

OREA 2015

OREA
ANNUAL REPORT 2015

BARBARA HOREJS

&
OREA Team



Current research projects of OREA

Report: Barbara Horejs & the OREA Team, OREA
 Editing: Ulrike Schuh
 Layout: Angela Schwab
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OREA Mission Statement and Short Description

The Institute for Oriental and European Archaeology¹, founded in 2013, covers essential prehistoric and early historical cultural developments from the Orient to Europe. This mission is reflected in the three core departments Europe, Egypt and the Levant, and Aegean and Anatolia. The orient and occident are frequently understood as counterpoints in different worlds and explored separately. In this research institute, these areas are deliberately considered a common cultural bracket for crucial advances of human (pre)history and are therefore explored together. The focus of foundational research lies in the time horizon from the Quaternary, about 2.6 million years ago, to the transformation of societies into historical epochs in the first millennium BC.

Research methods include archaeological field work (excavations and surveys), material culture studies with diverse archaeometric methods, and interdisciplinary cooperations with a range of different disciplines, including archaeozoology, archaeobotanics, anthracology, biological anthropology, palaeogenetics, climatology, geoarchaeology and landscape modelling. The basic analysis and interpretation of early cultures lies at the core of research efforts, which aim to include all possible sources. The study of chronologies, art and early writing as well as a broad socio-cultural spectrum including religion, ideologies and identities compliment research at the institute.

OREA researchers cover a wide range of subjects from Prehistoric Archaeology, Egyptology, Sudanese Archaeology, Near Eastern and early Greek Archaeology to various philologies.

Targeted research on different priorities is concentrated in research groups spanning departments and designed to be trans-regional and diachronic. Research groups are constantly being initiated and developed to pick up new trends in the research landscape and provide new impetus.

The Institute publishes six publication series and two international journals. The publications reflect the core research areas and comply with the highest scientific standards through international evaluation procedures and advisory boards.

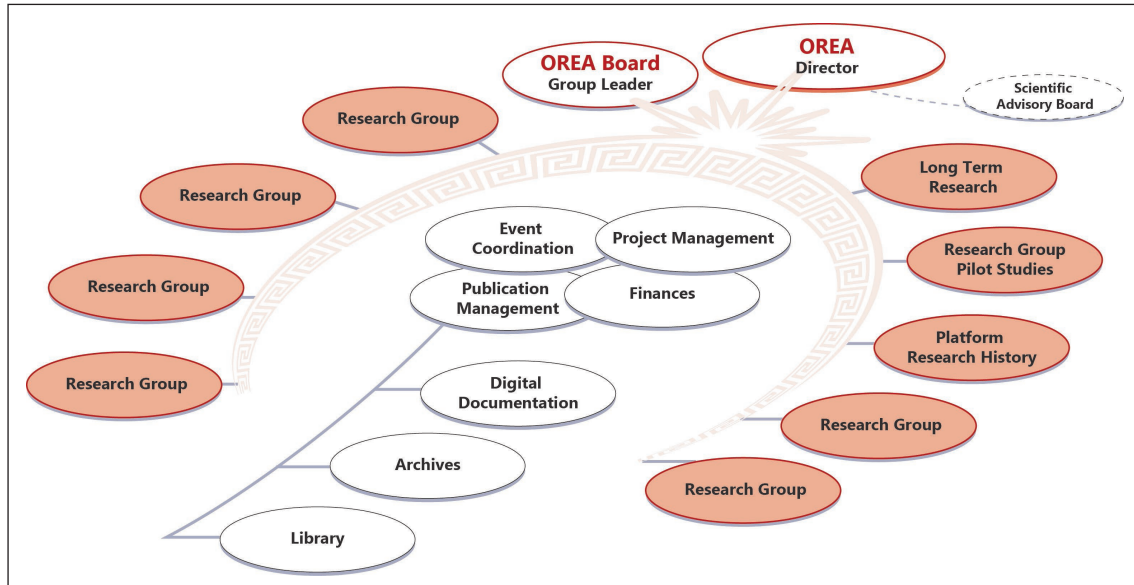
For ongoing national and international quality assurance as well as additional research funding, the institute strives for success in competitive external funding. Current financial support is provided by the Austrian Research Fund (FWF), the ERC, the EU Marie Curie programme and INSTAP as well as by the Austrian National Bank (ÖNB), the White Levy Fund, the City of Vienna, the County of Lower Austria and various private foundations.

The definition of research initiatives within OREA is as follows:

- **Research groups**

Innovative research on different priorities within OREA is focused in research groups – across departments, period independently/diachronic – according to the respective topic. The development of research groups was directly coupled to the structure of the new institute and led to a fundamentally new research structure. They are the most important groups within OREA in order to carry out successful international and interdisciplinary research in a structured team framework, which also specifically integrates and promotes young researchers. The groups are constantly evolving as a dynamic element and initiated to set new impulses in the research landscape. They are implemented for a limited period and have to undergo evaluation according to recognized quality assurance criteria.

¹ For up-to-date information on OREA, please consult: <http://www.orea.oeaw.ac.at>.



Organigram of OREA institute

- **Long-Term research**

Traditional research priorities can be bundled in the form of long-term research projects. This relates primarily to long-term commitments to editions, publication of old excavations material etc. The *Urnfield Culture Networks* project is OREA's highly successfully evaluated long-term research project (international evaluation spring/summer 2015).

- **Platforms**

A platform provides the ability to merge individual studies from different research groups on a particular topic when required, and to network with other institutions within and outside of the Academy.

Research Strategy

The basis of the research program are the OREA research groups, built up since 2013, whose leaders are represented in a 2014 established OREA panel of departmental and research group leaders (OREA Board). The research priorities defined in 2013 are now fully organized in groups, individual studies are the exception and mostly function as strategic pilot studies for potentially larger projects.

The strategy follows the focus defined in the OREA mission statement (see above) from research on the basis of humankind between the Orient and Europe to the transformation to historical societies of the 1st millennium BC. Additionally to the two established research groups (*Quaternary Archaeology*, *Anatolian & Aegean Prehistoric Phenomena*) three others were initiated in 2014–15, consisting of existing individual research (*Mycenaean Aegean*), of a new START project (*Material Culture in Egypt and Nubia*) and the scientific and strategic establishment of a new innovative research focus in OREA (*Mediterranean Economies*). Also new is the group *Digital Archaeology*, whose development was initiated from various individual projects in order to bring together the necessary expertise from the field of digital humanities into our research.

The responsibility to publish the long-term Tell el Dab‘a excavations (1966–2009) have been transformed and modified to the *Egypt and the Bronze Age World* group in 2015.

Publication strategy

The institutes' strategy covers two different fields of publication: OREAs own publication series and external international publications of OREA scientists.

OREA	Publications of the Institute for Oriental and European Archaeology
CChEM	Contributions to the Chronology of the Eastern Mediterranean in the Second Millennium BC
CAENL	Contributions to the Archaeology of Egypt, Nubia and the Levant
UZK	Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts (Analyses of the Cairo branch of the Austrian Archaeological Institute)
MPK	Mitteilungen der ehem. Prähistorischen Kommission (Communications of the Prehistoric Commission)
MykStud	Mykenische Studien (Mycenaean Studies)
Ägypten und Levante / Egypt and the Levant	Internationale Zeitschrift für ägyptische Archäologie und deren Nachbargebiete / International Journal of Egyptian Archaeology and Related Disciplines
Archaeologia Austriaca	Zeitschrift zur Archäologie Europas / Journal on the Archaeology of Europe

All series and journals edited and published by OREA are internationally peer-reviewed and follow the high state-of-the-art standards of scientific publications, regularly monitored by the Austrian Academy of Sciences and its publish house as well as by international ranking institutions (Thomson Reuters, ERIH).

Promotion of young researchers, career development, gender and diversity in 2015

The already successful practice at OREA to promote the development of young scientists has been continued. Young scientists are encouraged and supported to submit grants for their research projects and then carry out their research on an international level at OREA. The DOC scholarship holders (currently 4) at OREA are integrated into the research work of the OREA research groups and supported by the research group leaders. The APART fellows (currently 2) at OREA are encouraged from their respective projects and the resulting collaborations to build their own new projects and international networks. OREA supported workshops and conferences, especially for young scientists (e.g. International Conference of Young Egyptologists October 2015) further workshops and conferences are integrated into larger scale conferences (e.g. 10th ICAANE in Vienna in spring 2016) or organized independently and will take place continuously, actively supported by OREA to give young researchers the possibility for presentation and publication of their first to their further results.

Cooperation in the field of teaching exists in Austria especially with the Institute of Prehistoric and Historical Archaeology and the Institute for Egyptology, University of Vienna, as well as internationally with the universities of Tübingen, Heidelberg, Leuven, New Bulgarian University (Sofia), Tel Aviv and Istanbul.

Dr. Julia Budka (START and ERC grantholder), research group director of *Across Borders*, was offered a professorship at the Ludwig-Maximilians University in Munich and is since March 2015 teaching there. Her START project will remain at OREA and the project outcome will be published at OREA.

International perspectives and cooperations in 2015

OREA and its scientists pursue international orientated projects and actively took part in international initiatives e.g. Horizon 2020 applications, especially in the category excellent science. In collaboration with our colleagues from the Danube region and the Balkans, OREA took part in strategies concerning these areas (ERA Twinning project with Bulgaria, participation in Scientific & Technological Cooperation (projects for the promotion of mobility support for bilateral and multilateral research projects by the OEAD and the AAS (JESH programme), participation in the HERA initiative). The individual projects of the research group Digital Archaeology for example are integrated into a wide European network through the involved scientists, the research group leader and her participation in the EU funded ARIADNE network and the collaboration with the Austrian Centre for Digital Humanities.

OREA is the only archaeological institute in Austria holding highly competitive grants as well as internationally peer-reviewed and third-party funded projects to such an extent. Since 2015 OREA is hosting one ERC Advanced Grant (starting in 2016), two ERC Starting Grants, one EU Marie Curie individual fellowship, one EU Marie Curie ITN fellowship, three FWF START prizes, eleven FWF stand-alone projects, one FWF Herta and Paul Amirani scholar, two APART fellowships, one ANFR PostDoc fellowship and four DOC grants.

Scientific Activity 2015

Quaternary Archaeology (Research group leader: Christine Neugebauer-Maresch)

As a research group focusing on hunter-gatherer cultures of the Ice Age and their environments the Quaternary Archaeology has acquired a unique position in Austria. In compliance with inter-disciplinarity which is prerequisite for this field, site-specific data on local cultural expression and regional environmental developments, are related to large-scale cultural developments and global climatic events.

The branch in Krems continues to be financed by the State of Lower Austria and is successfully used as a research platform for field work at Krems-Wachtberg and other sites in the region. Due to increased space requirements it was relocated to a building at the Rechte Kremszeile where an improved interoperability of research and study groups is given. The new location also provided space for the material studies conducted by JESH guest scholar Dr. Sonia Shidrang (Iran) in the scope of her five months research stay.

The excavations at Krems-Wachtberg that had been ongoing since 2005 have ended and the excavation area has been refilled in accordance with the contract. The double burial of infants discovered and recovered as a block in 2005 has been excavated at the Natural History Museum Vienna accompanied by state-of-the-art documentation using a high-resolution structured light scanner. Results of the aDNA analyses can be expected for 2016. The archaeological and inter-disciplinary analyses and evaluation of Krems-Wachtberg will take several years to complete and will be published in a series of books.

In 2015 the inventory of the finds from Kammern-Grubgraben in cooperation with the Universities of Cologne (Prof. J. Richter) and Erlangen-Nürnberg (Dr. A. Maier) was completed. A publication is at present being prepared. Unexpectedly, due to earthworks connected to replanting of wine and the relocation of a cart track, field incentives became required at the beginning of the year. A preliminary conciliation was agreed upon in cooperation with the Federal Monuments Authority Austria which allow the proposed stratigraphic evaluation of the previously excavated site and, most important, at the same time prevent destruction of this unique multi-phased 21,000 year old Ice Age settlement.

A multidisciplinary research project, designed in 2014/2015 and submitted, is connected with this research. Stable isotope analyses (BOKU Tulln, T. Prohaska) in cooperation with the Czech Academy of Sciences (J. Svoboda) will attempt to elucidate Pleistocene migration patterns (director M. Pacher).

