With about 500 private graves and 50 mausoleums, the early Islamic “Fatimid Cemetery” of Aswan is one of the biggest Islamic cemeteries in Egypt. It was built between the 7th and 11th century and was first documented in the 1920s by the Italian architect Hugo Monneret de Villard. The Fatimid Cemetery, which contains many items from Pharaonic times and antiquity, is located in an area that once served as a quarry – its rose granite was sought after throughout the ancient world. The inscriptions, petroglyphs and grave stelae are of great archaeological significance. However, the mortuary structures, largely built of mud-brick and over a thousand years old, had fallen into disrepair. In 2006, the German Archaeological Institute in association with the Technical University of Berlin consequently launched a project that was successfully concluded this year. The large mausoleums and many private graves were investigated and documented. In all, nine mausoleums were structurally consolidated and approx. 50 private graves restored. Egyptian and German experts furthermore trained local workers in the field of restoration. A multilingual information panel has been erected for visitors. Cooperation:

Supreme Council of Antiquities
Construction history work group of TU Berlin

The Fatimid Cemetery of Aswan / Photos: DAI Cairo

To preserve our common cultural heritage, we need your support.

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Gesellschaft der Freunde des Deutschen Archäologischen Instituts
Theodor Wiegand Gesellschaft e.V.
Wissenschaftszentrum Bonn
Abtstraße 45, 53175 Bonn

Dorothea Lange
Tel.: +49 228 30 22 64
Fax: +49 228 30 22 70
lange@wzbonn.de

Theodor Wiegand Gesellschaft
Deutsche Bank AG, Essen
IBAN DE20 3607 0050 0247 1944 00
BIC DEUTDEDEXXX

Bonner Sparkasse, Bonn
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Thank you!
The first fortifications known to us are more than 4,000 years old. Dynasty after dynasty erected, remodelled and heightened fortifications, but always in the interior of China. The first “international” frontier was created in the reign of the first emperor, Qin Shi Huangdi (259–210 BC), when the peoples of the steppes to the north formed a political unity that was militarily strong. In the Ming period (1368 to 1644) a second line of fortifications was constructed near the capital Beijing. This “great inner wall” is the big tourist attraction of today.

Title Story, p. 40: Walls, measures and writing – China’s emergence as a global player

Photo: public domain/Hao Wei
DEAR READERS,

Smart cities, international city districts, thriving trade, infrastructure, currency policy, language policy, beacons of science, hegemonic ambitions, wars over territory and resources – phrases drawn from the news, bearing the stamp of our times, and apparently having little or nothing to do with what is commonly understood by the word antiquity. And, one might ask, what can all this have to do with archaeology, a science that looks at individual things handed down to us by ancient cultures?

It’s nothing new to declare that things like these only become “readable” in their context. But it’s no easy matter to understand that context. Our way of looking at cultures removed from our own European-influenced tradition is something that has to be practised and constantly revised. This is the only way we can arrive at a good understanding of the often astonishing phenomena of a globalized ancient world, with the emergence of international centres and their social, political and economic dynamics – which in many respects seem distinctly familiar to us.

Indeed, in modern archaeology the diachronic and synchronic perspectives overlap insofar as the vestiges of very different cultures, as they have evolved over the millennia, have an influence that persists in multiple forms in the present time and are essential to the sense of identity of those who are their descendants.

By working together on projects in host countries of the German Archaeological Institute we have been able to lay the foundations of cooperation that is characterized by dialogue and mutual understanding. This capability is particularly important when it comes to realizing and communicating the intangible consequences of the destruction of cultural monuments; just as it is in collaborative projects that are aimed at protecting and preserving the common heritage of humankind and enabling the centres of the ancient world to become centres once again in the modern world. How this can be achieved through DAI projects at UNESCO world heritage sites is discussed below in the “Focus” section.

Centres and routes of globalization in ancient cultures are the subject of the title story in this issue of Archaeology Worldwide. In “Everyday Archaeology” we illuminate how natural scientists reconstruct ancient cultures, while “Panorama” introduces a rather unusual sort of “colleague”.

I hope you enjoy reading this issue of our magazine!

Prof. Dr. Dr. h. c. Friederike Fless
Everyday archaeology

**HUMAN, ANIMAL, PLANT**
The natural sciences in archaeology

**METROPOLISES AND EMPIRES**

*ANCIENT CENTRES OF GLOBALIZATION*

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Morocco, Algeria, Tunisia, Egypt, Sudan, Senegal, Ethiopia, Eritrea, Zimbabwe – the German Archaeological Institute has conducted research in African countries for many years. The work is carried out by various departments and commissions; now there is to be more cross-linking between the projects and new components will be added. To this end, the first ever meeting of all DAI researchers working in Africa was convened in Berlin in September 2014, leading to the establishment of the TransArea Network Africa. “An important part of this work is the investigation of trans- and circum-Saharan links and networks”, says the DAI’s General Secretary Philipp von Rummel, who is coordinating the network. “In the age of globalization, cultural contact and communication between disparate communities over long distances have again become one of the central themes of archaeology.”

The Sahara is often seen as an element that divides, and as a result its potential to connect – especially in the context of trans-Saharan trade, which has flourished in all periods – is often underestimated. “There are some parallels here with Mediterranean Studies at the current time, not just in methodology but also in the way we view areas of overlap between the Mediterranean and Africa,” General Secretary von Rummel explains. With the DAI’s work on the continent having long been focused on the countries of north Africa, attention should now be directed to a greater degree to sub-Saharan countries.

The DAI is conducting 35 projects on the African continent. For instance, the Madrid Department, as part of its Phoenician research, is working with Moroccan and Spanish partners on the Moroccan island of Mogador which was linked up with the African continent not only by a sea route but also by a trans-Saharan route. Also in Morocco the Commission for Archaeology of Non-European Cultures (KAAK) – cooperating with local research institutes and international partners – is carrying out projects on the prehistory and early history of the eastern Rif, as well as on early migra-
In Aswan, archaeological remains are at odds with the needs of society today. Information and education help to balance out conflicting interests. The Cairo Department of the DAI has distributed informational material for the local population.

Photo: DAI Cairo

A cave known as Ifri n’Ammar is the most important site investigated in the DAI project on the prehistory and early history of the eastern Rif, as it is central to the much debated hypothesis of the recent African origin of modern humans (“Out of Africa II”). Here too raising awareness among the local population is important objective of the archaeologists. The Commission for Archaeology of Non-European Cultures (KAAK) has accordingly produced informational material about the archaeological work in Arabic and Tarifit, a regional Berber dialect.

Photo: Eiwanger, KAAK

Essaouira, the town on the mainland across from Mogador, was known as the “harbour of Timbuktu” until the sixties. Caravans still arrived from the African interior and all European trading nations maintained consulates in the town.

Photo: Marzoli, DAI Madrid

tions on the African continent and possible early links with Europe. In Tunisia the Rome Department and Head Office are working on the archaeological sites of Carthage (see “Excavations in Carthage”, p. 6) and Chimitou, and are taking part in joint museum projects and training the next generation of Tunisian researchers at summer schools.

In Tunisia recently another GIS course for staff at the Libyan antiquity service took place as part of a cooperation project between the Rome Department and Durham University. The traditional focus of DAI research on the African continent is Egypt, where many projects are carried out by the Cairo Department in cooperation with local and international partners. Projects on the archaeology of Sudan are being carried out by the DAI with the Qatari Mission for the Pyramids of Sudan (QMPS). At the beginning of this year an agreement was signed by the DAI and the QMPS with the goal of saving the pyramids of Meroë in Sudan, a world heritage site, from further deterioration. The project is able to draw on the archive of the late Friedrich Hinkel, a construction history scholar and archaeologist, which the DAI is digitizing and making generally accessible.

The digitization of such archives and the creation of a multilingual database environment are essential if the archives in host countries are to be opened up for use by the research community. These archives are themselves a cultural asset and, once digitized, they will be an indispensable tool for research-based measures towards the preservation of the world’s cultural heritage.

The crucial importance of documenting archaeological sites and cultural property and of compiling digital registers and an international central database was collectively stressed at an international workshop on the protection of cultural heritage in Casablanca, which the DAI participated in as joint organizer in 2014. The workshop was part of the Africa–EU Partnership held in preparation of the EU–Africa summit. (see Archaeology Worldwide 1-2014, p. 4)
During a visit to Tunisia by the German foreign minister, Dr. Frank-Walter Steinmeier, a new cooperation agreement was signed on 23 January 2015 in the Musée du Bardo in Tunis by the Rome Department of the German Archaeological Institute and the Institut National du Patrimoine INP. In Steinmeier’s presence the Tunisian culture minister Lotfi Ben Mbarek, Prof. Ortwin Dally (first director, DAI Rome) and Prof. Nabil Kallala (director general, INP) put their signatures to the accord. The cooperation will focus on the circus of Carthage, the largest chariot racing arena in the Roman Empire after the Circus Maximus in Rome.

Carthage, one of the most important cities of the ancient Mediterranean world, became a world cultural heritage site in 1979. The DAI’s research in Carthage contributed significantly to the Tunisian site being inscribed on the UNESCO list. Since the 1960s the Rome Department of the DAI has been conducting research projects in Tunisia and has actively supported preservation of the archaeological sites in the country. Another focus of research alongside Carthage is Chimtou, which with its Numidian, Roman, Christian and Islamic remains is a scintillating example of Tunisia’s rich cultural heritage. Beyond that, the DAI is involved in joint German–Tunisian museum projects.

The international team of researchers, led by Dr. Hamden Ben Romedhane (INP Tunis) and Dr. Ralf Bockmann (DAI Rome), hope the project will generate new insights into the development of Carthage in a wide time-span from the Punic epoch, through the Roman and Byzantine, into early Islamic times.

After the signing, Ortwin Dally and Ralf Bockmann presented the Quarter Magon Archaeological Park at the former excavation site of the DAI Rome in Carthage to a cultural delegation including Dr. Andreas Görgen, head of the culture and communication Department at the German Foreign Office, and Christiane Bohrer, director of the Goethe Institute in Tunis.
STONWORK ...
An agreement on cooperation in the framework of the Qatari Mission for the Pyramids of Sudan (QMPS) was signed in Berlin on 21 January 2015 by the German Archaeological Institute (DAI) and Qatar Museums (QM). With funding amounting to 3 million dollars, the project aims to save the world famous pyramids of the ancient city of Meroë, which are inscribed on the UNESCO world heritage list. The agreement was signed by the vice chairperson of the Qatar Museums Authority, Sheikh Hassan bin Mohammed bin Ali Al Thani, and by Prof. Friederike Fless, president of the DAI.

The ancient city of Meroë was the capital of the kingdom of Kush in the centuries around the time of Jesus’ birth. Its ruins lie in what is now Sudan, about 220 kilometres north of the modern city of Khartoum. Built as a grand royal residence in the narrow strip of fertile land of the Nile valley, Meroë possessed amply proportioned housing, temples and the unique Royal Baths on the right bank of the Nile between the 6th and 5th cataracts. East of the town, on the edge of the desert, are the royal cemeteries with their characteristic, steep-walled pyramids. The pyramids are at serious risk of further deterioration as a result of environmental factors, especially sandstorms, which have increased since the 1940s due to soil erosion. As important testimony of the early cultures of the Nile, the pyramids require careful conservation and restoration.

Meroë has been on the UNESCO world cultural heritage list since 2011. An important part of a nomination to become a world heritage site is a plan for the protection of the antiquities and for the management of tourism at the site. The Qatari Mission for the Pyramids of Sudan (QMPS) has the aim of preserving the pyramids of the world heritage site in cooperation with international specialists. The Meroë pyramid project is a key component of a wider research network.

By launching the Qatar–Sudan Archaeological Project, Qatar Museums (QM) and the Sudanese National Corporation for Antiquities & Museums (NcaM) have established the framework for international cooperation in research projects concerning Sudan. The German Archaeological Institute is involved in this extensive research network too, with its projects on the Royal Baths of Meroë and on the city of Hamadab.

In 2014, the German Archaeological Institute entered into cooperation with the Qatar–Sudan Archaeological Project on the digitization of the Sudan archive of the architect and construction history scholar Friedrich W. Hinkel’s, who died in 2007 and bequeathed to the DAI the world’s largest archive on the archaeology and construction history of ancient Sudan.
ON THE SACRED ROAD

The first attempts to excavate the monument were foiled by its enormous size. The ancient sanctuary, probably founded at the turn of the 1st millennium BC, experienced a heyday in the 6th century BC. A new, monumental temple was built but was later destroyed. Reconstruction began around 330 BC – but never completed. The Temple of Apollo, seat of an oracle, is located in Didyma on the Milesian peninsula on the west coast of Turkey, some 130 kilometres south of Izmir. The temple is one of the best preserved specimens of monumental architecture from antiquity.

The natural route from Didyma to the harbour town of Miletus, only a few kilometres distant, was actually by sea. But in the 6th century BC an overland route was also built – the Sacred Road. It was designed for cult processions.

Since 1962, the German Archaeological Institute in Istanbul has been conducting investigations at the Temple of Apollo at Didyma. Research has focused on topography and infrastructure as well as transregional political and social networks.

Photo: DAI Istanbul, Didyma Excavations
When the monumental temples of Pharaoh Ramses II were at risk of being submerged by a new dam, it was like a wake-up call for the international community. On 8 March 1960, UNESCO made a dramatic appeal to the world. In the end 50 countries got involved in the project and contributed a total of 80 million dollars, allowing the world famous temples at Abu Simbel to be rescued. In a spectacular salvage operation that was finally completed in 1968, the monuments were cut into blocks, moved piece by piece to higher ground on the bank of the Nile and then reassembled. Today they are one of the major tourist attractions in southern Egypt.

“These monuments […] do not belong solely to the countries who hold them in trust. The whole world has the right to see them endure,” the UNESCO Director-General, Vittorino Veronese, declared at the time.
One consequence of the successful rescue operation was UNESCO's Convention concerning the Protection of the World Cultural and Natural Heritage, which was adopted in 1972 and finally entered into force in 1975. The Convention states that the cultural and natural heritage of mankind is increasingly under threat, which constitutes a "harmful impoverishment of the heritage of all nations of the world". Aside from protection offered by UNESCO, participating in safeguarding world cultural and natural heritage is furthermore seen as a responsibility of the international community as a whole, because, as Veronese said, the whole world has the right to see it endure. Heritage was considered to be under threat not only from "the traditional causes of decay" but also from environmental or climatic factors and "changing social and economic conditions". Poverty has hindered some countries from safeguarding their heritage, and so have indifference and ignorance. Destruction has also been caused by excessively eager modernization and development. Often enough a one-sided focus on the future has impeded the view of vestiges from the past that were worth preserving. Other factors posing a risk to natural and cultural heritage are long unresolved political tensions, armed conflict and war. This led UNESCO to compile a list of World Heritage in Danger. At the present time the destruction of individual cultural monuments and of world heritage in general is widespread: owing to a dramatic rise in armed conflict and the accompanying phenomenon of destructive unauthorized digging, our collective world heritage is at risk as never before.

In a speech at the Goethe Institute conference Dialogue and the Experience of the Other, in February 2015, German Foreign Minister Frank-Walter Steinmeier spoke of “what Willy Brandt described as the aim of and benchmark for foreign policy, particularly cultural relations and education policy: namely to work on world reason”. The ability to engage in dialogue and to promote understanding is of particular significance when it comes to the need to understand and disseminate the intangible consequences of the destruction of cultural monuments. This is because when material cultural goods are threatened in times of violence and population displacement, then the history of entire regions is threatened at the same time. Material heritage is crucial to the process of cultural and historical self-assurance, at the root of identity, erosion of which has dire consequences for the regions concerned and increasingly also for the world as a whole. Steinmeier went on to say that a cultural policy needs to be drawn up that makes a priority of working together on “world reason”, that is the co-production of education, knowledge and culture, thus helping to overcome the separation between inside and outside.

The ability to engage in dialogue and promote understanding was put to the test in 1994 when UNESCO announced its new Global Strategy. At that time, more than half of all world heritage sites lay in Europe and North America. Consequently, from that point on, nominations were prioritized from countries that had no inscriptions on the World Heritage List.

Some practice was needed at first in developing a perspective for cultures that lay far outside the western tradition. But far away is like long ago: in modern archaeology the diachronic and synchronic perspectives overlap insofar as the vestiges of very different cultures, as they have evolved over the centuries, continue to have an effect in the present time.

As Foreign Minister Steinmeier noted, “Only when we know and acknowledge the dreams - and above all, the traumas! - that determine how others think and feel, when we know which historic narratives influence today’s answers, only then do we learn how to see through the eyes of the other. And often it is only then that we are able to see more clearly through our own eyes. [...] This is why we should develop what one might call cultural intelligence, the ability to understand mindsets, conceptions of history and hopes for the future. This perception includes the perspective of the other and thus goes further.”

