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Final Report for BELSPO

By **Canan Çakırlar**, Post-doctoral researcher from Turkey

Host Institution: Anthropology and Prehistory Section, Royal Belgian Institute of Natural Sciences, Brussels

Supervised by: Wim Van Neer

Research title: Adoption of Domesticates and Domestic Technologies in Neolithic Western Anatolia: An Inter-regional Archaeozoological Study

Date appointed: 01/01/2011

Duration: 18 months

Introduction

According to reports published by a group of national research foundations¹, “**an important measure of the success of the postdoctoral experience is not only useful research results, but also the development of an individual capable of functioning as an independent professional.**”

Reflecting on my pre-BELSPO experience as a junior postdoc and ad-hoc adjunct lecturer, I am inclined to think that **my time at the RBINS has been a big leap forward**, both in terms of my research results and in terms of finding my way through academia. The final judgement is of course for my peers to make.

My host and my peers at the RBINS completely fulfilled the responsibility of making themselves available for collaboration and of helping me develop my scholarly skills, and often, much more than that. Throughout the past eighteen months, I was felt at home in Brussels and I am grateful for that.

Below I explain what the proposed **aims** of my BELSPO research were, how the research **progressed** in the past eighteen months, what the **outcomes** have been so far, and how we will proceed to **continue our collaboration** between institutions in Turkey and the archaeobiology laboratory (led by Wim Van Neer) at the RBINS in Brussels.

Proposed research aims

As the title of my research suggests, my postdoctoral project aimed at **understanding how animal husbandry was adopted in western Turkey**. I have started analysing osteoarchaeological material

¹Article by BL Benderly, 2005.

http://sciencecareers.sciencemag.org/career_development/previous_issues/articles/3570/three_reports_tackle_the_postdoc_mess. Accessed 27.06.2012.

from a Neolithic site called **Ulucak**, near Izmir, before coming to Belgium, whereas my colleague in Brussels, Bea De Cupere, had already worked on the osteoarchaeological assemblages from two Neolithic sites, **Höyücek and Bademağacı**, some 300 km east of Izmir. As far as these sites may appear even in modern (Belgian!) standards, the sites shared **a common material culture** during the Neolithic. These were and still are the three most important archaeological sites that represent the **earliest outcrop of farmers outside of their ‘natural habitats’ in the Fertile Crescent**. Moreover, archaeological evidence indicates that all three sites played an important role in the dispersal of farming or farmers (still a matter of debate) into Europe. But **how similar were the societies to each other in terms of their economy?** How different from other excavated Neolithic settlements in the neighbouring regions, such as sites in Istanbul or in Central Anatolia? And more essentially, **how did these similarities and differences shape the patterns of Neolithic economies in Europe and the Mediterranean basin?**

By combining first our data, and then the published data from colleagues, Bea De Cupere and I wanted to **enhance our dataset by merging our individual data** in order to address these questions. While doing this, we wanted to **take into consideration the archaeological theories** put forward by ‘generalist’ archaeologists, the current understandings of relative and absolute chronologies, and **study additional osteoarchaeological material from Ulucak and from sites near or in Istanbul**, and other few Neolithic excavations in the region. We also wanted to get in touch and **collaborate with researchers interested in the same topic**. Additionally, the aim was to **make our work public**, through formal journal articles and conference papers.

In order to carry out the proposed project, the following tasks were accomplished.

Research visits

During the course of my stay, I was able to visit other institutions in Europe and my own institution twice for short and medium-term research stays.

DATES	INSTITUTION	PURPOSE OF VISIT
01.03.2011-16.03.2011	Ege University, Izmir, Turkey	Analysis of archaeozoological material from Ulucak
09.05-13.05.2011	Munich University, Germany	Analysis of archaeozoological material from Neolithic Istanbul (Sites: Fikirtepe and Pendik)
02.07-30.07.2011	Various archaeological excavations in Turkey	Analysis of archaeozoological material from Kinet, and Alalakh
01.-18.08.2011	Ege University, Izmir, Turkey	Analysis of archaeozoological material from Ulucak
10-18.03.2012	American University of Beirut, Lebanon	Analysis of archaeozoological material from Tell Fadous

During my visits to Ege University and to Ulucak, I was able to discuss important matters with the excavators, inform them about our progress in Brussels, talk to students about the importance of

zooarchaeology in debates of Neolithisation, and study more osteoarchaeological material from the site.