Highlight 2015

The double burial of infants discovered at Krems-Wachtberg in 2005 and recovered as a block has been excavated at the Natural History Museum Vienna. Excavation was undertaken by a joint team of archaeologists and anthropologists and accompanied by state-of-the-art documentation using a high-resolution structured light scanner. Documentation also included sampling for aDNA and isotopic analyses, as well as for sediment and colour pigment analyses. Results of the aDNA analyses can be expected for 2016.

Externally funded projects

Ongoing

- Ecology and Environment in the Early Gravettian (FWF 23612, end 2015-09-30; director C. Neugebauer-Maresch)

– Subproject: Rötelpunkt (director U. Simon) in cooperation with NHM and University Vienna

- Gog und Magog – Die Mammutjägerzeit in Wien (MA 7 – Kultur, Wissenschafts- und Forschungsförderung der Stadt Wien für 2014; from 2015-01-01 to 2016-06-30; Director C. Neugebauer-Maresch)
- Gösing – Gravettian open air site – neighbours of the Wachtberg-babies? (rescue excavation supported by BDA; master thesis N. Buchinger)
- Kammern-Grubgraben – excavation (granted by Federal State of Lower Austria)
- Perg – excavation (supported by the community and in cooperation with University Erlangen)
- Stratzing (publication project)
- Austrian Quaternary Sites (AQS)

Application submitted, evaluation ongoing

- paradISO Pavlovian Mobility in Middle Danube Palaeolandscapes – Reconstruction and Display of Residential and Migra-



Excavation at Kammern-Grubgraben



The double burial of infants discovered at Krems-Wachtberg and recovered as a block in 2005 has been excavated at the Natural History Museum Vienna

tory Patterns by Multi-Isotope Analyses (PI M. Pacher, OEAW-OREA), submitted 2.11.2015, P 29088-B29

cooperation with:

- i. Jiri Svoboda, Academy of Sciences of the Czech Republic,
- ii. Thomas Prohaska, University of Natural Resources and Life Sciences, Department of Chemistry
- iii. Maria Teschler-Nicola, Natural History Museum Vienna, Department of Anthropology

Anatolian Aegean Prehistoric Phenomena (Research group leader: Barbara Horejs)

Objectives

The central theme of the research group Anatolian Aegean Prehistoric Phenomena (AAPP) is the synoptic analysis of Neolithic, Chalcolithic and Early Bronze Age sites in Anatolia and the Aegean from a supra-regional perspective. This enables a better understanding of phenomena, which connected these two major cultural spheres. Anatolia and the Aegean are both starting and intermediary points of formative, cultural phenomena and developments of historical relevance to humanity, which shaped the European continent. The interdisciplinary analyses crosslink our knowledge of both cultural areas and are crucial for the understanding of causes and socio-cultural impact, yet different research traditions and orientations of international academic schools have so far impeded progress. The research group AAPP, established in 2014, draws attention to this significant desideratum and unites experts of both regions. The focus on inter-regional prehistoric questions from the Neolithic to the Early Bronze Age in this cultural core may, via systematic comparison, lead to models and concepts that can be evaluated in a larger geographical and socio-cultural context.

Archaeological context

In the Holocene, from c. 10th to 3rd millennium BC, crucial changes in human society and lifeways took place in the Aegean-Anatolian area that characterizes the region to this day. These include the foundational and sustained changes to the oldest sedentary agricultural cultures in Neolithic times and the beginnings of human-induced environmental change, associated with a fundamental change of social organizational structures. The changes in the socio-cultural structures of these first sedentary communities to the emergence of the first proto-urban societies in the course of the Copper and Bronze Age reflect a fundamental change that becomes apparent through the onset of numerous simultaneous innovations.

These dynamics can be described in concepts and models addressing e.g. the utilisation of resources and the changing access to raw materials. They are also visible in the development of social hierarchies and specialized technologies. The geographical area of the archaeological cultures of this research group mainly comprises the mainland of Greece, including the northern coastal zones, the Aegean Islands and Anatolia from its western coast to the Anatolian plateau. Supra-regional studies of the group generally include the Balkans as well as Anatolia, upper Mesopotamia, the east Mediterranean and the Levant.

Current research programme

Process of Neolithization (10th–7th/6th mill. BC)

The essential process of sedentism, cultivation of animals and plants as well as all social-economical changes can be summarized as Neolithization that is highly debated in the regions of our focus. Modern excavated data from the early 7th mill. sites Çukuriçi Höyük and Arvalya Höyük (Western Anatolia) are currently in use for multiple interdisciplinary studies focusing on the initial starting

point of first settlers in the region and their potential origin. Additionally new sites are studied by the group aiming to provide new data, like in the Marmara region (faunal remains of Aktopraklık and Barcın Höyük) or in the Izmir region (lithics and raw materials of Ulucak and Yeşilova).

Within the ERC grant *Prehistoric Anatolia 2015*'s investigation at Çukuriçi Höyük focused on material studies of Neolithic finds (i.e. ceramics, bones, lithics, small finds, mudbricks) and was split in a spring and a summer campaign. Besides recording and analysing the Neolithic lithic and small finds assemblage of the oldest settlement phase (ÇuHö XIII), detailed studies, regarding deposition processes and spatial analysis on selected Neolithic buildings were conducted. During the summer campaign studies regarding archaeozoology and lithics were carried out. Moreover, the ongoing material studies of various topics will be continued in the depot of the excavation house.

With the EU Marie Curie ITN project *BEAN* lithic technologies and raw materials are analysed within a PhD thesis. A second PhD project (DOC-Fellowship, Ch. Britsch) is dealing with "Early Textile Technologies in the Anatolian-Aegean World". An additional PostDoc project is dealing with a "Frontier model for the Neolithic Expansion in Anatolia and Southeast Europe" (AFR-Postdoc Grant M. Brami). Within last mentioned project this year's main focus was the particular juncture, c. 6,500 cal. BC, when the Neolithic was transformed into what Trevor Watkins has referred to as a "portable and artificial ecosystem", spreading beyond its initial bonds in Southwest Asia. In cooperation with the geographer A. Zanotti initial expansion of the Neolithic out of Anatolia, based on the space-time distribution of ¹⁴C dates, was modelled. This research indicates that the westward spread of agriculture into Europe was preceded by a lag of up to 2,000 calibrated years, during which farming was held off on the Central Anatolian Plateau. Additionally, it was possible to study one of the Central Anatolian early sedentary communities in more detail, at Boncuklu, a 9th millennium site near Çatalhöyük. Together with B. Milić, F. Ostmann, U. Thanheiser and A. Galik, B. Horejs published a paper about the Aegean in the Early 7th Millennium BC focusing on maritime networks and colonization in the *Journal of World Prehistory*.

Diachronic studies in Thessalian plain (6th–3rd mill. BC)

Detail material studies are ongoing at sites in the Thessalian plain aiming basic publications (monographs) of this important cultural region on the Greek mainland. The *Visviki Magula/Velestino* project funded by FWF dealt with old-excavated materials that lead to a monograph by E. Al-



Neolithic obsidian cache from Çukuriçi Höyük (photo: N. Gail/ÖAI)

ram and H. Hauptmann (Academy of Sciences, Heidelberg) published in 2015. In cooperation with the Ephorate of Volos and the Institute for Mediterranean Studies, Rethymnon a poster has been presented at the conference “Communities, Landscapes and Interaction in Neolithic Greece” comparing past excavations’ data to recent geophysical research in Rethymnon.

The recently started interdisciplinary studies of the *Platia Magoula Zarkou*, funded by FWF as well, are focusing on the cultural change during the 6th mill. BC. As important pottery production centre the studies are providing new input for defining changes in pottery technology as well as more general questions related to all aspects of material culture, which are currently under study by an international research team managed by E. Alram. The project, which has been granted in June 2014, started by 2015; Areti Pentedeka and Christos Batzelas have started recording of the pottery and study of stratigraphy in the Archaeological Museum of Larisa. Experimental firing for the reconstruction of the chaîne d’opérateur of Grey-on-Grey pottery has started. From June onwards the small finds, including chipped and ground stone tools as well as tools from bone and clay have been recorded, and a first campaign on the geology of the Western Thessalian Plain has been conducted. In 2015 Constanze Moser has been granted the DOC fellowship and has started her studies on the Early Bronze Age finds and findings in January 2016.

Chalcolithic and Early Bronze Age settlements, economies and technologies (4th–3rd mill. BC)

Settlements in different regions dating to 4th and 3rd mill. BC are under study with focus of settlement patterns and structures, economical background, sourcing, technological development and chronology. Regionalisms versus inter-regional networks are an additional focus in analysing Chalcolithic and Early Bronze Age sites. Detail analyses of Chalcolithic settlement patterns, regionalism, networks, chronology and periodization are currently under study in Western Anatolia and East Aegean including new excavation data from Çukuriçi Höyük, Pergamon region and Barcın Höyük (ERC Prehistoric Anatolia project).

Another aspect is an interdisciplinary approach of pottery technology, including petrographical, chemical and neutron activating analyses for micro-regional and trans-regional comparison. They are conducted in various projects like in the *Midea* project (Argolid), the *Romanos-Navarino* project (Messenia), the *Prehistoric Pergamon region* survey (Kaykos/Bakırçay valley), the *Madra river* project and the *Çukuriçi Höyük* excavations.

Within the ERC grant *Prehistoric Anatolia* in spring 2015 a depot campaign, focussing on material studies of pottery, small finds, lithics as well as mud bricks coming from Late Chalcolithic and Early Bronze Age Çukuriçi Höyük, took place. Beside this, detailed analyses concerning the deposition processes were conducted on the buildings of the youngest Early Bronze Age settlement phase. Together with M. Mehofer, B. Horejs published a paper about the production of arsenal copper at Çukuriçi Höyük at the beginning of the Early Bronze Age. Together with Ch. Schwall she published an article concerning architecture and settlement structures as possible cultural patterns within the 4th Millennium BC.

In September 2015 photo documentation, survey work and paleogeographic drillings took place within the frame of the Prehistoric Pergamon region survey. The aim of these investigations was to reconstruct the former position of the site at Çiftlik Höyük and to verify a possible prehistoric settlement at Kula Bayırı Tepe, both located in the Kaykos valley.

The Midea project aims at a better understanding of the Neolithic and Early Helladic periods in Southern Greece. In 2015 the preparation of the Neolithic, Chalcolithic and Early Helladic pottery (EH I–III) of Midea has been prepared for publication. Two papers on the EH II pottery have been presented at the workshop on pottery technologies in October 2015. Their results are based on petrography and chemistry and macroscopic reconnaissance and demonstrate that the bulk of the pottery was made locally, with a changing pattern of imports showing a few imports from the Aegean during Early Helladic I and a number of imports from the Corinthia, including eating and drinking as well as transport vessels during EH II. The preparation of the publication is ongoing.



Early Bronze Age saucers from Midea in the Argolid (photo: Kostas Xenikakis)

Within the FWF-Project *Prehistoric Pyrotechnics* in 2015 the ores, which were sampled in the field surveys 2012 around Çukuriçi Höyük, were examined by light- and scanning-electron-microscopy to characterize their ore minerals and ore textures. The second important step in 2015 was to create a database of published trace element, and lead isotope data from regional and supra-regional ore deposits in Western Anatolia. The database is of particular relevant in order to compare the geochemical signature of the sampled ores with other ore districts in Western Anatolia. The preparation of all ceramic thin-sections from Çukuriçi Höyük had been completed, including also the wares coming from the earliest occupation phases of the tell. Selected ceramics and clay raw materials from the surroundings of Çukuriçi Höyük have been investigated through WD-XRF and XRD analyses at the Laboratoire Archéométrie et Archéologie (Maison de l'Orient et de la Méditerranée, Université Lyon 2) in Lyon. Heavy mineral analyses, performed at the University of Applied Arts Vienna/Department Archaeometry and Technology, on the major local ceramic wares are ongoing.

An international workshop on pottery technologies and sociocultural connections between the Aegean and Anatolia during the 3rd mill. BC in October 2015 was able to integrate these AAPP studies in a broad socio-cultural context. A potential comparable metal and obsidian workshop in Romanos-Navarino is currently in preparation for further studies. Finally, the EBA settlements of Çukuriçi Höyük are under study for future detail publication regarding stratigraphy, architecture, metallurgy, materials, chronology, subsistence etc.

