



## **Annual Report of the Research Center for 2017**

### **The Role of Culture in Early Expansions of Humans (Frankfurt and Tübingen)**

Human evolution is a story of expansions. During the last two million years the genus *Homo* spread from Africa into Asia and Europe in several waves of migration. New species developed and old groups became extinct (*range expansions*). As early as three million years ago, hominins had established new ways of dealing with their specific environment through culture. Stone tools produced with the help of another tool opened up access to new resources and activated changes in body, mind and behavior (*expansion of performances*). The ecospace of human species and their conspecifics changed the viability and development of potential resource spaces not only through natural processes, but also through changes in the distribution of a species and its behavior, which itself was increasingly shaped by culture (*expansions of resource space*).

ROCEEH's mission is to develop a systemic understanding of "becoming human", one which integrates these three types of expansion and how they interacted with each other. The project encompasses the time from three million to 20,000 years before present and spans from Africa to Eurasia. The project focuses particular attention on the development of the human capacity for cultural activities, as well as its background and characteristics.

At the core of the project is the multidisciplinary, web-based georelational database known as ROAD (ROCEEH Out-of-Africa Database) with complete geographical information system (GIS) functionality. ROAD unifies geographical data about sites with additional information about the stratigraphical structure of layers and the archaeology those layers contain. In addition, ROAD assimilates information on human fossil history, fauna, flora and climate, and uses this information to model early human habitats. The results are integrated into a digital atlas detailing the development of humans and environment on the basis of GIS.

Started in 2008 and projected to run for 20 years, ROCEEH is a multidisciplinary research project situated at the interface between the cultural and natural sciences. This far-reaching, international effort is carried out by a team of cultural scientists, archaeologists, paleoanthropologists, paleobiologists, geographers and database specialists situated at the Senckenberg Research Institute in Frankfurt and the University of Tübingen.

**Members of the Scientific Commission:** regular members of the Academy, Barbara Beßlich (Heidelberg, since May 2017), Karl Fuchs (Karlsruhe, through May 2017), Hermann H. Hahn (chairman, Karlsruhe), Lothar Ledderose (Heidelberg), Irmgard Männlein-Robert (Tübingen, since May 2017), Joseph Maran (Heidelberg), Ekkehard Ramm (Stuttgart); as well as Prof. Dr. Ofer Bar-Yosef (Harvard), Prof. Dr. Zvi Ben-Avraham (Tel Aviv), Prof. Dr. Manfred Ehlers (Osnabrück), Prof. Dr. Jürgen Richter (Köln), Prof. Dr. Wulf Schiefenhövel (Andechs), Prof. Dr. Mark Stoneking (Leipzig).

**Heads of the Research Center:** Nicholas Conard (speaker, Tübingen), Prof. Dr. Volker Hochschild (Tübingen), Volker Mosbrugger (Frankfurt/M.), Prof. Dr. Friedemann Schrenk (Frankfurt/M.)

**Research staff:** in Frankfurt, Priv.-Doz. Dr. Angela Bruch (60 %), Claudia Groth, Priv.-Doz. Dr. Miriam Haidle (scientific coordinator, 60 %), Dr. Christine Hertler, Dipl.-Biol. Julia Hess (administrative coordinator, 50 %); in Tübingen, apl. Prof. Dr. Michael Bolus, Dipl.-Inf. Zara Kanaeva, Dr. Andrew Kandel, Maria Malina (returned from parental leave in November 2017), Dr. habil. Michael Märker (40 %), Sarah Rudolf (through August 2017).

**Guests of the Research Center in 2017:** Prof. Jamie Clark (Fairbanks, USA), Rimtautas Dapschauskas M.A. (Heidelberg, Germany), Dr. Benjamin Davies (Auckland, New Zealand), Dr. David Friesem (Cambridge, England), Prof. Dr. Anders Högberg (Kalmar, Sweden), Firas Jabbour M.A., Johan Jarl M.Sc., Prof. Dr. Marlize Lombard (Johannesburg, South Africa), Prof. Dr. Maria Victoria Soto Bäuerle (Santiago, Chile), Dr. Lior Weissbrod (Haifa, Israel) and Prof. Dr. Martin Porr (Crawley, Australia), all of whom undertook research in connection with ROCEEH.

