameter 16 m, width of the stone circle 4 m) was chosen as an example and the street associated with it was excavated. Directed precisely East–West, the "ritual street" is ca. 4.50 m wide and observable today to a length of ca. 30 m. Thereby, what is actually visible are the basalt blocks that formed the foundation of the causeway, which linked up with the outer stone circle around the kurgan. In view of the finds, the burial complex was probably constructed in the early Middle Bronze Age (ca. 2500–2000 BC).

Future tasks will be to clarify whether the streets – here the structured road – led from this world to the after world, upon which deceased members of the upper class in society had to journey. Further, whether the constructions are actual burials in the strict sense, or do they represent commemorative or ceremonial complexes, to which the burials were related.



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1. Kurgan LI, Tsalka Plateau, Trialeti

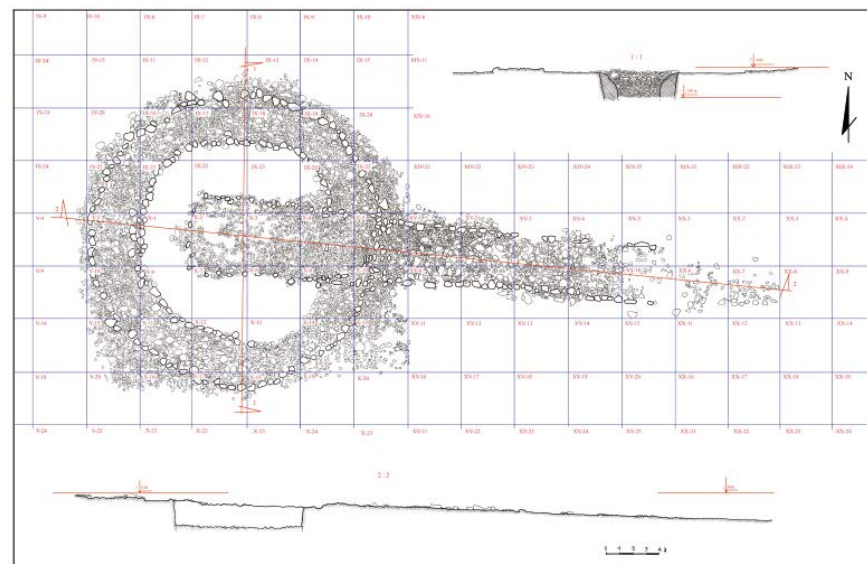
2. Kurgan LI, Middle Bronze Age pottery

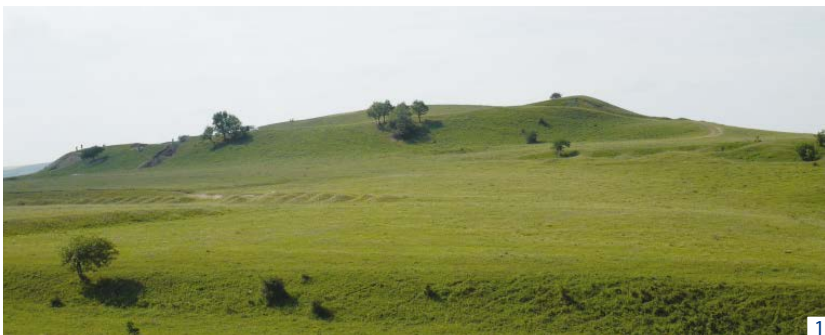
3. View of kurgan I from kurgan IL

4. View on the road towards kurgan IL

5. Plan of kurgan LI

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■ Cooperation partner

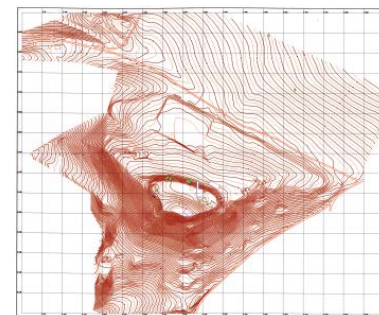
Prof. Dr. Konstantin Pitshelauri
Archaeological Institute, Georgian
National Museum of History,
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Excavation of a multi-layered settlement of the Bronze and Iron Age: Takhti Perda, Kakheti, Republic of Georgia

Kakheti, the easternmost region of Georgia, is a large settlement chamber, divided in south by the Iori River and in north by the Alazani River; it has an abundance of fertile soils, natural resources and also archaeological material. Important travel routes run through Kakheti, connecting the Eurasian steppes north of the Greater Caucasus with countries in Asia Minor and Central Asia. Thus, this landscape is predestined for interdisciplinary lines of archaeological inquiries concerning, for example, the utilisation and distribution of the abundant raw materials in the Caucasus, or the interrelationships in Antiquity between peoples of the Caucasus and their neighbours. Archaeological investigations at the multi-layered, prehistoric site of Takhti Perda, located near the county seat of Dedoplistskaro, served for addressing these inquiries as well as for clarifying chronological problems. According to the results gained until now by excavation, prospection and geophysical surveys, the site was occupied in several phases over a longer time span, from the late Middle Bronze Age into the older Iron Age (ca. 16th–7th centuries BC), a settlement context that is almost unique for this region and even farther beyond. In the initial building phase, likely during the late Middle Bronze Age (middle of the 2nd millennium

BC), a wooden palisade was erected on the north side of the natural hill of Takhti Perda, but built over by a mud wall in a later phase. In the Late Bronze Age (ca. 12th/11th century BC) a wood-and-mud wall was erected along the northern upper rim of the hill; it was destroyed later during a conflagration. In the older Iron Age a stone wall (core masonry) was constructed around the hill, probably to reinforce the slopes of the hill. Furthermore, during this time at the latest (10th–7th century BC), the terrain to the north in front of the hill was settled and a cemetery was created.

The abundant finds of pottery and stone and metal artefacts recovered have analogies not only in the immediate area, but also at sites in northern Azerbaijan, Shida Kartli (Georgia) and northern Armenia. Due to its strategically favourable position, Takhti Perda was likely a central site in the region and in addition was topographically linked with the sanctuaries on Gokhebi Mountain and on Mount Elias.



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1. Settlement mound of Takhti-Perda, view from the northwest
2. Iron Age vessel found in a grave
3. Takhti-Perda, Bronze Age vessel found in a burnt layer
4. Find context of an Iron Age wall
5. Plan
6. Iron Age sword found in a grave
7. Aerial view of the site of Takhti-Perda



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70 Tobias Mörtz
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Tabakoni – A Bronze and Iron Age settlement mound in Central Colchis

■ Project director

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■ Cooperation partner

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■ Funding provided by

Alexander von Humboldt Foundation

The Eurasia Department Berlin in cooperation with Sokhumi University in Tbilisi has carried out archaeological investigations at the settlement mound “Tabakoni” near the village Torsa (district of Zugdidi) in western Georgia every year since 2011. The site is located on the alluvial land of central Colchis between the rivers Enguri and Khobi, at a distance of ca. 12 km from the eastern coast of the Black Sea. The aim of this field work is to establish more precisely the chronological division of the Bronze Age, the so-called Colchis culture, by means of stratigraphic observations and radiocarbon datings and to gain knowledge about settlement structure.

The almost circular mound of Tabakoni has a diameter of 45 m and rises ca. 2.90 m above the surrounding, marshy terrain. Excavations were carried out in six trenches of different sizes in a total area of 112 m² in the central and south-western part of the elevation. The finds comprise foremost pottery fragments, and also pieces of grinding stones, silex artefacts including denticulates and arrowheads, and various forms of clay spindle whorls. In addition, fragments of bronze were found, and in the uppermost layer, dated to the 5th/4th century BC, objects made of iron as well. Late Bronze Age vessels are characteristi-



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cally decorated with complex incised and grooved motifs, while older pottery display only finger-tip-impressed cordons and a more-or-less strong black polish.

Like other comparable sites, the individual settlement horizons dated to various epochs in Tabakoni are separated by empty – albeit not sterile – layers of earth, which are indicative of a periodic use of the site. The mound was occupied all together, with interruptions, from the end of the 3rd millennium until the middle of the 1st millennium BC and, thus, encompasses the entire span of the “Colchis culture”. As of yet no log buildings, as in Anaklia and Nosiri for example, have been attested. However, large scattered amounts of burnt wood as well as massive agglomerations of daub indicate that similar constructions were indeed present.

Due to the extremely poor preservation of bone material, the discernment of Bronze Age economy is unfortunately very limited. In one place at least a large accumulation of burnt seeds of millet (*Panicum miliaceum* L.) could be documented and retrieved for analysis.

This research is meant as practice excavations and intended to acquaint students at Sokhumi University with archaeological field work.



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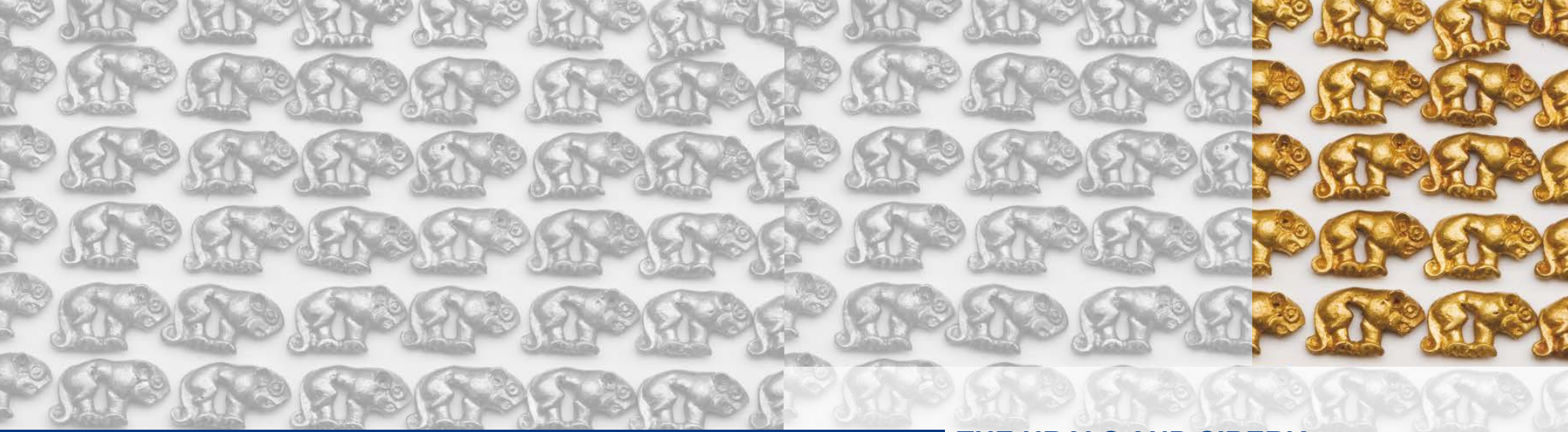


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1. The settlement mound Tabakoni, view from the Northeast
2. Finds of charred seeds of millet at the edge of a Late Bronze Age mass of daub
3. Denticulate silex insert of a composite sickle
4. Reconstructed upper part of a vessel found in settlement layers of the Late Bronze Age
5. Silex arrowheads



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THE URALS AND SIBERIA





1

74 Henny Piezonka

8000 years of the development of cultures in the northeast European forest zone: the key site of Vëksa, Russia

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■ Funding provided by

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The site of Vëksa in northwestern Russia is indeed a fortuitous case in research. With its massive package of cultural layers of several meters' height and the extraordinary state of preservation of organic material, the site enables a reference chronology to be developed for prehistoric cultures and the history of environment in northeastern Europe that covers a time span of more than eight millennia. Here, basic archaeological studies need to be undertaken, for knowledge about prehistory in the immense region between the Ural Mountains and the Baltic Sea, the North Sea and the area of the Volga River is – in contrast to Central Europe – still very sketchy.

