



EDITORIAL

Johannes Müller, Speaker Graduate School 'Human Development in Landscapes'

The initial delight about the second five-year funding period for our Graduate School is already visible in new summer activities, some of which are described in this newsletter. Furthermore, openings for new PhD and post-doctoral positions have been published and have already triggered responses from a large number of interested young researchers. For more information see our website: www.uni-kiel.de/landscapes/allgemein/jobs/.

To gain and to administrate public money for education and research, as the graduate school has once again successfully demonstrated, requires a high degree of responsibility. Our scientific products are not the result of private fundings, but of public efforts. But due to the power of private companies in monopolizing the publication of scientific results and because university libraries pay millions of Euros for periodicals in which their own scientists publish, many institutions and scholars have been attempting to find alternative ways to distribute their results. In light of this issue, "Boycott Elsevier" has become a new slogan within the scientific community (www.thecostofknowledge.com). Harvard, for example, asks their researchers to publish in open access journals because the periodicals of big editors cost their library 3,75 million Dollars yearly and the British government announced that starting in 2014 all research which is sponsored by the public should be readable for free! I think it's time for us to join in and to redirect the publication of our own research results.



Photo: private

TACKLING THE RESERVOIR EFFECT

GS student works on refining bone radiocarbon dating

When an archaeologist finds a bone during an excavation, he or she of course wants to know its age. A good method to obtain this information is radiocarbon dating, and Kiel University offers excellent conditions for this approach: The Leibniz-Laboratory for Radiometric Dating and Isotope Research is situated right in the middle of the campus. It features high-end technology such as a 3 MV Tandatron accelerator mass spectrometer (AMS) system and several mass spectrometers.



Ricardo Fernandes and his colleague Anke Rieck prepare a sample for analysis at Kiel University's Leibniz-Laboratory.

The Leibniz-Lab is also the place where Ricardo Fernandes, PhD student at the Graduate School, works on refining the radiocarbon dating of bones. He tackles the so-called reservoir effect; a phenomenon caused by having fish on the menu. "The bones of humans who had an aquatic diet during their lifetime may be "fictitiously" dated many years older than they really are", Ricardo explains. "This is caused by an "old" radiocarbon signal present in aquatic reservoirs, derived, among others, from leaching of carbonates from the geological background, for example limestone rocks." This old "carbon" enters the aquatic food chain and via a fish-based diet is incorporated in the human body. This of course includes human bones thus resulting in an apparently older radiocarbon age. As archaeologists and historians need accurate chronologies

to interpret the development of human societies in the past, the reservoir effect may hinder many research projects.

To obtain more reliable chronologies, Ricardo takes two approaches. One of them is to date the mineral, non-protein, part of ancient bones, built mainly from dietary carbohydrates that are essentially only present in terrestrial plant material. "The problem with dating bone mineral is that it is often contaminated under different environmental factors" says Ricardo. For example, groundwater can seep into the pores of buried bones where it deposits soil carbonates which have their own, and often very different, radiocarbon signal. Therefore, he analyses samples not only from bulk bone but he also measures the chemical composition of the bone along a profile, trying to identify uncontaminated areas within the bone.

The second approach that Ricardo has chosen is to reconstruct ancient dietary habits using stable isotope analysis. The goal is to determine the proportion of any aquatic contribution. Well-documented finds of human bones, for which the age is already known, provide him with exact knowledge of the magnitude of the reservoir effect. Results obtained through diet reconstruction can then be compared with the determined reservoir effect and used to validate this approach. Ricardo intends to finish his PhD project towards the end of the year.

RAISING A STONE – REVEALING A SECRET?