WHAT IS WORLD HERITAGE?
UNESCO adopted the Convention concerning the Protection of the World Cultural and Natural Heritage on 16 November 1972. It entered into force in 1975, and the first inscriptions on the World Heritage List followed in 1978. The convention defines cultural and natural heritage in its overall context, taking a comprehensive view; and it states that it is incumbent on the international community as a whole to take part in protecting world heritage and transmitting it to future generations. To date, the convention has been ratified by 190 states. Each state that is party to the convention recognizes the duty of ensuring protection of world heritage sites within its frontiers and of conserving them for future generations.

On the adoption of the Global Strategy in 1994, the concept of cultural heritage was enlarged, with "cultural landscape" being added as a subcategory of "cultural site". The further development of the world heritage idea is also reflected in the changing membership of the World Heritage Committee. On this body, members from the southern hemisphere are gradually replacing and outnumbering members from the north.

Today the site is one of Egypt’s major tourist attractions. Photo: Wikimedia Commons

ARCHAEOLOGY WORLDWIDE _ 11
You can only protect what you know

DAI activities at world heritage sites

Cultural intelligence makes people capable of comprehending other cultural concepts. Cooperative enquiry and meticulously conducted science are in most cases the fundamentals of ensuring the lasting survival of important vestiges of past civilizations: identifying precious cultural heritage, then exposing and carefully documenting it, preserving it in a scientifically well-founded manner and, no less importantly, incorporating it in tourism value chains.

The German Archaeological Institute has been active at nearly 70 world heritage sites in more than 20 countries, in cooperation with the local authorities in those host countries. The archaeological remains of past cultures date from ten millennia of world history and are to be found in all corners of the globe. They hold traces and stories of ancient civilizations whose influence persists in various forms in the modern world, and which are essential to the sense of identity of those who are their descendants. Different approaches and readings are required, depending on whether the object of investigation is a Neolithic sanctuary in Anatolia, a sacred cultural landscape in Oceania, an Ancient Near East civilization that gestures in gigantic monuments, fantastic ritual landscape art in South America, the ephemeral traces of merchants and mariners, world famous buildings in Rome or Athens, or a flourishing Islamic urban culture on the Iberian Peninsula. As highly divergent as the approaches and readings may be, the importance of working in a careful, sustainable and cooperative way, and the obligation to adhere to the highest scientific and legal standards are always the same.

Every excavation begins with thorough survey work with the aid of the most modern prospecting methods. This allows structures under the earth to be rendered visible in their larger context. On the basis of these surveys, excavations can be targeted and minimally invasive in order to protect the cultural assets.

MayaArch3D

3D models – of sculptures and buildings, whole landscapes and cities – are an important instrument in the work of modern scholars of antiquity, and afford valuable new insights into ancient societies. For example, in the collaborative project MayaArch3D archaeological sites, widely scattered information and objects are compiled virtually on an internet platform, documented, geo-referenced and analysed. One focus of this project is Copán, one of 60 Maya kingdoms.

In association with Heidelberg University

The new research tool makes it possible to visualize and understand archaeological finds in their context.

Fig.: DAI, Heidelberg University
Water cults in Peru

In the world famous geoglyphs in Peru, also known as the Nazca Lines after the nearby town, everything revolves around water. They date from the Paracas Culture and were created between 800 and 200 BC – much earlier than originally supposed. Their meaning could not have been ascertained without their broader cultural context. The geoglyphs are being investigated as part of the collaborative project "Andes Transect", which is exploring pre-Spanish environmental and cultural developments. Cooperation partner: Swiss Federal Institute of Technology, Zurich (ETH)

Photo: Niemeier, DAI Athens

In spite of the impressiveness of the Roman imperial palace complex on the Palatine Hill, its architectural history has barely been studied. Now a DAI project is investigating the relationship between the palace complex and the city, the architectural reconstructions, and the different utilization scenarios in the context of social and court structures. Cooperation partners: Soprintendenza Archeologica di Roma, Brandenburg Technical University in Cottbus (BTU).

Photos and illustration: DAI, Architecture Section

In archaeology today, the latest technologies are also used in the architectural survey, the basis of all scientific documentation of building structures. In this way, questions about the original appearance of ancient buildings can be answered – a prerequisite for conserving and/or restoring them and for deciding about suitable preservation measures.

Questions from the field of cultural studies are becoming more and more important in archaeology. Consequently it is vital that cultural remains like buildings or settlements should be considered in their wider spatial context. This is the only way to discern cultural landscapes that may be worth protecting but whose existence is not apparent at first sight. They can be identified by mapping during a survey, by analysing satellite imagery as well as by systematic field-walking.

Archaeology Worldwide
Meticulous documentation of excavation work is paramount because the process of excavation is irreversible. For this reason it is particularly important to maintain efficiently functioning archives where data can be digitally stored in a sustainable, enduring way, and which respond to growing international scientific cooperation by being openly accessible for scholars all round the globe. To this end the DAI is cooperating with partners to construct the research data centre IANUS for the archaeological sciences and classical studies.

Digital networks in international cooperation

The photographic and excavation archives on many excavations since the 19th century are not necessarily directly accessible in the countries where the archaeological sites lie today. Digital archives can make this data available for research purposes and are the prerequisite for research-based activities towards the preservation of world heritage. One example is the digitization of the Sudan archive of German archaeologist Friedrich Hinkel.

In cooperation with the Qatar Sudan Archaeological Project

The pyramids of Meroë in Sudan
Photos: Wolf, Head Office

Digital monuments records are a vital instrument in the protection of world heritage. In Germany they have become a standard institution in most of the federal states. This is not the case, however, in many countries of the world. When it comes to planning procedure, infrastructure development and the extraction of natural resources, in many countries there is no information available in advance that would make it possible to ensure the protection of monuments or at least to document them before they are destroyed. This being so, the DAI has set up an easy-to-use rapid registration system for monuments (iDAI.search) and has designed its digital environment (iDAI.welt) in such a way that data for compiling monuments records can be made available in host and partner countries. With the destruction of world heritage sites on the increase at the present time, digital monuments records and digitized research data are often the only means of ascertaining the extent of damage at world heritage sites after the conflicts have ended.

Cultural heritage record for Syria

In view of ongoing destruction and looting, the Syrian Heritage Archive Project has been launched with the objective of compiling a record of Syrian cultural heritage. The cultural landscape of Syria is, archaeologically speaking, one of the most outstanding regions of the world. With archaeological and historical monuments surviving from all eras, from the first traces of human activity about one million years ago through to the Ottoman period, Syria possesses one of the world’s most extensive, long-term cultural archives.

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Cooperation partner: Museum of Islamic Art, Berlin, SMB
Archaeological monuments are old. No less self-evident is the statement that, for this very reason, they need continuous care and special conservation in order to withstand environmental influences, whether of a natural or – increasingly – anthropogenic kind. The protection of the ruins has top priority. Beyond that, the archaeological site needs to be comprehensible, to “speak” to the people of the present day. It has the potential of becoming a visitor magnet – educational or cultural tourism is a not inconsiderable part of the Global Social Product (GSP) all over the world and in many countries archaeological sites are the main tourist attractions. If they have been declared world heritage, they possess particular significance for the region as a whole. Ancient centres can thus retain their magnetic appeal in the modern world.

It goes without saying that this can only work successfully on the basis of scientific research, which first generates knowledge and then transmits it.

The states that are party to the UNESCO Convention pledge to cooperate internationally and assist each other in fulfilling these tasks. This commitment is shared by the German Archaeological Institute, which, through its activities at important archaeological sites around the world, both supports the nomination procedure – as recently at Pergamon and currently at Göbekli Tepe – and helps the nomination in a more indirect way, for instance through its research in the Citadel of Erbil (federal region of Kurdistan in Iraq). In the past many DAI projects have decisively contributed to the inscription of globally significant archaeological sites on the UNESCO world heritage list, as a result of which they have been successfully incorporated in local value-added chains and have been at least partly saved from neglect, looting or destruction.

**Göbekli Tepe**

The 12,000 year old site holds a wealth of new data about key processes in human history. In a collaborative project involving the DAI, Turkish authorities, specialists from the BTU and the Global Heritage Fund, a protective roof is being erected and a site management plan developed – also in support of Turkey’s application for Göbekli Tepe to be inscribed on the UNESCO World Heritage List.

**Carthage**

Carthage, one of the most important big cities of the ancient Mediterranean world, was inscribed on the list of world cultural heritage sites in 1979. Research by the DAI in Carthage, in modern-day Tunisia, substantially contributed to the site being accorded this status. Apart from Carthage another focus of research is Chimtou, which exemplifies Tunisia’s rich cultural heritage with its Numidian, Roman, Christian and Islamic remains.

Cooperation partner: Institut National du Patrimoine INP, Tunis

Photo: Wikimedia Commons
Raising awareness among the civil population is a key factor in the protection of cultural heritage. The Cairo Department of the DAI has designed teaching material for use in schools in Egypt for the purpose of knowledge transfer.

Fig.: DAI Cairo
Original design: Johanna Sigl

LEGAL FRAMEWORK OF THE DAI’S WORK
The investigation of archaeological sites is governed by valid legal norms, such as conventions, laws and official directives. In host countries, the legal framework is established by the relevant provisions on the protection of monuments that are valid for those countries. The German Archaeological Institutes is additionally bound by the European Convention on the Protection of the Archaeological Heritage (Valletta Convention) of 16 January 1992, which was adopted upon publication in the Federal Law Gazette on 15 October 2002 and applies to German civil servants also when serving abroad.

Beyond that the DAI is a signatory to international agreements on the safeguarding of cultural resources and the management of archaeological sites, and to this end it has adopted the following commitments:

- joint statement of principle on the protection of archaeological sites, monuments and museums
- memorandum on quality control for archaeological excavations
- an undertaking concerning the publication of artefacts of unclear provenance.

International texts on heritage protection are available from the German Committee for Heritage Protection.

DESIDERATA

The law relates primarily to national cultural property of outstanding value. Such property must be registered in public records in Germany. Archaeological finds from illicit digging, being unknown, are not registered as a rule. The possibility of subsequent registration exists in consideration of the outstanding value of cultural artefacts, in line with the intention of the UNESCO Convention. But this cannot stop the catastrophic destruction of archaeological sites and their architecture. For the 18th legislative period of the German Federal Parliament, an amendment of the law has been agreed which will adopt recently revised EU legislation into German law.

AWARENESS RAISING, CAPACITY BUILDING, TRAINING
State bodies, institutes or museums cannot guarantee the protection of cultural heritage by themselves. It’s essential to the get population involved, since recognition of the need for protection must arise within society as a whole. This will not happen, of course, if a community is not aware of its own cultural heritage and its significance in the present day.

The DAI has a long tradition in the transmission of knowledge gained through research: a long tradition of training. Restorers, stonemasons and craftspeople are trained with the aim of securing the sustainable protection of monuments. Further education and training offered in courses, summer schools and universities, for instance in practical areas of archaeology, is another important component of capacity building.

Assistance in teaching and training the young generation of researchers, scientists and specialists in the DAI’s host and partner countries helps to establish solid scientific networks as well as enduring ties. They are central to efforts to regard the protection of humanity’s heritage as a joint responsibility, as defined in the UNESCO Convention.
Founded in 1945, UNESCO (United Nations Educational, Scientific and Cultural Organization) has the mission of contributing to peace and security by promoting international collaboration through education, science, culture and communication. The Federal Republic of Germany joined the organization on 11 July 1951, the German Democratic Republic in 1972.

The German UNESCO Commission (DUK) is the link between Germany and UNESCO in all areas of competence. It acts as an intermediary of foreign cultural and educational policy, and is supported by the Foreign Office. The DUK has up to 114 members, including representatives of the Federal Government and the federal states (standing committee of the German ministers of education & culture), experts selected by the general assembly and representatives of institutions. The commission is based in Bonn.

39th UNESCO world heritage session in Bonn

Preservation of world heritage is part of German foreign policy

On 30 January the Minister of State at the Federal Foreign Office, Maria Böhmer, as President of the UNESCO World Heritage Committee and chairperson of its 39th session, presented the logo for the German presidency of the committee. The session of the World Heritage Committee will take place in Bonn, seat of the German UNESCO Commission, from 28 June to 8 July. Some 1,000 delegates and observers from all over the world will attend. At the session the World Heritage Committee will decide on the inscription of new properties on the UNESCO World Heritage List, and review the status of already inscribed sites and of world heritage sites in danger. About 40 properties from all regions of the world have been nominated for the World Heritage List.

TIPP:
Respect for Common Heritage: an extensive interview with Minister of State Maria Böhmer can be found in the special issue of Archaeology Worldwide devoted to world heritage.
ROMAN IMAGES
Cultural preservation in the archives
Around 300,000 photographs, mostly black and white, 200,000 of them also as negatives – just the Roman collection of the German Archaeological Institute is immense, its value for research incalculable. Many of the images have attained venerable age, and some have needed to be saved from acute danger of decay. The precious original material was jeopardized by intensive use and there was a risk of the information contained being irrevocably lost. The DAI possesses the biggest and oldest image archives on the archaeology of Mediterranean countries. To preserve them, they have been digitized and thus at the same time made accessible to scholars worldwide.

Rome, view of St Peter’s and the Vatican.
Glass plate negative, 1934
As a concrete science that deals with objects, archaeology has a need for illustration. “The desire for visual documentation was one of the motives for the founding of the world’s first archaeological institute, the Institut di corrispondenza archeologica in Rome in 1829,” says Ortwin Dally, first director of the Rome Department of the German Archaeological Institute, successor to the Institut. Photography had just been invented. Its possible usefulness and application in archaeology was immediately discussed, although it was still some time before the new technology established itself as a method of archaeological documentation. “The DAI in Rome already began to use the new medium in the 1850s,” Dally says. The first photographer who worked for the institute was Gustav Reiger from Munich. Emil Braun, director of the institute (then still the Institut di corrispondenza archeologica on the Capitol) until 1856, had hired Reiger because he had made a name for himself in the scientific and artistic circles of Rome as a pioneer in his field. His photographs – named Daguerréotypes after the process developed by Louis Daguerre (see box on p. 23) – unfortunately no longer exist.

In the early 20th century the holdings were already so substantial that in 1928 director Ludwig Curtius began systematically building up the photographic archive in the form we know it today. An important foundation stone had been laid by his predecessor in office, Walther Amelung, who had bequeathed his personal collection to the institute. In the same period, furthermore, the holdings of state and communal museums in the capital and other regions of Italy were photographed and systematized so as to be easily accessible. From this time on, a photographer was permanently employed by the institute, but the work to be done was so voluminous that external photographers had to be recruited. Cesare Faraglia worked for the Roman institute for nearly 50 years.
Fragment of the entablature of a temple in the garden of Palazzo Colonna, photographed in 1931. Photo: unknown

The Fonseca Bust, Capitoline Museums. Photo: Cesare Faraglia, 1912

1 Excavations in the course of building Termini railway station, view from the Servian city wall (6th century BC), photographed in 1876, photo: Parker

2 and 3 Ramp of Ponte Sant'Angelo, removed when the Tiber bank was reinforced, ca. 1893, photos: Gargioli
“In time, subject areas began to form among the archived photographs,” Ralf Bockmann, head of the DAI Rome photo archive, explains. Sculpture, reliefs and sarcophagi are principal focal points, as are terracottas and vases. Geographically the main focus is Italy and north Africa. Through purchases and bequests the collection grew steadily bigger. In 1932 the DAI Rome held 16,000 negatives and photos. In 1936 there were already 23,200 negatives and 102,600 photos, and by 1940/41 the holdings amounted to 30,370 negatives and 127,040 photos.

“Today, in contrast to other photo collections whose main interest is historical photographs or which manage special bequests, the photo archive remains a work instrument that is constantly being enlarged,” Bockmann says. Holdings continue to increase as a result of photo campaigns carried out by institute personnel in the framework of research projects.

In archaeology, photographs are irreplaceable documents. Not infrequently, old photos are the only surviving source on monuments from the past. Hence preserving the archive’s holdings is imperative. In a project bearing the name EMAGINES and with funding from the German Research Foundation (DFG), the DAI in association with the Cologne Digital Archaeology Laboratory (CoDArChLab) at the University of Cologne has digitized 120,000 glass negatives and a large number of diapositives – not only to save the visual information, but also to exploit their as yet largely neglected potential for research purposes via the globally accessible web database Arachne. Thus the DAI’s central documentation complex has been put at the disposal of researchers worldwide on a web-based platform – material that is of inestimable value to researchers. Information that exists solely in glass negatives has been securely preserved; physical manipulation of the image carriers has been reduced to a minimum. Digitization means that the information stored up in over 100 years of research has now been opened up for academic use internationally.

HISTORY OF SCIENCE AND INTELLECTUAL HISTORY
The preservation of large stocks of historical photographs by digitizing the glass negatives does not just mean saving images of the former condition of objects and excavation sites, rescuing historical snapshots that could provide missing mosaic stones in an extensive research project. It also has a history of science and intellectual history dimension, relating not just to archaeology but to cultural master-patterns. It is cultural preservation in a double sense. The great advantage promised by this documentation method, one thought, was acquiring perfectly objective images of find objects. But didn’t the photographer choose his angle? What perspective did he take, what attitude did he show his subjects in? What detail of the overall picture did he select, and what background? Did shadows from one side fall on the object, perhaps producing dramatic tension? Questions like these are also being explored at the German Archaeological Institute, a pioneer in using photography as an instrument of scientific research.
A BRIEF HISTORY OF PHOTOGRAPHY

The great number of images in the collections of the DAI might not appear so magical in times when any child with a digital camera can produce an infinity of pictures that can then be stored in ever more massive memory devices or the seemingly limitless cloud. To understand the pioneering achievement of the Rome department of the DAI, a brief look at the early days of photography may be helpful.