Vëksa is located ca. 400 km north of Moscow on an important river confluence and in the vicinity of the European watershed. Therefore, this area was continuously a focal point for settlement ever since the Neolithic period. The archaeological stratigraphy there comprises up to 15 cultural horizons, amounting to a total thickness of some 3 metres. The cultural layers lie within floodplain sediments, indicating riverside settlement. The find complexes start in the first half of the 6th millennium BC. All in all the layers contain material from the Stone, Bronze, and Iron ages and also the Medieval period. Built structures were discovered arranged in a

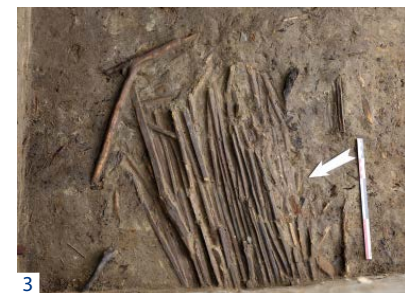


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row along the river bank, which can be dated to the oldest settlement phase in the 6th millennium BC. Settlement structures with post-framework stem from the Stone- and Bronze Age. Early Iron Ages remains in Vëksa encompass the largest settlement area known in the north of European Russia and date to the 7th–6th century BC. One particular complex represents a field of posts, comprising more than 1800 examples documented at the river bank. The posts dated until now attest a date of around 3000 BC.

Today the existence of this singular monument is acutely threatened by riverbank erosion. Therefore, since 2015 the Eurasia Department together with the Museum Vologda have made the site of Vëksa accessible as a central reference point for the cultural development in pre- and protohistoric times in the region. The contextual focal points are on the transition from a hunting to farming way of life, the development of settlement structure, the spread of technical innovations (early ceramics, metallurgy) and the reconstruction of supra-regional cultural contacts.

The massive archaeological layers are being investigated in new excavation trenches, using modern multidisciplinary methods. The aim is to link archaeological and environmental data for the first time in this region. Geoscientific, archaeobiological and biomolecular investigations are employed in the reconstruction of the environment and of land use as well as the development of economy and diet. By sampling the abundant, well-preserved timbers a local dendrochronological curve will be created. During the 2015 and 2016 campaigns wooden remains in excellent condition were found in the area of the river bank, including fragments of fish traps and post constructions of different periods. Future field work will further investigate the character and the extent of these valuable wetland complexes. Since October 2016 the project has been run from the Institute of Pre- and Protohistoric Archaeology of Kiel University, based on an ongoing intense cooperation with the Eurasia Department.



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1. Stone Age wooden posts on the banks of the Vologda during the time of low water level, autumn 2011
2. Surveying the wooden posts preserved under water, summer 2015
3. Remains of a fish trap made of wooden slats, found in trench 2 in 2015
4. The massive package of layers exposed in trench 1 in 2015 comprises eight millennia of cultural development
5. Excavation of trench 1, Vologda River, summer 2015



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76 Sabine Reinhold

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■ Funding provided by

Russian Foundation for the
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Tartas 1 – The largest Bronze Age necropolis excavated in Siberia

The burial site of Tartas 1 in the Baraba forest steppe of Western Siberia is one of the most fascinating sites in Eurasia. Situated on a slight hill along a river bend of the Om', Tartas 1 and the opposite burial ground of Sopka 2 form the centre of a burial tradition that lasted for more than 4000 years. Tartas 1 has been excavated in a joint Russian-German project since 2004. Thus far more than 650 burials have been excavated, together with more than one thousand pits belonging to ritual or domestic structures.

The burial site started during the Early Bronze Age Ust' Tartas and Odino cultures, yet the majority of burials so far date to the Andronovo (Fëdorovo) culture, i.e. the regional Middle Bronze Age. A stratigraphy of eleven burials in a small area excavated in 2010 enabled the first definition of a stratigraphic sequence of Bronze Age burials in Western Siberia. A large series of radiocarbon dates from Tartas 1 and neighbouring burial sites provide valuable chronological information for the region. Thanks to this sequence, for the first time it was possible to correlate the chronological framework of Western Siberia, the Altai, the Urals and Eastern-Central Russia.

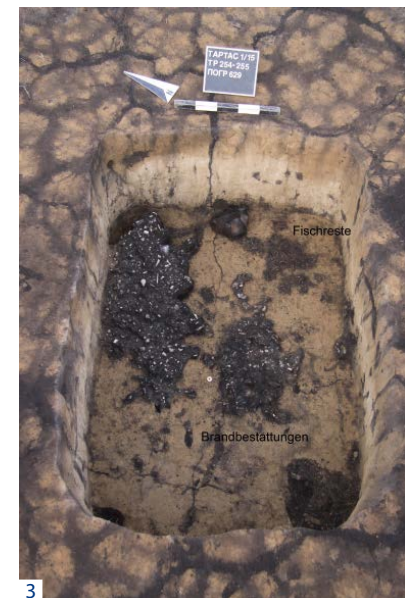
The graveyard was discovered in 2003 by chance. Magnetometric measurements revealed a huge area of burials and other features extending more



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than one-half kilometre. All burials are part of long rows of graves oriented roughly North to South. As of 2015 an Andronovo area some 150–200 meters from the river is being excavated. The burials with inhumations in a crouched position are situated among cremation burials, which seem to form clusters. The Andronovo graves were frequently targeted to be opened shortly after burial, a fact that can either be related to grave robbing or a specific burial custom. Finds from this period usually include ceramic vessels, some made with high proficiency, bronze adornments and rarely weapons. Fish is a frequent part of the grave offerings, perhaps not surprising in a landscape dominated by small watercourses and lakes, but usually not detected (or not present?) in graves. The Andronovo population is seen as an intruding group from the South based on a pastoral economy, nevertheless mixing with local Late Krotovo settlers over the course of several centuries. Perhaps due to this intercultural adaptation, fish became an important part in the burial ideology of this site, resulting in the fact that nearly every fifth Andronovo burial at Tartas 1 included some fish remains. The impact of fish in daily nutrition is planned for future study using stable isotope analysis.

Settlement remains at the site of Tartas 1 include a semi-subterranean house of the Early Bronze Age Odino culture. In 2015/16 more probable settlement features were uncovered. Two rectangular semi-subterranean houses were surrounded by several huge pits, dug to 3.5 meters' depth in the solid sandy subsoil. The houses disclosed rich inventories of Neolithic date. These features belong to an increasing number of Neolithic sites excavated in the last years in the vicinity of Tartas 1; however, their absolute dating is under discussion. The contents of the pits were surprising: In several layers the remains of fish, birds and mammals were found. One pit held the skeleton of a dog and a wolverine. Excavations at Tartas 1 are ongoing; results are annually published in short excavation reports in Russian and English.



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1. Baraba-Steppe (Russia), Tartas 1. View on the river terrace with the burial ground
2. Andronovo ceramics from burials of the campaign 2015
3. Tartas 1 (Russia). Andronovo grave 629, cremation burials with fish remains. The vessel contained fish remains as well
4. One of the Neolithic pits with two animal skeletons at different levels



IRAN, AFGHANISTAN AND PAKISTAN





1

Lithic industries in Iran during the 6th–3rd millennia BC: Studies on technical developments and craft organisation

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The aim of this project is a comprehensive analysis of the technical development of the stone-tools industry in Iran from the 12th to 3rd millennium BC. The main thematic emphasis will be on diachronic developments in lithic production in Iran, in particular as seen against the background of processes in Neolithisation. Thereby, basing on technological styles, innovations and their dissemination, various paths of communication are representable. Further emphasis will be on the detailed observation of the spread of the industry of large blades during the late 4th and beginning of the 3rd millennium BC.

During the transition from the Epipalaeolithic to the Early Neolithic period (12,000–8000 BC) a new technology in tool production was established: the pressure technique, which spread widely from the Zagros Mountains as far as regions bordering Iran in the East (Turkmenistan and Uzbekistan). To the West the Zagros apparently formed a “technological boundary” between large-blades industry of the preceramic Neolithic period (PPNB) and the microlith industry in the East. Yet marked relationships are manifested in other archaeological material, such as the earliest pottery, figurines, and architectural and ritual forms.

At the same time significant differences are noticeable in production processes as well as in the

spectrum of tools, which can be defined as a technological habitus. It is of special importance that the spectrum of production techniques that result in the same tool form became increasingly broader. Thus, it was created from a variety of technological methods. Thereby, already existent technological procedures were modified, and the importance of traditional forms of tools changed. Such patterns are especially identifiable in Late Neolithic and Early Chalcolithic inventories from the Iranian Plateau. Therefore, an indigenous Neolithic tradition that emerged on the Plateau can be assumed, a picture that stands in complete contrast to the absence of finds in the Early Neolithic.

The Chalcolithic period (5th millennium BC) is marked by a differentiation in stone-tool industries, spatially and technically. Debitage is no longer present in settlements; instead, actual production sites appear at the site where the raw material occurred. Blades were produced in a standardised way. Furthermore, different kinds of specialisation in certain production and organisation procedures can be noted in individual settlements. This far-reaching change also extended beyond the former “technological boundary”, the Zagros Mountains, in northern Mesopotamia and the Levant. With the spread of the large-blade technology – an adaption to the so-called Canaanite technology – during the late 4th / early 3rd millennium BC in Iran these relations become even more distinct.