### **Key aspects**

During the Research Center's tenth year, members of ROCEEH focused their efforts on investigating the specific cultural concepts necessary for conducting research about how we became human. The scope of ROCEEH's research covers the deep past of the cultural development of humans. A diverse array of hominin species required increasingly complex tools made from a variety of materials for an ever expanding list of requirements. These advances, along with the use and subsequent production of fire, allowed humans to exploit not

only new habitats and technologies, but also to create new necessities. The expanding package of skills and the knowledge associated with it were passed on to the next generations through increasing and more intense social learning. Only at the end of the period under investigation do we detect the beginnings of art and music. However, a reflective discussion with the world and the inheritance of acquired behaviors and its concurrent cultural effect in the broader sense began much earlier. In order to investigate the unfolding of cultural possibilities in the development of humans and its effect on them, appropriate cultural concepts need to be applied. To answer the questions posed by ROCEEH, we identified five such specific concepts.

*Thesis 1: By observing the deep history of human development, we view culture primarily as a culture of activities, a culture which predominantly focuses on supply and subsistence.*

This concept points to a cultural ability which is mirrored in many commonplace activities. These cultural abilities are learned in a historical-social context and offer a group-specific framework for individual experiences in order to deal with oneself, the social group, and even the outside environment. During the early phase of human development, a significant component involved the satisfaction of basic needs, such as supplying food and shelter, providing reciprocal support, and obtaining resources. Culturally informed knowledge, practices, available technologies and formalities factor into the supply system and mediate between the needs of humans and their respective resource spaces.

*Thesis 2: Tools and artifacts are a significant expression of cultural performances.*

During the early phase of human development, the most important source of cultural activities can be observed in tools and artifacts. Their production and use are integrated into the context of the activities, technological processes, knowledge and skill sets, and management processes. The investigation of these factors using context and process-oriented methods incorporates the further relationship with those activities needed to make the finds, and allows us to gain a broader picture of the unfolding cultural capacities that early humans exhibited.

*Thesis 3: The environment of a group is determined by its culture. This culture of resources is group-specific and is an expression of the cultural diversity.*

Activities occur in a specific environment, often refer to specific elements, and can in turn change the environment. Cultural activities which are replicated in a historical-social context influence the environment in group-specific ways. The specific environment is the resource

space of a groups (or species) of humans. It is composed of conspecifics, agents and objects which interact with human individuals in culturally informed relationships and at different time depths. The resource space is also described as a culturally conditioned ecological niche. However, especially because of its developmental potentials, the resource space is easier to understand as a culturally specific network of environmental relationships or as a culture of supply systems.

*Thesis 4: The cultural capacities of humans and their expression are dynamic and develop in three dimensions which interact with another and their specific environment.*

Cultural activities, including their associated cultural resource networks, are dynamic. The culture of supply systems changes over the course of human development. The development of cultural abilities is complex and takes place in three different dimensions—the evolutionary, the individual, and the historical-social—which interact with one another and the specific environment. The development can be described as path-dependent because a previously selected pathway will open up only a limited bandwidth of further paths. In retrospect, developments are consistent in the sense that they build upon earlier stages of development, but in perspective, none of the pathways must be taken. In the course of historical development, it is an illusion that humans have continuously climbed a single ladder of progress. Rather, we see that they have taken ever changing routes through a varied landscape, in which ascents, transverses and even descents are possible.

*Thesis 5: Geographical expansions are the visible expression of the ecological-cultural processes of development.*

The distribution of early humans and their geographical expansions (*range expansions*) are reconstructed on the basis of morphological and genetic data gained from human fossils. The fossils may be chronologically ordered with the help of various absolute and relative dating methods. Both cultural and ecological conditions have changed significantly over the course of human evolution over the last three million years. For a deeper understanding of these developments and expansions, it is necessary to investigate them with regard to and in interaction with another.

We presented these five theses in November 2017 at the multidisciplinary symposium “KULT-UR-MENSCH: Cultural concepts for studying how we became human” (see below)

about culture and early humans. The theses will be expanded and published together with the other contributions from this symposium.

Newsletters providing current information on these and other topics can be accessed through ROCEEH's website ([www.roceeh.net](http://www.roceeh.net)).