Joseph Nicéphore Niépce began experimenting in 1815 with various procedures for capturing real-world scenes. In the late 1820s he got together with the painter Louis Daguerre who invented the first commercial photographic process, the daguerreotype. The photographic plates were coated with silver iodide, developed using mercury vapour and then fixed in warm saline solution. The exposure time was steadily reduced from several hours to several minutes and finally to 45 seconds. Englishman William Henry Fox Talbot then devised the negative-positive process which, unlike the daguerreotype, allowed several prints to be made from one photograph. With the Kodak no. 1 box camera, the first camera to use roll film, the industrialization of photography began in 1888. An important step was the replacement of plates with paper-based film. In Germany, Agfa, an acronym for the Aktiengesellschaft für Anilinfabrikation, produced roll film industrially from about 1900.
The six-eye principle in archaeology

Archaeologists look far back in time and when they do, what they immediately notice is the great dynamism of early societies. Again and again new centres emerge, centres of power and rule but also cultural and cultic centres. These places exert a strong influence over the surrounding region, contributing to its transformation. City states come to be replaced by territorial dominions. Great empires are formed as a result of military expansion and alliances, break up into smaller entities, re-form in a totally new configuration, or collapse and are swallowed up. (Title Story, p.34) Processes of formation and transformation in early centres of globalization can be delineated over the course of millennia. And in this long-term perspective of the past they appear to be gradual, slowly unfolding, and of limited geographical scope. Quite different, it would seem, to the changes under way in the world today, with new centres of globalization emerging relatively rapidly. This raises a host of questions. What links are there, if any, between past and present developments? Do the changes in progress now affect not only our lives but also our scientific research? And does our research have any significance for the current changes?

Naturally, all research is carried out in the here and now. So the current situation will always shape researchers’ questions. Archaeology is not conducted in sterile laboratory conditions or in the seclusion of a library. It directs its gaze at the societies of the world, at cultural and political dynamics, historical processes in their entirety. And naturally all this has a direct influence on research questions as well as on the way research is designed. What changes can be observed here?

Archaeology’s questions have become more complex. They concern technological and social innovations, the reactions of a society to ecological and economic change. Newly developed technologies and methods of research are applied. The consequence of all this is that in projects it is often necessary for several disciplines to work together. In 2006, the German Archaeological Institute (DAI) introduced interdisciplinary research clusters, facilitating the comparative study of research questions on a global level. The boundaries of fields of study appear to dissolve as a result, but at the same time an ever greater degree of specialization is required in collaborative projects.

In archaeology today, excavation projects are holistic in conception: from the planning to the sustainable management of the excavation site and the documentation. Non-invasive methods of prospecting are now standard around the world, and legally binding. This makes it possible for an excavation to be carried out in a targeted and limited way. No less attention is given to the question of what to do with the finds and features after excavation. How should the conserved finds and features be made publicly accessible, and how are the research results to be presented in line with an appropriate site management plan? And finally, how can old analogue and modern digital excavation documentation be safeguarded for the future?
The DAI is systematically digitizing and securing its archives and photographic archive and making them globally accessible in its digital research environment – iDAI.welt. It is also coordinating a DFG project that has the aim of developing a research data centre for the long-term storage of archaeological data – IANUS. The archived, digitally accessible data on ancient sites and monuments can then be used to support efforts to compile monument records in other countries. One example of this is the Syrian Heritage Archive Project, which is run by the DAI in association with the Museum of Islamic Art in Berlin and the support of the Foreign Office; another is the digital Friedrich Hinkel Research Center, which we have set up jointly with the Qatar Sudan Archaeological Project. These projects reflect another trend, however. Worldwide archaeological research is no longer just a case of German research being done abroad. Nowadays it’s always a joint venture, a collaborative research, learning and thinking process. Our partners expect us to explain our interest in certain cultural phases in the host and partner country, and also of course to take that country’s interests into account. We are not entrusted to carry out scientific research on behalf of another country – not by any means. Instead, research is a process in which our own point of view and our respective cooperation partner’s point of view are very deliberately brought together, and they both evolve and alter in the process. This, at the end of the day, is the essence of the research approach that is denoted by the term transnational history.

Also, how we think in theoretical and methodological terms about the actions of groups of protagonists has changed globally. “Cultural heritage” and “cultural identity” are now not considered absolute qualities essentially inherent in an excavation site or cultural landscape. They are instead attributions made by involved parties: archaeologists and historical monument authorities play the biggest part at the beginning. For a long time, the population living in the vicinity of a given historical monument had no say in this discourse. Even today the population is still sometimes deliberately excluded – in spite of the fact that public engagement, the inclusion of civic society, has become accepted as a guiding principle of activity in all spheres of the presentation of culture, theoretically and methodologically.

The new conceptualization of Germany’s foreign cultural and educational policy, the result of a review process, was summarized in a speech by Foreign Minister Frank-Walter Steinmeier at the start of the year. Referring to the ongoing transformations and to the paradigm change to be derived from them, he spoke of the “principle of the six eyes”: we should always look at each other through our own eyes, through the eyes of the other and from a joint perspective. He also spoke of the need to develop “cultural intelligence”, the ability to understand mindsets, conceptions of history and hopes for the future. This perception includes the perspective of the other and thus goes further – a perception that includes the perspective of the other and thus goes further.

To this end, we need greater dialogue between academia and the cultural sphere, Steinmeier said. The co-production of education, knowledge and culture will be one priority in the new policy, as will better cooperation with civil society. This concept accurately describes changes in progress in the world of archaeology. Giving it concrete form is a task for the future. Research will thus become a perpetually changing challenge.

Friederike Fless

The author, Prof. Friederike Fless, is President of the German Archaeological Institute
MOTHER OF POTS
The sacred landscape of Abydos
A murder story is at the beginning of one of the most influential myths in the Egyptian belief system. Seth kills his brother Osiris, the king, and usurps the throne. He dismembers the corpse. Isis, Osiris’ sister and spouse, aided by her divine sisters Nephthys and Anubis, manages to save Osiris from a definitive death. She pieces together the scattered body parts and brings the god’s corpse mystically back to life – at which moment she conceives Horus, his son, who ultimately drives Seth from the throne.

In the story of death and life after death, chaos and order, kingship and succession, Osiris becomes the god of the afterlife and rebirth, judge of the dead and guarantor of the fecundity of nature through the annual flooding of the Nile.
The protective layer of sand has been removed for the project, allowing the mud-brick, royal burial chamber to be seen. Photo: Andreas Effland, DAI Cairo

“Worship of Osiris is inseparably connected with the personal hope of being able to participate in the god’s resurrection,” says Ute Effland of the Cairo Department, director of the DAI project Investigations into the Sacred Landscape and Ritual Practice in the Context of the Osiris Cult at Abydos, Umm el-Qaab from the Later Old Kingdom to Late Antiquity. “[Worship] also illustrates aspects of the ancient Egyptian ideology of kingship – the linking of the pharaoh with the dynasty of gods that had reigned since time immemorial, and the passing on of the title to the legitimate heir.”

The temples of Abydos are located in central Egypt, some 150 km north of Luxor, and Umm el-Qaab lies just 1.5 km further west of them in the desert. This ancient site comprises three areas. Necropolis U in the north contains approx. 650 tombs from predynastic times, evolving from simple pit graves of the early Naqada I Period to an elite cemetery with the larger tombs of late predynastic rulers (ca. 3800–3150 BC). In the centre lies Necropolis B, accommodating the last predynastic rulers (ca. 3150–3050 BC), like Narmer and Aha. “In the south there is the biggest area,” says Ute Effland. “These are the funerary complexes of six kings and one queen of the 1st Dynasty and two kings of the 2nd Dynasty (ca. 3050–2800 BC). However, each tomb is only half of the whole complex: the second half consists of the valley district near the transition from the desert into the fertile zone.

Djer was a notable pharaoh of the 1st Dynasty who ascended the throne ca. 2980 BC and reigned for 54 years. Last century a cult statue was discovered in his tomb and has become known as the “Osiris bed”. The basalt statue was initially dated to the 7th century BC, but later to the 13th Dynasty (18th cent. BC), hence approximately 1,000 years after the pharaoh’s death. The tomb of Djer is thought to have been the centre of the Osiris cult, and from the Middle Kingdom onwards the necropolis became a place of pilgrimage. Huge quantities of small ceramic pots – votive offerings as well as ritual deposits – were piled up there. They gave the place its modern name: Umm el-Qaab means “mother of pots”, since no less than eight million vessels were deposited over time in the vicinity of this tomb.
The many and various votive offerings deposited in this period and the Osirian ritual and cult relics still present at the site are highly unusual for their quantity – approx. 8 million pots – and for their quality, with statuettes, cult image, architectural fragments and textual finds relevant to history and religious history.

Photo: Andreas Effland, DAI Cairo

The discovery and evaluation of text fragments, ritual deposits and votives has afforded real insight into performative ritual practice at the burial place of the god. Also significant are written finds relating to the chronology of the Third Intermediate Period.

Photo: Barthel, DAI Cairo

SACRED LANDSCAPE

At a distance of about a kilometre from Umm el-Qaab, a wadi traverses the rocky plateau in the south-west corner of the bay of Abydos. The wadi flows round the necropolis area before discharging into the strip of fertile land not far from the village of Beni Mansur and the early dynastic settlement near Kom es-Sultan, where the largely destroyed temple of Osiris-Khentiamenti is also located. The valley was formed by erosion and today remains a natural channel from the mountains into the desert for the rain that occasionally falls.

“The natural topography of the landscape became a religiously charged sacred landscape,” explains Ute Effland, “and in later times the Osiris procession also followed the ancient sacred topography of the early dynastic period, linking the royal tombs with the valley precincts and the temple area. Architecture and landscape go hand in hand and thus enhance the sacred character.” The dry river bed became the processional way.

“We don’t know why people decided 5,800 years ago to erect tombs on a low elevation in the Abydos desert,” says Effland. But it was exactly there, in an elite cemetery of the Naqada Period, that the necropolises of first Egyptian kings were built. Topographically, the necropolises and sacred complexes had, from the beginning, always been aligned with the southern part of the bay.

Following initial explorations at the turn of the 20th century, excavations at Abydos were resumed in 1977 by Günther Dreyer and Werner Kayser of the DAI. In the course of investigating the early dynastic royal tombs, Dreyer discovered “apparent exits” oriented towards the wadi mouth south-west of the tombs. “He assumed that these exits from the tomb could mark the way into the afterlife, and the kings of the 1st and 2nd dynasties hoped to be able to pass through them,” Effland says. It seems that Djer was the first pharaoh to benefit from the idea of such an exit passage.

A cult grew up at the “burial place of Osiris” which was one of the most powerful and enduring in the history of religion. Osiris was worshipped at this site for 3,000 years, almost without break. The cult reached high points in the late Middle Kingdom (ca. 1800 BC), the 19th and 20th dynasties (13th to 12th century), the Libyan Period (1000 to 800 BC), the 25th and 26th dynasties (8th to 6th century) and through the Ptolemaic and Roman period into late antiquity.

Abydos is therefore more than a collection of tombs. It is the most important royal necropolis of ancient Egypt, embedded in a landscape that became sacred not least because of the elaborate cults practised there in veneration of the god Osiris. “Now we want to try and reconstruct the diverse cult activity at the burial place of
Umm el-Qaab developed from north to south and in fact consists of three distinct areas. Necropolis U in the north contains about 650 tombs from predynastic times, evolving from simple pit graves of the early Naqada I Period at the end of its occupancy phase to an elite cemetery with the elaborate tombs of late predynastic rulers (ca. 3800–3150 BC). In the centre lies Necropolis B, accommodating the last predynastic rulers (ca. 3150–3050 BC) like Iri-Hor, Ka and Narmer and the large mortuary complex of Aha, who is generally identified with King Menes, known from later sources as the quasi-mythical unifier of the kingdom. Then in the south there is the biggest area, comprising the funerary complexes of six kings and one queen of the 1st Dynasty, namely Djer, Djet, Den, Adjib, Semerkhet, Qe’a and Merneith, and two kings of the 2nd Dynasty: Peribsen and Khasekhemwy (ca. 3050–2800 BC). In the north-east, bordering Necropolis U, is Heqareshu Hill, where there is a sacrifice site and a ritual site. The hill was probably in use from the late Old Kingdom to the Late Period.

North-west of the tomb of Osiris, archaeologists documented an in situ deposit of 400 Late Period flasks, some of which were lined up beside one another and belonged to a system of demarcating a processional way. This section of the road points towards the god’s tomb and beyond that to the South Hill, which evidently played a central role in important processions and cult practices. Deposited in great quantities and presumably empty, the locally produced Late Period flasks were arranged regularly to mark the edges of the road.

Fig.: Ute and Andreas Effland, DAI Cairo

Photo: Ute Effland, DAI Cairo
Osiris, says Effland. In pursuit of this objective researchers will appraise archaeological material and textual sources in combination with, above all, the topography of the sacred landscape and the buildings that were erected in it.

Over the millennia, many religious structures were sited in that sacred landscape, as were settlements for the living. Umm el-Qaab, the “mother of pots”, is the centre of the great sacred area of Abydos. “We can’t look at that area in isolation,” Ute Effland says. The burial place of Osiris is connected with other cult complexes and sacred places all round Abydos. A first step towards deciphering the complexity of the sacred topography was accomplished when the archaeologists identified several of the axial routes. On top of that, the need to clarify other questions meant that Effland and her colleagues had to do research in the archival records of previous archaeological expeditions. “That wasn’t only necessary,” Effland says, “it also proved to be extremely productive”.

In the late 19th and early 20th century Émile Amélineau, Flinders Petrie, Édouard Naville, Eric Peet and others came to Abydos to excavate. In the course of the excavation work the area – which measures 150 by 600 metres – was pretty thoroughly ploughed over. Heaps of grave goods, votive material, sherds, debris and spoil nearly eleven metres high were created. “Many highly informative textual fragments on ceramics from the early excavations are today kept in multiple museums and are largely unpublished,” Effland says, describing the archaeology of archaeology.
“When their king dies, they build a mighty dome of wood over the place where the grave is to be. Then they bring him, on a bed that is covered with blankets and pillows, to the edge of the chamber. To the side of him they place his ornaments, his weapons and the vessels from which he ate and drank, now full of food and drink. The men who formerly served him food are placed there too. They seal the entrance to the dome and cover it with mats and materials. Then the people gather and heap earth on top of it until a large mound is formed, and dig a ditch around it until the mound can be reached by one side only.”

This passage from an account written in the 11th century by the Andalusian geographer and historian Al-Bakri describes part of the funeral of a king of Ghana. The custom of erecting grave mounds for honoured individuals was widespread in west Africa, reaching far beyond the Ghanaian kingdom, and was practised over a long period. But apart from their existence, little is known about these monuments – their construction and condition, the dating and the culture to which the barrow builders belonged are all as yet unanswered questions.

In the west of Senegal burial mounds like this, made of sand, are particularly numerous – mute witness to once significant, long forgotten events. Owing to more intensive agriculture in recent decades, however, the number of visible tumuli has drastically declined.

While iron forging first took place in the locality 2,000 years ago, some of the tumuli date from the early 2nd millennium AD. Near the small town of Kael, a barrow from the 13th century was used for the burial of an influential wealthy person. Interred with him were weapons, jewellery and six other people who went to their deaths with the principal occupant. The internee was decorated with gold and silver jewellery and there was an impressive display of weapons to the right of him: a carefully positioned bundle of ten or more big iron socketed lances, a dagger with a curved blade, and one other implement. Many of the lances are ribbed and decorated on the edges with elaborate copper spirals; some of the sockets have barbs attached to them. Lying across the six other, carelessly interred individuals, as though thrown on top of them, were two more big lances. On the basis of Al-Bakri’s account we can assume that the grave was richly furnished with materials, wooden implements, gourds and other items, though nothing of the kind remains given the poor preservation conditions. For instance, a slight discoloration was the only indication of the wooden shafts of another impressive bundle of lances that stood vertically in the centre of the grave chamber. Standing upright like this among the dead, the lances are an effective demonstration of power and by their sheer numbers and their costly decoration, they underline the internee’s material wealth.

A project funded by the German Research Foundation (DFG) and entitled Iron Age and Early History in the Sahel, West Africa, has explored the area surrounding several groups of barrows near the town of Mbacké. The findings have shed light on the occupation history of the region. Currently the metal finds are being analysed by restorers from the Romano-Germanic Central Museum in Mainz before being returned to their place of origin.