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1. Production site of Tappe Muriyan, Kermanshah (photo, centre), located directly next to an outcrop of radiolarite
2. Silex points from Tappe Hissar (3rd millennium BC)
3. Projectile points from Tappe Ganj Dareh (9th–8th millennium BC)
4. Blades and bladelets from Tappe Ganj Dareh
5. Bullet cores of the Iranian Neolithic
6. Aceramic Tappe Ganj Dareh

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2

Tappe Pahlavan, northern Khorasan, northeastern Iran

In the summer of 2014 a German-Iranian team carried out the first systematic excavations at Tappe Pahlavan. The site is located in the Jajarm plain, a corridor between the Elbruz mountains in the North and the vast Kavir desert in the South. The surface of the site itself is littered with ceramics and remains of an intensive production of stone beads. The most recent 14C datings place the upper settlement horizon in the early 6th millennium BC. This site thus provides the earliest dates for the ceramic Neolithic period in north-eastern Iran.

Tappe Pahlavan was discovered in the course of Iranian surveys and first reported on by A. Vahdati in 2010. The site was identified as a Late Neolithic founding, and the visible surface structures and especially the stronghold-like enclosure wall were assigned to the Islamic period. In the area in the northeast of the enclosure Islamic brick vaults had been incorporated in the wall, but destroyed in modern times.

The range of finds is characterized by the prehistoric bead production. All stages of production are represented: from coarsely shaped pieces to finished polished beads. White as well as light green limestone served as the raw material. Furthermore, the necessary tools for production, such as drills and polishers were present. 90 % of all

retrieved flint tools are drills and drill points, as a rule in a heavily used or broken state.

In addition to the topographic documentation, twelve trenches measuring 1 x 1 m were installed over the entire area in order to determine the surface size of the settlement. The cultural layers that were detected in excavation trenches between the wall and the hill ranged between ca. 0.8 and 1.5 m in thickness. It is noteworthy that these layers were found only within the supposed Islamic enclosure wall, which was apparently built of two packings of rammed earth. The ruins on the settlement mound also seem to have been constructed at various times and consist of rammed earth as well as mud brick. Samples for 14C-dating were taken from an ash horizon beneath the standing walls; they date to the early 6th millennium BC. Finds of the Islamic period in the entire area are limited to small pieces of pottery, small glazed fragments and burnt mud bricks. Possibly, therefore, the whole complex can be dated to the 6th millennium BC. Furthermore, its structure would have been unusual for Islamic times.

On the whole the finds display clear ties with the Late Neolithic and Chalcolithic periods in north-eastern Iran, and can be correlated with the cultural sphere of Kopet Dag, located ca. 200 km to the East. A large part of the retrieved ceramics can be described as a local Cheshmeh Ali variant. This ware would then be ca. 500 years older than the hitherto known sequences, which as a rule begin after the mid-6th millennium BC. Moreover, Djeitun ceramics, quite characteristic for northeastern Iran and southern Turkmenistan and representative for the Late Neolithic in this region, are absent in Pahlavan. Hence, the question arises as to whether here an early Chalcolithic must be postulated, or an early manifestation of a local Cheshmeh Ali horizon.

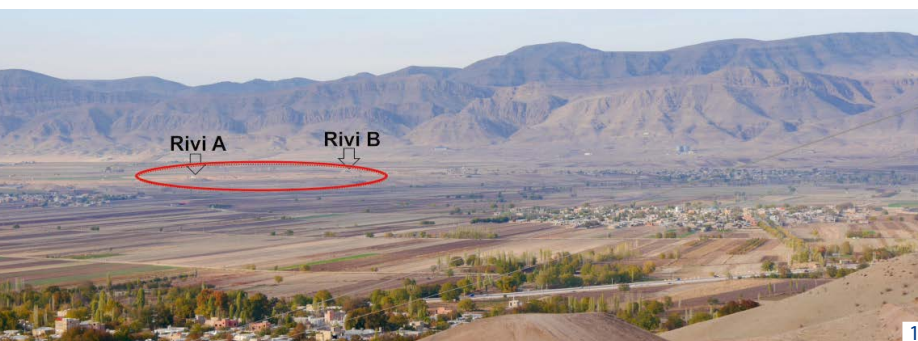


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1. The central mound within the surrounding wall
2. Painted sherds of the ware types "Cheshmeh Ali" and "Zagheh"
3. Artefacts from stone bead production: raw material and rounded-cut pieces, drilled rounded and semi-finished beads, broken beads
4. Enlarged image of a bead's surface



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The 110-hectare large area of an Achaemenid city in the Semangan Valley in North Khorasan, northeastern Iran is under the protection of the Iran Cultural Heritage, Handcrafts and Tourism Organization (ICHTO). The site, first described by E. O. Neghabahn in 2009, was thus safeguarded against intensive destruction incurred by nearby brick factories. Work of Iranian archaeologists in Rivi in 2012–2013 focused on topographical mapping and systematic surveys to determine the expanse of the ancient settlement. Trenches designated Rivi A, B and C were dug to a depth of 10 metres in the settlement mound, thus gaining a temporal assignment from the Early Iron Age II to late Parthian / early Sasanid times.

A limited collection of finds from later epochs was noted in Tappeh Rivi B in the northeast, while Iron Age II and Achaemenid material is widely distributed over the entire settlement area. Radiocarbon analyses (CEZA) comply with this distinction. Datings for Rivi A lie between 800–500 BC, whereas those for Rivi B are clearly younger (AD 250–330). The ceramic inventory comprises typical grey ware of northeastern Iran and dates to Iron Age 2–3 with similarities to the Kopeh Dagh sequence. During Achaemenid and Parthian times (Marv, Balkh) contacts to Central Asia intensified. These relations are not surprising, as the Semangan Valley is

connected with the Darband corridor by the Atrax River, which joins Turkmenian Kopeh Dagh and Central Asian oases in the East.

The cooperation project of the DAI and ICHTO in North Khorasan aims foremost at prospecting and documenting the urban area of Rivi. Along with the mounds Rivi A–C should be mentioned the ruins mound Rivi D, which has been cut through by work of brick factories, and displays a sturdy wall of 40-m continuous in length. The entire settlement area shows trenches and corresponding profiles cut by the bulldozers. A wall around the city is not visible on the surface.

Geophysical prospection has enabled a map of the ancient urban area to be made. Landscape archaeological studies in the Semangan Valley should trace ancient river courses and sedimentation processes, as well as irrigation practices and communication systems of the Iron Age and first centuries AD. Further, archaeological finds should be studied systematically. Indeed, the classification of Achaemenid and Parthian / early Sasanid pottery is a desideratum for the whole region.

The culture-technological relations of the Semangan Valley with the Iranian plateau and the Achaemenid heartland (Fars), on one hand, and the Turkmenian / Uzbekian oases and Afghanistan (Merv, Balkh), on the other hand, are of great significance for understanding the expansion of the Persian Empire.

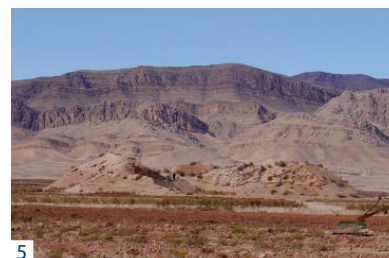
The cooperation project of the DAI and ICHTO has the perspective of studying the Iron Age in northeastern Iran and the dissemination of the Achaemenid Empire to the East. It can be propounded that the Achaemenid city of Rivi assumed a special role, “gateway to the East” during the spread of the Persian Empire. At the same time, the planned joint German – Iranian studies can be viewed as a substantial basis for research on this region.



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1. Semangan Valley from the South; in the background the settlement mound Rivi A and B; the protected urban area marked in red

2. Small finds from Rivi A

3. Ceramic finds from Rivi A

4. Tappeh Rivi A, radiocarbon datings: 800–350 BC

5. Tappeh Rivi B, Parthian / Sasanid times



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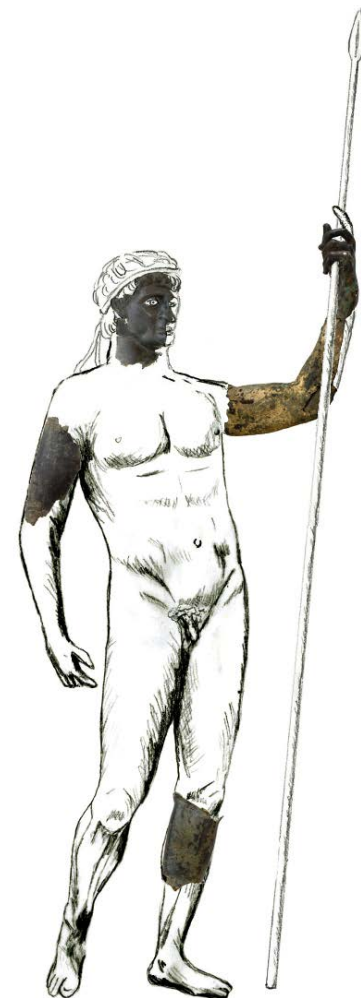
■ Funding provided by

Fritz Thyssen Stiftung

Bronze statue of a Hellenistic ruler in the National Museum of Iran

A project begun in 2015 is dedicated to a unique although severely damaged bronze statue in the National Museum of Iran. Despite its poor condition, the piece is extremely important, as it is one of very few preserved portraits from Hellenistic times. Moreover, the statue proves the spread of Hellenistic large scale sculpture in the regions east of the Tigris River, of which there is otherwise very little evidence.

The fragments of the statue were discovered accidentally in 1935 in Kal-e Chendar in the Shami valley in present-day Khuzestan (ancient Elymais), together with other bronze and marble sculptures. A brief rescue excavation six months after the discovery identified the site as a sanctuary, in view of the high-quality sculptures likely one of the most reputed religious places of ancient Elymais, at least during the Hellenistic and Parthian periods. Research has focused on the head of the statue, which was broken and deformed already in antiquity. As its size and quality indicate the portrait of a ruler, its discovery in Iran suggests that it represents a king of the Seleucid dynasty, which ruled in the 3rd and 2nd century BC. Speculations about the identity of the portrait range from Alexander the Great to nearly every Seleucid king. However, due to the strong deformation of the face it is currently impossible to determine who is represented.



The casting shows several traces of deliberate demolition, such as a deep bulge in the right cheek, obviously caused by heavy blows. Apparently the performers aimed to destroy the image as well as the memory of the ruler; an act of violence which precedes the later Roman practice of *damnatio memoriae*. To find out why the image triggered such anger and intense hate, the original facial features have been reconstructed to enable the identification of the person. For this purpose a 3D state model of the head was created using photogrammetry. The depression in the cheek cut in the nose and other bent parts were straightened in their place by means of computer graphics software. The reconstruction will be executed physically as a 3D print and presented in the National Museum at Tehran, side by side with the damaged original.