### **Field Work**

In 2017 the staff of the Research Center conducted or participated in 11 field projects:

#### Africa

- South Africa: Sibudu Cave and Umbeli Belli Rock Shelter. Excavation and analysis (Conard, N., Rudolf, S., Bader, G., Schmid, V. & Will, M., 8 weeks)

#### Arabia

- United Arab Emirates: Jebel Faya and Buhais. Excavation and analysis (Bretzke, K., Heß, J. & Janas, A., 3 weeks)

#### West Asia

- Israel: Sefunim. Excavation and analysis (Kandel, A., 3 weeks)
- Iran: Ghar-e-Boof. Excavation and analysis (Conard, N., 4 weeks)

#### Caucasus

- Georgia: Khvarbeti. Sampling of profile for macrobotanical and pollen remains to reconstruct Early Pleistocene environmental (Bruch, A.A., Kvavadze, E., Gabrielyan, I. & Hertler, C., 1 week)
- Armenia: Tzovinar, Lake Sevan. Sampling for pollen, fruits and seeds in Late Holocene moor (Bruch, A.A., Kvavadze, E. & Gabrielyan, I., 1 week)

#### Europe

- Germany: Hohle Fels in Schelkingen. Excavation and analysis (Rudolf, S. & Conard, 6 weeks); Schafstall in Vehringenstadt. Excavation and analysis (Rudolf, S. & Conard, N., 6 weeks)
- Italy: Oltrepo. Survey for application of high-definition, UAV-based, digital height models and field spectroscopy to reconstruct development of landscape (Märker, M. & Sommer, C., 1 week)

## **ROCEEH Out-of-Africa Database (ROAD) and ROADWeb**

In 2017 we began developing “locality fact sheets” which synthesize data about the localities entered in ROAD. Our goal is to create a catalog of sites and publish them in pdf format as part of ROCEEH’s Virtual Atlas. We plan to make this catalog freely available to the public. The catalog will make it easier for users to access information about these localities, especially because many of the original sources are difficult to find or published in foreign languages. This information lays the foundation for understanding the cultural development of humans over time. Furthermore, the catalog will serve as a repository for the cultural heritage of humanity.

We also worked on customizing ROADWeb according to its users’ specifications. A new update improved the import of bibliographical data in BibTeX format into ROAD. We developed a “time slice” tool to automatically run queries for different user-defined time intervals. This tool simplifies the overview and evaluation of data across large scales of time. We continued programming an interface between NetLogo models and ROADWeb. However, considering the large programming effort required to complete the interface and the limited number of interested users, we decided to forestall its completion until a later date.

To expand the numbers of users in the ROAD network, we organized a workshop aimed at introducing users to writing SQL queries in ROAD and using ROADWeb. The workshop was part of a continuing series called “Keep calm and boldly go—Which factors in the environment drive early human expansions and have an impact on their settlements?” This is part of the working group “Modelling Environmental Dynamics and Hominin Dispersals Around the Mid-Pleistocene Revolution (METHOD)”.

In 2017 data entry continued in ROAD. As of 20 December 2017, ROAD contained 1,647 localities and 7,596 assemblages.

### **Project relevant conference contributions and lectures by research staff**

The staff of the Research Center participated in 26 conferences. They also helped organize a workshop, “Keep calm and boldly go—Which factors in the environment drive early human expansions and have an impact on their settlements?” and a symposium, “KULT-UR-MENSCH: Kulturkonzepte für die Erforschung der Menschwerdung” (“KULT-UR-MENSCH: Cultural concepts for studying how we became human”). The staff helped to

implement two conferences (6th Biennial Conference of the Eastern African Association of Paleoanthropology and Paleontology in Addis Ababa; International NECLIME Meeting in Yerevan). They were lead or contributing authors in 34 lectures and presented 12 posters. They also introduced the project or their work nine times at work meetings, lecture series, and in the *Studium Generale*.

### **Third Party Funding**

To complement the financing provided by the Academy, additional funds were sought for case studies, regional investigations and visits from guest researchers and young academics. ROCEEH received additional support from the German Ministry of Education and Research (BMBF), the International Union for Quaternary Research (INQUA), and the Chilean Comisión Nacional de Investigación, Ciencia y Tecnología (CONICYT).