Sonja Magnavita
Dr. Sonja Magnavita is a pre- and early historian and is working at the DAI’s Commission for Archaeology of Non-European Cultures (KAAK) in Bonn until summer 2015 on a DFG project. Her specialization is the Iron Age and early history of west Africa.
METROPOLISES AND EMPIRES

Ancient centres of globalization
The process of globalization has perhaps speeded up in the last two decades, but it is definitely not new. The early cultures of human history were interlinked by far-reaching trade networks. The centres of cultural and political exchange were international metropolises. This being so, archaeological studies that focus on specific regions always take account of transregional perspectives and include aspects of cultural studies in the investigation of cultural and regional identities that extend, in some cases, across millennia. Accordingly the German Archaeological Institute operates from a global archaeological perspective – without which it is hardly possible to make sense of the modern world with its multifarious processes of exchange, interaction and interdependence between different regions.

Our title story starts with a people that is now more or less forgotten and yet seems uncannily modern in terms of the level of education, flexibility, mobility and entrepreneurialism it displayed: the Sogdians, who were active in central Asia and deep inside China, were advisers to the Uyghurs and Mongols, and did business with everybody. The Mongols, for their part, alternated flexibly between nomadism and urban life, travelled the Silk Routes, again in contact with the Sogdians, brought destruction for instance to the water supply systems of Iran, and finally conquered China that had long endeavoured and at last succeeded in building great walls. Alexander the Great exported Greek culture to the East; Athens, like Córdoba later, was a centre of learning from the ancient world, a beacon that blazed out far and wide. And finally, ancient globalization from the “new world” can be seen in the political history of the Maya, whose 60 kingdoms were bound together in a fragile network of power and economy, loyalty and competition.
MERchants, MANAGers, DIplomats

The busy lives of the Sogdians

They never formed an empire in the sense of a territorial state, and though the archaeological evidence in centres like Panjikent and Afrasiab in modern-day Uzbekistan and Tajikistan testifies to their prosperity, they are all but forgotten today. Once, however, they controlled one of the most powerful mercantile empires, reaching from Crimea to Korea, and were the most successful merchants on the Silk Road. The Sogdians: versatile, diplomatic, polyglot.
They originated from a region in central Asia between the rivers Syr Darya and Amu Darya, founding city states with such sonorous names as Bukhara and Samarkand. In the 1st millennium BC, Sogdia was part of the Persian empire until Alexander the Great conquered it, despite the fierce resistance of its inhabitants, in 327 BC. After this phase had ended, the Sogdian city states organized themselves anew. From the 4th century AD they were the undisputed champions of trade on the busy routes connecting East with West. And not only that. They were also skilled diplomats, interpreters, horse breeders, soldiers, administrative officials both in China and in the first Turkish Khanate (AD 552 to 630), which was centred in what is today Mongolia. Great importance was attached to education and training; the children learned to read and write. Such able people naturally acquired influence. But with their power also their ambitions grew – which ultimately brought about their downfall.

THE SOGDIANS IN CHINA
In May 2000, a team from the Archaeological Institute of Shaanxi Province discovered a tomb just north of the city of Xi’an. All it contained was the skeleton of an adult male with a belt, an epitaph stone in the corridor and a stone divan in the main chamber. The Chinese inscription and the lively scenes depicted on panels on the divan’s stone screen gives us a fascinating insight into the lives of the affluent elite of expatriate Sogdians at the high point of their power. Patrick Wertmann from the Beijing Branch of the DAI has been studying the Sogdian tombs from Xi’an and other regions in north and north-west China. They constitute an unprecedentedly rich store of information on the lifestyle of these merchants who had once migrated from central Asia. It was primarily silk that had led the merchants to the east, and thus they penetrated ever further into inner China. Yet trade was not the only domain of the Sogdians. As time passed they took on important administrative functions in their new homeland. “We know that
from the burial inscription," Patrick Wertmann explains. It reads: “erected in memory of the noble sabao An Jia, supreme military governor of Tongzhou” (today: Weinan). An Jia’s father was among the new arrivals from Bukhara who had become wealthy through the economic resurgence and the resultant expansion of their business activities in the late 5th and early 6th century. His mother was a Chinese aristocrat.

The title sabao is the Chinese transcription of a Sanskrit word that originally meant caravan leader. After Sogdian merchants had established permanent settlements, the term sabao was used to designate a community’s governor and religious leader. They were in charge of administrating the internal affairs of the community and arbitrating in disputes. They represented the community in dealings with outsiders and were responsible for trade agreements and financial transactions in various currencies.

An Jia’s most prominent negotiating partner was a Turk. “He can be recognized by his long hair,” Wertmann says, and explains the background: “Turks as well as Sogdians profited from the fact that, in northern China, short-lived dynasties were battling it out for supremacy. An Jia lived in the territory of the Northern Zhou dynasty (AD 556–581), which overcame the North Qi dynasty (AD 550–577) in 577. For about three decades, both dynasties paid the Turks for supporting one against the other or for staying neutral. The currency used was silk, and it was the Sogdians who were the intermediaries and diplomats in the service of the Chinese. In this way, vast quantities of the precious commodity were brought into the Turkish Khanate.”

The sabao An Jia was a successful member and representative of the global Sogdian network. The stone funerary couch is his memorial.

Patrick Wertmann is now compiling the first ever comprehensive overview of all archaeological finds relating to the Sogdians in China. He is investigating above all the development and transformation of their burial practices, the architecture, furnishings and grave goods of the tombs, and identifying the components of Sogdian and Zoroastrian iconography, the religious philosophy the Sogdians had brought with them.

“Open-mindedness in religious matters – along with intensive language training – was a prerequisite for the Sogdians’ success in the different countries of Asia,” Wertmann says. “Because they also produced translations of the respective scriptures, they are seen in Chinese sources as followers and propagators of the three reli-
Xi’an, Shaanxi Province. Funerary couch of the Sogdian An Jia, AD 579

The panels of the stone divans are colourfully painted and richly embellished with gold foil. They depict a Sogdian man, recognizable by his caftan and conical hat with fur trimming. The central panels show him in official dealings with high-ranking individuals: taking part in processions on horseback, diplomatic negotiations in a tent, festive banquets and seigneurial hunts. Camel caravans and travel scenes leave no doubt about what was being discussed at those meetings: business. The depictions on the panels show the official duties of a sabao.

Photo of divan: Xing FuLai / Photos of panels: Archaeological Institute of Shaanxi Province

gions with a doctrine of salvation, Buddhism, Christianity and Manichaeanism.” The Sogdians themselves practised a form of Zoroastrianism, while remaining notably open-minded about other religions.

DOWNFALL

Politically, too, the Sogdians were flexible. When the (Chinese) imperial family Li founded the Tang dynasty in AD 618, the Sogdians were involved, right from the start, on the highest level as advisers, army officers and diplomats as well as craftspeople and traders. With time, however, military glory and commercial success were no longer enough for some of them. “An Lushan, whose Sogdian name was Roxšan – “the luminous one”, became military governor on the north-east frontier in 742,” Patrick Wertmann relates. “He used the commercial network and the money of the Sogdians to prepare a revolt against the central civilian administration of the imperial court.” In 756, his troops occupied the capital of the Tang dynasty Chang’an (today: Xi’an). It was seven years until the revolt was finally crushed. Decades later the entire region still felt the disastrous consequences of the revolt. Half of the population living in China at that time lost their lives in the fighting. The Tang dynasty survived, weakened, until 907. The Sogdian network disappeared and something new emerged in its place. “Foreigners” were viewed with even greater suspicion in China. They were blamed for the collapse of the Tang dynasty. Many foreigners were killed, many were forced to assimilate, including the majority of the Sogdians. The Sogdians living in central China gradually blended into Chinese society. From that point on, they are no longer recognizable as foreigners in historical sources.

Patrick Wertmann, of the DAI Beijing is an art historian and sinologist.


Inside, the archaeologists found well-preserved wall paintings.

Photos: Wertmann, DAI Beijing
WALLS, MEASURES AND WRITING

China’s emergence as a global player

The Chinese taikonaut Yang Liwei said that he hadn’t been able to see the Great Wall of China from space. The reason may come as a surprise. “There isn’t one ‘great wall’,” explains Mayke Wagner, head of the Beijing Branch of the German Archaeological Institute (DAI). “In China there are countless great walls, ramparts, watchtowers, built over the millennia by different dynasties, but in the popular imagination they fuse to form one unit” – one gigantic fortification supposed to protect the “Middle Kingdom” from what lay beyond. When they are surveyed together and their total length is calculated, the fortifications measure over 21,000 kilometres. That is half of the circumference of the earth at the equator, and even if it can’t be seen from space the wall is still the biggest building on the planet.
The first fortifications known to us are more than 4,000 years old. Dynasty after dynasty erected, remodelled and heightened fortifications, but always in the interior of China. The first “international” frontier was created in the reign of the first emperor, Qin Shi Huangdi (259–210 BC), when the peoples of the steppes to the north formed a political unity that was militarily the equal of Han China, the federation of Xiongnu. China was at that time about the size of Europe today, and as ethnically diverse. “The emperor unified the sprawling empire by force,” Mayke Wagner explains. “He seized the power of the nobles, professionalized and centralized the administration, and standardized currencies, weights and measures, right up to the track width of carts for the rapidly expanding network of roads.”

Perhaps the most important accomplishment was the reform of the Chinese script and its dissemination. “Today China’s 1.4 billion inhabitants still speak countless very different dialects,” says Wagner. “A person from Beijing would have difficulty understanding a person from Shanghai without the unifying standard Chinese written in standardized characters.” The empire-wide administrative deeds of the first emperor were accompanied however by cruelty and prodigality. He was overthrown.

**WHAT BELONGS TO CHINA?**

In China there are countless great walls, ramparts, watchtowers, built over the millennia by different dynasties, and in the popular imagination they fuse to form one unit. The walls provided protection against the Mongols and other peoples from the north. But that was only one purpose. The walls also faced inwards: with the emperor in the centre as absolute ruler of “everything under the sky”, the walls functioned as an instrument of integration and assimilation among the rapidly growing, heterogeneous population of the Middle Kingdom.

The walls have been part of the UNESCO world heritage since 1987 - overall the biggest building listed. It consists of nearly 44,000 individual structures.

Photos: Wertmann, DAI Beijing
The first Han emperor profited from the institutional centralization, and under Emperor Wu (156 to 87 BC), who reigned for 54 years, China’s great expansion began, reaching as far as present-day Kyrgyzstan and Kazakhstan. Walls and command posts were built. “The Han Wall with fortifications and towers was an extensive signalling system – just like the limes,” Mayke Wagner says. The Chinese economic area had expanded enormously, trade flourished. Gold and silverware from Bactria and from the land of the Parthians, horses from Fergana valley on the upper reaches of the Syr Darya were traded for silk and more silk. Via Bactria, India and Parthia they found their way to imperial Rome – along the trading routes of the Sogdians. Was it the great success of the Chinese, their expansion into far-flung territories of the Eurasian continent, that led to the coining of the term “Middle Kingdom”?

“Sinocentrism has much older roots,” says Mayke Wagner. “It goes back to a concentric model of the world that places the emperor in the centre of the world due to divine legitimization.” In this, Sinocentrism doesn’t differ from other centrisms of this kind.

NEW BEGINNINGS

After the demise of the Han dynasty, after natural disasters, power struggles and turmoil, centuries passed before China was again able to enjoy peace and prosperity in the 6th century AD. Under the cosmopolitan and liberal Tang dynasty (618 to 907) China was an innovation machine, a republic of scholars and an international trading nation. The Chinese had made steel since the 6th century; they made porcelain and paper, invented printing and gunpowder long before the west. State-sponsored, innovative methods in agriculture were introduced. In around 1100 there were 100 million mouths to feed.

No matter how many or how strong the walls were, they proved incapable of holding back the incursion of the Mongols. In 1277, Kublai Khan, grandson of Genghis Khan, founded the Yuan dynasty, which ruled China from 1279 to 1368. The Middle Kingdom had become part of the Mongol Empire. Its centre was Karakorum, Genghis Khan’s capital in the Orhon valley. The Mongols didn’t build walls – they built roads with posts between southern Russia, Persia, central Asia and China. They subsequently moved the seat of government to Beijing for domestic political reasons. This was the period in which Marco Polo and Ibn Battuta made their journeys to the east.

Conflicts were not long in coming. The Han Chinese and the northern peoples mistrusted each other, harbouring prejudices and emphasizing cultural differences to disadvantage other groups. In the Ming period (1368 to 1644) the Khan was banished and the Mongols became the no. 1 enemy of the state. In 1420, the third Ming emperor moved the capital from Nanjing, a city with a million inhabitants, to Beijing, which had become run down since the withdrawal of the Mongols. The move took 17 years. Hundreds of thousands of workers rebuilt the city and the imperial palace. Six campaigns were undertaken against the Mongols, and China’s territory now extended as far north as the Amur. After a defeat at the hands of the Mongols, a second line of fortifications was constructed near the capital. This “great inner wall” is the big tourist attraction of today, though it only represents a small section of the total structure, 21,000 kilometres in length.
BEIJING BRANCH – THE DAI IN CHINA
The research projects are part of the Beijing Branch’s long-term objective to integrate east Asia more intensively than heretofore into transregional studies on certain fundamental questions about human development. These include the following: when and under what conditions did humans begin to switch from foraging to food production? What plants and animals were domesticated for this purpose, and when and where did this happen? One of the jointly conducted research projects looks at the mechanisms of communication in east central Asia during the 1st millennium. It was the Sogdians, multilingual merchants and diplomats from what is today Uzbekistan, who promoted this communication from Crimea to Korea. Innovations in the field of body knowledge and clothing technology are being examined in the BMBF-financed project Silk Road Fashion (http://www.bmbf.de/press/3500.php).

Bridging Eurasia is a research initiative that was founded at an international conference in Berlin in 2010 jointly by the Beijing Branch and the Institute for Geological Sciences at the Freie Universität Berlin. The research initiative is an informal, international and multidisciplinary association of researchers who want to correlate high-resolution data from archaeology and environmental sciences on a local and regional level in order to detect causal connections behind changes. Current findings of palaeo-environmental research in central and east Asia are presented in two special volumes of the journal Quaternary International.

An important part of the branch’s work is helping to educate the next generation of scholars and scientists. Young Chinese archaeologists receive training in special programmes, and study places are found for them at German colleges. German postgraduate students who are preparing their PhDs in China receive expert supervision at the branch and also take part in projects. The volumes in the DAI’s series Archaeology in China and East Asia, as well as teaching materials on eastern Asian archaeology, the website www.bridging-eurasia.org and public lectures are means of disseminating knowledge to a general audience.

GLOBALIZATION SECOND-HAND
Some patches of these trousers originally belonged to a tapestry. The fragments carry a life-sized picture of a Greek soldier in central Asian clothing. They were discovered in 1984 by Chinese archaeologists investigating a burial ground from the 1st cent. BC in Sampul near Khotan on the southern edge of the Taklamakan Desert. The tapestry probably came from a Greek city in Bactria.

Photos: Museum of the Uyghur Autonomous Region, Xinjiang; Xinjiang Institute of Archaeology 2001, p. 188–189.
It’s thanks to them that we have jackets, trousers and paper money, and their name still evokes fear and amazement mixed with awe. The Mongol Empire was the largest contiguous empire in human history. It stretched as far as central Europe. At the time of its greatest territorial expansion the population numbered a mere 200,000 people – and there were just as many horses. As late as the 15th century the “Mongol invasion” was still both a real danger and a metaphor. Their name still calls to mind nomadism and dwelling in yurts, but a one-sided concentration on the fierce expansionism of this riding-nomadic nation overlooks another facet of their culture: the development of sophisticated cultural techniques, social structures that were progressive by western standards, and even the construction of big cities – which might come as a surprise to those who still picture them as wild hordes of mounted warriors. Their most important city was one of the world’s largest at the time: a centre of trade, science, culture and religious diversity.
The Orkhon valley is the cradle of late nomadic urban culture in northern central Asia and was regarded as the sacred centre of the world. Whoever ruled here commanded the peoples. The cultural landscape is UNESCO world heritage.

“Karakorum is a planned city, in which different cultural components were deliberately combined,” says Christina Franken, head of the Ulaanbaatar Branch of the DAI’s Commission for Archaeology of Non-European Cultures (KAAK). Urban planning and development are key topics of her work in Mongolia. “It was Genghis Khan who founded Karakorum, in AD 1220, but his son Ögedei Khan made it into an international metropolis,” Franken says. Ramparts and palace precinct, erected in 1235/36, are considered to be the earliest structures. “By expanding the city, which continued until 1256, Ögedei Khan initiated the transformation of an unstable nation of equestrian warriors into an orderly, stable state,” Franken explains. Nomads and sedentary peoples had their place there. These different cultural concepts coalesced, the Mongols adopting what seemed meaningful to them and further adapting it.

The palace district is the core of the Khan’s capital, which is modelled on Chinese precursors. In its heyday the city was a cosmopolitan rallying point for peoples from east and west, north and south. Not only the layout of the city was copied from Chinese models, but also the administration. The chief government adviser was a Chinese man taken captive during one of the many military campaigns. The Khan issued a central constitution in order to prevent abuses by civil servants and clamp down on corruption. Inspectors monitored compliance.