During the project five fragments were identified that surely belong to the same statue. Three fragments were joined forming an arm with the hand in the position of grasping a long item. The two other fragments confirm that the figure did not wear a draped garment. Hence, the statue of a nude ruler leaning with upraised arm on a spear can be reconstructed, which follows a well-known Hellenistic type of royal representation.

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1. Bronze portrait head Tehran

Inv.-No. 2477

2. Kal-e Chendar, Khuzestan, Iran.

View of the site from the West

3. Joined fragments of the left arm, compared to an arm of a 176-cm tall male

4. 3D-reconstruction of the head, based on the state model

4. Reconstruction sketch of the ruler statue



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Ancient mining and metal production in Afghanistan

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■ Funding provided by

Federal Foreign Office, Federal Republic of Germany

The abundance of minerals and ores in Afghanistan has long been known and was already exploited in the Stone Age. Lapis lazuli was of particular interest, Afghanistan purportedly being its sole source area, and tin too. Lapis lazuli was coveted as a precious stone, while tin was needed as a component with copper to produce bronze. The almost simultaneous appearance of tin bronzes together with gold and lapis lazuli in the 3rd millennium BC in Mesopotamia and Central Asia led to the idea that all three materials had the same origin, namely Afghanistan. Furthermore, the country has large occurrences of copper ores, which are the main component of bronze alloying, the most important technical innovation of the early metal age. Possibly this region should be viewed as the mediator of innovative bronze technology in general. Nonetheless, very little is known about the use of raw materials of Afghanistan in pre- and early history.

Today, far-reaching destruction of archaeological evidence through the economic exploitation of natural resources in Afghanistan must be taken into account, as seen for example in Mes Aynak, a site located southwest of Kabul. Efforts are being made to set up a long-term programme together with Afghan colleagues for research on early mining and for sustainable documentation and preser-

vation of culture historical monuments (particularly buildings). Interdisciplinary workshops and training are offered to Afghan scientists on subjects such as “mining archaeology”, “prehistoric metal production”, and various kinds of scientific analyses (geochemical analysis, age and isotopic determination), as well as training in special technical instruments (RFA measurements, 3D laser scanners).

Larger regions and longer time spans of Afghan history still remain archaeologically unexplored. The hitherto known evidence of prehistoric, antique and medieval mining, geological information about ore occurrences and traces of settlements should be systematically compiled in a comprehensive databank. This archive, in turn, serves as the basis for lines of inquiry in research, for example, on the relationship between natural resources and settlements, or the reconstruction of distribution patterns in minerals of Afghanistan in prehistory and historic times. Specific archaeological landscapes can be explored and mining districts chosen for taking samples for analysis, in order to gain a precise characterisation of ore deposits. If possible, ore deposits should be investigated for archaeological traces, samples of ores and minerals taken and surveys in the corresponding surroundings undertaken.



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1. 3D-laserscanning in underground galleries at Mes Aynak
2. Working with a portable XRF
3. Fragment of a silver vessel, Tepe Fullol.
4. Excavations in Mes Aynak revealed a settlement and a Buddhist monastery of the 2nd–9th century AD



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MIDDLE ASIA



1



2

92 Nikolaus Boroffka

ROXIANA – Research on metal and ceramics of later prehistory in the area between the Amu Darya Basin and the Indus River

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Archéologies d'Orient et
d'occident et textes anciens, Paris

Centre de recherches archéolo-
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centrale et orientale, Paris

Service d'Analyse des roches
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géochimiques, Vandoeuvre les
Nancy

■ Funding provided by

ANR-DFG Projekt

The German-French project is undertaking for the first time a large-scale study of selected archaeological material (metal and pottery) from Middle Asia, Afghanistan and Baluchistan, that is, the Amu Darya (ancient Oxus River) and Indus river basins. The study is concerned with the time span of the Copper-, Bronze- and Iron Age, prior to Antiquity (i.e. 5th–1st millennia BC). Cultural interrelations have long been observed between various sites, such as Mehrgarh, Sarazm, Shortugai, Sibri, Pirak, Gonur Depe and others, in a proto-urban and urban context. However, so far only a few remarkable objects made of precious metal, precious stones or exceptional ceramics have been clearly identified. Now with typological series determined in France and Germany and new decade-long excavations carried out in the above mentioned regions by the specialized teams (of DAI and CNRS-MAEE), natural scientific analyses should be more strongly included in the study. Focal points will be the local, regional and long-distance transformation and transfer of materials, technologies and object forms. Several hundred analyses of metal objects and ceramics from ca. 25 sites are in progress. Metals are analysed using neutron activation analysis (NAA), lead isotopic analysis and –

sample sizes permitting – also metallography. The anticipated results of analysis are (1) the definition of metal groups (or kinds), with indications of ore sources, (2) recognition of trade networks for metal, and (3) the definition of technological groups and the interrelationship in technology transfer. Pottery analyses will employ X-ray fluorescence (XRF), inductively-coupled plasma mass spectrometry (ICP) and petrography. The anticipated results of analysis should provide new information about local ceramic repertoires (e.g. heterogeneous vs. homogeneous; exogenous vs. endogenous), and should allow regional and macro-regional comparisons. In the case of metal, the chemical and isotopic characteristics determined should provide clues to the provenance of raw material and alloying technology. For ceramics, results on fabrics, technology and surface treatment should elucidate the extent to which technologies and decoration stood in the foreground. A definition of metallurgical and/or ceramic provinces or regions and their comparison will enable a better understanding of the technological changes and transfers throughout time, and ultimately the comprehension of the social backgrounds and mechanisms in the “Middle Asian Interaction Sphere”.



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1. Cauldron from Gonur Depe (Turkmenistan), copper-arsenic alloy
2. In Gonur Depe handmade pottery with polished design is imported from northern Iran.
3. Crucible from Gonur Depe
- 4-5. Bronze Age pottery in Molali (Uzbekistan) is wheel-made and covered with a red engobe (5), whereas handmade ware with incised decoration comes from the Steppe (4)
6. Map of the zones and sites investigated in the project



Dashly Depe, Turkmenistan

■ Cooperation partner

Dr. Aydogdy Kurbanov, Institute of Archaeology and Ethnography, Academy of Sciences of Turkmenistan, Ashgabat

The settlement of Dashly Depe is located in the village of Yzgant, ca. 40 km northwest of Ashgabat, the capital city of Turkmenistan. The site has been known since the 1970s, but was not investigated at that time.

In May 2011 the site was identified anew as being of the Neolithic/Copper Age and Bronze Age by A. Kurbanov and N. Boroffka during a joint field survey. In the following years small-scale excavations were conducted there by the Institute of Archaeology of the Academy of Sciences Turkmenistan, supported by the German Archaeological Institute Berlin. Overall the site is a tell settlement, visible on the surface as oval in form, oriented North–South, ca. 3 m high and extending over an area of ca. 100 x 150 m. It can be assumed that the settlement area is larger in the deeper levels, as massive colluvium was observed in the surroundings, which likely covers large parts of the settlement. So far a stratigraphic sequence could be excavated in the central (partly destroyed) part of the tell, which at present is ca. 5.3 m deep, without reaching the sterile ground. The uppermost Bronze Age layers were destroyed through various earlier work and pottery from this period is found only on the surface. Several older stages with architecture of unfired rectangular mud bricks are clearly recognisable.



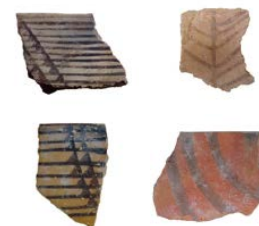
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Pottery of the Neolithic and Copper Ages that has been recovered in all layers until now is handmade and sometimes painted. A succession of motifs from filled triangles, the 'tree-of-life' motif and arcs, as known in the late Dzheitun time, to triangles with curved sides emerging out of horizontal lines (Namazga I) and on to more complex patterns (Namazga II–III) is quite clear. The Bronze Age ware found on the surface, in contrast to the older pottery, is predominantly wheel-made. At present it seems that on the whole the phase Late Dzheitun/Anau IB and presumably Namazga II are represented here. The upper layers that are still preserved hold material, for which no analogies are known in Turkmenistan thus far and possibly signify a local style of Namazga II–III times. Numerous spindle whorls from different layers indicate intensive textile production. Further finds comprise figures of animals (mainly of cattle), some stone objects, a copper dagger and animal bones.

So far analyses of flotation samples have revealed seeds and threshing remains of barley and wheat, attesting early agriculture.

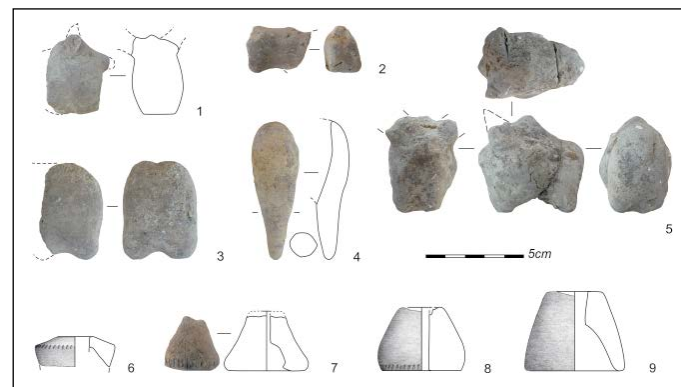


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1. View of the mound of Dashly Depe from the North. In the foreground, the stratigraphic trial trench; in the background, the Kopet Dagh Mountains
2. Copper dagger
3. Oval vessel with painted interior. The 'tree-of-life' motif is clearly recognisable
4. Selection of ceramics
5. Cattle figurines and spindle whorls



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2

■ Cooperation partners

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The Bronze Age urban complex of Gonur Depe is located in the area of the old inland delta of the Murghab River, in the historical landscape of Marguş-Margiana, on the southern periphery of the Karakum desert. The site has been excavated for many years under the direction of V. Sarianidi. The archaeological complex consists of a rectangular central palace, which is surrounded by more buildings. These in turn are enclosed by a second fortification wall with rectangular towers, followed by more buildings, water basins and royal graves, all of which lie within an enclosure wall. Located at some distance, there is a large building, a temenos, as well as expansive cemeteries in the environs. Since 2010 the Eurasia Department (DAI) has taken part in investigations: firstly excavation in sector 18 inside the enclosure wall east of the citadel; secondly partial excavation of the outer settlement Gonur 20; field surveys in a radius of ca. 10 km around the central settlement; and presently excavation in sector 19, north of the enclosure wall.