In Munich, I studied the molluscs and fish from two Neolithic sites in Istanbul, which were excavated by German and Turkish teams at various intervals during the late half of the 20th century. This research was triggered by the kind offer made by Angela von den Driesch, emeritus professor at Munich University, to share her unpublished data with me from one of these sites. As a result, we now have the full data for this site (Pendik), also thanks to Henriette Obermaier (Munich), who studied the few bird remains. The astonishing differences between Neolithic sites in northwest Turkey and our own subregion near Izmir consolidated our view that there is no one Neolithisation, but several pathways to Neolithisations.

At my own time and with external funding, I was able to visit a few Bronze Age settlements along the northern Levantine coast. During these visits, I collected and studied some fish remains, which are used in a stable isotope study conducted by Wim Van Neer and Benjamin Fuller (Max Planck, Leipzig). The work on the fish remains of at least one of these sites, Kinet Höyük, will continue with the help of a new 'seed grant' I was able to obtain (see Section Fund Raising activities below).

Talks

I gave **seven talks** on the results of my research (four invited, three conference presentations) during my tenure in Brussels, all at international settings. These are listed in the table below, where dates, places and the titles of the presentations are provided. Presentations about my other continuing and closed research projects are marked in grey font. I believe these presentations provided good visibility for BELSPO and RBINS, for our project, and for myself. All presentations were received with great interest.

The first presentation, at the **ASWA meeting in Brussels** took place at a special Neolithic of Anatolia session. This was a very good opportunity to meet fellow archaeozoologists working in the area. Paul Halstead (Sheffield) gave a review talk on herding systems in Neolithic of Greece at this session, and in a way, he confirmed our hypothesis that western Turkey played an important role in the westward expansion of husbandry systems, when he remarked that out of all of Anatolian Neolithic, the western Anatolian scheme is the closest that comes to the earliest forms of animal husbandry in Greece.

During my research, I have come to understand that the northwestern and central parts of Turkey went through entirely distinct Neolithisation processes. This separation between the north and the central parts were mentioned before by archaeologists, who argued that Mesolithic and Neolithic interacted in the northwest based on evidence from shellfish gathering and fishing. In the fall **meeting of the AEA in VU in Amsterdam**, I argued that the features of the subsistence economy could not be demonstrated as evidence for this argument, showing quantified evidence from my research visit in Munich (see above) and comparisons with other sites in the region.

At the **BioArch meeting** that followed immediately, I talked along similar lines, focusing more on research histories and how paradigms can dominate our views in lack of hard evidence (in this case

our work in Munich). H. Obermaier (my co-author) was able to attend the meeting, whereas my other co-author, A. von den Driesch, could not be there.

In late November I attended a **two day workshop in Berlin**, where almost every archaeologist working on questions relating to the spread of Neolithic cultures over Anatolia was present. The conclusion of the meeting was that at the end of the 7th millennium BC, societies changed, but contrary to a popular view, not due to **the 8200 BP event (one of the globally-effective rapid climate events that have affected unstably oscillating temperature and humidity conditions)**, but to societal changes from within (local innovations and reform) and without (influx of new ideas from the east). This issue was one of our side questions, and therefore it was very good to see where colleagues stood. I must admit though, that the meeting was a prime example of exclusion: the palaeoclimate and radiocarbon experts who initially proposed the 8200 BP theory, opening up new discussion, were not invited.

In December **Nottingham University Dama International Research Group** invited me to give a talk on my research on *Dama dama* (fallow deer) in western Turkey. I was not able to go Nottingham because of visa issues. Nevertheless, I addressed the group via skype. This was an interesting experience and exchange even if through internet. The Brussels archaeozoology group has been collaborating with Naomi Sykes of this group for a while now. My talk led to a fruitful discussion and I joined the collaboration now as well. This summer I should be collecting some fallow deer samples from west Turkey for ancient DNA and isotope studies.