In one point Mongol practice diverged significantly from the Chinese: no central language was introduced or imposed. Rather than this the Khan pursued a European-style linguistic policy and had documents translated into all the languages of the empire: Mongolian, Iranian, Uyghur, Chinese, Tibetan and Tangut.
KARABALGASUN

The ancient Uyghur capital, Karabalgasun, that was founded c. 744/745 and destroyed in 840, was also linked with the formation of a state entity. The Uyghurs were an association of various Turkic-speaking nomadic groups under the loose command of the Yağlaqar clan. Through a series of local conflicts they built up an empire in what is today Mongolia.

The DAI has been working here since 2007. It is investigating the city’s function as a centre, crucial to the emergence of territorial power structures. Like Karakorum, Karabalgasun too was a planned city. The Uyghur rulers essentially followed Sogdian models, both in economic matters and in the organization of rule. They also adopted administrative techniques as well as various technologies from them, for instance in irrigation or multi-storey brick building – all important components in the process of sedentarization in the Uyghur empire. In consequence of this, Sogdian influence spread further. It was not long before they took on advisory functions at the Khagan court and came to dominate the Manichaean clergy, this being the religion they had once brought with them; they even proselytized in Buddhist-influenced China. Eventually the Uyghur rulers adopted the Sogdian alphabet, substituting it for their ancient Turkic runic alphabet in the 9th century. Centuries later the Uyghurs passed this alphabet onto the Mongols – and from it the traditional Mongolian script developed.

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INTERNATIONAL RESIDENTIAL QUARTERS
In 1253, the Flemish explorer William of Rubruck reached the Mongol capital and resided at the court of Möngke Khan for about half a year. William describes the means of payment used in transactions: "The common money is a paper of cotton, in length and breadth a palm, and on it they stamp lines like those on the seal of Mangu [Möngke]."

According to William’s account, different population groups and travellers, who visited Karakorum in great numbers, lived in their own districts of the city. Archaeologists are keen to find out if what William reports is discernible in the archaeological record. "We’d like to know whether these quarters were divided purely functionally or whether their division reveals something about ethnic groups or religious communities," Franken says. So far, two buildings very probably of religious character have been fully excavated; they belong to a small ensemble of four buildings near the north wall of the city. "We hope to find less Buddhist or Chinese influenced inventory than in the complexes that have been recorded in the south-west and the centre of the city. The north of a Mongol city was predominantly where the "commoners" lived. But it was there too that the international quarters lay, inhabited by European Christians or Uyghur and Persian Muslims. "These quarters were highly cosmopolitan," Franken says.

Karakorum remained the ideological heart of the Mongol Empire, even after it had lost its function as capital. Kublai Khan, a grandson of Genghis Khan, had moved the government and the capital to Beijing for political strategic reasons after the conquest of China and the founding of the Yuan dynasty. In 1380, the city was destroyed and was rebuilt only after 1415. But by the late 16th century it had fallen into ruin and was used as quarry for building stone; it was partly built over by the Buddhist monastery of Erdene Zuu.

The Buddhist monastery Erdene Zuu was later built partly over the ruins of Karakorum.
Photo: Wittersheim, KAAK

The archaeological finds reflect the internationalism of the city of Karakorum.
1 Model with head of a Buddha
2 Buddhist votive offering
3 Head of a dragon-lion
4 Head of demonic deity
5 Chinese pottery

Photos: Wittersheim, KAAK
Wherever Alexander conquered a new land, he offered a sacrifice. At the beginning of his expedition against the Persian Great King Darius, when crossing from Europe to Asia in May 334 BC, he sacrificed to the hero Protesilaus, the first Greek to fall in the battle for Troy. A short time later, he thrust his spear into the ground near Troy – marking the start of his campaign of military conquest. North of the Syr Darya he erected 12 monumental altars; in India he made a drink offering to the local river gods as well as to Greek gods, and sacrificed the gold dishes used in the ritual. The world beyond the Bosporus became increasingly Greek, the Greeks increasingly “Asian”.

For a long time there was a paucity of information from the areas on the eastern periphery of Alexander’s empire. Since the end of the Soviet Union, however, archaeological investigations have made great advances, yielding a growing number of significant finds from ancient central Asia. The Eurasia Department of the German Archaeological Institute is involved in a number of projects which are following the tracks of Alexander in the east.
To secure his hold over the newly conquered territories, Alexander built forts and founded cities. Mercenaries and other participants of the military expedition settled there, and in time Greeks and Macedonians came to be firmly established in the politically influential upper echelons of the former polyethnic state of Persia. Alexander admired his “ideal enemies”, the Persians, more and more as he got to know them. He was impressed not only by their wealth, but also by their economic and administrative system. The forms began to merge. The appearance of Greeks in far-flung regions of central Asia left lasting traces. The lands between the Mediterranean and the Indus underwent profound cultural, economic and social upheavals as a result of Alexander’s campaign. But the Greeks, too – not least of all, Alexander himself – adopted features from the cultures they had conquered.

In August 331 BC, the Macedonian conqueror entered Babylon. The former capital of the Babylonian empire had been – since 539 BC – a royal residence of the Persian rulers, the Achaemenids. Ancient religious, literary and scientific traditions, in particular astronomy, made a deep impression on Alexander. He also encountered ancient oriental monarchic ideology. The ancient title “king of the four quarters [of the world]” suited him very well. Alexander adopted the royal title, and on certain occasions even wore Persian royal garb.

Torbuk. The archaeological site lies at the edge of a village beneath a prominent rock formation. Photo: Lindström, DAI Eurasia Department
BACTRIA

One of the places where Greek and Asian elements overlap is the Oxus temple in southern Tajikistan – at Takht-i Sangin on the bank of the river Amu Darya (ancient Oxus), the border with Afghanistan. The temple was established shortly after Alexander’s subjugation of Bactria at the beginning of the 3rd century BC. A Greek inscription on the plinth of a bronze figurine proves that the river god Oxus was worshipped here. In antiquity this region was known as Bactria. It had put up stiff resistance to Alexander. But as time passed, a hybrid culture developed, combining indigenous and Greek elements.

“The Oxus temple is one of the most important find-sites in the region,” says Gunvor Lindström of the DAI’s Eurasia Department, a specialist in the cultures of the Hellenistic East. “In spite of being built in the Hellenistic period it was not built as a Greek colonnaded temple,” Lindström notes. “Instead it adopts indigenous architectural traditions. The temple was a monumental building of unfired mud-bricks.” The artefacts of gold, silver, ivory, precious stones and other materials that were found during a Soviet archaeological expedition in the years 1976 to 1991 are extraordinarily ornate and valuable. Since 2013, Lindström has been investigating another Hellenistic temple that she discovered in a village called Torbulok (“four springs”) in south-western Tajikistan, also in the ancient region of Bactria. But how did the archaeologists know that this too was a Hellenistic site?

“In 2008, the villagers found a large limestone basin,” Lindström says. “It’s a so-called perirrhanterion, a cult vessel that was used in Bactrian sanctuaries for symbolic purification – exactly like in Greek sanctuaries of the Mediterranean region.” Water basins like this generally stood at the entrance on a column-shaped stand, near the altar or elsewhere in the sacred precinct. There were basins of this type in the Oxus temple, too, and they were used for religious purposes.
In the courtyard of the sanctuary in Torbulok, excavators have found several miniature altars shaped like column bases.

Photos: Lindström, DAI Eurasia Department

KURGANZOL
Not far away, in southern Uzbekistan 100 kilometres north of Termes, a monument datable to the time of Alexander the Great was discovered by archaeologist Leonid Sverchkov in 2003. “It turned out to be one of the forts Alexander built in the course of his difficult conquest of Bactria and Sogdia,” explains Nikolaus Boroffka of the Eurasia Department, who took part in the complete excavation of the site in 2008. Kurganzol fortress was a huge circular structure with walls four metres thick, and it formed part of a ring of military strongholds. Today the walls are still more than three metres thick and nearly two and a half metres high. When Boroffka excavated the site, together with Uzbek colleagues, numerous finds came to light. Most of the finds were of the kind expected in a fortress: everyday utensils, pots, jugs, bowls, plates and beakers as well as big, barrel-like storage vessels. All of the pottery reflects the diversity of Greek forms, and was wheel-thrown. “The soldiers didn’t bring the majority of the crockery with them from Greece,” Boroffka points out. Most likely it was made by the potters who, like other artisans and many scholars too, were part of Alexander’s expeditionary force. The potters made the vessels of local clay using the techniques they had learned back home. “Some of the finds suggest that local craftsmen tried to copy Greek forms, though without using the potter’s wheel,” Boroffka says. But ordinary pots and jugs were not all that came to light. The hill-top fort held a real surprise for the archaeologists: a bath tub. It is made of clay and is proof positive of Greek bath culture in central Asia. The tub, like the basin in the inner courtyard, was filled either by rain water or by water transported to the site. Archaeologists have also found a number of

After the death of his father Philip II, the young Alexander ascended the Macedonian throne in 336 BC. Within one year he had secured his power base and enlisted the Greek states as allies in his crusade against Persia. The crusade lasted eleven years. It led through Asia Minor, the Levant, Egypt, Mesopotamia, across the Iranian Plateau and through central Asia as far as India. Alexander’s army numbered many thousands and included non-combatants, e.g. geographers, historians, artists, craftsmen and engineers.

Alexander the Great, Ny Carlsberg Glyptotek, Copenhagen;

Photo: Gunnar Bach Pedersen/public domain

In the courtyard of the sanctuary in Torbulok, excavators have found several miniature altars shaped like column bases.

Photos: Lindström, DAI Eurasia Department
ceramic vessels that could have served this purpose. A channel existed as well, leading from a spring a few kilometres away through the gate into the fortress; in times of peace this would have supplied running water. The fortress was attacked at least once, however, as attested by repairs that were made to the fortifications.

A wedding made the fort redundant. Alexander married Roxana, daughter of a Bactrian prince, and this was the final act in the pacification of the Bactrians. Alexander’s troops pulled out of Kurganzol.

Where Alexander turned back – at the River Jaxartes (Syr Darya) – he offered a sacrifice, as he had done in the previous stages of his conquest. He erected altars for the mythical heroes Herakles and Dionysus – at the furthest reaches of his empire in the far north of the oikumene. After campaigning in the east, the Greek-Macedonian “king of Asia” returned to Babylon, where he died in 323 BC at the age of 32.
Among the finds at Kurganzol were implements used in various crafts, like these loom weights. Artisans presumably supplied the soldiers with all the equipment they required.

© Curt-Engelhorn-Foundation / Anatoli Suyev

Jars that were made on the potter’s wheel.

Bowls that were part of the garrison’s tableware. A stack of bowls like these was found in its original position in a pass-through between the “kitchen” and the “dining room”.

Different types of bowl found at the fortress. Left, a specimen with a black slip, which was common in Greece. The central specimen was wheel-thrown but has no slip. The fragment on the right is an uneven handmade imitation.

Photos 2, 3 and 4: Boroffka, DAI Eurasia Department
THE IVY LEAGUE OF SCHOLARSHIP
The cultural and scientific beacons Athens and Córdoba

ATHENS AND ITS PHILOSOPHERS
From Athens they conquered the world. Socrates, Plato, Aristotle, Diogenes — and their teachings. These were developed at the schools of philosophy in Athens in the 5th and above all the 4th century BC. For 1,000 years they attracted and inspired young men from all over the world who were thirsty for knowledge. It came to an end in AD 529 when Christian emperor Justinian closed Plato’s Academy. 1,000 years later Pope Julius II commissioned a painting from Raphael that indicates the great importance that one attached to Greek philosophy especially from the European Renaissance onwards: The School of Athens.

Not that only one school of Athens existed, of course. Although Plato’s Academy became the most famous, there were others, attesting to ancient Athens’ vertical take-off in intellectual terms following the invention of democracy in the 5th century BC. It was only the best of the best who taught at one of the famous Athenian schools and ended up staying in the city for some time. As a rule, ancient philosophers and teachers were constantly on the move in search of students, journeying from city to city, from court to court.

In the 19th century, archaeologists began searching for the schools of Athens, identifying then excavating them. A leafy and fairly inviting public park is where the Academy was once located, near the river Cephissus to the north-west of the city walls. Plato’s teacher Socrates, an Athenian like his pupil, taught at the same place. Excavation of the site commenced in the 1930s.

Aristotle (384–322 BC) taught at the Lyceum, located in the sanctuary of Apollo Lyceus (protector against wolves). He was joined there by his colleague, friend and former pupil Theophrastus of Eresos (Lesbos), a philosopher and natural scientist (371–287 BC) who like Aristotle had originally been a member of Plato’s Academy. Aristotle, born in Stagira, northern Greece, had served as tutor to the Macedonian
prince Alexander and then returned to Athens by 335 BC. There he and Theophrastus taught at the Lyceum, a park with a gymnasium at the foot of Mount Lycabettus, east of Athens and near the river Ilissos. The exact site was only discovered by chance during construction work at the end of the 20th century and has been excavated.

The Kerameikos of Athens is one of the DAI’s most important excavations in Greece and is among the major archaeological sites of Athens along with the Acropolis, the Agora, the Temple of Olympian Zeus and Plato’s Academy. In 1913, the licence to excavate at the famous Athenian cemetery was awarded to the German Archaeological Institute following cooperation that had already lasted 40 years. Situated today in central Athens between Hermes and Piraeus streets, the site – which covers an area of 3.85 hectares (approx. 9 acres) – lay at the north-western edge of the city in antiquity. A large part of the modern archaeological park lies in the ancient potter’s quarter, the demos Kerameis, which derives its name from the patron of potters, Keramos. The building of the new city wall in 478 BC divided the Kerameikos into an inner- and an extra-urban area. Two monumental city gates – the Sacred Gate and the Dipylon – were erected over two major roads: the Sacred Way, down which processions celebrating the Great Mysteries cult passed to the sanctuary of Demeter at Eleusis, and the 40 metre wide Kerameikos road that ran from the polis to the Platonic Academy.
Between these two gates stood the Pompeion, built in the 4th century BC. This is where people gathered to take part in the procession to the Temple of Athena on the Acropolis in honour of the city’s patron deity. The Pompeion, however, was also a place of education for young Athenians. There one could meet the philosopher Diogenes (ca. 410–323 BC), who improvised accommodation for himself in the Kerameikos, commenting that “the Athenians had even provided him with a residence”.

Diogenes was a native of Sinope on the coast of the Turkish Black Sea, and was a practitioner of the philosophical school of Cynicism (from "dog" = kyón > kynismós, literally "doglikeness") which advocated scepticism and self-sufficiency. Like Aristotle and Theophrastus, he too met Alexander the Great, but it was an encounter than made his name and his principles perhaps more famous than his teachings, even though it is not certain the meeting actually took place. When Alexander was chosen by the Greeks to be their leader in the campaign against the Persians, statesmen and philosophers came to pay their respects, as the Roman historian Plutarch reports. Only Diogenes stayed away. Therefore Alexander went to him and asked if there was anything he might do for the philosopher. “Stand out of my sunlight a little” was his reply.

The philosophical schools of Athens – Plato’s Academy, Lyceum and Pompeion – now have recovered a place in the modern city thanks to joint Greek–German archaeological projects. The projects consist not just of excavation, but also careful restoration and tourism management at the sites, so that visitors can explore the Greek capital in the footsteps of the great philosophers.

1 Plato’s Academy was the most famous of Athens’ philosophy schools.
2 The Lyceum was where Aristotle and his colleague, friend and former pupil Theophrastus of Eresos taught.

Photos: Stroszeck, DAI Athens
Dr. Jutta Stroszeck of the DAI’s Athens Department has directed work at the Kerameikos in Athens since 1995. The latest project concerns water management at the famous cemetery.

The Kerameikos in Athens is one of the most important cemeteries of ancient Greece and among the DAI’s most important excavation sites. Diogenes the philosopher slept rough here.

Photo: DAI Athens
Travellers reaching Córdoba, capital of the Muslim kingdom of Al-Andalus, were amazed by the wide paved streets, public baths, grand architecture and luxuriant gardens. Scholars of all confessions came to Córdoba to visit its library, which contained a treasury of scrolls far greater than all others in Europe at the time. The collection was a rich repository of the learning of the ancient world, predominantly in Arabic, the translations originating from Baghdad. Latin translations of Aristotle had found their way to Paris, where Thomas Aquinas further developed scholasticism on their basis.

In 711, the Arabs had occupied parts of the Iberian peninsula in the course of their expansion. It was a knowledge transfer on a massive scale and was a crucial contribution to the rediscovery of ancient knowledge and art in the 15th century Italy known as the Renaissance. “Al-Andalus has long been regarded as a conduit of ancient and Arabic learning to Europe,” Felix Arnold, architectural historian at the German Archaeological Institute, points out. “There is much in our archaeological investigations to indicate that the new concept of humankind in the Renaissance was also decisively inspired by Muslim achievements.”