Located in sector 18 are various rectangular building complexes, each comprising several rooms. They belong to different building phases. Between the two phases lie massive layers of charcoal. Two circular structures are known in other areas of Gonur Depe and are interpreted as being round altars.

The outer settlement, Gonur 20, lies some 1.5–2 km south of the central city. There multi-roomed houses and some graves were investigated. A narrow canal runs close along the houses, indicating irrigation and horticultural activities. The majority of pottery found in the outer settlement is wheel-made, but there is also a remarkable quantity of handmade vessels. In addition, some metal tools and seal-amulets were discovered. Parallel to this work in the outer settlement field surveys were conducted, during which ca. 30 settlement sites were identified in a radius of ca. 10 km from the central urban complex.

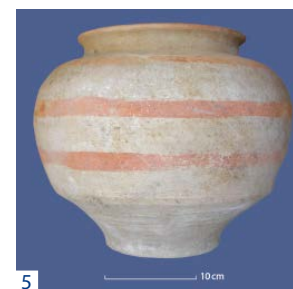
Sector 19 is an area to the immediate north of the enclosure wall, directly next to the North Gate. Several grave complexes are notable in view of their complex structure with several chambers. One of the chambers contained whole animals sacrificed or as part of the inventory, among them dogs, sheep and donkeys. All of these graves had already been looted in Antiquity. Some finds of precious metal as well as high-quality imports of faience and ivory render an impression of how richly furnished the burials must have been originally.



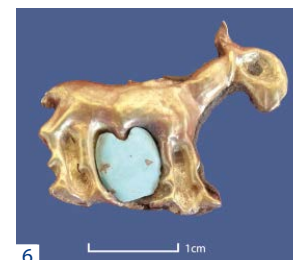
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1. Gonur, Sector 19. Figure of a monkey, made of faience, an import from the sphere of the Indus culture in Pakistan

2. Gonur, Sector 19. Vessel with long spout. The inside often has a sieve-like perforation

3. Many abstract anthropomorphic figurines were found in Gonur, which may have had a magical-religious meaning

4. Gonur 20. Seal-amulets made of stone were also found in the outer settlement

5. Gonur 20. Vessel from grave 65. The red colour smears and fades in the sunlight

6. Gonur, Sector 19. Gold figure with turquoise inlay, found in a grave that was plundered in Antiquity



1



2

Bandikhan, Surkhandarya, Uzbekistan

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The Bandikhan oasis in southern Uzbekistan offers 'pure' sites from epochs in time, which make it possible to define cultures exactly. The shift in the location of settlements probably followed the accessibility of water. The sites were discovered by E. Rtveladze in the early 1970s. New excavations were begun in 2005 by an Uzbek-German team.

Maidatepa lies on the right bank of the Urgul-Sai stream and consists of a U-shaped citadel surrounded by a flatter settlement mound. There, a 3.5-m sequence of layers with several building phases of the Yaz-I period (1400–1000 BC) was uncovered. Pits of the following Yaz-II period date to its end. Handmade vessels, often with painting are characteristic. Several bronze objects, beads and abstract anthropomorphic sculptures were discovered for the first time. Bones, grinding stones and the remains of cereals indicate a mixed economy of agriculture and animal husbandry.

Bektepa is a rectangular fortified complex (ca. 100 x 120 m) located 250 m northwest of Maidatepa. There in the lowest layer an approximately rectangular pit house was revealed, which held older Yaz-IIA pottery and large amounts of animal bones, mostly of cattle. Pottery from the lowest layer in Bektepa can be traced to forms in Maidatepa, yet it is wheel-made. The overlying fortress with two-metre thick walls and round towers with

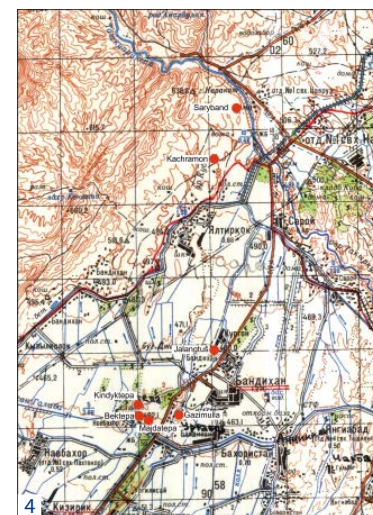


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loopholes dates to Achaemenid times (late Yaz-III period, 5th–4th century BC). It is surrounded by an open settlement, on the northwestern edge of which lies Kindyktepa.

A representative building of Achaemenid times was revealed in the Kindyktepa. Its outer walls are almost 3 m thick and built of mud bricks. The building itself consists of one large room with lateral corridors. In the central room there was a large hearth raised upon a podium. Traces of destruction indicate its violent end, which could have resulted from inner conflicts in the Achaemenid Empire or from the campaigns of Alexander the Great in Asia. The building is probably one of the oldest fire temples in the area of present-day Uzbekistan.

On the other (left) bank of the Urgul-Sai, 900 m east-northeast of Maidatepa is the Gazimullahtepa, a complex of pre-Achaemenid times (Yaz-IIIB). The large urban complex of Yalangtushtepa with a fortress of the classical Kushan times originates in the Graeco-Bactrian period (3rd–2nd century BC). Located somewhat farther away is Sar-i Band, a mound of Kushano-Sassanid times. Located in its vicinity is Kakhramontepa, a small, square fortress of the 4th–5th century AD.



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1. Head of a clay figure of the Kushan period, from Yalangtushtepa

2. Bowl, Yaz-I pottery from Maidatepa

3. Medieval (11th–12th century) water bottle, found in Tuda (Baisun-Basin).

Such flasks are still used today

4. Bandikhan and surroundings, with important tell settlements

5. Miniature vessel from Maidatepa (Yaz I phase); right, egg-shaped clay sling shots, centre, fragment of a clay whistle

6. Kakhramontepa. Small fortress of the early Middle Ages



1

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3



2

Molali, Surchandarya, Uzbekistan

The settlement and graves in Molali, southern Uzbekistan, were discovered in the early 1970s and partially investigated. Very little material has been published from these excavations; nevertheless, a phase in the Bactrian Bronze Age was named after this site. During a field survey in 2010, the site could be localized again. It was quite apparent that the settlement was already severely damaged; indeed, it was threatened with complete destruction. Excavation was possible only along the stream, where spur-like remains of the settled plateau were preserved between the fields that bulldozers had dug into the lower parts. Excavations have been carried out since 2012 on these 'spurs'.

One such 'spur' located northwest of the presumed centre of the settlement was excavated almost entirely. Three floor levels in all were documented. The most complete plan is preserved at the lowermost floor level. It encompasses the northwest peripheral area of a large round complex with a diameter of ca. 60 m and a mighty outer wall. This wall was almost two metres thick and built of unfired, mould-made mud bricks. The bricks were set in alternately diagonal (herringbone) rows over which fluid mud was poured as a binding agent and later an outer plaster was applied to the face. This manner of construction lent extreme stability to the wall. Such a construction technique has been documented for the first time in the Bronze Age of

Middle Asia. The interior of the round complex had several rooms with narrower, but sometimes very smoothly plastered walls. Underneath the oldest floor some large pits had been dug, which probably provided the clay used in construction.

The finds comprise mainly pottery, which now allows a better definition of the 'phase' Molali. Other kinds of ceramic ware (imports?) are indicative of connections with the northern steppe zone. More than a dozen metal objects were retrieved, among them two bracelets made of bronze/copper beads from the burial of a child found in the lowest layer. Beads made of semiprecious stones as well as simple stone objects were also retrieved.

In view of analogies from other parts of Middle Asia, at first it was thought that buildings would adjoin outside the 'citadel'. Therefore, in 2013 another remaining 'spur' of land farther west was investigated. Contrary to expectations, no architecture was found, instead rectangular pits, which can be addressed as graves; 36 were excavated. Generally there was a rectangular pit with a niche, in which the deceased had been laid with the head towards the North. The niche was then sealed by vertically set mud bricks. According to radiocarbon analysis, the graves date to the 13th–14th century AD and are not connected with the Bronze Age settlement.



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1. Complete storage vessel, found prior to excavations
2. Outer wall of a large circular complex (citadel?); plano-convex mud bricks were placed so as to create a herringbone pattern
3. Selection of beads made of carnelian, lapis lazuli, faience and copper/bronze
4. Typical bowl of the phase Molali
5. Fragment of a vessel with characteristic faceting in the shoulder area; this treatment can appear on handmade as well as on wheel-made pottery
6. In the foreground, the Medieval grave complexes excavated in 2013 (view from the North); in the far background, the 'spur' with Bronze Age settlement remains



1

Bronze Age and Early Iron Age sites in the Jakh-Su valley, Tajikistan

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■ Funding provided by

German Research Foundation (DFG)



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Southwest Tajikistan was long considered a region, which had seemingly remained untouched by the changes that occurred at the end of the third and beginning of the second millennium BC in the neighbouring oases of southern Uzbekistan and northern Afghanistan. Whereas early urban, Bronze Age cultures had already become established in those bordering regions, the transition to the Bronze Age in southwest Tajikistan – according to the present state of knowledge – did not take place prior to 1700 BC. However, this picture is due to the hitherto lack of sufficient research, as investigations in the Jakh-Su valley carried out within the framework of a joint project of the Eurasia Department, the Russian Academy of Sciences and the Tajikistan Academy of Sciences have clearly demonstrated.

Excavations within a Bronze Age cemetery, discovered near Gelot in the Kulyab region, have supplied evidence that the local Bronze Age development began there at a much earlier time, namely in the second half of the 3rd millennium BC. The influence from the sphere of the so-called Bactria-Margiana Archaeological Complex (BMAC), which had become established in areas of south-eastern Turkmenistan, southern Uzbekistan and northwestern Afghanistan by the end of the 3rd and beginning of the 2nd millennium BC, were attested

in an advanced degree by a survey conducted in the cemetery.

Yet according to the present state of research, a comprehensive expansion of settlements did not take place in southwest Tajikistan, which would compare to that in core regions of the BMAC. Instead, settlements are attested in this region only after the end of the BMAC (that is, after 1700 BC). A Bronze Age settlement near Sarijar, dated to the 17th–15th century BC and newly discovered by this project in 2010, confirms this picture. Excavations conducted there brought forth evidence of rammed earth architecture. In addition to multi-room dwellings, there were terraces with earthen platforms that served as working places and pottery kilns. Furthermore, geomagnetic prospection and test trenches detected the cemetery that belonged to the settlement. The great amount of handmade pottery in Sarijar is indeed noteworthy. Wheel-made pottery, on the other hand, shows distinct links to Late Bronze Age ceramics in the Suchandarya region of southern Uzbekistan and is occasionally found among Andronovo ceramics.