In March I was invited to talk at two universities in the Netherlands. In **Leiden**, I gave a 30 minute talk to an academic and hobby-archaeologist crowd at the Dutch Symposium of the Ancient Near East, on our most recent understanding of the **emergence and evolution of herding in west Anatolia** and how the developments there may have affected early herding patterns elsewhere in the region.

From Leiden I went to **Groningen** to give a talk on the variation of the same theme at the Groningen Institute of Archaeology, this time focusing more on the **secondary products** (wool/fleece, milk, and traction) that can be attained from Neolithic animals, and whether we are able to say much about this for the Neolithic in west Anatolia.

Finally, a few weeks ago in late May, I had the opportunity to talk about the overall results of my research to the **National Geographic Society Committee of Research and Exploration**. My guess is that this was the highest impact talk of the past eighteen months. I was, together with my collaborators, strongly urged to apply for one of their research grants as soon as possible.

DATE	MEETING	PRESENTATION/POSTER
28-30.06.2011	10 th International Meeting of the ICAZ Working Group, Archaeozoology of Southwestern Asia and Adjacent Areas (ASWA), Brussels	Poster: Life and death of animals at a coastal settlement in Lebanon Iron Age dog burials and other faunal remains from Tell el-Burak
		Presentation: Emergence and Development of Animal Husbandry in Central-West

		Anatolia
21-22.10.2011	“Subsistence and Surplus”, Association of Environmental Archaeology (AEA) fall meeting, VU, Amsterdam	Presentation: Re-thinking Neolithic subsistence at the gateway to Europe
03-04.11.2011	BioArch (EU network and training group) meeting, Brussels	Presentation: <u>with</u> A. von den Driesch, and H. Obermaier Revisiting subsistence in Neolithic Istanbul with old and new archaeozoological data from Fikirtepe, Pendik and Yenikapı
24-26.11.2011	“Times of Change” Workshop Freie Universität, Berlin	Networking with archaeologists working on the Neolithisation of Anatolia and the Balkans
13.12.2012	Nottingham University, online talk	Talking deer in Nottingham: Fallow deer in Early Holocene: a new element in the ‘Neolithic package’?
22-23.03.2012	Recent Research in the Amuq Valley of the Hatay, an international workshop, Koç University, İstanbul	Presentation: Resilience and sustainability in the Hatay: a zooarchaeological perspective
24.03.2012	DUSANE: Dutch Symposium of the Ancient Near East IV, Leiden	Presentation: Emergence and evolution of herding in west Anatolia
26.03.2012	Rijksuniversiteit Groningen, NL	Presentation: Secondary products revolution and second Neolithic revolution in west Anatolia
31.05.2012	Morning lecture for the Committee of Research and Exploration of the National Geographic Society, Istanbul	Presentation: How did farming reach Europe?: Results of Faunal Analysis from Yenikapı and Associated Sites
21.06.2012	‘Integrating Zooarchaeology and Stable Isotope Analyses’, Workshop at Cambridge University	Presentation: Reading between the lines: Incrementally deployed molluscan isotopes and archaeological problems

Publications

These talks formed the backbone of the publications I have been working on, as sole author and together with Bea De Cupere.

I submitted two papers to peer-reviewed international journals. One of them has been accepted and the other is currently in review.

<p><u>Çakırlar, C.:</u> (accepted) The evolution of animal husbandry in Neolithic Central-West Anatolia: the archaeozoological record from Ulucak, İzmir (ca. 7040-5660 cal. BC). <i>Anatolian Studies</i>.</p>
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Çakırlar, C.: (**submitted**) Neolithic dairy technology at the European-Anatolian Frontier? Implications of the archaeozoological evidence from Ulucak Höyük, İzmir, ca. 7040-5660 BC cal. *Anthropozoologica*.