Figurines in the Copper Age

A trans-regional study of figurines dating from 6th to 4th millennium BC includes new excavation data from Anatolia and unpublished figurines from the Greek mainland. Particular attention is paid to contextual analysis and theoretical concepts. The publication on the figurines has been prepared and submitted for publication at the Journal of the Austrian Archaeological Institute. It gives insight into the social organization of Chalcolithic villages in Greece; furthermore, it is shown, that similar ritual was practiced throughout the Balkans and the Aegean. A paper has been presented at the conference in Rethymnon; the paper has been submitted for publication.

Lithics and Raw Materials

Ongoing research on Neolithic to Chalcolithic stone tool technology, its development, distribution and socio-cultural interpretation at various sites in the area provides new and important insights. The associated analyses of the raw materials have initially led to locally constructed models, for which regional and inter-regional evaluation is still pending. Significant new insights into commodity circulation can be expected of geochemical studies of cherts, initiated in 2014 (BEAN project; follow-up project presumably starting in 2016). The different models of obsidian distribution could thus be supplemented by significant components, which enhance our knowledge of resource use and the processes of artefact production and distribution.

In the beginning of the year the BEAN project workshop “Simulating the Neolithic” at UCL, London was held. Beside lithic studies on the Neolithic Period of Çukuriçi Höyük, analysis on the lithic material from Neolithic Ulucak was undertaken in the laboratory for Prehistory in Istanbul University. Additional raw material analysis done by Michael Brandl and Maria Martinez on the earliest assemblage of Neolithic Çukuriçi and a case study on Yeşilova “cache” made on chert tools and cores has been carried out. Investigations on the concept of raw material procurement and obsidian distribution networks in western Anatolia were conducted. B. Milić attended the International Symposium for chert and other knappable materials at the University of Barcelona, Spain as well as in the BEAN closing conference in January 2016 in Antalya.

Digitizing Early Farming Cultures

Strongly related to the Digital Archaeology group managed by E. Aspöck, this recently started project aims an integration of the AAPP research data from this area dating from 7000 to 3000 BC. The complexity of various running databases and digital as well as analogue archives is going to be homogenized and standardized for future saving (repository) and additional online publication of the data (open access strategy).

Early Textile Production in the Anatolian-Aegean World

Material and technological studies of textile production tools are currently in progress at various sites in Anatolia, Aegean and the Balkans dating from 7th to 3rd mill. BC. Aside traditional methods of typological comparison and metrology, also use-wear analyses as well as contextual and faunal studies are conducted. The results should contribute to an understanding of differing working processes and the social impact of textile production in Anatolia and the Aegean. These diachronic studies are strongly embedded in international cooperations (e.g. CTR Copenhagen).

Within the DOC fellowship concerning “Early Textile Technologies” beside general studies like data collection by literature, research stays in Larisa and Athens, Greece for studying tool assemblages of Platia Magoula Zarkou and Visviki Magoula as well as a one-month research stay at MAE in Paris for training in use-wear analysis were conducted.

Highlights 2015

- The Workshop on “Pottery Technologies and Sociocultural Connections between the Aegean and Anatolia during the 3rd Millennium BC” organized by the AAPP has taken place in Vienna, 22–23 October 2015. The workshop included papers based on petrographic, chemical and NAA analyses as well as on pottery studies based on macroscopic analyses of fabric as well as of shape and decoration from various Western Anatolian and Greek Early Bronze Age sites.
- Various projects have been granted: *Platia Magoula Zarkou* (FWF stand-alone project); *FeNCE* (Fonds National de la Recherche Luxembourg, AFR-Postdoc Grant)
- The final publication of the excavations of Visviki Magoula/Velestino was published in 2015: E. Alram-Stern – A. Dousougli-Zachos, *Die deutschen Ausgrabungen 1941 auf der Visviki-Magoula/Velestino. Die neolithischen Befunde und Funde* (Bonn 2015).
- DOC-Fellowship of the Austrian Academy of Sciences 2015 for Constanze Moser: *Platia Magoula Zarkou in Thessalien, Griechenland. Kulturelle Entwicklung und Außenbeziehungen von 3500 bis 2300 v. Chr.*

Material Culture in Egypt and Nubia (Research group leader: Bettina Bader)

The scientific focus of the research group lies in qualitative and quantitative research on the material culture of the Second Intermediate Period (SIP) in Egypt and Nubia. It deals with several regions in order to obtain independent relative chronologies of artefact groups in context, which will then be viewed spatially across Egypt and Nubia, and engage with material culture theory.

The current chronological frame work is a period of around 200 years in the mid-Second Millennium BC when a unified political system is not tangible in the existing text based history. During this time intense cultural, social and political changes occurred. The aim of the research group is a completely new analysis of the material remains of the SIP in order to provide a solid body of evidence beyond the disrupted political history. Research concentrates on all features and object types appearing in the archaeology of Egyptian burial and settlement contexts of the SIP.

2015 the members of the research group began to single out valuable contexts from a large number of sites, in order to conduct work in Museums and on excavations. Here specifically to mention are Abydos, Tell el-Yahdiah, and Mirgissa. This year the research activities in the field focussed on the sites of Tell el-Retaba (L. Hulková with the Polish-Slovak Expedition to Tell el-Retaba, S. Rzepka, J. Hudec, University of Warsaw, and Aigyptos Foundation), Deir el-Bersha (B. Bader, Katholieke Universiteit Leuven, Belgium, H. Willems), the mortuary temple of Thutmosis III and the shaft tombs below it in Thebes (B. Bader, University of Granada, Spain, M. Seco-Álvarez), and Uronarti (co-director C. Knoblauch, Brown University, Providence, USA, L. Bestock). Some preliminary reports on the findings of these sites are in press.

Re-analysis of archaeological material excavated many years ago fills some vital gaps because mostly these sites are destroyed today. In this avenue of research material from Abusir el-Meleq from the transition of the late Second Intermediate Period and the New Kingdom (mid-second Millennium BC) was thoroughly re-recorded in a fruitful collaboration with and by courtesy of the Egyptian Museum in Berlin. Almost all the material still exists, even after WW 2. The material of the site of Mostagedda, some existing in Berlin was also re-recorded. The combination of modern field work in archaeology with all modern methods at hand to analyse and interpret the relics of the ancients with numerous objects from 'undisturbed' contexts that were retrieved in the early years of Egyptology (in the first half of the 20th century) will provide a glimpse of what the old excavation techniques missed but also allow new knowledge of what is destroyed today, such as Abusir and Mostagedda.

The collaboration with Dr J. Bourriau (Senior Research Fellow, McDonald Institute for Archaeological Research, University of Cambridge, UK), who has become an Honorary member of the research group, is particularly valuable, because she has worked at many sites with SIP artefacts (Memphis, Lisht, Sawama,



Tell el-Retaba



Uronarti, Nubia

Deir el-Ballas, Abydos) and has a huge research experience and an archive, which she generously put at the disposal of the research group.

Financing: FWF START grant, Y754-G19 Beyond Politics: Material Culture in Second Intermediate Period Egypt and Nubia.

The Mycenaean Aegean: Cultural Dynamics from the Middle Bronze Age to the Early Iron Age (Research group leader: Birgitta Eder)

Research programme

Mycenaean Archaeology and Linear B Studies form a traditional and internationally recognized field of research in the Austrian Academy of Sciences. In 2014 current projects transformed into a research group that pools many previously ongoing individual studies and projects that deal with various aspects of the Mycenaean civilization and the Middle Bronze Age strands of its genesis (Minoan Crete, Middle Helladic mainland) and its transformation into the Greek Early Iron Age. That applies to larger projects as well as smaller studies pertaining to the political structures of Mycenaean Greece and its political geography, the northern and western regions of Mycenaean Greece, the relations between the Greek mainland and Crete during the Late Bronze Age, the textual evidence of the Linear B documents, Mycenaean cult practice and rituals, but also to Middle Helladic and Early Mycenaean pottery, burials and habitation sites. The geographical area includes all areas of the Mycenaean civilization from Thessaly to Crete and from the Ionian Islands to the Dodecanese and the coast of Asia Minor. The analytical work is supplemented by individual projects, which deal with the publication of excavation finds.

The research group works at the integration of all relevant projects under a theoretical framework in order to establish relations and interfaces between individual tasks and projects. The var-

ious projects are devoted to different aspects of the material culture of the Mycenaean period, and an internal discussion group has dedicated the so-called Blue Circle Discussions in Mycenaean Archaeology to the ways and means, conditions and implications of the social (re)production of (material) Mycenaean culture. The regular exchange of ideas in the discussion circle offers added value for the work on individual projects, but also helps designing future research questions and projects. In more or less regular intervals the discussion group organizes international “Blue Circles” on specific subjects and research questions, and the first international meeting on “(Social) Space and Place in Early Mycenaean Greece” is currently organized to take place in October 2016 at the Austrian Archaeological Institute in Athens. As one of the first results of the work of the research group a proposal for a Hertha Firnberg project on the construction of gender identities in the Minoan and Mycenaean societies has been drafted and submitted for funding to the Austrian Science Fund. In addition, concepts for a new project on Mycenaean ritual and cult practices have been developed.

In addition to the joint approach to theoretical issues, particular emphasis is given to the traditional qualities of research at the Academy, which are based on a thorough and comprehensive knowledge of the archaeological and written sources. This implies the intensive study of the material (and written) culture and correspondingly specialized individual studies of materials and the transmission of relevant knowledge to project staff and younger scholars. Several projects are dedicated to material studies, especially of Middle Bronze Age and Mycenaean pottery, and this will continue in the next years, in order to finish excavation reports and prepare the evaluation of the material under synthetical perspectives.

Selected projects

FWF Stand-alone Project “Kakovatos and Triphylia in the 2nd millennium BCE”

2015 saw the start of the project that is dedicated to the publication of the old finds from the tholos tombs and recent excavations at the site of Kakovatos in Triphylia (Peloponnese). An essential perspective refers to the rise of a stratified society in the Early Mycenaean period within its regional context. The integration of finds from neighbouring sites and a systematic program of petrographic and chemical analysis of pottery will allow to develop a regional perspective on pottery production and consumption as well as site communication on a regional and supra-regional level. During two study seasons in the archaeological museum at Olympia work continued on the evaluation of pottery from Kakovatos, and the systematic recording of pottery from neighbouring Kleidi-Samikon started. A major group of pottery from Kakovatos was selected for archaeometric analysis and the first samples were taken in 2015. The (re)evaluation of the old finds from the tholos tombs will be completed in 2016.

Principal investigator: B. Eder – Project staff: Ch. de Vree, J. Huber – Collaborator: M. Zavadil

Main Cooperations: Ephorate of Antiquities, Olympia (G. Chatzi; K. Nikolentzos); DAI Athens; Fitch Laboratory of British School at Athens (E. Kiriatzki; G. Kordatzaki); N. Benecke (DAI Berlin, archaeozoology); S. Riehl (Univ. Tübingen, palaeobotany)

Palace style amphorae belong to a prestigious class of ceramic vessels of the Early Mycenaean period. The chemical and petrographic analysis of fragments of this group of vases will offer new information on their production areas and circulation patterns



Logograms of the Linear B script

The project offers a structural analysis, based on the two components of formal appearance and contextual correlation of the individual logograms. 2015 work has concentrated on the logograms for plants and agricultural products. In the course of 2016 the first part of this vast project will be completed (resulting in a monograph on the logograms of man and woman, animals and plants, as well as animal and agricultural products). One paper published in 2015 studies aspects of the palaeographic traditions of logograms inherited from older scripts and the visual models for creating new logograms. A detailed study of logograms referring to artefacts that have clear counterparts in artwork or in the material culture of the Mycenaean palatial period, has been submitted for the Proceedings of the 14th International Mycenaean Colloquium, held at Copenhagen in September 2015.

J. Weilharter – Cooperation partners: St. Hiller (Univ. Salzburg), T. Palaima (University of Texas), J. Killen (University of Cambridge)

Middle Bronze Age Pottery from the Peloponnese

Archaeological research has paid less attention to the Middle Bronze Age than to the complex civilisations of the Minoan and Mycenaean cultures of the 2nd millennium BC. However, the pottery of this period provides information about supra-regional contacts as well as insights into daily life and craftsmanship. Work on the MH pottery from Midea, Pheneos and Kakovatos will contribute to answer questions concerning the production, circulation and consumption patterns of MH pottery in the Peloponnese.