The handmade pottery of Sarijar can be considered as a forerunner of handmade pottery of the Early Iron Age, as far as style and range of forms are concerned. Research at the Early Iron Age sites of Karim Berdy and Kuduk yielded evidence for the continued tradition of the ceramic spectrum in the Jakh-Su valley. Archaeological field work at Karim Berdy and Kuduk have made clear that a marked change in settlement forms took place in the Jakh-Su valley at the beginning of the Iron Age. There were no signs of rammed earth architecture in Karim Berdy and Kuduk. Instead magnetometer prospection revealed a dense assemblage of pits and pit houses at both sites. Several of these objects were excavated and provided insight in the construction of pit houses.



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1. The Jakh-Su valley with the Bronze Age settlement Sarijar
2. Sarijar 2, area B, west part of the plastered terrace
3. Sarijar 2, areal D, foreground: mud platform with grinding installation to the right; left: fire chamber of a kiln
4. Sarijar 2, bronze objects
5. Karim Berdy, pit house

A newly discovered sanctuary in the Hellenistic East: Torbulok in southwestern Tajikistan

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PD Dr. Jörg Fassbinder, Bavarian State Department for Monuments and Sites, Geophysical Prospection, Munich

■ Funding provided by

German Research Foundation (DFG)



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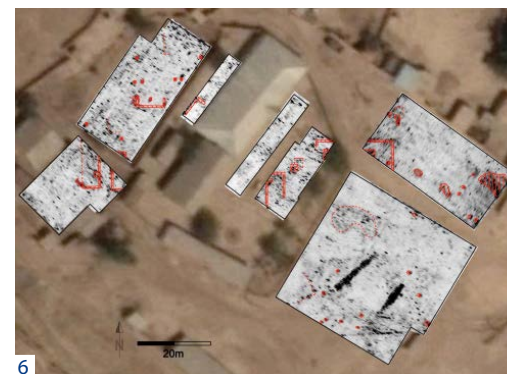
The excavation project, begun in 2013, is concerned with a sanctuary in Torbulok, located in southwestern Tajikistan, which in Antiquity belonged to Bactria. It thus lies within the sphere of influence of the Hellenistic colonisation, initiated by the campaigns of Alexander the Great. The immigration of settlers from the West led there to the development of a mixed culture that combined Greek and indigenous elements.

A few years ago a limestone basin was discovered during construction work in Torbulok, a basin that was soon recognised to be a perirrhanterion. Similar to Greek sanctuaries in the Mediterranean, such basins were also used in Bactrian sanctuaries for symbolic purification and stood at the entrance to a sanctuary or near an altar. According to form and size the Torbulok basin bears also a striking resemblance to vessels found in two well researched Bactrian sanctuaries: the cult district of the so-called Niche Temple in Eukratideia (today Ai Khanoum, Afghanistan) and the Oxos Temple in Oxeiana (today Tacht-i Sangin, Tajikistan). Hence, the basin suggests that there was a Hellenistic sanctuary at Torbulok. The fortuitous discovery provides the opportunity to investigate the relationship of indigenous and Greek cultic practices based on new approaches and using current methods.

Although some sanctuaries in the region are already excavated and studied, essential questions are still open, the answers to which the project should contribute: Was the Greek impact on the Hellenistic Far East so strong that, after Alexander the Great, people practiced Greek cults and rituals according to Greek patterns (for example, a cult image in a temple, an altar in front of a temple, animal sacrifices, libations)? Is there evidence of rituals that diverged from Greek customs and therefore might have drawn on indigenous traditions? And, finally, were Greek and indigenous cults practiced alongside one another or even together?

A ground-penetrating radar investigation conducted in the fall of 2013 by R. Linck and J. Fassbinder could securely localise the sanctuary in the terrain and also brought forth the first information about its construction: It evidently constituted of several terraces with rectangular buildings oriented North–South, whose direction thus clearly differs from modern structures. Excavations in Torbulok began in the spring of 2014 and will continue until 2018.

1. View of the site with the village school
2. Lid of a characteristic pyxis of the Hellenistic period
3. Limestone basin (perirrhanterion)



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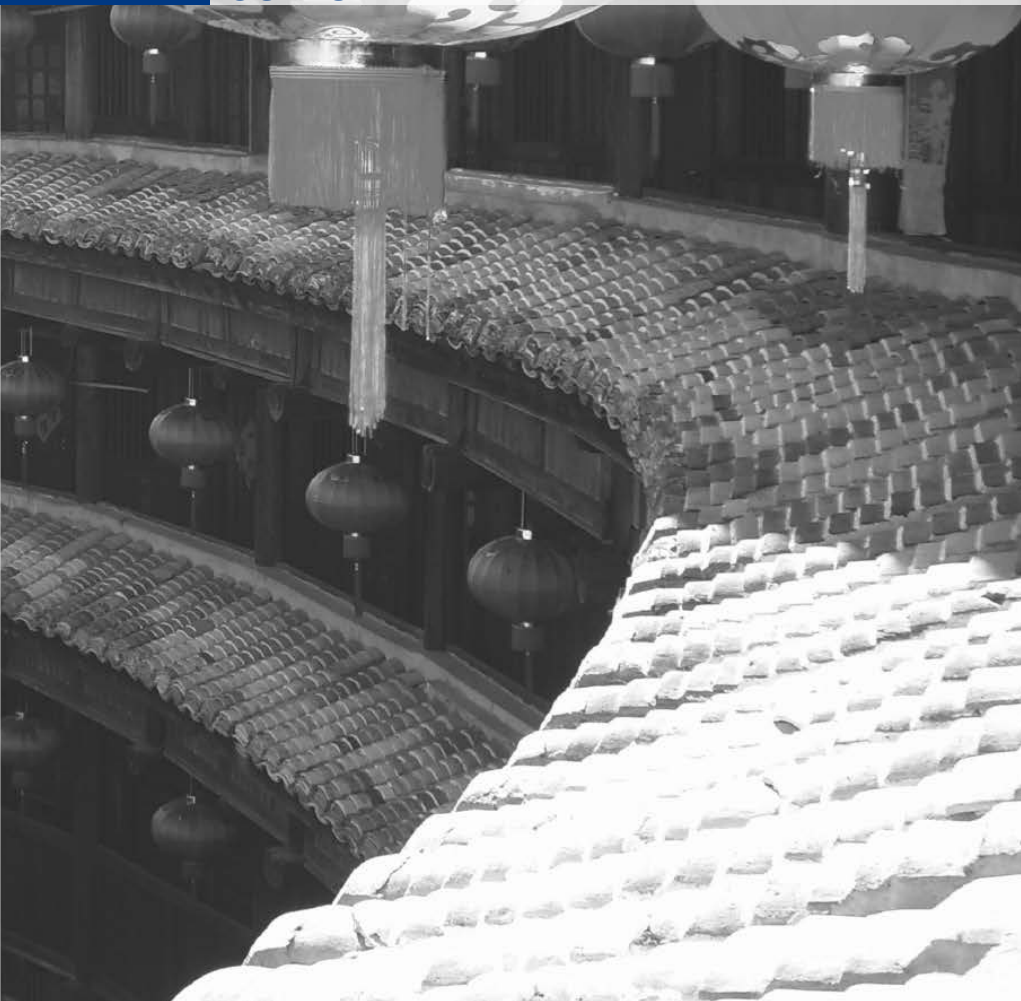


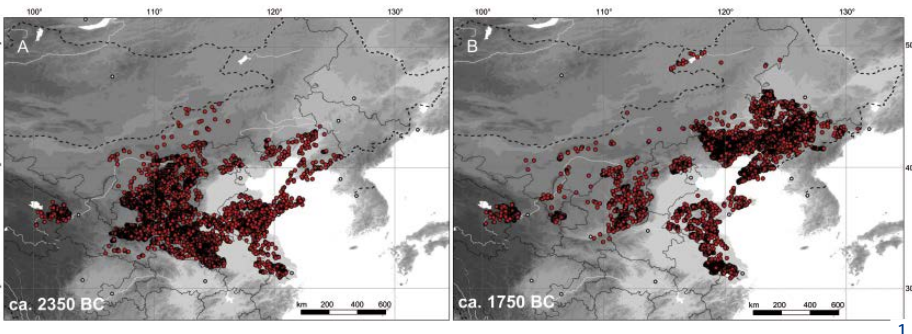
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4. River pebbles from a votive deposit. The kind of rock is from the Pamir Mountains. Hence, they must have been brought to Torbulok from at least the Vakhš River (about 30 km walking distance)
5. Column base, evidence of a representative building (temple?)
6. Results of the ground-penetrating radar sensing with interpretation



OSTASIEN





108 Dominic Hosner

Digital atlas of the history of Chinese culture from the beginning of the Neolithic to the end of the western Han dynasty (ca. 8000 BC–AD 8)

■ Project director

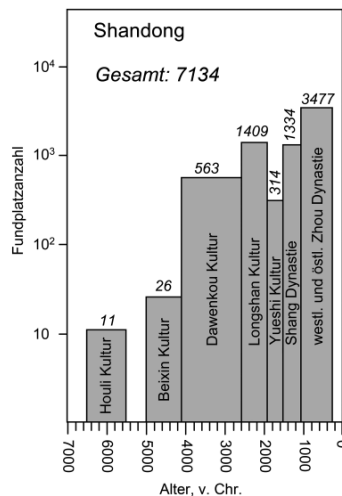
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Shandong University, Jinan,
China

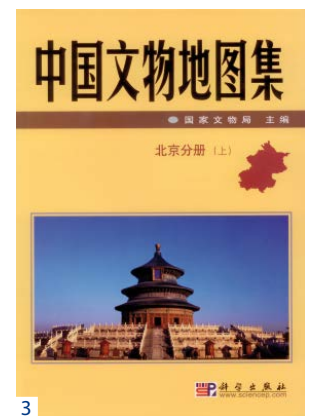
In order to understand prehistoric and early historical developmental processes of humankind that took place over vast areas, precise and informative maps of monuments are necessary. For this purpose, sites together with their geographic coordinates and age determination must be recorded in a databank, which is linked to digital maps. Only in this way can large amounts of data be compared and brought into association. The evaluation of data enables answers to be given to current palaeoclimatic and cultural anthropological lines of inquiries, for example, settlement density during a specific time. In research on the cultural evolution of humankind, the history of settlement in East Asia played an important role in the interchange between climate change and vegetation cover since the beginning of the Holocene, that is, for ca. 12,000 years.