I also wrote a small article on my work at Neolithic Yenikapi for an edited volume:

Çakırlar, C. (**in print**). Once Upon a time in Istanbul; animal husbandry, hunting and fishing. In Z. Kızıltan (Ed.). *First Results of Rescue Excavations at Yenikapi*. İstanbul, Gama Productions: i-ii.

Two other **journal articles are in preparation**, at stages not far from submission. I also submitted a paper on this research to an edited book, which will be published in Turkish and English. These are all the outcomes of the research project I conducted in RBINS.

Çakırlar, C. and B. De Cupere (**in prep.**) Herding out of Anatolia: A synthesis of zooarchaeological data on the earliest forms of animal husbandry in the circum-Aegean region.

This paper is, in a sense, the **master outcome of the BELSPO postdoc tenure**. For this paper, Bea De Cupere and I had the opportunity to hold long discussions, make our data compatible and examine some osteoarchaeological material imported from Ulucak. For example, thanks to Dr. De Cupere, we now know there were **leopards in Anatolia during the early half of 7th millennium BC**. Thanks to Wim Wouters (RBINS), we now know that the Neolithic people of **Ulucak imported sea breams** from the Aegean coast, which was no closer to the settlement than 5 km and beyond a mountain range rising up to 1500 m height. We also identified the small mammals and birds using the collections of the RBINS. This was a very good exercise that helped us contribute to the reconstructions of palaeoenvironmental conditions around the site at the time. The majority of the small mammals represent squirrels and the birds are made up of field crows, suggesting a patchy landscape that consists both of oak and crop fields.

We have all our data digitized, created our graphs and tables, and started writing. We are hoping to submit the paper after this year's fieldwork season.

I am also working on **a separate paper** on the earliest aceramic layers of the site together with the primary excavator of Ulucak's early layers and **my colleague from Ege University** Ç. Çilingiroğlu.

Çakırlar, C. and Ç. Çilingiroğlu (in prep.) Earliest Herders of the Eastern Aegean: Evidence from Ulucak, İzmir.

For the continuation of collaboration with my institution in Turkey and to secure the continuity of funding for related fieldwork, I had to prepare the following **research reports** (unpublished):

Çakırlar, C. (unpubl.) Zooarchaeology of Ulucak, for the Turkish Research Foundation (with faculty of Ege University Department of Archaeology): May 2011, November 2011, May 2012.

Çakırlar, C. (unpubl.) Zooarchaeology of Neolithic Ulucak, for the Institute of Aegean Prehistory (in fulfilling requirements of travel/accommodation grant): November 2011.

In addition to the outcomes of the project itself. The publication process of some of the papers I have been working on since 2010 has been completed or have progressed much. I represent RBINS at all of these publications and BELSPO has been credited in the acknowledgements.

Published in peer-reviewed journals

Genz H., S. el-Zaatari, C. Çakırlar, K. Badreshany, and S. Riehl. (2011): The Middle Bronze Age burial at Tell Fadous. *Egypt and the Levant* 20: 183-205.

Onar, V., C. Çakırlar, M. Janeczek, and Z. Kızıltan. 2012. Skull typology of Byzantine dogs from the Theodosius Harbour at Yenikapı, İstanbul. Submitted to: *Anatomia, Histologia, Embryologia*
doi: 10.1111/j.1439-0264.2012.01143.x.

Accepted in peer-reviewed proceedings

Çakırlar C., V. Amer, J. Kamlah, and H. Sader. Persian Period dog burials in the Levant: new evidence from Tell el-Burak (Lebanon) and a reconsideration of the phenomenon. Submitted to: V. Linseele, B. De Cupere, S. Hamilton-Dyer (Eds.). *Archaeozoology of southwestern Asia and Adjacent Areas (ASWA) IX. Ancient Near Eastern Studies Supplement Series*. Peeters Press.