### **Teaching**

In addition to their research activities, the staff strive to impart students with the benefits and results of their work and support graduate and postgraduate students in their qualifications:

- Lectures and seminars at the University of Frankfurt/Main: Angela Bruch, Christine Hertler
- Lectures and seminars at the University of Tübingen: Michael Bolus, Angela Bruch, Miriam Haidle, Andrew Kandel, Michael Märker
- Lectures and seminars at the Karlsruhe Institute of Technology: Angela Bruch, Christine Hertler
- Supervision of Master's, Diploma and Doctoral theses: Michael Bolus, Angela Bruch, Miriam Haidle, Christine Hertler, Michael Märker
- Supervision of archaeotechnical trainees: Maria Malina, Sarah Rudolf

### **Project relevant publications by research staff and principal investigators**

A total of 53 project relevant publications appeared in 2017 in which the principal investigators and staff of the Research Center played a leading or contributing role:

ISI-listed publications: 29

1. Becerra-Valdivia, L., Douka, K., Comeskey, D., Bazgir, B., Conard, N.J., Marean, C.W., Ollé, A., Otte, M., Tumung, L., Zeidi, M. & Higham, T.F.G. (2017):  
Chronometric investigations of the Middle to Upper Paleolithic transition in the

- Zagros Mountains using AMS radiocarbon dating and Bayesian age modelling. *Journal of Human Evolution* 109, 57-69.
2. Bondarenko, O.V., Blokhina, N.I., Bruch, A.A., Francois, L. & Utescher, U. (2017): Quantification of Calabrian Vegetation in southern Primory'e (Far East of Russia) using multiple proxies. NECLIME special issue *Palaeogeography, Palaeoclimatology, Palaeoecology* 467, 253-264.
  3. Braun, A. & Hochschild, V. (2017): A SAR-based index for landscape changes in African savannas. *Remote Sensing* 9(4), 359.
  4. Bretzke, K. & Conard, N.J. (2017): Not Just a Crossroad. Population Dynamics and Changing Material Culture in Southwestern Asia during the Late Pleistocene. *Current Anthropology* 58 (17), 449-462.
  5. Bretzke, K., Kandel, A.W. & Conard, N.J. (2017): The Middle Paleolithic sequence of Wadi Mushkuna Rockshelter and its implications for hominin settlement dynamics in western Syria. *Quaternary International* 435 A, 106-114.
  6. Chacón, M. G., F. Rivals, K. Bretzke and N. J. Conard (2017): Current research on the settlement dynamics of the Middle Paleolithic and the Middle Stone Age. Proceedings from the UISPP Congress in Burgos, September, 2014. Special issue, *Quaternary International* 435.
  7. Falcucci, A., Conard, N. J. & Peresani, M. (2017): A critical assessment of the Protoaurignacian lithic technology at Fumane Cave and its implications for the definition of the earliest Aurignacian. *PLOS ONE* 12: e0189241.
  8. François, L., Bruch, A.A., Utescher, T., Spicer, R.A. & Spicer, T. (2017): Reconstructing Cenozoic vegetation from proxy data and models – a NECLIME synthesis (Editorial). NECLIME special issue *Palaeogeography, Palaeoclimatology, Palaeoecology* 467, 1-4.
  9. Frost, S.R., Saanane, C., Starkovich, B.M., Schwartz, H., Schrenk, F. & Harvati, K. (2017): New cranium of the large cercopithecoid primate *Theropithecus oswaldi leakeyi* (Hopwood, 1934) from the paleoanthropological site of Makuyuni, Tanzania. *Journal of Human Evolution* 109, 46-56.
  10. Garofoli, D. (2017): Holistic Mapping: Towards an Epistemological Foundation for Evolutionary Cognitive Archaeology. *Journal of Archaeological Method and Theory*, 1-27.
  11. Ghasidian, E., Bretzke, K. & Conard, N.J. (2017): Excavations at Ghar-e Boof in the Fars Province of Iran and its bearing on models for the evolution of the Upper