This unparalleled beacon of the arts and sciences lasted a mere 300 years. “The ruler’s increasing withdrawal was probably one of the main reasons for the demise of the Caliphate of Córdoba,” Arnold explains. “At the end of the 10th century the caliph delegated his political power bit by bit to his officers and courtiers. One of them was al-Mansur, the former chief of police. He set up a military dictatorship which ultimately led, in 1009, to revolution and civil war. For two decades the citizenry tolerated this state of affaires. In the year 1031, the citizens declared that the caliphate was history, and founded a republic,” says Felix Arnold, “one of the first in Islamic history.” The events of Córdoba raise questions about the relationship between the monarch and the people in the caliphate. To answer them, archaeologists and architectural historians under the direction of Felix Arnold are at work in the caliph’s city of residence, Madinat al-Zahra, where they are studying the central public square known as Plaza de Armas.

The square was the site of public acclamations and judicial hearings, military parades and executions. “[The square] is also particularly significant for being at the origin of the tradition of the maidan, the central public-political space of an Islamic city,” Arnold explains. “In this function it was a model for comparable public spaces from the 12th to 15th century in Seville, Marrakesh and Timbuktu. As such the palace-city Madinat al-Zahra was the starting point of a cultural transfer whose impact can be traced as far as the cultures south of the Sahara.”

The caliph’s palace bordered the square, as did the congregational mosque and probably the official residences of the chief of police and prefect of the city. “We’re looking at the question of how the ruler presented himself to his people here,” Arnold says. “Is there a connection between the change in the architecture of the square and the change in the caliph’s role?”

The caliph ordered the construction of his residence in the year 936. It lies about eight kilometres west of Córdoba on sloping terrain with a glorious view of the city. Master builder Maslama ibn Abdallah was charged with overseeing the construction project. The court relocated there from Córdoba only nine years later, in 945.

“Normally the Islamic city has a rather labyrinthine, almost chaotic structure,” Arnold explains. “Madinat al-Zahra, in contrast, has an orthogonal street grid. With an area of approximately 1,500 by 750 metres, it’s one of the biggest urban settlements in the Medi-
In the Middle Ages, Córdoba was one of the biggest cities in the world, comparable to Baghdad, Cairo and Kairouan. The caliph’s court was a centre of art and science; mathematicians, philosophers and poets gathered in the palace-city of Madinat al-Zahra. The highly detailed architectural ornament in limestone and marble in the palaces is an eloquent example of the expertise of the court workshops, as is the intricate ivory work and the bronze sculpture that survives. The library of Caliph Al-Hakam II was legendary. The ruler had even assembled a collection of Roman art. The influence of the cultural development that began in Córdoba can be traced as far away as Timbuktu in west Africa and Cairo in the Near East.

The building boom in Spain from 1992 to 2008 resulted in a great number of excavations being undertaken in Córdoba, some of them very extensive, and they have given us a new understanding of the ancient city. It was not a city that developed organically, with a maze of small roads, but was laid out on a generous scale with broad avenues and paved walkways and a sewer system that can be traced for long distances. Houses of the same type were arranged along an orthogonal street grid. Private gardens were as much the norm as latrines and public baths. There were district mosques and shopping streets; even the cemeteries had regular central axes and gate buildings. In Europe there had been nothing of the kind since antiquity.

Felix Arnold
terranean region that were planned and built from scratch in this period."

Building a city from scratch not only meant it was possible to carry out construction projects that would have been impossible in an existing city. It also symbolized the caliph's role as leader of the entire Islamic world. Caliph Abd Al-Rahman III chose to call his residence Madinat al-Zahra, "the blossoming city". Even though a legend holds it was named after his favourite concubine, the name is of a piece with other towns founded by caliphs – such as Baghdad "the city of peace" and Cairo "the victorious city" – and it was supposed to herald prosperity for the caliphate.

It is possible that the square was previously the site of a Roman villa. There were certainly many Roman villas in the area around Córdoba, though most of them were built lower down on the plain by the river. However, the caliph's new city of residence was sited very close to the aqueduct that had supplied Córdoba with water in Roman times. Caliph Abd Al-Rahman III reactivated the aqueduct and added a new branch to bring water to his city and its gardens and baths.

"Madinat al-Zahra is without doubt the most notable Islamic archaeological site on European soil," declares Felix Arnold. "In view of its exceptional state of preservation we consider it a Pompeii of Islamic culture."
Excavations in the garden of Al-Rummaniya. Arabic horticulture, brought from the Orient and North Africa, reached a high point on the Iberian peninsula, occupied by Muslims since 711. The gardens were generally located inside palaces, city residences and villas in rural areas. Like gardens in the Orient they consisted of an assemblage of self-contained, usually square units. A separate development in Spain was terrace architecture with carefully created vistas. Arab poets never tired of praising the gardens of Córdoba. For instance, the Maghrebi historian Ahmad al-Makkari (1578 – 1632) left the following description of Hair Al-Zaggali, a horticultural gem presumably located beyond Córdoba’s north gate: “this garden is one of the most wonderful, most beautiful and most perfect places; a stream runs through it like a twisting snake, and there is a basin in which the water collects.”

Photo: Arnold, DAI Madrid
MAYA POLITICS

The kingdom of Copán

Situated in dense rainforests and high-altitude valleys, the ancient cities of the Maya might appear to be hidden away and isolated. But in fact they were incorporated in economic and political networks that stretched across Mesoamerica and connected them with the other ancient American civilizations.
The Maya kings exploited considerable resources to build palaces and temples that were both demonstrations of power and an expression of their cosmology. One of the famous structures of this kind is Temple 22 in Copán, Honduras. The unceremonious name does not reflect its former glory or significance. Rediscovered in the 19th century, the temple was consecrated in AD 715 by the 13th king of Copán, Waxaklajuun Ub'ah K'awiil. Its facade was once very richly decorated with sculptures, which today are to be found in museums and private collections all around the world. “The temple probably symbolized a three-dimensional cosmogram of the order of the universe,” explains Jennifer von Schwerin of the DAI’s Commission for Archaeology of Non-European Cultures (KAAK). Since 1998 she has been working with archaeologists from Harvard University on the conservation and digital reconstruction of the temple facades. In 2012, she and Markus Reindel launched a project – funded by the Federal Ministry of Education and Research – to construct a digital 3D documentation system for Copán.

The universe von Schwerin referred to is the realm of the Classic period of the Maya civilization. That lasted for some 1,000 years, from 150 BC to the 9th century AD, and encompassed parts of the present-day states of Mexico, Guatemala, El Salvador, Belize and Honduras. Over 60 kingdoms came and went, engaging in trade or conflict with each other. The earthly level of the Maya universe was criss-crossed by roads; big dams were the water reservoirs for the cities, in some of which as many as 70,000 people needed to be provided for – as many as 200,000 if the surrounding territory is included. Maize, beans and squash were the basis of Maya agriculture.

The rulers of the Maya kingdoms had built up an ingenious network of political, economic and cultural relationships and were in constant contact with one another. Copán was part of this fragile network of family dynasties, subordination and military and economic dependency that for a long time was centred on two power blocks: Tikal in what is today Guatemala and Calakmul in present-day Mexico. In the year 695, Jasaw chan K'awiil, ruler of Tikal, defeated his rival Yich'aak K’ak of Calakmul. Tikal immediately took on a dominant role. King Waxaklajuun Ub’ah K'awiil of Copán lost no time in advertising his loyalty, using for this purpose Temple 22, whose design adopted pictorial elements from Tikal. With a population of 8,000 to 12,000, Copán was relatively small compared to other Maya city-states.
“Still, it was a significant ideological and economic centre,” says Jennifer von Schwerin. “A number of investigations have shown that Copán was both a place of pilgrimage and a trading post, a key regional power that controlled an important trade route.” And it had a decisive advantage. It was deeply anchored in Maya history. Rulers had been erecting their temples on the “acropolis” of Copán for centuries – a burden of tradition carried also by Temple 22.

**THE COSMOS, CARVED IN STONE**

With a population numbering 6,000, Copán today is a quiet little town in Honduras near the border with Guatemala. Its inhabitants live mainly from tourism, the Maya ruins having been inscribed as world cultural heritage. In Copán, too, there has been plenty of excavation, conducted since the 19th century by institutions from various countries, and now finds as well as data are strewn far and wide around the globe. The archaeological site covers an area of 24 square kilometres. It comprises a ceremonial centre and residential areas located beyond it.

“Classical archaeological methods work well for identifying, cataloguing and analysing the stone remnants of the palaces and temples,” says Jennifer von Schwerin. “But if you want to penetrate deeper into the everyday lives of the Maya population, Maya archaeologists occasionally have to employ other means to confirm existing findings and also to extend them.” Modern investigations of urban topographies commonly begin with remote sensing, and in fact investigations in the valley of Copán using Lidar (i.e. laser scanning from the air), carried out by the DAI in 2013, generated important new data on the landscape and settlement archaeology of the Mayas. “Technologies like these enable us to gather different kinds of data that it wasn’t possible to collect before,” von Schwerin says. “That helps us understand the political and social history of these ancient American sites a whole lot better.”

Kilometre-long tunnel excavations by Harvard University in the acropolis of Copán have exposed five centuries of architectural history. Temple 22 was probably used as a throne room – as a setting and enhancement of the body of the king who sat enthroned here as a god, receiving visitors and tribute, and enacting sacred rites. The messages on Temple 22 speak of traditional creation myths and the primordial past. “Temple 22 is a representation of the Maya cosmos, carved in stone, showing the cycle of birth, sacrifice and regeneration,” says the archaeologist and art historian.

Yet von Schwerin was puzzled why such an emphatically traditionalist diagram should have been necessary at a time when Copán was at the height of its power. “In fact, the king had a whole range of problems to deal with,” von Schwerin explains. “The agricultural resources were used up, the population was growing, and the other Maya kingdoms kept on building and expanding. On top of that he apparently had difficulty holding Copán’s strong fortification on the south-east Maya frontier against the campaigns of his rivals. That’s why the temple’s symbolism shows that one of Waxaklajuun Ub’aah K’awiil’s concerns was to support Copán’s role as an important Maya kingdom – and to install himself in the centre of it.”

Temple 22 was therefore a prestige project born of difficult times and intended to proclaim a position, especially vis-à-vis the other kings who were erecting one prestige building after the other. The king and his architect were faced with a tricky problem, however. They needed to reach – as we would put it today - heterogeneous target groups: Maya and non-Maya. Copán was situated in a frontier zone in proximity to other cultures. It had a mixed population, with migrants from the Lenca population that had settled in the region long before the Maya. In order to maintain the city’s function as a capital and an urban centre, it was necessary to bring about not only political, but also cultural and above all religious integration among the population. Architecture and pictorial programme were therefore drafted into service to explain the Maya identity to the king’s subjects, wherever their origins.

This strategy worked in Copán until 822. But in the course of the 9th century the Maya kingdoms declined and fell – possibly as a result of political and economic upheavals and continuing drought. The funerary tomb of the last Copán king, Yax Pasah, shows the collapse. Temple 18 is the last building known to have been erected in Copán. It is being investigated as part of the DAI project MayaArch3D, in which Mike Lyons from the KAAK has produced a hypothetical 3D model and a reconstruction of the temple. It was a small temple and a final attempt to project power through a depiction of the king as an embodiment of the maize god. The attempt failed; Copán was abandoned and became overgrown by the rainforest. (See also: Archaeology Worldwide 2–2013, “MayaArch3D – a new archaeological tool” [www.mayaarch3d.org])
The lower level of the temple represents the mountain of creation with its field of maize – the source of maize, water and wind. The entrance to it is the mouth of the sky serpent that allows movement between the levels of the universe. Where there was presumably a middle level, statues of the ruler were found. He is shown in full figure, sitting on a mountain, symbolizing the kingdom of Copán. The imagery is military in character. This emphasizes the monarch’s role as warrior and guardian of the natural order. The upper level was probably decorated with depictions of the sky with ancestors, protective deities and life-giving rain.

Hypothetical reconstruction of Temple 22: Maqueda, von Schwerin / fig. & photo: von Schwerin

When the Spaniards came to Honduras around 1600, the land was an important source of cocoa, jade, feathers, copper and tobacco. Copán may have controlled the trade in feathers, especially those of the flamboyantly colourful Macaw.

Photo: Armin Grün

Unlike other American cultures, the Maya had a script. It survived contact with European culture solely on some buildings and monuments and in a few codices. Copán Stele 2.

Photos: von Schwerin, KAAK

On the eve of the Classic Maya collapse, the last ruler of Copán, Yax Pasah, was represented once again as an embodiment of the maize god. It was a small temple and a final attempt to project power. The attempt failed. 3D models of the door jamb and reconstruction of Temple 18.

Temple reconstruction: Lyons, KAAK

Photos and fig. left: Jimenez, FBK

COOPERATION PARTNERS
Honduran Institute of Anthropology and History (IHAH)
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Dr. Jennifer von Schwerin (KAAK) is part of an international project on the ancient Maya city of Copán.
The networks of Rome

At first archaeology was an experiment, the attempt to try out something more exotic than teacher training. But it rapidly turned into an enthusiasm. “And I really wanted to learn Italian,” says Norbert Zimmermann, Scientific Director of the Rome Department of the DAI since October 2014. So he studied Christian archaeology in combination with art history and Italian philology, and specialized in the epoch that had always interested him most, late antiquity. His studies in Bonn, Rome and Munich went well, and his enthusiasm finally became his profession.

After graduating, Norbert Zimmermann studied workshop groups in Roman catacomb painting, obtaining a doctorate (summa cum laude) in 1998. Since that time, catacombs and the sepulchral art of late antiquity, Roman mural painting from the middle imperial period in both west and east, and residential building archaeology from the Roman imperial period onwards have been the chief areas of Zimmermann’s research. In 1999, he began work on a project on Hanghaus 2 in Ephesus for the Institute for the Study of Ancient Culture (Austrian Academy of Sciences), and became part of the scientific staff of the excavation at that site. For his postdoctoral lecturing qualification he worked on the Ephesian Cemetery of the Seven Sleepers, studying its development from a burial place for an early Christian community to an international place of pilgrimage lasting into Byzantine times.

“The Roman catacombs are fascinating not just as monuments, but they also offer immense potential and unexplored areas even after 400 years of research,” Zimmermann says. For a long time the focus was on aspects of church history, and many questions have until recently never been posed. “To acquire a new perspective, you should basically investigate the catacombs as though they had just been discovered, and ask questions that are relevant today,” Zimmermann believes.

“What does an enormous necropolis that was in use for 200 years tell us about the people that are buried there? What does it show about economic crises, the gradual loss of political power, the emergence of a new religion in what was then still the centre of the empire?” The catacombs, about 70 of which survive on the outskirts of Rome, do in fact reflect the radical transformation of society in late antiquity. Zimmermann is currently studying the Roman Catacombs of Domitilla – the biggest of all, with over twelve kilometres of underground caves – in a project of the Austrian Academy of Sciences that he is continuing at the DAI.

The new research questions are accompanied by new methods and technologies, which in turn widen the horizon of matters that can be investigated. The catacombs are documented by laser scanner; from the data, 3D reconstructions can be created that reveal for the first time the complex architectural as well as sociological structure of the subterranean city of the dead. “We’re getting precise burial statistics with tomb distribution, number of internees, and their approximate age at death,” the archaeologist explains. Developments in tomb typology, topography and chronology become more readily comprehensible in the process. In addition to that, inscriptions and murals – Zimmermann’s specialization – provide evidence of the profound change in mentality that occurred at the time. Wall paintings are to be found in 80 sepulchral chambers in the Catacombs of Domitilla. Documenting, analysing and publishing them is one of Zimmermann’s ongoing projects.

The international scientific network of the above-ground city of Rome today is as familiar to Zimmermann as the network of subterranean galleries that make up the catacombs. During his first course of study in the early 90s he was a guest auditor at the Pontificio istituto di archeologia cristiana. “It was a sort of homecoming for me,” he says. “This is where I really learnt to speak Italian.” Working for the DAI, a scientific global player in Rome and frequently involved in international cooperation, means one needs to be well versed in foreign languages. Linguistic and intellectual flexibility, a prerequisite of working in international and interdisciplinary research teams, is certainly helpful for Zimmermann, the new deputy director of the Rome Department, whose responsibilities include running the Institute’s large editorial office. Relations with foreign colleagues are friendly and stable, especially those with Italian universities, he says. “Of course, you need to deliver. But I’ve had a lot of luck and, above all, good teachers.” Since 2003, Norbert Zimmermann has had teaching assignments at five universities. So at the end of an experiment that became permanent, he has become a teacher after all.
Urban development in Jerusalem

“Biblical archaeology isn’t an ancillary science that is subordinated to Bible interpretation,” says Dieter Vieweger. “Archaeological research isn’t capable of registering the theological content of Biblical traditions, and the objective can’t be to support or refute Biblical truth with the aid of archaeology.” Dieter Vieweger is a theologian and archaeologist; his job involves the scientific investigation of the history and cultural history of the Holy Land on both sides of the River Jordan with a particular focus on the Biblical epochs and the origins of Christianity. This is how the role is defined in the statutes of the German Protestant Institute of Archaeology of the Holy Land (DEI), whose director general Vieweger has been since 2005. The DEI is a research unit of the German Archaeological Institute (DAI) on the basis of a cooperation agreement.