Çakırlar, C. Foodways in Troia and its neighboring settlements during the Early Bronze Age. Submitted to: E. Pernicka, S. Ünlüsoy and S. Blum (Ed.). *Early Bronze Age Troy: Chronology, Cultural Development and Interregional Contacts*. Springer Verlag. (submitted before BELSPO post-doc).

In print: conference proceedings

Çakırlar, C. (in print): Formalized *Epinephelus* butchery in 5th century BC Kinet (Hatay, Turkey): New evidence for fish processing in the ancient Eastern Mediterranean. In: M. Beech, M. Mashkour (Eds.). *Archaeozoology of southwestern Asia and Adjacent Areas (ASWA) IX*. Oxford, Oxbow Books.

Published: edited book

Çakırlar, C. Ed. (2011): *Archaeomalacology Revisited: Non-dietary use of molluscs in Archaeological Settings*. Oxford, Oxbow Books.

Çakırlar, C. (2011): Introduction. In: C. Çakırlar (Ed.). *Archaeomalacology Revisited: Non-dietary use of molluscs in Archaeological Settings*. Oxford, Oxbow Books: v-viii.

Submitted: edited book

Onar V., G. Pazvant, H. Alpak, C. Çakırlar, Altan Armutak (submitted). The animals of Constantinople: Animal skeletal remains discovered at the Metro and Marmaray excavations. In Z. Kızıltan (Ed.). *First Results of Rescue Excavations at Yenikapı*. İstanbul, Gama Productions: i-x.

Çakırlar C. and R. Berthon (submitted). Caravans, camel wrestling and cowrie shells: towards a social archaeozoology of camel hybridization in Anatolia and adjacent regions. In M. Mashkour and M. Beech, *Proceedings of the Old World Camels Session at the ICAZ Conference, Paris, 2010*.

Published: national (Turkish) journal

Çakırlar, C. (2012): ANMA –Emeritus Prof. Dr. Angela von den Driesch, 1934-2012, Arkeozoolojinin ,annesinin' Bergama'dan Göbekli Tepe'ye uzanan yaşamı. *Arkeoloji ve Sanat Dergisi* 139: i-ii.

Services

Besides my responsibilities as a researcher, I continued to fulfill my academic duties as

- Member of Scientific Committee ASWA 2011: 10th international meeting of the ICAZ working group Archaeozoology of southwestern Asia and Adjacent Areas; Brussel 28-30/06/2011

-Reviewer for *Journal of Archaeological Science*, *Anthropozoologica*, *Current Anthropology*, *Archaeofauna* and a variety of peer-reviewed conference proceedings. Two of the papers I reviewed for the journals were directly related to my project at RBINS, which further shows that presentations and informal discussions at conferences served their purpose to make our project visible.

-Member of the IC (International Committee) of ICAZ (International Council of Archaeozoology). I am organizing the upcoming business and scientific meeting 04-08.10.2012, İstanbul.

<http://cssh.ku.edu.tr/arha/world-archaeozoology-today>

-Member of steering committee, Dama International Project, Nottingham. <http://www.fallow-deer-project.net/meet-the-team>

Fund raising activities

Some of the fieldwork for this project has been funded by **INSTAP –Institute for Aegean Prehistory**. Despite financial problems in Greece and to my great surprise, this US based foundation was able to fund the zooarchaeology of Ulucak project once again, for the May 2012-May 2013 term with 7000 dollars. This time, I actually changed the name of the project as “**Subsistence Economy in Neolithic Western Anatolia**”, in order to add a **6th millennium cave site, Girmeler**, near Antalya, to the ongoing study of Neolithic Ulucak. In this grant, there is also a budget for Bea De Cupere to cover travel expenses from Brussels to Girmeler and accommodation costs (ca. 2000 dollars).

Unfortunately, however, the excavator of the site, Dr. Ralf Becks from Burdur University (formerly of the Deutsches Archaeologisches Institut in İstanbul), has recently announced that he will no longer be able to excavate Girmeler due to unresolved disputes with colleagues working in the region. This situation is sad to say the least. We are considering to allocate our funds to a very early Neolithic site in Bulgaria (Dzhulynitsa) or to **Yenikapi in İstanbul**. Both sites are very important. We have become interested in Dzhulynitsa through a close colleague, an archaeobotanist working with us, Dr. Elena Marinova. In one way or the other, we should be able to use this fund to continue and intensify our collaboration.