The acropolis of Pheneos (Ancient Arcadia) from the west. Middle Bronze Age settlement remains were discovered directly underneath the Classical city wall on the eastern plateau of the acropolis, which was the central site in the correspondent high plain in the Central Peloponnese

Midea: The final study season was dedicated to the check-up of the pottery and the selection of pieces for photography. 2016 will be devoted to the writing of the manuscript. Pheneos: Work on the MH pottery continued. In 2015 sherds dating to the second settlement phase were classified, drawn and photographed. An application for an INSTAP research grant for petrographic analyses has been submitted. In 2016 it is planned to select sherds for petrography and to continue work on the pottery as well as on the bones and stone-tools (in collaboration with colleagues from Austria, Great Britain, Germany and Greece). Kakovatos: All fragments with incised decoration (so-called Adriatic ware) were selected and drawn. 2016 will be devoted to the classification of fabrics and the concise recording of the sherds.

M. Zavadil – Cooperation partners: K. Demakopoulou (director of the Greek-Swedish excavations at Midea), P. Scherrer (Univ. Graz), K. Kissas (Ephorate of Antiquities of the Corinthia), E. Alram, B. Eder (OREA)

The Transformation of the Mycenaean World

Various contributions to handbooks on the Late Bronze Age / Early Iron Age transition, in particular to international book projects such as “Der Neue Pauly Supplement 10: Die frühen Kulturen des Mittelmeerraums” (appeared 2015) and the Cambridge Companion to the Early Iron Age in Greece have been completed and submitted for print.

B. Eder, in collaboration with St. Gimatzidis, S. Deger-Jalkotzy

LH IIIC settlement of Aigeira in Achaia

Excavations in the settlement of Aigeira on the coast of the Corinthian Gulf in the ancient region Achaia have revealed an important phase belonging to the Mycenaean post-palatial period of the 12th and early 11th century BCE. The project is dedicated to the publication of the finds and the stratigraphy. While S. Deger-Jalkotzy is currently working together with A. Bächle on the Mycenaean pottery for the publication, E. Alram-Stern will present the associated stratigraphy and architecture of this settlement site in a separate volume, which she has been preparing for publication.

E. Alram-Stern, S. Deger-Jalkotzy – Project staff: M. Börner, A. Bächle

Highlights 2015

On the occasion of the 75th birthday of Sigrid Deger-Jalkotzy a seminar entitled “ΤΕΝΕΘΑΙΟΝ ΔΩΡΟΝ – Mykenisches und Nachmykenisches” was organized by the members of the research group in Vienna, February 3, 2015. Short papers on various topics of their research mirrored the scope of the current research projects.

The publication of the 2012 conference on “Policies of Exchange: Political Systems and Modes of Interaction in the Aegean and the Near East in the 2nd Millennium BCE” was edited by B. Eder and R. Pruzsinszky and appeared in 2015 as the second volume of the new series OREA.

The proceedings of the conference “Tradition and Innovation in the Mycenaean Palatial Politics”, which took place in March 2013 at the Austrian Academy, were edited by J. Weilharter and F. Ruppenstein and appeared towards the end of 2015.

Public relations

In 2015, two members of the research group contributed by teaching seminars to the “Junior Science Club”, which is organized by the Vienna School Board in order to introduce teenagers to research within a stimulating atmosphere. Michaela Zavadil offered research perspectives on questions of life and death in Mycenaean Greece, while Jörg Weilharter spoke about the Linear B script of the Late Bronze Age palaces of the Aegean, which represent the earliest textual records of Europe that have been deciphered yet.

Mediterranean Economies (Research group leader: Reinhard Jung)

Research programme

After a longer period, in which archaeological research focused much on diverse aspects of ideology and often treated economy from a rather modernist viewpoint, it is time to re-enter into a debate of basic economic theory and to examine the archaeological record with regard to direct correlates for economic factors and their systemic interdependence. A return to the subject of economy is shown also by research trends elsewhere in Europe and in the USA. The central idea of the research group – scheduled since the fall of 2014 – can be summarized as follows. The development of the forces of production constitutes a decisive factor in the development of economic and political structures of all social systems and therefore also determines contacts between societies to a large extent. The research group is working to combine two main approaches, an economic theory debate and an analysis of the archaeological record. The sources of archaeology consist in material remains, i.e. artefacts, products of human work from all spheres of life. These constitute a rich reservoir of information, from which conclusions on economic processes can be drawn either directly or indirectly on different levels.

So far, the activity area of the research group covers the central and the eastern Mediterranean as well as the central Balkans immediately to the north of the Mediterranean coastal regions and the Nile valley. It is thus treating a rather wide area, while focusing on the historical processes of the 2nd and early 1st millennium B.C.E. During those 1000 and more years, the Mediterranean and its surrounding regions present a wide spectrum of very different economic and political structures, which were nevertheless interacting to a variable degree and mutually influencing their course of development with considerable diachronic variation. The human societies of the Mediterranean and circum-Mediterranean regions passed through different phases of economic and political integration and disintegration. These processes of uneven, yet combined development make the Bronze Age Mediterranean especially interesting for research into the economic and political development of pre-capitalist societies.

The regions currently treated by the research group cover very different aspects of those developments and further offer the possibility of studying the interaction between three important economic zones. The projects of the research group treat the following topics:

- Local economies. Reconstructing local economic and social systems in different Mediterranean and neighbouring regions
- Politics of resources. Starting from archaeometric data, investigation into the issue how and on which routes different state and pre-state economies organized their supply with resources that were not locally available (e.g. metals)
- Interregional contacts. Investigation of economic and political contacts on different levels between the societies around the Mediterranean, i.e. between state and pre-state societies and between different early state societies; finally and based on the aforementioned investigations comparisons between the different types of contacts
- Economic and political change. Reconstructing the development of forces of production as a background against which to interpret e.g. the breakdown of palace economies and the emergence of city states from the end of the second to the start of the first millennium B.C.E. as well as related historical processes

On the one hand, these topics require the application of the whole range of current archaeological and archaeometric methods in constant cooperation with colleagues of other humanities and sciences. On the other hand, a whole series of theoretical issues is involved in solving the problem, which archaeological evidence allows inferences on ancient economy. These include theories of production, property of the means of production, products exchange and the question how products became commodities. The Zentral-Café, a new initiative affiliated to

the Mediterranean Economies research group, serves as a space for discussing these topics. At the moment, researchers representing various disciplines of archaeology and social anthropology and coming from all OREA departments as well as the University of Vienna take part in this initiative. Discussions center on important texts of economic theory – such as “The Capital” by Karl Marx or approaches by different theoreticians from the 20th century up to the present day – on the one hand and specific case studies from archaeology and anthropology on the other hand. This theory group can stimulate new research approaches on economic and materialist archaeology in the group and beyond. In October 2015 participants of the group presented papers at the 8th Archaeological Conference on Central Germany at Halle entitled “Rich and Poor – Competing for Resources in Prehistory”, that was co-organized by R. Jung together with H. Meller, R. Risch and H. P. Hahn. This can be taken as a first step to widen the debate, both in the realms of theory and practical application to archaeology.

At the moment, the research group is involved in ongoing or recently conducted fieldwork and the analysis of the results in Italy, Greece and Bulgaria. These projects receive external funding from the Austrian Science Fund (FWF) and the Gerda Henkel Stiftung. Following the outlined approach, these fieldwork projects all include intensive cooperations with international experts, archaeologists as well as scientists from different disciplines, e.g. M. Pacciarelli (University of Naples Federico II) as a co-director in the excavation of the Italian settlement site of Punta di Zambrone; H. Popov and K. Nikov (Bulgarian Academy of Sciences) in the study of finds from the Bulgarian gold mining site of



Ivory figurine from Punta di Zambrone (© J. Lipták)



Aerial view of Ayios Vasileios (© A. Vasilogamvrou)

Ada Tepe; A. Vasilogamvrou (Sparta) for the study of finds from the Mycenaean palace site of Ayios Vasileios in Laconia; E. Pernicka (CEZ Mannheim and University of Heidelberg) and M. Mehofer (VIAS, University of Vienna) for technological aspects of ancient metallurgy and related provenance studies; H. Mommsen (Bonn University) for provenance studies of pottery; a team of botanists from Vienna (VIAS) and Germany; a team of zoologists from the University of Veterinary Medicine Vienna and many other specialists from different countries.

Highlights 2015

In April 2015 the research team working on Punta di Zambrone (excavated between 2011 and 2013 by R. Jung and M. Pacciarelli) presented a series of main results at a workshop at the Austrian Historical Institute (ÖHI) at Rome entitled “1200 B.C.E. A Time of Breakdown – a Time of Progress in Southern Italy and Greece”. Members of the team discussed the results obtained at Punta di Zambrone with the international scholarly community in the context of recent scientific results from other sites and regions of southern Italy and southern Greece. The papers shall be published as *Punta di Zambrone I* (in the OREA monograph series).

Two new research projects were approved by the FWF. The first started on August 1st 2015 and is directed by R. Jung. It is centered on the Mycenaean palace of Ayios Vasileios in Laconia. The site is currently excavated under the direction of A. Vasilogamvrou and includes a well-preserved archive of Linear B tablets. This site opens up the possibility to investigate the Mycenaean economy based on an ongoing excavation of a major palatial site – a unique scientific opportunity. The main subject of the project is the pottery that is studied by E. Kardamaki. The project will contribute to the understanding of the role of Mycenaean Laconia on a regional and on an interregional level from the early Mycenaean to the end palatial period.

The second new research project was approved by the FWF in November 2015 and will be directed by B. Horejs. The project starts in January 2016 and investigates the southern Bulgarian site of Ada Tepe, a Bronze Age gold mining site in the central Rhodopes with an associated settlement inhabited throughout the second half of the 2nd and the early 1st millennium BCE. The project centers on the archaeological and archaeometric analysis of find materials from this site and the role Bulgarian gold mining was playing in the context of regional and interregional economic and political processes during the Bronze Age.

Digital Archaeology (Research group leader: Edeltraud Aspöck)

Research programme

Research data has now been recognized to be an important output of archaeological projects. The research group *Digital Archaeology* addresses important questions related to the long-term preservation of research data and their dissemination for data sharing and re-use. The research group is well connected internationally and projects build on international research and standards in the field. The activities of the research group span across all OREA departments and there are collaborations with several other OREA research groups and projects. The group represents an interface between archaeologists and technicians.

The overall aims of Digital Archaeology are to:

- develop strategies to overcome fragmentation of archaeological research data
- improve strategies to guarantee long-term preservation of archaeological research data for sharing and re-use of data

Research objectives

Long-term preservation of OREA research data:

- Digital archaeology projects as case studies leading to the development of a repository for archaeological research data at the ÖAW-ACDH.

Creation of an OREA e-research infrastructure:

- Make selected OREA research data accessible open access online: Creation of an OREA online platform to publish research results and data and make them accessible open access (platform hosted by ÖAW-ACDH).
- Creation of standardized research datasets from heterogeneous data typically resulting from traditional long-term excavation projects and from research in archaeological regions with different research traditions.
- Preservation of non-digital resources: Digitizing analogue OREA resources and archiving them in the repository if analogue materials are degrading.

Improvement of data management practices in archaeology:

- Adaption, modification and development of guides to good practice in archaeological IT.

Additionally, we are interested in the theoretical and social implications of increasingly digital research methods in archaeology. This includes e.g. democratization of access to knowledge on a global scale through increasing number of open access online resources and the possible changes in research practice of future generations of archaeologists.

Innovation and uniqueness of research

In Austria, the OREA research group Digital Archaeology is the only research group addressing questions of data standards, homogenization and preservation in the field of archaeology. Our research builds on international standards, for example in the area of data integration (ontologies) and preservation (metadata standards).