- Palaeolithic in the Zagros Mountains. *Journal of Anthropological Archaeology* 47, 33-49.
12. Ghosh, R., Bruch, A.A., Portmann, F., Bera, S., Paruya, D.K., Morthekai, P. & Ali, S.N. (2017): A modern pollen–climate dataset from the Darjeeling area, eastern Himalaya: Assessing its potential for past climate reconstruction. *Quaternary Science Reviews* 174, 63-79.
  13. Haidle, M.N. (2017): Development of teaching performance: Comment on P. Gärdenfors and A. Högberg, The archaeology of teaching and the evolution of Homo docens. *Current Anthropology* 58(2), 202-204.
  14. Kandel, A.W., Gasparian, B., Allué, E., Bigga, G., Bruch, A.A., Cullen, V.L., Frahm, E., Ghukasyan, R., Gruwier, B., Jabbour, F., Miller, C.E., Taller, A., Vardazaryan, V., Vasilyan, D. & Weissbrod, L. (2017): The earliest evidence for Upper Paleolithic occupation in the Armenian Highlands at Aghitu-3 Cave. *Journal of Human Evolution* 110, 37-68.
  15. Karakostis, A.F., Velliky, B. & Kandel, A.W. (2017): Sixth Annual Meeting of the European Society for the Study of Human Evolution. *Evolutionary Anthropology* 26, 7-8.
  16. Kirscher, U., Oms, O., Bruch, A.A., Shatilova, I., Chochishvili, G. & Bachtadse, V. (2017): The Calabrian in the Western Transcaucasian basin (Georgia): Paleomagnetic constraints from the Gurian regional stage. *Quaternary Science Reviews* 160, 96-107.
  17. Kropáček, J., Schillaci, C., Salvini, R., & Märker, M. (2017): Assessment of gully erosion in Upper Awash, Central Ethiopian Highlands based on comparison of archived aerial photographs and very high resolution satellite images. *Geografia Fisica e Dinamica Quaternaria*, 39, 161-170.
  18. Münzel, S.C., Wolf, S., Drucker, D.G. & Conard, N.J. (2017): The exploitation of mammoth in the Swabian Jura (SW-Germany) during the Aurignacian and Gravettian period. *Quaternary International* 445, 184-199.
  19. Popova, S., Utescher, T., Gromyko, D.V., Bruch, A.A. & Mosbrugger, V. (2017): Cenozoic vegetation gradients in the mid- and higher latitudes of Central Eurasia and climatic implications. NECLIME special issue *Palaeogeography, Palaeoclimatology, Palaeoecology* 467, 69-82.
  20. Posth, C., Wißing, C., Kitagawa, K., Pagani, L., van Holstein, L., Racimo, F., Wehrberger, K., Conard, N.J., Kind, C.-J., Bocherens, H. & Krause, J. (2017): Deeply

- divergent archaic mitochondrial genome provides lower time boundary for African gene flow into Neanderthals. *Nature Communications* 8: 16046.
21. Richard, M., Falguères, C., Pons-Branchu, E., Ghaleb, B., Valladas, H., Mercier, N., Richter, D., Bahain, J.-J. & Conard, N.J. (2017): Datation par les méthodes ESR/U-Th combinées de sites du Pléistocène supérieur: méthodologie et application en contexte karstique. *L' Anthropologie* 121, 63-72.
  22. Rots, V., Lentfer, C., Schmid, V.C., Porraz, G. & Conard, N.J. (2017): Pressure flaking to serrate bifacial points for the hunt during the MIS5 at Sibudu Cave (South Africa). *PLOS ONE* 12, e0175151.
  23. Schmaltz E., Rosner H.J., Rentschler T. & Märker, M. (2017): Assessment of groundwater response and soil moisture fluctuations in the Mugello basin (Central Italy). *Geography, Environment, Sustainability* 2017, 10(2), 15-27.
  24. Schillaci, C., Acutis, M. Lombardo, L., Lipani, A., Fantappiè, M., Märker, M. & Saia, S. (2017): Spatio-temporal topsoil organic carbon mapping of a semi-arid Mediterranean region: The role of land use, soil texture, topographic indices and the influence of remote sensing data to modelling. *Science of the total Environment* 601-602, 821-832.
  25. Stahlschmidt, M.C., Miller, C.E., Kandel, A.W., Goldberg, P., Conard, N.J. (2017): Site formation processes and Late Natufian domestic spaces at Baaz Rockshelter, Syria: A micromorphological perspective. *Journal of Archaeological Science: Reports* 12, 499-514.
  26. Teodoridis, V., Bruch, A.A., Kvacek, Z., Vassio, E., Martinetto, E. & Stuchlik, L. (2017): Plio-Pleistocene floras of the Vildštejn Formation in the Cheb Basin, Czech Republic – a floristic and palaeoenvironmental review. *NECLIME special issue Palaeogeography, Palaeoclimatology, Palaeoecology* 467, 166-190.
  27. Utescher, T., Dreist, A., Henrot, A.-J., Hickler, T., Liu, Y.-S.C., Mosbrugger, V., Portmann, F.T. & Salzmann, U. (2017): Continental climate gradients in North America and Western Eurasia before and after the closure of the Central American Seaway. *Earth and Planetary Science Letters* 472, 120-130.
  28. Volmer, R., Hölzchen, E., Wurster, A., Ferreras, M. R. & Hertler, C. (2017): Did Leopards (*Panthera pardus*) become extinct because of competition for prey? Modelling interspecific competition within the Late Pleistocene carnivore guild of the Padang Highlands, Sumatra. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 487, 175-186.