China has a great number of preserved cultural monuments, the discoveries of which during the past 20 years follow upon the current rapid economic developments. In the early 1980s the State Administration of Cultural Heritage initiated a far-reaching documentation of archaeological monuments in China; thus far, it has published data collected in 24 provinces, autonomous regi-

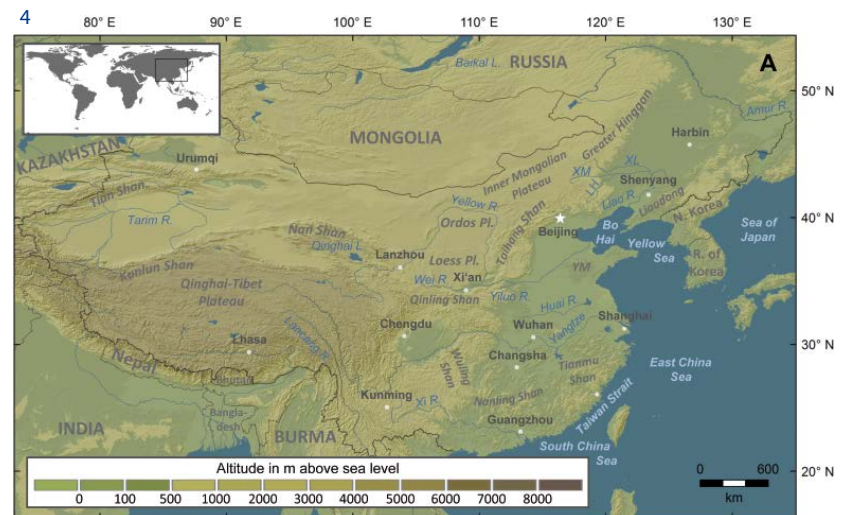


ons and municipalities in the book series “Atlas of Chinese Cultural Relics”, in the Chinese language. In order to create access to sites published in the atlases without exact coordinates for statistical purposes, these analog distribution maps of sites are being digitised and georeferenced within the framework of this project.

Together with GIS software and the implementation of Map-Xplore developed in the work group, until now ca. 49,000 sites have been determined and georeferenced. In addition, every individual data set includes its age determination and cultural assignment. Thus, one of the most comprehensive digital archives on Chinese archaeology has been developed. It is now at disposal for our own future research projects as well as for those projects of our international partners and will be continuously expanded with new contents. In an initial publication it was proven, that these data enable settlement trends during prehistoric times in northeastern China to be recognised that have not been observed until now.



1. Physiographic maps showing distribution of archaeological sites in northern China during the late Neolithic – Bronze Age transition,
2. Number of sites per culture basing on the example of the province Shandong
3. Volume 1, part 1, on Beijing Municipality in the book series “Atlas of Chinese Cultural Relics”
4. Topographic map of China





1

110 Ulrike Beck

Garments of the 1st millennium BC in Xinjiang – Cut and construction of clothes between functionality, aesthetics and communication

■ Project director

Prof. Dr. Mayke Wagner, Eurasia Department

■ Cooperation partner

Team of the project "Silk Road Fashion"

■ Funding provided by

Federal Ministry of Education and Research (BMBF)

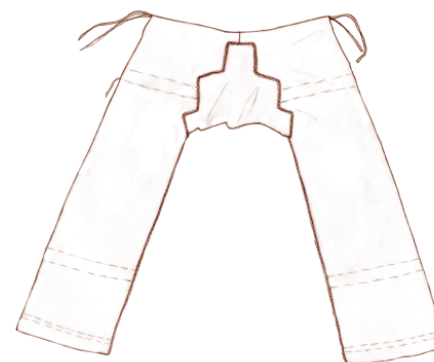
Clothing in its cultural multi-faceted significance is a much debated subject. Clothing has primary functional tasks, and in addition it plays an essential communicative and social role. Coverings for the body are presented and dressed, but first of all they must be produced, traded, worn off and replaced anew. Because at all times clothes were in great demand in Eurasia, they were always an important factor for finding resources, for the development of technologies and for trade and exchange. Furthermore, a good knowledge of the anatomy, motor skills and senses of the body was necessary, if the clothing was intended to be worn. The time at which humans possessed such knowledge can be read in the cut and design of clothes. The categorisation and elucidation of the patterns of individual pieces of clothing deriving from various phases of the ca. 1500-year long time span of 1200 BC to 300 AD is central to a projected Ph.D. dissertation. In a chronological comparison of clothes patterns, the initial time at which the calculated cutting of lengths of cloth into an envisioned shape began can be recognised. Namely, in the beginning this was not at all common practice. Gradually, by very capably woven forms and the deliberated placement of seams, skirts and jackets



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could be worn without the need for finer adjustment. Everyone has a pair of trousers in the closet. Yet since when did trousers actually exist and who invented them? Until the middle of the 3rd millennium BC apparently men and women in Asia and Europe primarily wore skirts, coats or dresses, leggings and loin cloths.

We have examined wool trousers found in graves near Turfan, western China, and thereby discovered the following: The trousers are composed of three parts: one for each side covering the lower abdomen and the leg and one stepped cross-shape crotch-piece, all of which were woven separately. The parts were sewn together with a large width at the crotch, to enable the legs to extend sideward. Horse trappings and typical weaponry of mounted warriors had been placed in the grave of the person wearing these trousers. The garment was made some 3200 years ago, that is, during the time when the first warriors on horseback appeared in the Eurasian steppes. Our examinations confirm the postulation that the development of the pattern for trousers, as known today, was closely associated with the beginning of horseback riding. The intended Ph.D. dissertation is part of the project "Silk Road Fashion".



4. Graphic documentation of the reconstructed wool trousers from Grave M21



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1. *Sampula, Autonomous Region Xinjiang, Detail of an elaborately worked skirt from grave M3 with stitched ornamental cordons, colourful ornamental borders and a closely folded hem, ca. 100 BC*
2. *Yanghai, Autonomous Region Xinjiang, front view of wool trousers from Grave M21, ca. 1100 BC*
3. *Detail photos of the wool trousers in the museum in Turfan*



4



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Team of the project "Silk Road
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■ Funding provided by

Federal Ministry of Education
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funding for "The Language of
Objects"



Conservation and restoration of archaeological leather

Archaeological finds and historical sources indicate that the processing and use of leather in China can be dated back to more than 2000 years ago. Yet, in spite of large collections of leather artefacts in China, the number of specialized leather conservators is infinitesimal. For this reason, one of the main aims of the project "Silk Road Fashion" is to teach conservation and restoration methods of archaeological leather.

From August to December 2013 a workshop was conducted in cooperation with the Chinese Academy of Cultural Heritage, the LVR-LandesMuseum Bonn and the Beijing Branch Office of the German Archaeological Institute. This course was the first of its kind in China. All together eight curators and conservators from different cultural institutions in China, all of whom have leather items with varied conservational problems in their collections, participated in the course. The aim of the course was to learn in theory and in practice how to document and analyse the conservational condition of leather from museum collections, and how to handle and store the items according to their specific characteristics.

The first part of the course was concerned foremost with learning about traditional leather processing techniques. This was then directly applied by the course participants, for instance, by

manufacturing Chinese shadow puppets. An overview of archaeological and ethnographic leather artefacts as well as pre-industrial tanning methods in Europe and America was given by Mayke Wagner.

The second part of the course was led by Regine Vogel, conservator for archaeological material at the LVR-LandesMuseum Bonn, both in Beijing and Bonn. Practical instruction concerned examination, documentation and conservation as well as appropriate storage of leather objects of the 1st millennium BC in the Hami Museum, Xinjiang Uyghur Autonomous Region.

During the course, a pair of ca. 2600-year old leather boots was successfully restored, and the entire restoration process was documented in an instruction video for future generations of curators.



1. Title page of the brochure on the workshop for leather restoration at the Chinese Academy of Cultural Heritage, Beijing

2. Beijing, Chinese Academy of Cultural Heritage, restoration of a leather boot found in Hami, Xinjiang Uyghur Autonomous Region

3. Beijing, Chinese Academy of Cultural Heritage, cleaning of leather objects from Hami

4. Leather boot found in Hami, before and after restoration



4





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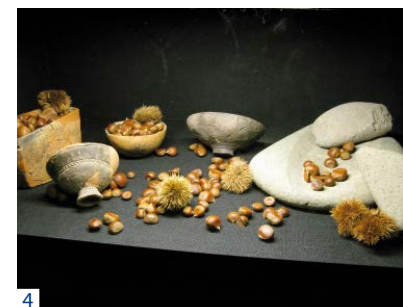
The Jōmon culture on Hokkaido Island, Japan

Inhabitants of Hokkaido, the northernmost of Japan's four main groups of islands, already began to produce clay vessels around 9000 BC. At that time they still did not live in permanent settlements, and they began cultivating crops only several millennia later. In view of developments in West Asia and also in China this is indeed unusual. We are pursuing the question as to why the earliest inhabitants of northern Japan invented other economic strategies. The object of our projected research is the reconstruction of processes in the development from groups of local foragers specialised in gathering coastal maritime foods to regional networks of farming communities. We have investigated the sites of Kakinoshima and Usujiri and have found, in view of the traces there of multi-layered settlements, that they are well suited for a joint excavation with our Japanese colleagues in the Jōmon Center Hakodate, on the south end of Hokkaido. Since 2011 the DAI branch office in Beijing is an external cooperation partner of the Baikal-Hokkaido Archaeology Project (BHAP). The BHAP is one of the most successful research programmes in northeastern Asia, conjoining osteoarchaeological, chronometric and palaeoclimatic studies. The main partners are the University of Alberta in Edmonton, Canada, the State University Irkutsk, Russian Federation, and the Hokkaido University

in Sapporo, Japan. Together they are conducting an excavation on the island of Rebun, northern Hokkaido. Our part in this project is to contribute comparative perspectives and expertise from southern Hokkaido and China; we are also responsible for the dating and the entire chronology. The most important event in 2013 was the dating of 57 samples taken from a natural sediment core on Rebun, with which a sequential chronological model for the past 17,000 years could be created. This enables future archaeological finds and climatic events on Hokkaido to be identified, dated and correlated.