More specifically, innovative activities and uniqueness in research can be found in two areas:

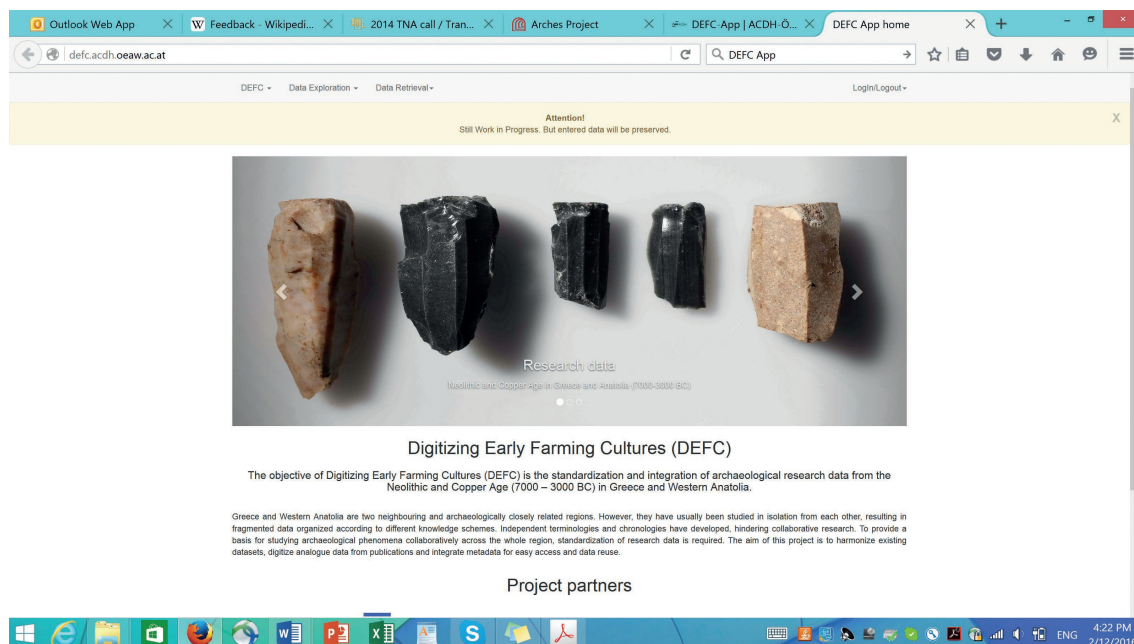
- Nation-wide, in our research leading up to the development of a repository for archaeological data at the ÖAW ACDH
- Of wide interest will be the integration of Neolithic ceramics databases using CIDOC CRM, which we are about to embark on (project 'Digitizing Early Farming Cultures').

Research report 2015 (for project details see below)

Preparations for a new OREA open access online dataset (DEFc, ARIADNE WP13)

The preparations for the creation of a new open access online dataset on Neolithic Greece and Anatolia were nearly completed in 2015. The basis are analogue and digital resources from the AAPP research group. A conceptual data model and a thesaurus were created from the results of the data analysis and an assessment of user needs (focus group meetings with the AAPP research group). The data was mapped to the CIDOC CRM and to Arches, an open source site database (<http://archesproject.org/>). However, testing showed that the implementation of the data model into Arches failed due to incompatibility of data models and CIDOC CRM mappings. Consequently, a new database was created (ÖAW ACDH) – the new online 'DEFc App' (<http://defc.acdh.oeaw.ac.at/>) which was programmed with Django.

The development of the DEFc App required several rounds of testing (data entry) and user feedback leading to modifications of data model, DEFc App, controlled vocabularies according to user needs. The testing and feedback was nearly completed by the end of 2015.



Screenshot of DEFC App (<http://defc.acdh.oeaw.ac.at/>)

High precision 3D scans of the Schachermeyr pottery collection (Breuckmann scanner) were created and first examples put online (3D HOP).

Preparations for data archiving (4D Puzzle, ARIADNE WP13)

The resources from the long-term excavations at Tell el Dab‘a have been analysed to create an overview (number of analogue/digital resources, requirements for digitization) and a first draft of fields for metadata formats. We began the collection of wordlists from excavation documentation for controlled vocabularies and a thesaurus. Similar projects on archiving of resources from long-term excavations were used as case studies to identify good practice (e.g. UrOnline project, British Museum). Relevant asset management systems were identified for testing (ad-lib, NUXEO). As a test area, square j21 in Tell el-Dab‘a area F/I was chosen. The same area is used by the project partner LBI to develop the 4D Archaeological information System.

Good practice: Survey excavation data management software (ARIADNE WP2 SIG Excavation and Monument data)

As part of our activities within the Special Interest Group (SIG) Excavation and Monument data (leader AIAC and OEAW) we surveyed existing excavation data management software across Europe (user feedback, open source etc.). The results will be made available as a resource via the ARIADNE webpage.

Increasing interoperability of ÖAW archaeology datasets: mappings to CIDOC CRM & AAT (ARIADNE WP3, WP14)

Keywords of ÖAW datasets that we registered in the ARIADNE catalogue were mapped to the AAT (Getty Arts and Architecture thesaurus, <http://www.getty.edu/research/tools/vocabularies/aat/>). The DEFC data and also other ÖAW datasets (Late Bronze Age image database, site database and cemetery Franzhausen-Kokoron) were mapped to the CIDOC CRM.

Training: Attendance of ARIADNE TNA summerschools

Digital archaeology research group members visited ARIADNE TNA summerschools:

- Design of archaeological datasets: metadata design (ISTI-CNR; E. Aspöck, S. Štuhec)
- Mapping datasets to CIDOC CRM (PIN; A. Masur)

Highlights 2015

Completion of testing and controlled vocabularies for DEFC App, end of 2015:
<http://www.oeaw.ac.at/acdh/en/DEFC-App>

Projects

ARIADNE

Partners: Consortium of 24 archaeological and technical institutions from 18 European countries – the partners we mainly work with are: UoY ADS (University of York – Archaeological Data Service), ICS Forth (Foundation for Research and Technology Hellas), PIN (Servizi Didattici e Scientifici per l'Università di Firenze s.c.r.l.), SFRG (Salzburg Research Forschungsgesellschaft m.b.H.)

ARIADNE (Advanced Research Infrastructure for Archaeological Dataset Networking in Europe) is a project that brings together and integrates existing archaeological research data infrastructures so that researchers can use the various distributed datasets and new and powerful technologies as an integral component of the archaeological research methodology. ARIADNE aims to enable trans-national access of researchers to data centers, tools and guidance, and the creation of new web-based services based on common interfaces to data repositories, availability of reference datasets and usage of innovative technologies. It will stimulate new research avenues in the field of archaeology, relying on the comparison, re-use and integration into current research of the outcomes of past and on-going field and laboratory activity. Specific actions address the long-term digital preservation and interoperability via data standards (e.g. CIDOC CRM) of the data.

Coordination: F. Niccolucci (PIN), J. Richards (ADS) – Project team: E. Aspöck, A. Masur, I. Petschko

Funding: FP7-INFRASTRUCTURES-2012-1-313193

DEFC – Digitizing Early Farming Cultures (ACDH go!digital ACDH 2014/22)

Digitizing Early Farming Cultures is a project that will integrate research data from Neolithic sites and finds of Greece and Anatolia, allowing research across the whole region and overcome fragmentation through differing knowledge schemes. The aim is to harmonize existing datasets, digitize data in publications and finds that exist only in analogue format and make metadata accessible. The data will be made available via an archaeological data management system ensuring compliance to standards in data production for data sharing (metadata and mappings) and interoperability with related initiatives. The focus of the project will be on information and data from Neolithic and Chalcolithic sites and finds (c. 7000–3000 BC according to Greek terminology).

Project team: E. Aspöck (project leader), A. Masur, S. Štuhec, I. Petschko – Partners: OREA AAPP research group, ÖAW ACDH, ARIADNE

Funding: BMFW – ÖAW/ACDH (ACDH go!digital ACDH 2014/22)

4DPuzzle: A puzzle in 4D: digital preservation and reconstruction of an Egyptian palace

The project will provide long-term preservation for the rich archaeological resources of the Austrian long-term excavation project at Tell el-Dab'a in Egypt. Digital and non-digital excavation data will be integrated according to stratigraphic, i.e. archaeological spatio-temporal principles, enriched with

metadata and prepared for long-term archiving and open-access online publication. A visualization of the resulting integrated site model will allow researchers as well as the interested public to experience the ancient site and its colourful and world-famous Minoan wall paintings. An Archaeological Information System (AIS) will be built to manage and analyse a digital data archive from an excavation project and should be designed to manage also incomplete information, model uncertainty and integrate 4D stratigraphic information combining spatial relations with time-interval mathematics. A repository for archaeological data will guarantee long-term preservation of archaeological datasets enriched with metadata that enable discovery, accessibility and usability of files.

OREA Project team: B. Horejs (project leader), E. Aspöck (scientific coordinator OREA), A. Schwab (project management), K. Kopetzky (archiving), S. Štuhec (researcher) – LBI Project team: W. Neubauer (project leader LBI), N. Doneus, M. Kucera (scientific coordinator LBI) – Partners: OREA *Egypt and the Bronze Age World* research group, ÖAW ACDH, Österreichisches Archäologisches Institut (ÖAI), Ludwig Boltzmann Institute (LBI), ARIADNE, PIN, ADS, University of Chicago, Universität Bochum

Funding: BMFW – ÖAW/ACDH (ACDH go!digital ACDH 2014/22)

Zusammenführung heterogener interdisziplinärer Forschungsdaten am Beispiel des Bergbaus in Kitzbühel – Die Ontologie CIDOC CRM als Konzept zur Integration und Harmonisierung archäologischer, historischer und archäobotanischer Daten (PhD project, DOC-team project 70208)

This thesis, financed by a DOC-team scholarship of the ÖAW, deals with the problem of how to manage and harmonize heterogeneous and unstructured data in general. The main focus is on testing and checking the ontology CIDOC CRM with regard to the applicability in archaeology and adjacent disciplines (history, archaeobotany).

Principal investigator: Anja Masur (DOC-team project 70208)

Partners: DBM (Deutsches Bergbau-Museum Bochum)

Egypt and the Bronze Age World

(Modified successor of the former *Tell el-Dab'a* group, currently coordinated by V. Müller)

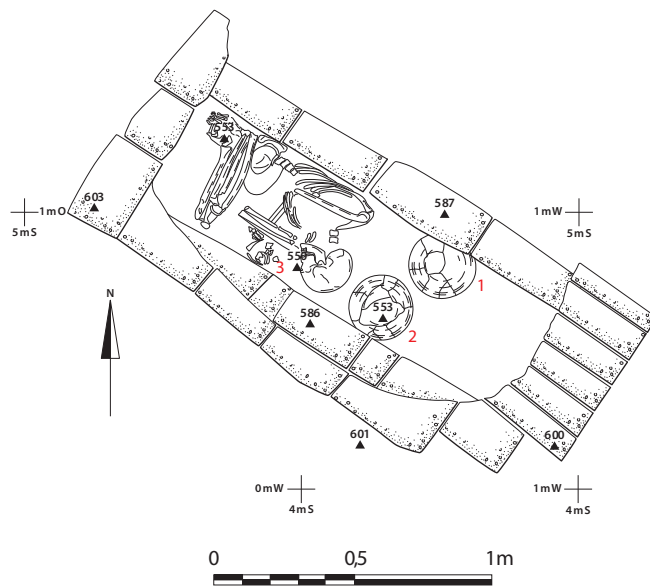
The central theme of *Egypt and the Bronze Age World* is the synoptic analysis and final publication of the Tell el-Dab'a excavations until 2009 (former head of the excavations M. Bietak). Based on the 2014 developed publication concept (cooperation agreement with the Austrian Archaeological Institute), the members of the research group continued working on their subjects of the excavations at ancient Avaris, the modern Tell el-Dab'a.

Activities

Thus, after final editorial adjustments the monograph prepared by E. Czerny in two volumes on the excavations at Ezbet Rushdi, a settlement of



Tell el-Dab'a, A II, O16, detail of the building (© ÖAI/ÖAW archives)



Tell el-Dab'a, F/I-L/19, tomb 10 (© ÖAI/ÖAW archives)

the beginning of the 2nd millennium BC, was published in autumn. In addition, he began to study a corpus of nearly 500 scarabs, seal amulets and mud-sealings from Ezbet Helmi, dating mainly from the Second Intermediate Period to the middle of the 18th Dynasty (ca. 1600–1400 BCE). This time period is still badly understood from the archaeological perspective in several respects. At the same time the understanding of this period is crucial not only for Egypt but for the whole Eastern Mediterranean, as it builds a period of radical change from the late Middle Bronze to the early Late Bronze Age. The ceramic material from one of the areas at Ezbet Helmi, area H/VI, was collected in a comprehensive catalogue by D.