29. Winkler, K., Gessner, U. & Hochschild, V. (2017): Identifying droughts affecting agriculture in Africa based on remote sensing time series between 2000-2016: Rainfall Anomalies and Vegetation Condition in the Context of ENSO. *Remote Sensing* 9, 831.

Other peer reviewed publications: 7

1. Bretzke, B., Kandel, A.W. & Conard, N.J. (2017): Establishing regional sequences: The Qalamunian Upper Paleolithic and its implications for the two-tradition model in the Levant. In: Wojtczak, D., al Najjar, M., Jagher, R., Elsuede, H., Wegmüller, F. & Otte, M. (eds.), *Vocation préhistoire: Hommage à Jean-Marie Le Tensorer*. ERAUL 148, Liege, 43-56.
2. Conard, N. J., Goldberg, P., Mentzer, S. M. & Miller, C. E. (eds.) (2017): Bridging Gaps: Integrating Geosciences with Archaeological Research. Papers from an international meeting at the Department of Early Prehistory and Quaternary Ecology and the Institute of Archaeological Science, University of Tübingen, Germany, May, 2012. Special issue of *Archaeological and Anthropological Sciences* 9, 1571-1676.
3. Fenici, M. & Garofoli, D. (2017): The biocultural emergence of mindreading: integrating cognitive archaeology and human development. *Journal of Cultural Cognitive Science* 1(2), 89-117.
4. Garofoli, D. (2017): Ornamental feathers without mentalism: a radical enactive view on Neanderthal body adornment. In: *Embodiment, Enaction, and Culture: Investigating the Constitution of the Shared World*. Durt, C., Fuchs, T. & Tewes, C. (eds.), Cambridge, Massachusetts: MIT Press, 279-306.
5. Napierala, H., Kandel, A.W. & Conard, N.J. (2017): Small game and shifting subsistence patterns from the Upper Palaeolithic to the Natufian at Baaz Rockshelter, Syria. In: Mashkour, M. & Beech, M. (eds.), *Archaeozoology of the Near East*, Vol. 9. Oxbow, Oxford, 2-9.
6. Wynn, T., Haidle, M. N., Lombard, M. & Coolidge, F. L. (2017). The Expert Cognition Model in human evolutionary studies. In Wynn, T. & Coolidge, F. L. (eds.), *Cognitive models in Palaeolithic archaeology*. Oxford: Oxford University Press, 21-43.
7. Yates, J. A. F., D. G. Drucker, E. Reiter, S. Heumos, F. Welker, S. C. Münzel, P. Wojtal, M. Lázničková-Galetová, N. J. Conard, A. Herbig, H. Bocherens & J. Krause.

Central European Woolly Mammoth Population Dynamics: Insights from Late Pleistocene Mitochondrial Genomes. *Scientific Reports*, 7: 17714.