This summer, archaeologists from Kiel University are undertaking a field campaign at the Küsterberg near Hundisburg (Saxony-Anhalt, Germany). In cooperation with Saxony-Anhalt's State Office for Heritage Management and Archaeology, they are excavating a megalithic tomb dating from the early Neolithic. In mid-July, a special moment occurred when, with support from the Agency for Technical Relief (Technisches Hilfswerk), the 2.5 ton capstone was lifted. As a result of this effort, the chamber of the tomb can now be examined. The researchers are especially seeking ceramic remains from Funnel Beaker societies. The megalith is situated near the river Berber, which marks the border between a moraine landscape to the north and loess soils to the south. Around 5,500 BC, the first farmers reached this area from the banks of the Danube. The change they brought was immense: Sedentism, agriculture and livestock breeding were all innovations at the beginning of the Neolithic.



Photo: J. Müller

An excavator raises the capstone.

The excavation is part of the DFG priority programme 1400 "Early Monumentality and Social Differentiation". Our colleague Christoph Rinne and his team of 15 students from the Institute for Pre- and Protohistory at Kiel University are supported by Kay Schmütz, member of the Graduate School "Human Development in Landscapes", who is writing his PhD thesis on the construction of social space in this landscape during the Neolithic.

IMPROVING TEXTS

Eileen Kücükkaraca, Scientific and Technical Editor at the Graduate School, offers her assistance in editing English texts of all GS members. The main focus concentrates on enhancing grammatical, syntactical, and stylistic aspects of a variety of English texts, such as research papers, presentations, posters, abstracts, and applications. Eileen's office

hours are on Wednesday from 10 to 11 a.m. and by appointment (Johanna-Mestorf-Straße 2, room 143). If possible, please sign up for the office hours in advance via e-mail (ekaraca@gshdl.uni-kiel.de). Spontaneous requests will be considered if time allows.

Workshop on Neolithic landscapes in northwest Ireland and northwest Germany

Thirty researchers from Ireland and Kiel came together at the Graduate School from July 2 to 4, 2012 with the aim of comparing Neolithic landscapes in northwest Ireland and northwest Germany. For several years, archaeologists and palaeoecologists from Kiel University and the National University of Ireland, Galway have cooperated in a project reconstructing the vegetation history and environmental changes in the Carrowkeel area, County Sligo (www.ecosystems.uni-kiel.de/english/e_projekt_carrowkeel.shtml). Comparing their findings from this region in northwest Ireland with the development in northern Germany, the scientists found that there are several coincidences; for example, the contemporaneous occurrence in both areas of the 'elm decline' and also, at least partly, the emergence of megaliths. On the other hand, analysis showed that Ireland saw a greater increase of non-tree pollen around Sligo in comparison to northern Germany, which indicates a more intense opening of the landscape.

STAFF & PERSONAL NEWS

Susann Stolze, doctoral student of the Graduate School, passed her disputation on "Human Impact and Environmental Change during the Neolithic in the Carrowkeel Area, Co. Sligo", on July 2.

Mykola Sadovnik, doctoral student of the Graduate School, passed his disputation on "Reconstruction of the Forest and Land Use History from Neolithic to the Present for the Westensee Area, Schleswig-Holstein, Germany, using a Multi-Proxy Approach" on July 2. The dissertation was graded with "magna cum laude".

Hermann Gorbahn held a talk on "The Middle Archaic Site of Pernil Alto, Southern Peru: the beginnings of horticulture and sedentaryness in mid-Holocene conditions" at the 54th International Congress of Americanists (ICA), which took place in Vienna (Austria) from July 15 to 20.

Ricardo Fernandes held a talk on a "Quantitative approach to ancient diet reconstruction and reservoir effect correction" at the 39th International Symposium on Archaeometry, which took place in Leuven (Belgium) from May 28 to June 1. Besides his talk, Ricardo also presented three posters on the "Influence of cooking on the isotopic signals of fish species", "EDTA-solution based protocols for the cleaning of ancient bone bioapatite", and "Collagen-bioapatite radiocarbon age differences linked to reservoir effect". From July 9 to 13, Ricardo participated in the 21st International Radiocarbon Conference in Paris, where he gave talks on the "Characterization of reservoir effects in the Mecklenburg Lake District" and on the formerly mentioned "Quantitative approach to ancient diet reconstruction and reservoir effect correction". In Paris, he also presented his posters on "Collagen-bioapatite radiocarbon age differences linked to reservoir effect" and "Bone: to powder or not to powder?"