Aston. With more than 4200 items it is the largest collection so far known from this crucial period. In autumn 2015 the data have been evaluated at Tell el-Dab'a and he began with the pottery's analysis.

Several other publication projects are in the process of continued preparation such as the tombs of area F/I (K. Kopetzky), the settlement of the late Middle Kingdom in area A/II (B. Bader) and the ritual relics in temple courts in the same area (V. Müller). The continuation of the documentation of further material at Tell el-Dab'a could, however, not be proceeded due to administrative problems in Egypt. The travels are postponed to the coming year to continue the studies for publication.

For the digitizing project *A puzzle in 4D* (third-party funded by the Austrian Centre of Digital Humanities, ACDH) a structure for a comprehensive data-management program was set up by K. Kopetzky and E. Aspöck (*Digital Archaeology group*) in co-operation with partners from the Ludwig-Boltzmann-Institute. In addition, they tested the data of the stratigraphy of one excavation square for this project and started with the digitizing of the analogue documents of the excavations at Tell el-Dab'a for the repository. The important analogue and digital archives of the Tell el-Dab'a excavations within OREA have been evaluated and systematically organized by the new archive manager K. Kopetzky. This evaluation forms the crucial basis for the transformation of all data into a planned repository in the future.

Furthermore, the well-established collaboration with the University of Bochum concerning the restoration, documentation and scientific processing of the famous Minoan wall paintings of Tell el Dab'a was continued (directed by M. Bietak and C. v. Rüden).

M. Bietak's new project "A Hyksos Enigma" was honoured with an ERC Advanced Grant in 2015. This project will be carried out in cooperation with *Egypt and the Bronze Age World* regarding the Tell el Dab'a outcome in the future.

In the course of a meeting in conclave the group members discussed new focal points that will be partially included in the forthcoming publications and that offer also new perspectives for future developments and projects. In reference to the inclusion of new impulses and the modified content, the group changed its name into "Egypt and the Bronze Age World".

An international workshop on the possibilities to build up a data-base for relative and absolute chronological schemes named CINEMA (Chronometric Investigations in Near Eastern and Mediterranean Antiquity) was organised by V. Müller and F. Höflmayer in May 2015 at OREA and was carried out together with specialists on chronological matters from the OREA institute as well

as from international institutions (e.g. Oxford, Chicago, Los Angeles, New York and Köln). This topic builds one of several focal points of the research group that is not directly included into the publication projects, but offer further perspectives in the future.

Furthermore, several members of the research group are involved in the preparations and realization of the forthcoming international conference ICAANE 2016 (International Congress on the Archaeology of the Ancient Near East). One of the activities consists of a symposium on 50 years of excavations at Tell el-Dab‘a, organized by M. Bietak and K. Kopetzky.

Highlights 2015

- Evaluation and Modification of the research group with development of new perspectives
- E. Czerny, *Tell el-Dab‘a XXII. Der Mund der beiden Wege. Die Siedlung und der Tempelbezirk des Mittleren Reiches von Ezbet Ruschdi*. UZK 38, Wien 2015.
- Organization of the international workshop CINEMA (Chronometric Investigations in Near Eastern and Mediterranean Antiquity) by V. Müller and F. Höflmayer in May 2015
- Evaluation and re-structuring of the analogue and digital Tell el-Dab‘a archive

Public relations

On request of the „Junior Science Club“, four collaborators of the Egyptian and the Levant section contributed in two seminars for two school-classes (c. 13–14 year old children). Under the general heading of “Von der Ausgrabung zum Buch” (“from excavation to publication”), Karin Kopetzky, Nicola Math, Roman Gundacker and Ernst Czerny treated topics such as excavating in Egypt, Egyptian writing, or to publish an excavation report. An “excavation” was undertaken in the courtyard of the academy building, which was very helpful for the children to understand how an archaeological excavation works.

Urnfield Culture Networks (Project leader: Michaela Lochner)

Research programme

The Department Europe at OREA, with UCN, is one of the few European institutions committed to long-term research on the Late Bronze Age/Early Iron Age (Urnfield Culture). It is a well-established research centre for the period between 1300 and 800 BC in the scientific landscape of Europe.

The department is entrusted with and responsible for the analysis and publication of important Austrian sites, excavated by the University of Vienna (Institute of Prehistory and Early History) and the Federal Monuments Office (BDA) in several long-term campaigns, which constitute an essential source for the cultural and intellectual foundations of Europe. Since 2014, the Prehistoric Commission’s focus on central Europe has been increasingly expanded to encompass projects geographically situated in south-eastern Europe and Greece.

Urnfield Culture Networks (UCN) has recently received an excellent evaluation from the international research community and it is now one of the Academies’ established long-term research programmes, which have started in 2015.

UCN connects existing, large projects to projects conducted over several years with current research questions. Topics such as burial, religion and ritual, as well as socio-economic phenomena are approached supra-regionally. The cultural development, potential connections as well as religious, economic and social characteristics are explored through various regional studies in Croatia, Bosnia, Northern Greece and central Europe, paying special attention to the integration of young researchers and local specialists in a common network.

In addition to the use of existing data sets covering the entire period between the 13th and 8th century BC (Thunau am Kamp, Stillfried an der March, Franzhausen-Kokoron, Inzersdorf ob der Traisen), the integration of newly excavated sites is of central importance (e.g. Polichni/Macedonia and Dolina and other cemeteries in Croatia and Bosnia).

The aim is to establish a sustainable, international research centre for the Late Bronze Age of central and south-eastern Europe at OREA, to facilitate medium- and long-term research and to systematically support young scientists. A period of ten years (2015–2025) is estimated to develop this centre of competence. The development consists of three stages, linked to the existing and future projects of individual project managers.

Publications, international workshops held regularly (“UK-Gespräche”) as well as conferences organized by the UCN (with an emphasis on south-east Europe) complete the research programme. In addition, the latest results and new research directions of the Urnfield Culture Networks will be discussed and evaluated at international conferences. Various digital initiatives (UC bibliography, cremation burials database) will continue to operate and expand. A collaboration with the research group Digital Archaeology is ongoing.

“UK-Gespräche” (Urnfield Culture conversations)

“UK-Gespräche” are a discussion forum for research on the Late Bronze Age/Urnfield Culture (1300–800 BC) in Europe. Held twice a year, the conversations are organized by Urnfield Culture Networks/OREA. Since 2015, the UC conversations include an international outlook. The new concept combines a one-day thematic workshop with a corresponding public evening lecture.

Current and planned projects

Databases / (electronic) publications

The responsibility to analyse important Austrian sites comprises considerations of the publishing strategy, including open access electronic publishing of research results and databases, as well as the long-term archiving of large data sets.

A first initiative is the evaluation of analogue and digital data of the large projects ‘Thunau am Kamp’ and ‘Franzhausen-Kokoron’ and their preparation for digital publication within the Austrian Academy of Sciences Press, in addition to the regular printed publications.

• **Thunau am Kamp – a fortified hilltop settlement of the Urnfield Culture**

This project is part of the analysis of excavations carried out between 1965 and 2003 (director: H. Friesinger, E. Szameit), which began in the 1980s. The large number of finds from over 430 excavation trenches, dug over the whole extent of the 20-hectare complex, comprises over 100.000 individual objects. The finds have been inventoried and categorized; a large part has been drawn and parts of the sections/plans of findings have been digitized. The final publication of the overall results will be prepared by M. Lochner for an electronic publication.

The extensive collection of data and interpretative results, amongst them representative findings and small finds, will be published online (open-access) and secured in a digital archive for the long-term.

M. Lochner

• **The Late Urnfield Culture cemetery of Franzhausen-Kokoron, Lower Austria**

The extensive analysis and interpretation of the 403 cremation graves with approximately 1600 individual objects includes a catalogue and photographic material (overview plan, photographs and drawings of finds and contexts), which is available as digital, interactive open-access publication via the Austrian Academy of Sciences Press: <http://epub.oeaw.ac.at/franzhausen-kokoron>. Currently, an update of the data and a re-launch of the graphical user interface is being prepared in collaboration with the publishing house.

To provide an opportunity to combine the database with other, thematically similar data sets, it was mapped using the CIDOC-CRM ontology. A publication of the data mapping in .xml and .rdf is planned in the near future. The project is integrated into the ARIADNE programme.

M. Lochner

• Urnfield Culture in Lower Austria

The book project with contributions from numerous authors will include about 350 pages with colour illustrations and diagrams and appear in the series ‘Archaeology in Lower Austria’, published by the Austrian Academy of Sciences Press in 2018.

M. Lochner – Funding: Lower Austria

• Urnfield Culture Bibliography

Bibliographic data on the Austrian Urnfield Culture can be accessed online via the OREA website and is constantly updated. An extension to include regions of south-eastern Europe has been initiated.

M. Lochner

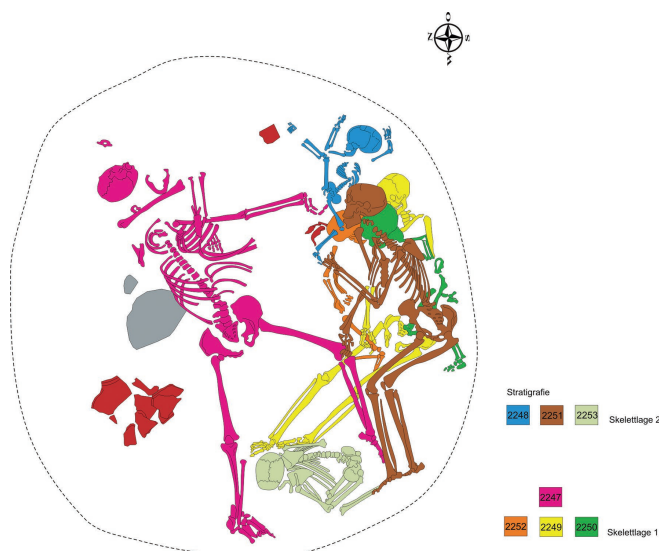
Ongoing projects

• Human and animal depositions – sacrificial cult in Stillfried?

In this project, which started in 2011, selected findings of large storage pits including human and animal depositions were analysed and interpreted, including the reconstruction of stratigraphic and depositional sequences as well as the application of natural science approaches, to help understanding background and practice of ritual actions. In 2015 a workshop on ‘Traces of keeping wild animals in captivity?’ took place.

At the moment, the final monograph is being prepared to be published in the series MPK in 2017.

Principal investigator: I. Hellerschmid –
Funding: FWF-stand-alone project



V1141, Skelette modifiziert nach Szilvassy et. al. 1988, Abb. 47

• The Early Iron Age site of Polichni in Thessaloniki

A total of approximately 1021 graves including cremations and inhumations have been unearthed at the Early Iron Age western necropolis so far. A detailed documentation is available from the excavation campaigns, which spanned several years. Thanks to funding by INSTAP in 2011 and 2012, several hundreds of objects were already drawn and photographed; the ceramics were further subject to typological and petrographic analyses.

The aim of the project is the final publication of the excavation campaigns so far. The site will further provide the opportunity to undertake modern, detailed and multi-disciplinary excavations in the future to back the research results so far.

Principal investigator: St. Gimatzidis – Funding: INSTAP, FWF-stand-alone project

Stillfried: schematic view of “the seven” in pit V1141

- **The Early Urnfield Culture cemetery of Inzersdorf ob der Traisen, Lower Austria**

Despite grave robbing in antiquity, the 273 urn burials and scattered cremations of the cemetery were found exceptionally well equipped with grave goods.

The analysis and interpretation of the cemetery will be carried out by several researchers over a time-span of three to five years, depending on individual research emphases and with the help of scholarships (e.g. Doctoral Fellowship Programme). Among others, a Master's thesis on the subject of long-rectangular grave constructions is currently in preparation.