Publications without peer review: 10

1. Bader, G. D., Will, M. (2017): Recent research on the MSA in KwaZulu-Natal, South Africa. *Mitteilungen der GfU* 26, 53-82.
2. Bolus, M., Haidle, M. N. (2017): KULT-UR-MENSCH Kulturkonzepte für die Erforschung der Menschwerdung. Eine Tagung an der Heidelberger Akademie der Wissenschaften, organisiert durch die Forschungsstelle ‚The Role of Culture in Early Expansions of Humans‘ (ROCEEH). *Mitteilungen der GfU* 26, 169-173.
3. Conard, N. J. (2017): The path to UNESCO World Cultural Heritage status for the caves and Ice Age Art in the Swabian Jura. *Mitteilungen der GfU* 26, 153-168.
4. Conard, N. J. (2017): Vorsprung durch Kunst: Das Glück der neuen Menschen. In Oehler, R., Gehring, P. & Mosbrugger, V. (eds.), *Biologie und Ethik: Leben als Projekt*. Frankfurt/M.: Senckenberg Gesellschaft für Naturforschung, 38-44.
5. Haidle, M. N. (2017): Laudatio: Dr. Trine Kellberg Nielsen, Nineteenth Recipient of the Tübingen Prize for Early Prehistory and Quaternary Ecology. *Mitteilungen der GfU* 26, 7-10.
6. Haidle, M.N. (2017): Ich. Ich ganz allein? Menschliche Entwicklung und moderne Paradoxien von Individualität, Umweltunabhängigkeit und Fortschritt. In: 2 Millionen Jahre Migration. Wie(so) wir darüber forschen und reden. Begleitband zum Workshop im Neanderthal Museum am 6. Oktober 2017. Wunsch, M. & Weniger, G.-C. (eds.), Mettmann: Neanderthal Museum, 22-29.
7. Haidle, M.N. (2017): Wahrnehmung will gelernt sein – ein Prozess zwischen Organismus und Umwelt in verschiedenen Entwicklungsdimensionen: Kommentar zu Toepfer. In: *Interdisziplinäre Anthropologie Jahrbuch 4/2016: Wahrnehmung*. Hartung, G. & Herrgen, M. (eds.), Wiesbaden: Springer VS, 79-90.
8. Haidle, M.N., Garofoli, D., Scheffele, S. & Stolarczyk, R. (2017): Die Entstehung einer Figurine? Material Engagement und verkörperte Kognition als Ausgangspunkt einer Entwicklungsgeschichte symbolischen Verhaltens. In: *Verkörperung – Eine neue interdisziplinäre Anthropologie*. Etzelmüller, Gregor, Fuchs, Thomas and Christian Tewes (eds.), Berlin: de Gruyter, 251-279.
9. Schrenk, F. & Bromage, T.G. (2017): Origins of Hominin Biocultural Diversity. *Frankfurter Archaeological Studies* 35, 409-419.

10. Schrenk, F., Kuper, A., Rahn, M. & Eiser, I. (2017): Menschen in Sammlungen. Geschichte verpflichtet: Sensible Dinge in Museen und universitären Sammlungen. In: Nicht nur Raubkunst - Sensible Dinge in Museen und universitären Sammlungen. Brandstetter, A. M. & Hierholzer V. S. (eds.), Mainz: Mainz University Press, 45-62.

Popular publications: 7

1. Bolus, M. & Conard, N.J. (2017): Blaubeuren und das Aachtal: Höhlen der Jäger und Künstler II. In: A. Wais, T. Steinhilber & L. Gaiser (eds.), Archäologie erleben. 60 Ausflüge in die Vergangenheit. 3., erweiterte und aktualisierte Auflage. Darmstadt: Konrad Theiss Verlag, 164-167.
2. Bolus, M. & Conard, N.J. (2017): Lonetal: Höhlen der Jäger und Künstler I. In: A. Wais, T. Steinhilber & L. Gaiser (eds.), Archäologie erleben. 60 Ausflüge in die Vergangenheit. 3., erweiterte und aktualisierte Auflage. Darmstadt: Konrad Theiss Verlag, 160-163.
3. Conard, N.J. (2017): Das UNESCO-Weltkulturerbeprojekt "Die Höhlen der Schwäbischen Alb". Heidelberger Akademie der Wissenschaften, Jahrbuch 2016. Heidelberg: Heidelberger Akademie der Wissenschaften, 69-75.
4. Conard, N. J., Dutkiewicz, E. (2017). Vom Ursprung zum Weltkulturerbe: Kunst, Religion und Musik auf der Schwäbischen Alb. In Duerr, F. & Seidl, E. (eds.), Ursprünge: Schritte der Menschheit. Tübingen: Schriften des Museums der Universität Tübingen, 78-111.
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