Following the first theological exam in 1981, he worked as an assistant at the theological seminar in Leipzig from 1982 to 1986 and was awarded a doctorate in 1986 at Leipzig University (then known as Karl-Marx-Universität). Qualifying as a university lecturer there in 1989, he was professor of Old Testament studies at the Kirchliche Hochschule Berlin from 1989 to 1991 and then at Humboldt University Berlin from 1991 to 1993. Since 1993 he has held professorships in Old Testament studies and Biblical archaeology at the Kirchliche Hochschule Wuppertal and in archaeology at Witten/Herdecke University. From 1994 to 1998, he read prehistory and early history at Goethe University in Frankfurt am Main, obtaining a second doctorate.

The move to Wuppertal allowed Vieweger to combine his two great passions. “The stones tell us what people thought in past millennia.” The excavations on the Tall Zira’a in Jordan – part of the long-term Gadara Region Project – are being carried out by the DEI in association with the Biblical Archaeological Institute of Wuppertal and other researchers. “We want to investigate the diverse cultures from 8,000 years of human history in this geopolitically prominent landscape,” Vieweger says. “The wadi isn’t just scenically very beautiful. It was also, in the past, for geopolitical reasons the prominent link between the Mediterranean zone and Trans-Jordan – between Egypt and west Jordan.”

Biblical archaeology is closely connected with the allied disciplines Near Eastern archaeology, Egyptology and also classical archaeology. Neighbouring cultures like Egypt, Mesopotamia, Arabia and the Mediterranean world are significant because they constantly exerted an influence on the southern Levant. What periods does Biblical archaeology look at? “Our research begins with the Stone Age,” Vieweger answers. “And it extends right into the present.”

One of the major research projects of theologian and archaeologist Dieter Vieweger centres on the Church of the Redeemer in Jerusalem, the foundation stone of which was laid in 1893. In the years 1970–1974, the DEI carried out archaeological excavations underneath the church with the aim of finding out more about the Christian quarter, which is significant for an understanding of Jerusalem’s historical urban development.

“The Church of the Redeemer is situated very close by the Church of the Holy Sepulchre in the Old City,” says Vieweger, explaining why the research project is so interesting. During excavations for the foundations of the new church in 1893, a wall was discovered which was assumed to be the “second wall” mentioned by the Roman-era Jewish author Flavius Josephus, i.e. the city wall that existed at the time of Jesus Christ. “But it was not possible to verify this subsequently,” says Vieweger, who however has not given up hope. Together with geophysicists from Ilmenau University of Technology he plans to carry out a survey of the terrain in order to determine the exact position of the “second wall” – and thereby possibly solve an archaeology riddle that is over 150 years old.

Keeping research results within the closed circle of academics is not Vieweger’s way of doing things. The findings should instead be shared with pilgrims and tourists in Jerusalem. So the DEI director, together with Potsdam University of Applied Sciences, drew up plans for a museum-style presentation of the excavation, and he is full of enthusiasm about it:

“an underground guidance system leads visitors round the old excavation, which is as much as 15 metres deep. 3D reconstructions and a permanent exhibition in the cloister offer the unique opportunity, furthermore, to explore the historical evolution of the Christian quarter in the Old City of Jerusalem in all its layers, and to do so for real. There’s no better way to discover its historical significance and its significance in religious history.”

A very personal memory strengthens Dieter Vieweger’s attachment to the Church of the Redeemer. It was there, on the 4th Sunday in Advent in 2005, that he was inducted as director general of the German Protestant Institute of Archaeology of the Holy Land in a special service presided over by bishop Johannes Friedrich.
HUMANS, ANIMALS, PLANTS
The natural sciences in archaeology
They are always a little bit closer to the realities and details of everyday life for people that were alive centuries or millennia ago. Archaeologists investigate the buildings and landscapes in which these people lived, the vessels they used for eating and drinking and for performing rituals. The natural scientists of the DAI are the first to know what timber was used in buildings, what animals lived in the stables and which ones went into the cooking pot. They are the first to know what was stored or transported in containers, what crops were planted, what was traded and eaten, and they know about the health, diet and ailments of people from ancient times. And they are the ones who can write the climate history of an entire region. In the following pages we accompany specialists in archaeozoology, archaeobotany, dendrochronology and prehistoric anthropology from the Natural Science Section of the DAI to the various places where they do their work.
In Uwe Heußner’s office the telephone rings. Another old well has been found, this time on Fischerinsel island in the heart of Berlin. Heußner packs his drill and makes his way to Petriplatz square, where he takes samples of timber in order to determine the species and age.

“The year rings are important,” say the expert in dendrochronology, a dating method that is based on the study of wood. Precise measurement of year rings in timbers reveals the growth conditions of the tree: good years result in thicker rings than bad years. Trees of the same species that moreover come from the same region show patterns of tree ring growth so similar that they can exactly synchronize with each other year on year.

“By matching the ring patterns of different tree species – cross-dating – we can ultimately arrive at an averaged tree ring sequence,” Heußner explains. The sequence can cover several millennia because of the overlapping lifespans of trees. The data thus acquired can tell us about changes to the climate reaching far back into the past.

In the lab, the timber samples are cut and smoothed. “For a firm dating you need samples with a minimum of about 50 year rings,” Uwe Heußner says. Rings are measured to the hundredth of a millimetre so an exact result can be achieved. Interference factors like the supply of nutrients, competition between species, fires or diseases which may at first sight obscure the result are eliminated computationally.

Uwe Heußner has already analysed 2,000 to 3,000 samples from Berlin. His dendrochronological assessments are done on the basis of 100,000 analysed timber samples from all over the world. He conducts material studies for eleven DAI excavations and is responsible for dating work on a number of ongoing projects by the heritage authorities of German states. For the Berlin–Brandenburg region, Heußner has constructed dendrochronological sequences for many tree species – an environmental archive of incalculable value.
As archaeologists find little pottery in the region, timber is important for dating buildings and what they contain. Archaeozoology and archaeobotany can supply the archaeological department of the city heritage office with chronologically secured data on, for instance, the sociology of medieval Berlin.

The area around what is today “Breite Straße” used to be a classy district, while not far away, on Fischerinsel (Fisher Island), life was somewhat humbler. Unlike the people of Fischerinsel, who lived under one roof with their livestock, the Breite Straße inhabitants kept no animals at home; instead they bought their meat at the market. Pigs and poultry were rare and costly. The animal remains found there come mainly from cows, along with a few sheep, very few pigs and of course there is no end of fish bones: codfish, pike, pike-perch, bass, roach and tench. On Breite Straße one ate imported sea fish. Herring and cod were a luxury. The Fischerinsel citizens had smallholdings and did a little farming, but botanical remains are not easy to recover. For this reason, samples are now taken systematically when the archaeological finds indicate a settlement, dwelling or other human activity. The earth samples are elutriated, washed and sieved – according to the state of preservation of botanical material. Samples particularly rich in information are often to be found in cesspits and sewers. Oxygen-deficient humid soil occasionally develops in such localities, and these conditions allow plant remains to survive extraordinarily well.

Excavations on Schlossplatz (Fischerinsel) in sewers from the 13th century have brought to light the remains of common wheat, hulled barley, rye, peas and millet as well as fruit such as strawberry, blackberry, apple, cherry, plum and mulberry. The joy of discovering such rich finds is, however, rather tempered by an olfactory problem: abundant as the sewers are, they still stink.

At the site of the former Petrikirche (St Peter’s church), first documented in 1237 which is taken to be the date Berlin was founded, archaeologists have found charred timbers with well preserved growth rings. Uwe Heußner analysed them and found good reason to believe Berlin is a little older than everyone previously thought.

Trees of the same species that moreover come from the same region show patterns of tree ring growth so similar that they can exactly synchronize with each other year on year. By matching the ring patterns of different tree species – crossdating – we can ultimately arrive at an averaged tree ring sequence which can cover several millennia because of the overlapping lifespans of trees. In the graph right, a single oak sample from Klosterstraße (red) is compared with the Berlin reference chronology for oak (blue). The profiles are similar but never match 100 %.

Graph: Heußner, Natural Science Section of the DAI
They all have a hole in the head, all in the same place, at the top in the middle of the skull. They have been operated on, and very skilfully too, in the opinion of the doctor Julia Gresky, prehistoric anthropologist in the Natural Science Section of the DAI. Compared to Berlin with its manageable urban topography, the Caucasus is a vast and sprawling region, albeit an archaeologically well surveyed one in which, moreover, the German Archaeological Institute is conducting fieldwork at a number of locations. The many, well preserved skeletons that the DAI’s Russian cooperation partners have found in the area of Stravropol date from the 5th to the 3rd millennium BC and a large number of them have undergone “trepanation”, i.e. a surgical operation in which a disc of bone is removed from the cranium. “All trepanned individuals survived that difficult operation,” says Julia Gresky. “The surgeons must have been very good.”

When, as in this case, many skeletons are found on one archaeological site, the anthropologist carries out her first examinations in situ. Then, before the first diagnostic instruments – magnifying glass and tape measure – are brought out, the skeleton is cleaned and laid out. Bone by bone it has to be assembled in the right order on the table before the essential questions can be asked: female or male? what shape is the pelvis? what are the dimensions of the long bones? what is the closure level of the cranial sutures? what kind of workload did the individual have? And in Kislovodsk: do the mountain and steppe populations differ from each other?

“We can recognise age, sex, workload as well as illnesses very well from the bones,” Gresky explains. It’s not just primary bone disease such as deformities through heavy labour or after fractures that can be detected, but also deficiencies like anaemia, scurvy and rickets or inflammations like tuberculosis, leprosy and syphilis. Teeth and jaws also provide anthropologists with a wealth of information of the way of life of human communities of the past.

But a lot of work is required before a perspective on long-past lifestyles opens up. For Julia Gresky this work usually begins in her Berlin lab where skeletons are delivered for examination – sometimes arriving in a bag. Laying the bones out in order can be a puzzle, especially when the bag contains more than one individual.
Julia Gresky’s laboratory is in charge of the anthropological investigations for 13 of the DAI’s excavations, in countries like Turkey, Kazakhstan, Egypt and China. After an initial diagnosis the bones are examined endoscopically, radiologically and microscopically if need be. Histological investigation and analysis using scanning electron microscope is carried out by scientists in the DAI, while computer tomography images are produced by cooperating institutions.

Back in the north Caucasus. It so happens that mountain and steppe inhabitants do differ in one important point. “Many of the young men suffered from scurvy,” Gresky says. The disease, which occurs in humans after just a few months without vitamin C, can be recognised from haemorrhages that are evident in the bones. For the physician, this was at first sight a peculiar finding, since the men’s diet supplied sufficient vitamin C, and other population groups showed no sign of the deficiency disease. Finally the reason was discovered. “The young men spent a few months in the summer on the alpine pastures with the cattle,” Julia Gresky says. There their diet probably consisted of meat and dairy products, and they did not consume the otherwise common sources of vitamins.

In the southern Caucasus, Julia Gresky’s colleagues Norbert Benecke and Reinder Neef are looking into a species of landnam. For some years now the DAI has been investigating the Neolithic settlement of Arukhlo, Georgia, from the 6th millennium BC. Benecke and Neef were seeking answers to the question whether Neolithic farmers from the region acquired their knowledge of growing crops and rearing livestock by themselves or brought it with them from other regions. On investigation, it turned out that Upper Mesopotamia was the most likely origin of the “culturally modified” animals and plants. For the north Caucasus, Uwe Heußner was able to achieve robust datings through dendrochronology. In Arukhlo it wasn’t possible. The timbers found there had too few growth rings.
In the west Siberian steppe near the border with Mongolia lies the ancient site of Arzhan. It was made famous by spectacular gold finds from royal burial grounds, known as kurgans – and also by the fact that the human occupants were buried with their horses. The German Archaeological Institute has been conducting research in western Siberia since 1997. “In one grave, grave 16 in the kurgan Arzhan 2, no less than 14 horse skeletons were found;” says Norbert Benecke, archaeozoologist and head of the Natural Science Section of the DAI. So he sent his technical assistant Michael Hochmuth to the excavation site to take care of packing up the bones, horse by horse. With his cooperation partner in Saint Petersburg, the State Hermitage, Benecke was able to determine the horses’ age, gender, body size, pathological changes, and later even established the colour of their coat with colleagues from the Institute for Zoo and Wildlife Research in Berlin. “It was predominantly black horses,” the archaeozoologist reports. “Genetic research in this field has been highly developed for some time now, because colour plays such an important role in horse breeding.” Hence the researchers knew early on what to look out for.

The domestication of animals is a revolutionary step in human history, and the coat colour of horses can serve as a marker for the beginning of that process. From the middle of the 3rd millennium BC there is a marked increase in coat colour variants in horses from eastern Europe and western Siberia. “That’s a result of selective breeding. A first peak in colour selection or colour diversity was reached in Scythian horse breeding,” says Benecke. The 14 horses from the royal tomb, all of them geldings, were carefully chosen. They resembled each other not only in colour but also in size, with a shoulder height of 1.40 metres, and all were in their best years, aged eight to twelve.

In seeking to know how humans and animals lived together, often much more revealing information can be discovered than just how stabling or holding or breeding was practised. We can learn about settlement types, migration routes and large-scale social transformation processes. Archaeozoologists and archaeologists are keen to find out when humans first engaged in the selective breeding of horses, sheep and pigs. Skeletal remains, like those of the many horses in Siberian royal graves, are useful for this purpose, as are teeth and antlers, but also the shells of snails and muscles and sometimes even fish scales represent specimens that archaeozoologists can analyse. The analysis of such remains combined with the findings from archaeological and natural science investigations can demonstrate whether animals served directly or indirectly as food, whether their skins or fur was made into clothing, and whether they were used as means of transport.
“On the steppe, horses were also used as food, of course,” Norbert Benecke says. “They live here in their natural habitat, so they’re easier to keep than cattle.” And what might the significance be of animal remains in graves or at sacrifice sites?

“It’s possible that when the prince died equestrian games were held in his honour and then the horses were slaughtered,” Benecke suggests.

If an animal is not so easy to identify as a horse, archaeozoologists at the DAI have recourse to its extensive reference collections: 392 skeletons of 365 species of vertebrates – 127 mammals, 135 bird skeletons, 118 fish and 12 skeletons of amphibians and reptiles. Like the horses, most of the species are Eurasian. “The reference collections of mammals and birds are basically arranged in the form of a bone lexicon, as it were,” Benecke says, describing the systematics. “Different skeleton elements are the headwords.” Features like side of the body, degree of fragmentation, age, gender, bone mass, weight, cutting or hacking marks, scorch marks, bite marks as well as pathological-anatomical changes and anomalies are registered in databases. At the present time the archaeozoological laboratory does material analyses for 19 excavation sites in 14 countries.

Uwe Heußner managed to supplement the dating of the mortuary complex by means of dendrochronological analysis. The year rings were well preserved.

“The prince was not so lucky,” Julia Gresky adds. The reason can hardly have been nutrition, judging by the foodstuffs placed in his grave along with the horses. “We found millet, carrot seed, wild fruit, spices such as coriander and even lots of small tubers of Cyperus rotundus. That’s an aromatic sedge that has now become one the world’s worst weeds,” says Reinder Neef. “A remarkable thing is that none of these plants could have come from this region.” The vegetable grave goods had been put inside leather bags which had decomposed over time. “The plant remains were all lying on top of each other on the floor, well preserved over thousands of years in the icy climate,” Neef says. “What they were intended for, that can only be a matter of speculation. Were they symbolic gifts for the deceased in the form of food or herbs against physical ailments or perhaps as a way of warding off evil spirits in the hereafter?”
Egyptian Grains

Elephantine is an island in the Nile, near Aswan on the First Cataract of the Nile not far from the border of modern-day Sudan. In antiquity the region was known as Nubia. The city of Aswan was originally founded on this Nile island, and the first settlement traces go back 5,500 years. Being strategically situated, the island was an important ancient Egyptian trading centre and military post. Gold, ivory, exotic woods and ostrich feathers were the commodities traded. The island also possessed two “Nilometers”, structures for measuring the water level. These were of great economic significance nationwide, furnishing vital data in a land that consisted of a narrow strip of fertile land along the Nile and otherwise boundless desert. In the Early Dynastic Period the island acquired importance for the cults of gods as a mythic site of the sources of the Nile. The buildings of the settlement are made of unfired mud-bricks, which have amassed to a settlement mound a good 20 metres high. The Elephantine excavation project is one of the biggest and longest-running research projects of the DAI Cairo in Egypt. DAI archaeobotanists are active on Elephantine, as elsewhere in Egypt, taking botanical samples for analysis. In all, they are responsible for 28 excavations in 17 countries.