M. Lochner

- **Late Bronze Age metallurgy in the northwestern Balkans**

The main aim of the project is to gain new insights into metal circulation in the Western Balkans, using various chemical-analytical and archaeological methods.

Thanks to the cooperation of the institutions OREA, VIAS and regional museums in Travnik and Doboj (Bosnia and Herzegovina), a successful pilot phase of the project was launched in November 2014. The first results and publications represent the basis for a new project (project proposal will be submitted to the Austrian Science Fund in 2016), which will deal with the Late Bronze Age in the region in detail.

M. Gavranović (OREA), M. Mehofer (VIAS)

- **The social status of motherhood in Bronze Age Europe**

This project investigates social responses to pregnancy, childbirth and early child care as well as the relationship between reproductive and social status of women in the Bronze Age. Innovative archaeological and bio-anthropological methods will be applied to recently published cemeteries of the Early, Middle and Late Bronze Age. Archaeological methods include the analysis of graves of infants, pregnant women, as well as double burials of women and children and a reconstruction of their social status. Anthropological methods include the palaeo-pathological reassessment of women's and infants' skeletons, isotope analyses to assess infant feeding practices and aDNA analyses to clarify genetic relationships between buried individuals and to determine the sex of infants.

Principal investigator: K. Rebay-Salisbury – Funding FWF-Stand-alone project

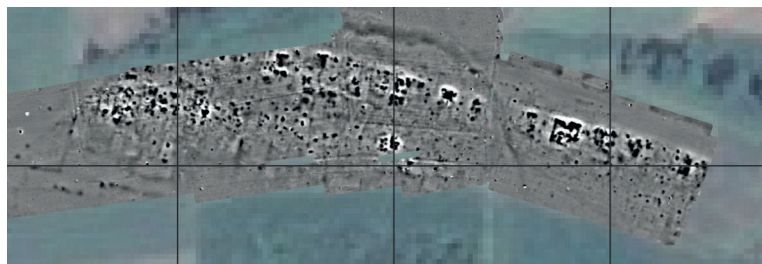
- **Burial**

The project is dedicated to the analysis and interpretation of Late Bronze and Early Iron Age archaeological remains from the contact zone between the Carpathian Basin and the Balkans. The area plays a key role, both geographically and culturally, in connecting the European continent to the Aegean-Anatolian World.

Starting point of the investigations is the cemetery and associated settlement of Dolina-Glavičice



Pottery from grave 2, tumulus 6 in Dolina, Croatia (photo: Institute of Archeology, Zagreb)



Geomagnetic survey of the settlement in Dolina, Croatia (project "Burial")

at the Croatian bank of the river Sava, which dates to the 9th and 8th centuries BC and has been excavated between 2009 and 2013.

Principal investigator: M. Gavranović – Funding: Marie Skłodowska-Curie actions – Research Fellowship Programme

• **Securing resources, power and cult in Stillfried?**

The project is devoted to the question of whether the central site of Stillfried also had the function of a supra-regional grain storage space, which was accompanied by elaborate rituals. The remarkably high density of trapezoidal (storage) pits with similar filling patterns gave rise to these considerations; particularly the depositions of wild and domesticated animals in these pits are exceptional.

Principal investigator: M. Lochner – Project team: M. Griebel – Funding: FWF-stand-alone project

Projects in planning

• **Dynamic: cremation. A phenomenon and its approaches**

The aim of this project is the coordinated assessment of the European phenomenon of the spread of cremation in the Late Bronze Age on the basis of a shared database, a comparison of local and partial analyses of cemeteries, anthropological analyses as well as theoretical considerations of funerary rituals.

Starting from three cremation cemeteries that are currently under investigation at OREA (Inzersdorf/Austria, Polichni/Northern Greece, Dolina/Croatia, Bosnia), a broad study of the spread of cremations will be attempted in collaboration with colleagues from the respective regions. Junior researchers will be involved in the screening of published sites, which will result in master's theses and doctoral dissertations. A list of criteria for the designated database has already been developed in the course of preliminary studies; archaeometric and anthropological analyses are fundamental parts of the cremation burial database.

An important foundation and complementation to this research are the results of the project 'Changing Social Practices of Death in Bronze Age Europe', carried out at the University of Cambridge by Marie Louise Stig Sørensen and Katharina Rebay-Salisbury between 2005 and 2009.

Project team: M. Gavranović, St. Gimatzidis, M. Lochner, K. Rebay-Salisbury

Highlights 2015

- Development of the sustainable, long-term research concept, positive international peer evaluation and official launch within the Austrian Academy's research programme
- Start of three externally funded projects (Austrian Research Fund, Marie Skłodowska-Curie actions-Research Fellowship Programme)
- ERC Starting-Grant 2015 for our team member Katharina Rebay-Salisbury ("The value of mothers to society: responses to motherhood and child rearing practices in prehistoric Europe")

Platform: History of Archaeology (coordinated by Michaela Zavadil)

Research into the history of their own discipline played for a long time a minor role for archaeologists. In recent years interest has increased noticeably and studies concentrate not only on the beginnings of archaeology, but also on its recent past. Following this trend the platform "History of Archaeology" was established in 2015. It brings together colleagues working on different topics dealing not only with the history of archaeology and the biographies of archaeologists but also with the history of the former commissions. The "Prähistorische Kommission" and the



Visviki-Magoula (1941): Hans Reinerth and three workers (Aram-Stern – Dousougli 2015, Abb. 22)

“Ägyptische Kommission” were among the oldest commissions within the Academy (founded in 1878 and 1907), whereas the “Mykenische Kommission” – established in 1971 – was comparatively young.

Brigitta Mader’s new project “Archäologie zwischen Doppeladler und Zweiter Republik. Die Prähistorische Kommission der Österreichischen Akademie der Wissenschaften zwischen 1918 und 1945” (financed by the Stadt Wien) is directly connected to her previous studies, which dealt with the history of the Prähistorische Kommission between 1878 and 1918. Her monograph “Die Prähistorische Kommission der Kaiserlichen Akademie der Wissenschaften 1878–1918” has been submitted for print at the ÖAW. After being internationally peer-reviewed it has been accepted and is currently prepared for printing.

In April 2015 members of the platform took part in two international conferences: on the one hand in the symposium “Archäologie in Österreich 1938–1945”, which was organized by the Universalmuseum Joanneum in Graz (D. Modl, K. Peitler) and the Bundesdenkmalamt (B. Hebert, M. Pollak), and on the other hand in the international colloquium on “Archäologie und Archäologen im 19. Jahrhundert”, organized by the Heinrich-Schliemann-Museum Ankershagen (R. Witte) in collaboration with the Heinrich-Schliemann-Gesellschaft Ankershagen (R. Hilse, W. Bölke) in September 2015 on the occasion of the 125th anniversary of the death of Heinrich Schliemann.

Highlight 2015

The monograph of E. Aram-Stern and A. Dousougli-Zachos “Die deutschen Ausgrabungen 1941 auf der Visviki-Magoula/Velestino. Die neolithischen Befunde und Funde” appeared towards the end of 2015. It includes chapters not only on the history of the excavations at Visviki-Magoula, but also on the history of German archaeological research in Thessaly since the 19th century (E. Aram-Stern, G. Schöbel, K. Zachos).



Work in progress in cemetery SAC5 on Sai Island – the focus of work of “Across ancient borders and cultures” in 2015

Across Ancient Borders and Cultures (Project leader: Julia Budka)

The FWF START project “Across ancient borders and cultures” was successfully continued in 2015. Excavations on the island of Sai (Sudan) took place from January to March 2015; field research on Elephantine (Egypt) between October until December 2015.

In the large New Kingdom cemetery SAC 5 on Sai, a new tomb was discovered. The findings in this new tomb 26 are of great importance for understanding the relationship between Sai and Amara West during the 19th Dynasty and might be of historical significance for Upper Nubia in this era in a broader sense.



A number of worked stones (including a pyramidion) and complete vessels on the base of the newly discovered shaft tomb 26 on Sai

Marlies Wohlschlager, Andrea Stadlmayr and Anna Sonnberger started to anthropologically investigate the human remains from Sai. Biological age and sex were determined when possible. Pathologies and degenerative diseases were documented and the minimum number of individuals established.

First multi-element and Sr isotopic analyses of soil extracts (bioavailable Sr fraction), water, as well as recent and ancient animal tooth samples from Sai Island were conducted, establishing a preliminary ‘isoscape’ for the island (cooperation with Boku Vienna, Thomas Prohaska).

The focus at Elephantine was on small finds and ceramics from House 55 and the detailed comparison of the material culture with the finds from Sai Island.

Apart from the archaeological fieldwork, Ingrid Adenstedt finished the 3rd reconstruction of the southern part of the New Kingdom town of Sai with several new results, which are relevant for a better understanding of the town layout. The manuscript of a substantial monograph on the topic was submitted in December 2015.

Studies on Ancient Egyptian Compound Nouns (APART fellowship Roman Gundacker)

In 2015, the search for relevant examples was predominant. Work on this matter turned out to be much more difficult than expected because the standard dictionaries suffer from the standardization of hieroglyphic writings a historicizing imprecision of Egyptological transcription systems. Accordingly, all formations which because of their morphological structure or their semantics must be viewed as potential compounds (traditionally called ‘Ältere Komposita’) have to be examined in textual context. This requires for the search of all text editions available, which was put to the test during a research stay at the “Berliner Wörterbuchprojekt” of the Berlin-Brandenburg Academy of Sciences, where a great quantity of texts is recorded on *Belegstellenkarten* with the respective words presented in textual context and with original hieroglyphs. This approach proved successful and resulted in doubling the data to ca. 120 morphological compounds (despite numerous *juxtaposita*, traditionally called ‘Jüngere Komposita’).

This increase of data allows for a more precise way of addressing the following issues of Egyptian language history in general and of the history of morphological compounds in particular:

- The transition from the ‘Dreisilbengesetz’ to the ‘Zweisilbengesetz’, which until now appeared highly problematic in terms of coherence and comprehending, was neither a constant process nor one affecting individual words and phrases/sentences at the same time. Apparently, this phase of shift, which is crucial for the understanding of Egyptian stress rules, was characterized as a phase of complex interplay between word stress and phrasal stress. Keeping the evolution of those two apart allows for the explanation of paradigmatic levelling on the one hand and of the genesis of morphological compounding via the application of compositional stress as well as its later disappearance as productive means of word formation on the other hand.
- The quest for decisive hieroglyphic spellings of morphological compounds revealed a great number of suppletive paradigms and replacement formations. The commonly assumed tendency that morphological compounds were at risk of being dropped or replaced can thus be proved right. Already at a stage when morphological compounds still were a productive category, some kind of restrictions (stress rules?) must have pertained which made it impossible for morphological compounds to form synthetic plurals and *status pronominales* resulting in analytical replacements for certain parts of the paradigms. This, then, exposed them as highly irregular and often resulted in giving up the archaic morphological compounds. The materials collected allow for the differentiation of three kinds of replacement formations, two of which can be shown as diachronically subsequent to each other whereas the third one appears as complementary.
- Work on the vocalized relicts of morphological compounds revealed a limited number of equivalent formations belonging to different vocalization patterns which might be indicative for early dialectal variation. If taken together with methods of forming replacement formations, this might prove as a mean of assessing early idioms (dialects and sociolects), which via the evaluation of place names perhaps can be traced to certain regions. This, however, requires further significant examples and additional research.
- The material collected also contains information on issues of phonology, especially the lenition of *p* to *b* and of *b* to *m* in the absolute *Auslaut*, the retention of *t* in the compositional join and the simplification of consonant clusters. Since most of these phenomena also affected *nomina simplicia*, they are of general interest for the development of the Egyptian language.

To conclude, morphological compounds contain information on numerous details of the Egyptian language, which due to the specific nature and diachronical distribution can be determined in greater detail. With the detection of further morphological compounds, further insight into the morphology, the vowel and stress patterns and the variation of idioms (chronolects, sociolects, dialects) of Ancient Egyptian is to be expected.