Frank Förster and his co-authors **Hanno Kinkel**, **Annegret Larsen**, **Uta Lungershausen**, **Chiara Matarese**, **Philipp Meurer**, **Oliver Nelle**, **Vincent Robin**, and **Michael Teichmann** presented their paper "What is landscape? Towards a common concept within an interdisciplinary research environment" at the 2nd International Landscape Archaeology Conference, which took place in Berlin from June 6 to 9. Other Graduate School members also participated in the event. **Oliver Nakoinz** held a talk on "Models of centrality". **Anja Prust** and **Tim Schroedter** presented posters and Anja placed 2nd in the poster competition. **Andrea Ricci** contributed to the paper "The Neolithic on the move.

High resolution settlement dynamics and their impact on archaeological landscape studies in southwest Azerbaijan", which his co-authors Tevekkül Aliyev and Barbara Helwing presented there.

GRADUATE SCHOOL ALUMNI (III): FEVZI KEMAL MOETZ

More and more PhD students of the first generation are finishing their projects and leaving the Graduate School. We keep in touch with them and trace their next steps. Where are they going after their PhDs, and what are they doing there?

Fevzi-Kemal Moetz finished his PhD studies in 2011. In his thesis, he analyzed aspects of early sedentism in Mesopotamia. Kemal compared data from more than 200 Neolithic sites in the region. The postdoctoral position he now holds is oriented in the same direction: It focuses on the sites of Gusir Höyük (near Siirt in southern Anatolia) and Aktopraklik (near Bursa in northwestern Anatolia). While the former provides hints for the overall beginning of the Neolithic (10th century BC), the latter reveals traces of its spread to Europe (7th century BC). The project is based at Istanbul University and financed by the German Academic Exchange Service (DAAD).

"The aim is to analyze the dynamics of sedentism at these sites and to reconstruct the interaction between humans and environment", explains Kemal. An interdisciplinary combination of methods is applied to this end; archaeological excavations, soil science and palynology are used to produce data, which are then analyzed via a geographic information system (GIS). "Furthermore, we will do an aerial prospection of the sites using a quadcopter", Kemal says. "By combining the pictures from the quadcopter camera with a topographic map and the GIS-processed data, we want to obtain a 3D reconstruction of the tells and the excavations. This should enable us to draw conclusions about the settlement development in relation to environmental dynamics."

In his new position, Kemal benefits a lot from his time at the Graduate School. "In Kiel I learned much about the methods I am using now", he states. His first contact with Istanbul University was also supported by the GS: "Thanks to my PhD stipend, I was able to go there and prepare my fieldwork activities in Turkey." Additionally, contact with soil scientists and palynologists from Kiel University was facilitated by means of the interdisciplinary structure of the GS, as Kemal underlines: "Without all these options for training and cooperation provided by the Graduate School, my postdoctoral project would not exist today."



SELECTED EVENTS (complete calendar: www.uni-kiel.de/landscapes)

Venue for Biweekly Colloquia: Leibnizstraße 1, Room 204

September

Wednesday, September 26, 10:00 a.m. – **Special Biweekly Colloquium:** Steve Weiner, Kimmel Center for Archaeological Science, Weizmann Institute of Science, Rehovot, Israel. Microarchaeology.

October

Thursday, October 25 (2-6:30 p.m.) and Friday, October 26 (9-12 a.m.) – **Poznańer Tage.** Siedlungen, Gräber, Deponierungen der mitteleuropäischen Bronzezeit: Gemeinsame Forschungen aus Poznań und Kiel (lectures in English and German) – Institute for Pre- and Protohistory, Johanna-Mestorf-Str. 2-4

November

November 22 to 23 – **Advisory Board Meeting**
Friday, November 23 – **GS Plenary Meeting**