“The desert climate is as good for preserving plant remains as permafrost is,” notes the archaeobotanist Reinder Neef. Using plant remains in various forms – be it pollen and spores or botanical macro-remains like seeds, fruits or wood – archaeobotanists can construct the vegetation history of a region as well as the history of humans in their environment. The distribution of wild and cultivated plants tells us about the diet of human communities of the past, while plants that cannot have originated from a particular region allow us to make inferences about early trade routes. Wild plants like grasses and herbs are relatively rare in arid desert climates. On the other hand, the selection of cultivated plants was fairly wide. “For Elephantine, the botanical finds indicate an oasis economy for the New Kingdom (1550 – 1070 BC),” says Neef. The ancient inhabitants may have cultivated date palm, fig, pome-
granate and vine, and other economic plants grew in the shade of the trees. “In some cases it’s impossible to tell if the plants on Elephantine were cultivated or were transported there via the Nile,” the archaeobotanist says. “But ricinus and wild radish at least were planted near the houses.”

There was not much variety when it comes to cereals. “It might seem a bit odd at first sight,” Neef says, “but until Ptolemaic times – except for barley – virtually all that’s grown is emmer wheat in the whole of Egypt.” In the cellar of a building, he discovered a large stock of the cereal crop, carefully stowed and covered up with palm wood. “The grains were in such good condition as though they had just been harvested.” Emmer wheat, like einkorn, is one of the first cultivated crops in history. Rich in protein and minerals, it originated in the Near East, where it has been grown for thousands of years.

A region’s tree and shrub species often remain similar over thousands of years. At the beginning of his investigations, Reinder Neef makes a botanical inventory of the survey area in its present state in order to get an idea of the possible situation in ancient times. And sure enough, on Elephantine he has found tamarisk, the Nile acacia and sycamore fig dating back to the Old Kingdom. He identified these species in the remains of building timber, firewood, wooden implements and votives, and they are still figure prominently in Nilotic vegetation today. It was believed that in tamarisks the soul of Osiris dwelt, which is why they were often planted beside graves.

“The sycamore fig provides good timber for building and is popular for its fruit and for offering shade,” says Neef, pointing out the practical merits of the sturdy trees with their wide projecting crown. Excellent hard and durable building timber was also procured from the Nile acacia, as is still is today.

After initial inspection on site, specimens are normally sent to the Berlin lab for microscopic analysis and comparison with the extensive reference collection. This collection of recent seeds and fruits includes approx. 5,150 plant species. For wood identification a collection of about 250 wood species is available, and for pollen analysis there is a collection of reference specimens containing more than 1,400 plant species. In Egypt, archaeobotanists must examine all specimens in situ as laws prohibit the export of all ancient material, no matter how tiny. They are now aided by the Digital Plant Atlas, developed and published in collaboration with Groningen University in the Netherlands, from which a very large collection of photos of recent and sub-recent recent seeds and fruits can be consulted online as reference material. (www.pflanzenatlas.eu)
From Berlin via the Caucasus to Siberia and back to Egypt – a voyage half way round the globe for the DAI’s natural scientists. Yet travelling is only a small part of their work. Most of their time is spent in the lab, using microscopes and analytical devices, patiently perusing the reference collections, inspecting and comparing their extremely delicate specimens, which are often non-

The skeleton of an aurochs. Archaeozoology can determine the condition and characteristics of a specimen of a certain animal species.

Image: Natural Science Section of the DAI

Bones and teeth are what remains of man. These teeth show advanced periodontitis, tartar, but little wear. Taken together with the findings of anthropological analysis of the skeleton, this indicates the nomadic way of life of hunter-gatherers.

Photo: Gresky, Natural Science Section of the DAI
descript, tiny, charred, half rotted away, barely to be seen with the naked eye, liable to be lost for ever should the scientist make one false move, and which yet can cast an illuminating light on human history – from everyday hardships and pleasures to international trade routes and merchandise, and the climate and environment in which people lived.

In an arid region of southern Jordan, archaeologists found a jar containing small, almost black seeds. The archaeobotanists were able to prove that they were pips from cultivated grapes – it’s the oldest wine in the world.

Photo: Neef, Natural Science Section of the DAI

Over the millennia, few raw materials have been used as much as wood – in buildings, containers, implements and works of art. Dendrochronological analysis can tell us the age and characteristics of archaeological finds and features.

Photo: Müller, Natural Science Section of the DAI

from left to right: Norbert Benecke, Julia Gresky, Reinder Neef, Karl-Uwe Heußner
Photos: Natural Science Section of the DAI
Great tradition
The Athens Department

The Athens Department was founded in 1874, the second of the institute’s departments after Rome and the second foreign agency in Athens (after the École française d’Athènes). Since 1887 it has operated from a classicist building commissioned by Heinrich Schliemann. Today, the Athens Department is a member of a large research community with other foreign schools of archaeology in Athens, fulfilling an irreplaceable function for scholars of antiquity working temporarily or long-term in the city.

Since the outset the institute’s work has consisted in conducting specialized regional studies, systematic exploitation of antiquarian material as well as excavations. Excavations began at the sanctuary of Zeus at Olympia in 1875, followed by the Mycenaean citadel of Tiryns in 1884, the Kerameikos of Athens in 1913/1914 and the Heraion of Samos in 1925. Archaeological fieldwork at the sanctuary of Kalapodi, which commenced in 1973, is now also regularly pursued. The principal lines of enquiry in ongoing projects are topography, urban structures and power centres, sanctuaries and rituals, necropolises and burials. Smaller areas of research on Roman Greece and water management are currently being developed. Another important responsibility is the preservation of cultural heritage – in close cooperation with the relevant authorities. In addition to ongoing projects, the (re)processing of old excavations continues.

As well as carrying out its own research in Greece, the DAI Athens advises and assists German colleagues in research projects in the country. It possesses very considerable research resources: a library holding about 80,000 volumes, a systematically developed image archive with approx. 140,000 photographs of antiquities and ancient sites, in addition to a small collection of studies that was largely established in the pre-war period. A regular series of lectures (Hauskolloquien) allows German and international colleagues to present their work. Beyond that, junior researchers at the department organize a lecture series entitled ΑΙΓΕΙΡΟΣ aimed at the younger generation of scientists and scholars. These are accompanied by “Roman Seminar” lectures held at the institute several times a year and organized by a group of young researchers from various Greek institutions and foreign schools. The institute issues information about its research in and on Greece in its own journal, Athenische Mitteilungen, and in the publication series Athenaia (the latter introduced in 2011 to replace the Supplements).

Further Reading:
Athenaia. Brochure in German and Greek on the activities of the Athens Department of the DAI. Downloadable on the institute’s website.

Deutsches Archäologisches Institut
Abteilung Athen
Fidiou 1
10678 Athen
+30 (0)210 33 07 400
sekretariat.athen@dainst.de
The German Archaeological Institute has offices at the following locations:

- Berlin
- Bonn
- Munich
- Frankfurt am Main
- Athens
- Istanbul
- Rome
- Lisbon
- Madrid
- Cairo
- Jerusalem
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Archaeozoology of a kind
Animals at excavations

Photos: Madlen Ernst
Man’s faithful companion the dog has always been seen as smart and capable of learning. In Egypt, indeed, they were capable of receiving high honours and lending their form to a god – Anubis, while elsewhere they were no better than slaves. Dogs helped in hunting, in protecting the home and occasionally in founding great cities. When exactly dogs became friends with humans (and scientists) is not entirely clear. The earliest finds suggesting cohabitation between humans and dogs are about 15,000 years old. Dogs were buried with humans; in Egypt notable canines were even mummified. The relationship has remained ambivalent, however. Praised for their fidelity and their abilities, they are also the curs, mutts and hound-dogs of common parlance, a byword for bad character.

On many archaeological sites, dogs are regular visitors. They are inquisitive investigators themselves, sometimes amusing, sometimes annoying, and always aware that a site can offer rich pickings also in terms of food.

In this respect the Pergamenian dogs are no different from others of their ilk. And while the working dog is pooped after searching for sherds full of wisdom, the clever dog keeps watch over the latest research findings.

The Pergamon Excavation is one of the DAI’s oldest and most important excavations, consisting of a raft of individual projects carried out by the Istanbul Department. Pergamon, an ancient city on the west coast of Asia Minor, was situated at the northern edge of an alluvial plain formed by the river Kaikos. The city covered the slopes and summit of the acropolis mountain and sprawled at its foot. It was the capital of the kingdom of the Attalids and boasted many monumental buildings – temples, a theatre, colonnades, gymnasium, an altar and a library – within the city walls. Later, Pergamon became the capital of the Roman province of Asia. The cultural landscape that lies around the modern town of Bergama contains vestiges from Roman, Byzantine and Ottoman times.
GOLDFISH TO GOLD

"In the vestibule of the house there stood a colossal statue, 120 feet tall, with the portrait of Nero. The complex was so big that it held three porticos a mile in length and also an artificial lake that was almost a sea, surrounded by buildings as big as cities. Besides this there were villas with fields and vineyards, pasture and woodland full of wild and tame animals of all kinds. Some parts of the house were completely covered in gold and decorated with gemstones and shells." – Suetonius (Nero, 31). Whatever else Emperor Nero may have had in the way of luxury objects, plants and animals within the grounds of his stupendously proportioned palace, one thing he definitely did not possess: a goldfish. They were only bred about a thousand years later, in China, making them the oldest known household pet, kept only for the sake of pleasure. Nero might have been pleased to know it was a fellow emperor, Zhao Gou (1107–1187), who was the first to keep the ornamental fish in stone-girt ponds at his palace for his own private delectation. This started a fashion among the nobility. Soon the need arose for new colours, new varieties. And so the profession of goldfish breeder was born and the goldfish in a bowl became a mass phenomenon.

Far away from the masses are three specimens swimming around in an ancient fountain of the Domus Aurea, befitting their imperial pedigree. They are without doubt the most privileged goldfish in Rome. They were put there by Heinz-Jürgen Beste, architectural historian at the Rome Department of the DAI, to replace the goldfish that had been stolen from the basin in the grounds of Nero’s Golden House.

Beste is in charge of documenting the building structures on and around the site of the Domus Aurea. The project is part of the comprehensive documentation undertaken by the Soprintendenza archeologica di Roma in advance of restoration work. His task is to clarify the construction history in its various phases and to analyse (among other things) how water was brought to and from the complex. Not a great deal is known about Nero’s legendary palace-city. It was damaged by fire before Emperor Trajan, in AD 104, had the above-grade structures levelled to create a platform for the building of the Baths of Trajan. Apart from a gigantic nymphaeum at the south-east side of the Templum Claudii, virtually nothing is now left of a complex that once took up one quarter of the urban area within Rome’s Servian Wall.

Luckily for the goldfish, a small fountain managed to survive the passage of the millennia. In it, the goldfish do their rounds, feed, grub about in the mud – the goldfish is at heart a carp – and loiter in hiding places if any are available, as Heinz-Jürgen Beste has observed. They are not the first occupants of this imperial pool. A 20 year old goldfish used to live there, probably introduced by the archaeologist Laura Fabbrini, who worked at the site from 1985 to 1990. Then one day the fish was gone, victim of an aquatic heist perpetrated by shady figures who were scouring the archaeological site looking for things to steal. It is not known whether the thieves fried their catch. In Asia, home of the goldfish, they are eaten at any rate. What is a Golden House without a goldfish, asked Heinz-Jürgen Beste. By an odd coincidence, Beste’s children won two goldfish in a tombola in 2013. Since his family was on the move because of work, they decided the best place for the new arrivals was the fountain. In 2014, Beste’s children won another one. So now the Domus Aurea has its goldfish again, but they can be as hard to glimpse as royals. You have to go up to them slowly and quietly and be careful not to cast your shadow into the fountain. Otherwise they’ll make themselves scarce.
Rome’s imperial palaces were famous for their water supply systems. They are still in use today.
Photos: Beste, DAI Rome

Dr.-Ing. Heinz-Jürgen Beste is in charge of the structural documentation of the Domus Aurea.

Nero’s enormous palace complex may have looked something like this.
Reconstruction: Heinz-Jürgen Beste; Margareta Schützenberger, DAI Rome
A HORSE OR TWO

What wouldn’t you give for a horse when the distances to be covered are so great and the roads so few as they are in some parts of Azerbaijan, and if on top of that you’ve got a survey to carry out – an urgent survey because irrigation facilities are going to be constructed in what is an ancient cultural landscape? “We’ve got to hurry,” Andrea Ricci said, and bought a horse.

The vast expanses of the south Caucasian steppe aren’t easy to encompass with the mind’s eye. Remote sensing methods are, of course, always deployed in modern archaeology, and are in this case too. But that’s no substitute for being there and seeing a place with your own eyes if you want to discover its history. Since 2009, DAI archaeologists under the direction of Barbara Helwing in cooperation with Tevekkül Aliyev from the Azerbaijan National Academy of Sciences have been working on a systematic survey of a very old cultural landscape about which one previously knew as good as nothing at all. Helwing, Ricci and their colleagues wanted to know how the Neolithic way of life spread from the Fertile Crescent to the south Caucasian region – how, therefore, the history of sedentarization and the accompanying development of cultural technologies is to be written. The period they are looking at reaches from the 6th to the 3rd millennium BC. They are interested in settlement patterns, human interaction with the environment, procurement of raw materials, pottery production – and mobility. “Kura in Motion!” is the name of the fairly large-scale German-French project (funded by the ANR and DFG) which aims to find answers to these questions.

The terrain the archaeologists have to traverse on their survey is very extensive, hard-going and without surfaced roads. Often they have to cross ploughed fields, a real ordeal for people and material. There was a reason why some of the excavation participants from the neighbouring village came to work on horseback. Azerbaijan is furthermore very much a horse country. It’s here that the famed Karabakh horses are bred, an agile and sure-footed Caucasian breed. The horse Ricci bought was not one of these golden brown, medium-sized animals, but it did have other advantages, as became apparent later.
The first people that lived in the Neolithic settlements which archaeologists are investigating here did not keep horses as domestic animals, even though wild horses have been present in North America and Eurasia in a variety of forms for 56 million years. It was only in the 3rd millennium BC that horses began to be domesticated. The domestication of animals represents a revolutionary step in human history. One marker for the beginning of this process is the colour of the equine coat. Starting in the middle of the 3rd millenniums BC there is a pronounced increase in coat colour variants in horses from eastern Europe and western Siberia, and that can only be the result of selective breeding.

Thursday is market day in Barda. Starting at sunrise, horsefolk from far and wide gather on a patch of land, and great quantities of objects and countless animals change hands. Andrea Ricci went to the market with the excavation team’s driver, Ramil Mehdiyev, who knows a thing or two about vehicles and about horses too, like most people in Azerbaijan. Ricci already knew how to ride, having been a horse lover since his childhood. What he needed for the survey work was “a calm animal that you can drink a cup of tea on”. The two men found a horse meeting that description and got a good price from the dealer. A lorry brought the animal to his house, and Andrea Ricci had become the proud owner of a horse. That was in September 2013. In April 2014, Andrea Ricci was the proud owner of two horses. The mare had a foal.
Crisis

In times of crisis, people sometimes do rather incomprehensible things to bring matters back under control. They build walls and still more walls as a defence against enemies, they worsen ecological crises by squandering resources, they go on expanding in a totally unplanned way, they destroy the ground they live on – or abandon it. In the culture that produced the famous Nazca Lines in the Andes, everything revolved around water. Periodic climate fluctuations precipitated migrations and fertility rituals. When the mountain tops became inhospitable, the people moved down to the coast. When it became too dry there, the settlements were transplanted to the mountains again. They went up as high as 5,000 metres, only to discover that water became sparse there too. So the water rituals were intensified and more and more lines were scored into the earth. It became drier and drier. When the people finally realised their efforts had been in vain, they left. More on “Crises and how to deal with them” in the next issue.
The first fortifications known to us are more than 4,000 years old. Dynasty after dynasty erected, remodelled and heightened fortifications, but always in the interior of China. The first “international” frontier was created in the reign of the first emperor, Qin Shi Huangdi (259–210 BC), when the peoples of the steppes to the north formed a political unity that was militarily strong. In the Ming period (1368 to 1644) a second line of fortifications was constructed near the capital Beijing. This “great inner wall” is the big tourist attraction of today.

Title Story, p. 40: Walls, measures and writing – China’s emergence as a global player

Photo: public domain/Hao Wei
With about 500 private graves and 59 mausoleums, the early Islamic “Fatimid Cemetery” of Aswan is one of the biggest Islamic cemeteries in Egypt. It was built between the 7th and 11th century and was first documented in the 1920s by the Italian architect Hugo Monneret de Villard. The Fatimid Cemetery, which contains many items from Pharaonic times and antiquity, is located in an area that once served as a quarry – its rose granite was sought after throughout the ancient world. The inscriptions, petroglyphs and grave stelae are of great archaeological significance. However, the mortuary structures, largely built of mud-brick and over a thousand years old, had fallen into disrepair. In 2006, the German Archaeological Institute in association with the Technical University of Berlin consequently launched a project that was successfully concluded this year. The large mausoleums and many private graves were investigated and documented. In all, nine mausoleums were structurally consolidated and approx. 50 private graves restored. Egyptian and German experts furthermore trained local workers in the field of restoration. A multilingual information panel has been erected for visitors.

Cooperation:
Supreme Council of Antiquities
Construction history work group of TU Berlin

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