Egyptian relations with the Levant in the 4th and 3rd millennium BC (APART fellowship Felix Höflmayer)

Since May 2015, OREA hosts the APART-project of Felix Höflmayer, who critically reviews Egyptian-Levantine relations, and models of state formation and collapse during the 4th and 3rd millennia BC based on a radiocarbon-backed absolute chronology. This period encompasses state formation in Egypt during the Proto- and Early Dynastic Period, the Old Kingdom, and its collapse at the end of the 6th Dynasty. The Levant saw the so-called Egyptian ‘colonies’ at the beginning of the Early Bronze Age, the rise of urbanism during Early Bronze II and III, its collapse, and the advent of the de-urbanized Early Bronze IV (or Intermediate Bronze Age).

The rapid climate change around 2200 BC (the 4.2 ka BP event) was often thought to be a trigger or a contributing factor to the end of empires, states, and urbanism (e.g. the Akkad-empire in upper Mesopotamia, the collapse of the Egyptian Old Kingdom, and the end of urbanism in the southern Levant). However, recent radiocarbon dating studies by Johanna Regev et al. and Felix Höflmayer et al. on Early Bronze Age chronology conclusively showed that the ‘collapse’ of urbanism at the end of Early Bronze III was an extended process and has to be raised at least to c. 2500 BC (instead of 2300/2200 BC). The new high Early Bronze Age chronology not only challenges long held historical synchronisms, but also proposed models of societal collapse. The APART-project of Felix Höflmayer reviews the rise and collapse of the Egyptian state of the Old Kingdom, the first phase of urbanism in the southern Levant, and their mutual relations against a radiocarbon-backed absolute chronology.

Several key radiocarbon sequences have already been published, such as for Tel Yarmuth (Israel) by Johanna Regev, or Tell Fadous-Kfarabida (Lebanon), Khirbet ez-Zeraqon and Khirbet el-Batrawy (Jordan) by Felix Höflmayer. During 2015, additional samples for radiocarbon dating have been selected from Tel Yaqush (Israel) in cooperation with Yorke Rowan (University of Chicago) and Yael Rotem (Tel Aviv University), and from Khirbet Iskander (Jordan) in cooperation with Suzanne Richard (Gannon University, Erie, PA). Both sites cover periods and regions which are so far not well represented in the chronological dataset, the Early Bronze I/II period in the upper Jordan Valley, and the Early Bronze IV (Intermediate Bronze Age) in southern Jordan.

In November 2015, together with Thomas Schneider (University of British Columbia), Felix Höflmayer co-chaired a member-organized session at the Annual Meeting of the American Schools of Oriental Research, where scholars from Canada, the United States, the United Kingdom, Russia, and Austria presented current research on the archaeology and external relations of the Egyptian First Intermediate Period. Further, he co-presented the radiocarbon evidence from Khirbet ez-Zeraqon together with Valentina Tumolo (Tübingen University) at the same meeting in a session focusing on the Early Bronze Age III period.

The Early Iron Age at Tell Abu al-Kharaz, Jordan Valley (Project leader: Peter M. Fischer; DOC fellowship Teresa Bürge)

This study is based on an extremely well-preserved early Iron Age compound from the Transjordanian settlement of Tell Abu al-Kharaz in the central Jordan Valley. This unique compound was constructed around 1100 BCE. The building, which belongs to the local Phase IX of occupation at Tell Abu al-Kharaz, was discovered in 2009. During the course of the four-year-long exposure of the main compound which is a 46 m long two-storey building with a dominating position in the southern part of the city, it soon became clear that this building complex is exceptional as regards its architectural layout and the abundance of in situ finds from virtually undisturbed contexts.

The main objectives of this thesis were besides a detailed description of the find material and the study of the topography, the structures, the building materials and the organisation of construction, also the functional examination of the contexts and the building as a whole, the



View of the Phase IX compound from the west



Selected locally made and imported vessels from Tell Abu al-Kharaz, Phase IX

discussion of the possible causes of the destruction of the compound, the search for contemporaneous architectural parallels of the building in order to find possible “prototypes”, the establishment of the typology of pottery and small finds and the establishment of an absolute chronology. A special focus was on the discussion of tradition versus innovation in the material culture of the early Iron Age Southern Levant, social organisation and town planning, and the effect of migration and possible connections with neighbouring cultures including the ‘Sea Peoples phenomenon’, i.e. the effect of intercultural migration which started around 1200 BCE and involved the Eastern Mediterranean from Italy over the Balkans, Greece, Anatolia, Levant and Egypt.

The early Iron Age pottery and other finds from the settlement of Phase IX at Tell Abu al-Kharaz indicate a high degree of continuity from the Late Bronze Age. On the other

hand there are a number of innovations, which reflect an amalgamation of new, foreign, and traditional, local traits. This combination of continuity and innovation is consistent with finds from other sites in the Jordan and the Jezreel Valleys. Foreign traits are mainly from the Eastern Mediterranean, specifically Cypriot and Aegean, spheres of culture. These are reflected in fine ceramic wares and small portable objects, which were most likely traded, together with objects which were locally produced: New types of cooking pots and loom weights, which indicate changes in cooking and dietary habits, and in domestic textile production. Thus, it is clear that the settlers of early Iron Age Tell Abu al-Kharaz were influenced by the transformations from the Bronze to the Iron Age in the 12th century. However, limited migration of individuals or families, which arrived from the Eastern Mediterranean through the Jezreel Valley, is suggested.

The thesis was submitted in November 2015 and defended in January 2016. The publication of the thesis is in preparation. The research was supported by a DOC-fellowship and a Marietta Blau-fellowship.

Excavations at the Late Bronze Age Harbour City of Hala Sultan Tekke, Cyprus (Project leader: Peter M. Fischer; assistant Teresa Bürge)

Renewed excavations at Hala Sultan Tekke (Areas 6 and 6W), a 25+ ha large Late Bronze Age harbour city close to Larnaca, were carried out under the direction of Peter M. Fischer from the Gothenburg University since 2010.

Previous excavations directed by the late Paul Åström focused on the latest occupation (viz. our Stratum 1, i.e. 12th century BCE). One of the main goals of the new excavations is to explore the complete occupational sequence of Hala Sultan Tekke and thereby to contribute to the discussion on relative and absolute chronology of the crucial period which covers the late Middle Cypriote and the Late Cypriote IA–IB periods during which the much debated Minoan eruption of the Thera volcano took place.



View of the excavation areas at Hala Sultan Tekke



White Slip I (upper) and Base-ring I (lower) vessels from Pit P

In addition to complementary information on the 12th century level of Stratum 1 two more levels of occupation could so far be exposed: Stratum 2, preliminarily placed at around 1200 BCE, and Stratum 3 which is tentatively placed in the 14th or 13th centuries BCE. However, there are also stray finds of pottery which date back to the transition Middle/Late Bronze Age around 1600 BCE. The chronology is mainly based on radiocarbon dates. Whereas Strata 1 and 2 produced fairly intact architectural remains, Stratum 3 suffered from the building activities of the two more recent strata. In consequence, any detailed interpretation of the finds from Stratum 3 has not been possible.

Additional excavations were carried out in Area A, 550 m to the east of Area 6W and close to the mosque of Hala Sultan Tekke. In 2014 more than 80 circular anomalies were indicated by our geomagnetic survey supported by GPR. Twelve of them were excavated in 2015. Most of them turned out to be backfilled wells of which the fills mainly date from the 13th and 12th centuries BCE (Late Cypriot IIC–IIIA). One of them contained several White Slip II and Base-ring vessels, loom weights and a 19th Dynasty scarab of white paste. Another of the excavated anomalies (Pit P) turned out to be an offering pit, which contained amongst other finds White Slip I monochrome and bichrome bowls, and Base-ring I bowls, juglets, jugs and a tankard. The preliminary date according to the pottery is roughly the 15th century BCE (Late Cypriot IB).

Excavations will continue in 2016. The field project is strongly associated with a recently approved research project by the Swedish Research Council: “The Collapse of Bronze Age Societies in the Eastern Mediterranean: Sea Peoples in Cyprus?”. This project will be carried out from 2016–2020.

The excavations are financed by the Swedish Söderberg Foundations, the Institute for Aegean Prehistory (INSTAP) and the Royal Society of Arts and Sciences in Gothenburg.

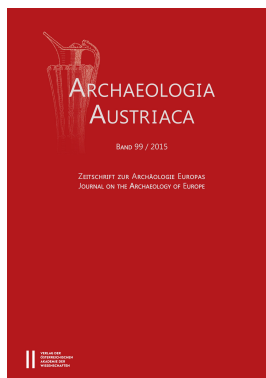
OREA-Team 2015

Ingrid Adenstedt	Marc Händel	Elisa Priglinger
Eva Alram-Stern	Irmtraud Hellerschmid	Jörg Rambach
Edeltraud Aspöck	Felix Höflmayer	Katharina Rebay-Salisbury
David A. Aston	Barbara Horejs	Maria Röcklinger
Bettina Bader	Jasmin Huber	Gabriela Ruß-Popa
Mario Börner	Lucia Hulková	Oliver Schmitsberger
Maxime N. Bami	Reinhard Jung	Ulrike Schuh
Christopher Britsch	Christian Knoblauch	Elke Schuster
Teresa Bürge	Karin Kopetzky	Angela Schwab
Julia Budka	Arvi Korhonen	Christoph Schwall
Ernst Czerny	Michaela Lochner	Miranda Semple
Christine de Vree	Anja Masur	Ulrich Simon
Giulia D'Ercole	Nicola Math	Seta Štuhec
Florence Doyen	Rosa Matic	Roswitha Thomas
Birgitta Eder	Dagmar Melman	Jördis Vieth
Sarah Eder	Vera Müller	Jörg Weilhartner
Thomas Einwögerer	Mohamad Mustafa	Estella Weiss-Krejci
Florian A. Fladerer	María Antonia Negrete Martínez	Daniela Wölfl
Mario Gavranović	Christine Neugebauer-Maresch	Michaela Zavadil
Stefanos Gimatzidis	Felix Ostmann	Johanna Ziehaus
Monika Griebel	Doris Pany-Kucera	
Roman Gundacker	Areti Pentedeka	
Silvia Hack	Irene M. Petschko	

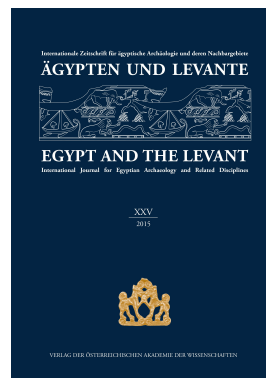
Guest scientists 2015

Michael Brandl	Bogdana Milić
Claus Jurmann	Martina Pacher
Ourania Kouka	

Journals and series edited by OREA in 2015



Archaeologia Austriaca. Journal on the Archaeology of Europe (ArchA)
Archaeologia Austriaca 99/2015,
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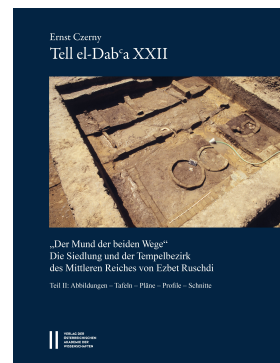
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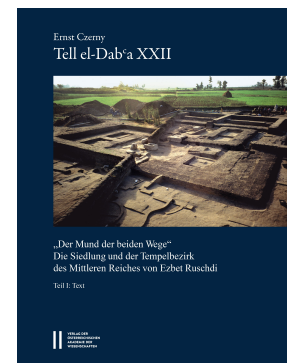
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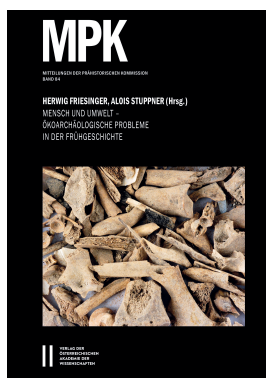
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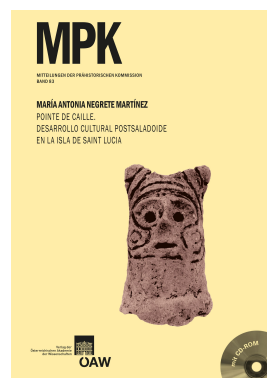
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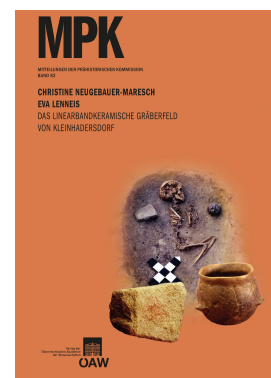
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