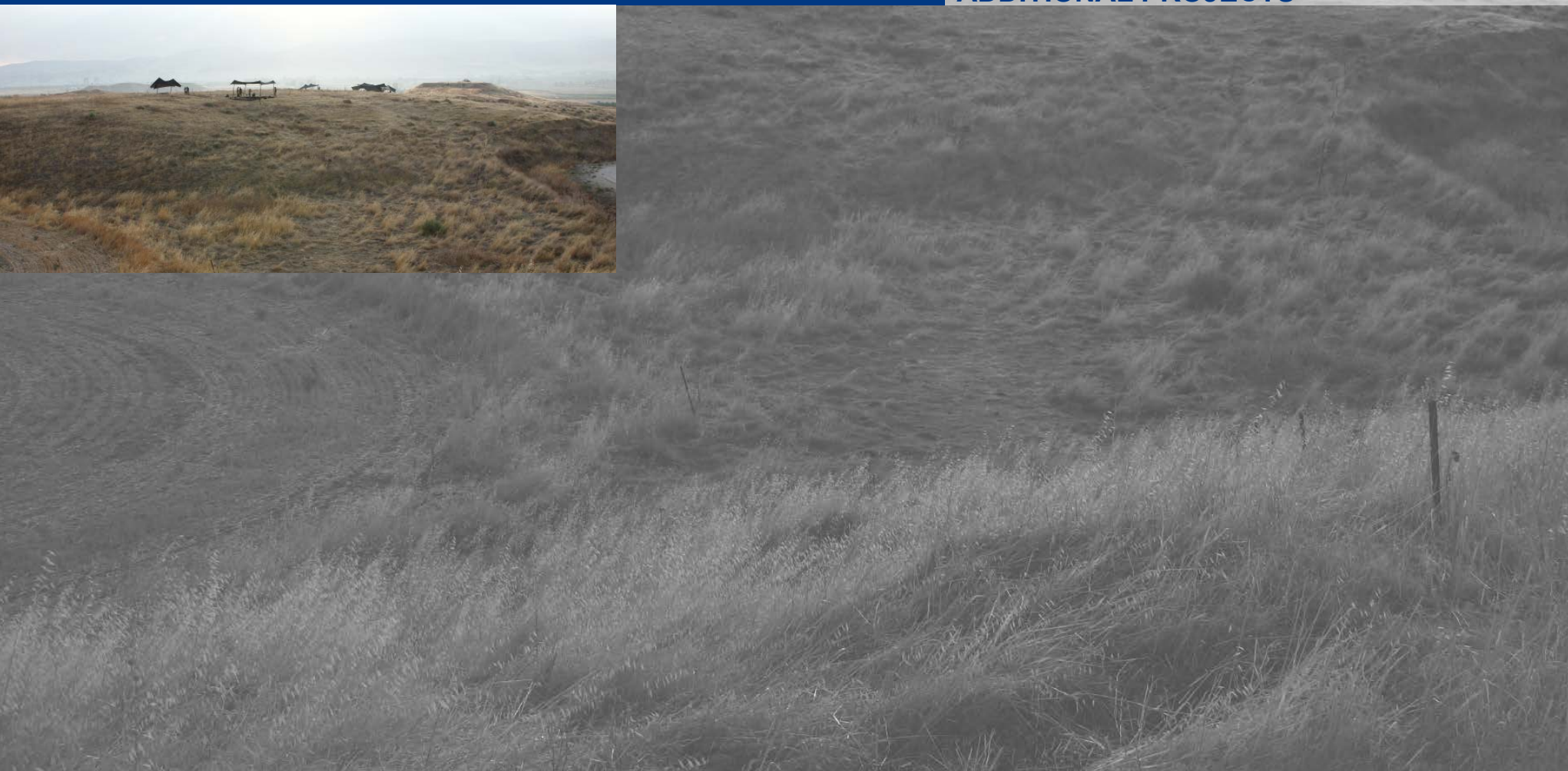
Interest in these questions on the part of American, Chinese and Japanese scientists is at present especially great, for the focus in research has turned particularly to the late Palaeolithic period in East Asia.

1. Excavation and site museum at Ofunuma
2. Pottery of the Jōmon period (Neolithic), arranged according to periods, is on exhibit together with many other finds and reconstructions in the newly erected museum "Jōmon Center"
3. Hunting and cleaning fish played an extraordinary role. Consequently, many tools invented and used for these activities are discovered and excavated
4. Starch was gained from edible chestnuts, not predominantly from cereals
5. Excavation in Usujiri, August 2014





ADDITIONAL PROJECTS





1

118 Florian Klimscha

■ Project directors

Florian Klimscha

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■ Funding provided by

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gical Foundation

Interdisciplinary research at the middle Chalcolithic site of Tel Tsaf, Israel

One focal point in research of the Eurasia Department is the study of prehistoric techniques and their correlation in a global context, for example, in the "Digital Atlas of Innovations". In the mediation of techniques from southern Eurasia the southern Levant played an important role, which is elucidated in the Tel Tsaf project.

The southern Levant connects Eurasia with Egypt, and its climatic variability is determinative for diverse strategies of adaption in a relatively small area. And from the resulting cultural dynamic arises a special socio-technical development.

New research has already revealed complex forms of society in the Chalcolithic period (4600–3800 BC), some cases displaying distinct social hierarchies and also advanced techniques, such as casting in the lost form. However, until now the course of the emergence of these societies from mostly egalitarian communities of the Neolithic period is completely unknown.

At Tel Tsaf in the middle Jordan Valley research is being carried out on the development of an archaic society during the transition from the Neolithic to the Chalcolithic (5200–4600 BC). Thereby, questions on the source of inequality and social complexity are being pursued. Until now well-preserved courtyard architecture built of mud bricks, as well as cooking pits (including remains of food)

and burials have been excavated. The silos to the houses are indicative of central storage of surplus amounts of cereals beyond the household needs. Noteworthy finds include shells from the Nile Valley, pottery of the Obeid culture, obsidian and the hitherto oldest known metal objects in the region. Along with creating a reference chronology, foremost in the project is the study of the adaptation of techniques that circulated between Egypt and southwestern Eurasia to meet local needs. Thereby, metallurgy, early evidence for glazing, seal stamps, cultivating olives and the use of cattle as draught-animals should be mentioned.

Analytical procedures of the natural sciences and computer-supported evaluation of finds will be employed, in order to elucidate the complex correlation of technique with ecological, economic and social factors in a long-term perspective of at least 500 years. Further, inquiry into how a society succeeded in creating social differences of the kind that would firmly secure hierarchies will also be carried out.

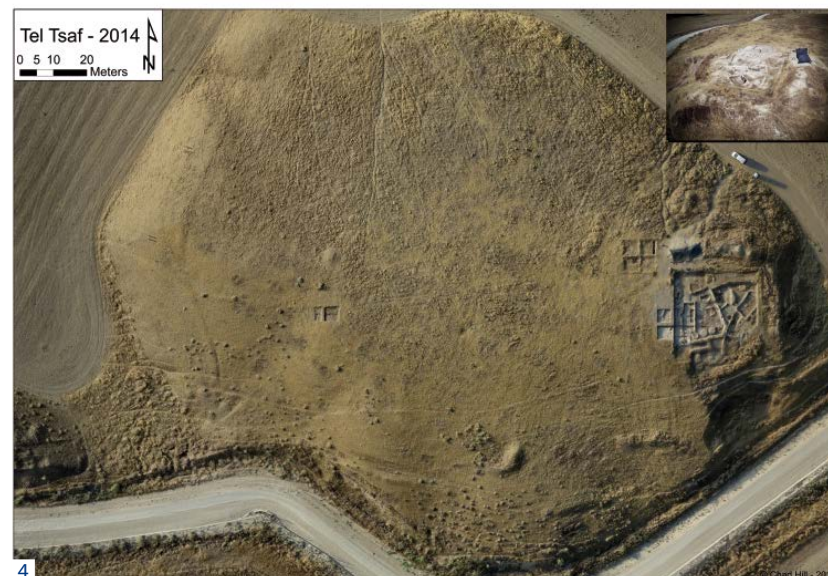


3

1. View into the Jordan Valley and Tel Tsaf
2. Pottery in Tel Tsaf-style is typical for the site and displays ties with the Obeid Culture in Syria and Mesopotamia
3. Details of the copper awl
4. Aerial view of the site



2



4



120 Svend Hansen

The Bronze Age “royal burial” at Seddin in the Prignitz Region

■ Cooperation partners

Prof. Dr. Franz Schopper, Brandenburgisches Landesamt für Denkmalpflege

Dipl. Arch. Jens May, Brandenburgisches Landesamt für Denkmalpflege

■ Funding provided by

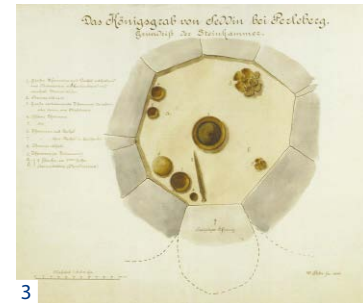
German Research Foundation (DFG), Excellence Cluster TOPOI

The present-day still 8-m high burial mound of Seddin, originally 10-metres high with a diameter of 62 metres, in West Prignitz, was erected in the 8th century BC and is an extraordinary monument of the Bronze Age in northern Germany. Already since 1881 the mighty burial mound, like other mounds afterwards, was exploited for stones to build the Chaussee until 1889, when a grave chamber containing the burials of a 30–40-year old male and presumably two females was revealed. The grave chamber represents a unique construction for northern Europe: It is composed of nine orthostats arranged in a circle measuring 2.2 m in diameter, which were covered with large erratic stone slabs (Findlinge) forming a false vault. The floor and the walls of the chamber were plastered with mud and the wall plaster painted with a red meander-band. A bronze amphora, which has analogies in central Italy and the middle Danube area among others, served to hold the cremated bones of the deceased. The amphora stood in a large clay vessel with a lid. A sword stood vertically in the chamber floor. The warrior's furnishings consisted of an axe and toiletry articles: a razor and tweezers. The size of the entire monument, the construction of the chamber and the exclusiveness of the grave goods prove the Seddin grave to be a Bronze Age monument of European dimensions. A



7-m high burial mound of somewhat small dimensions is located in the North in Lusehøj on Fünen. Some 50 metres north of the Seddin burial mound is a ca. 290-m long row of ca. 150 pits, which could be detected with geomagnetic instruments; some were excavated. The approximately round or oval pits with a diameter of 60–100 cm contained burnt and unburned stones, but nothing else. According to 14C-dating they were installed between 950 and 800 BC and might be somewhat older than or coeval with the burial mound. Further geomagnetic surveys were carried out in the surroundings of the mound and the group of mounds of Wickboldsche Tannen.

A limited area of excavation should yield information about the construction of the burial mound and the grave chamber at Seddin. Investigations on this monument, which for the Eurasia Department is located rather far in the West, would indeed complement our research on Bronze and Iron Age kurgans in the Caucasus, southern Siberia and Tuva.



1. The royal burial mound today
2. The clay vessel that held the amphora
3. Plan of the grave chamber
4. The grave chamber is opened
5. Participants of the international conference on Seddin, in Seddin





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