I am also very happy that I was able to get a ‘seed grant’ to start up an entirely different project in collaboration with Wim Van Neer and his team at RBINS. This is a **Mia J. Tegner Memorial Research Grant Program in Marine Environmental History and Historical Marine Ecology**. The organizer, Marine Conservation Institute, has awarded \$ 9480 to the Royal Belgian Institute of Natural Sciences to support the research project on “Confronting the ‘myth of the bitter sea’: Pre-historic exploitation of the Eastern Mediterranean seascape.” The grant will be used to produce high-resolution catch composition and size range data from a unique fish bone assemblage from a systematically excavated multi-layered settlement mound on the northernmost corner of the Eastern Mediterranean that served as a harbour for over four millennia between 5000 and 700 BP. The failure of any other archaeological excavation in the Eastern Mediterranean (EM) to produce such rich assemblages and the lack of a government-induced plan to store the one in question increase the significance and urgency of the project. Species composition and size data from fish remains

obtained through sediment sieving on 1mm mesh will form a high-quality analytical foundation to assess four millennia of fisheries at this spot of the EM. Results will constitute a reproducible baseline for future conservation research in the EM. The three other collaborators of this project are:

Wim van Neer, PhD (Professor in archaeobiology, curator of osteological fish collections. *Royal Belgian Institute of Natural Sciences, Section of Anthropology and Prehistory, Brussels, Belgium*)

Marie-Henriette Gates, PhD (*Associate professor in archaeology of the Near East, Bilkent University, Department of Archaeology, Ankara, Turkey*)

Nazli Demirel, PhD (*Lecturer/research assistant in fisheries biology, Istanbul University, Institute of Marine Sciences and Management, Istanbul, Turkey*)

With this project, we are solidifying the scholarly collaboration between RBINS and two more institutions in Turkey.

More information on this project can be found on the RBINS website. <http://www.natuurwetenschappen.be/active/sciencenews/cakirlar>

and

<http://www.sciencesnaturelles.be/active/sciencenews/cakirlar/index.html>

Other activities:

My other activities at the RBINS included, as I mentioned earlier, building on earlier projects. In the framework of the study of the subsistence economy at a coastal Bronze Age settlement in Lebanon, I have been analyzing the fish bones at Wim Van Neer's lab since 2008. This academic year, I was helped by an interested student from Leuven University, Michiel Vanhecke, to develop the study of marine mollusks from this site. This led to Michiel's MA thesis and his internship:

- Co-promotor (10.2011-06-2012), MA thesis, Leuven University, Archaeology.

Promotor: Wim Van Neer, Examiner: Joachim Bretschneider

A Taphonomic Study of the Molluscan Assemblage of the Early Bronze Age Site of Tell Fadous (Lebanon)

- Supervisor, internship (26-30.03.2012), Michiel Vanhecke, A morphometric study of *Patella* spp. from 3rd millennium BC and present-day Lebanon

I also worked on building collaborations with colleagues based in Belgium, in Turkey, and elsewhere to be able to study more sites related to our research.

- Collaboration with Dr. Amelie Scheu and Prof. Joachim Burger (who came to visit us at the RBINS on 20.02.2012); the identification of sheep, goat, cattle and pig remains from Barçın

Höyük, Aktopraklık, Yeşilova and Dzhulyunitsa (all early Neolithic sites across west Turkey and Bulgaria) for **aDNA study at the Mainz University Palaeogenetics Lab**.

- Collaboration with **Dr. Naomi Sykes and Dr. Richard Magdwick, Nottingham University**, Dama International Project, to sample fallow deer remains from Neolithic sites in western Turkey.

Extra-curricular activities

I took Vlaamse cursus, levels 1.1, 1.2, 2.1.

A few words about possibilities to enhance the BELSPO program

I had few difficulties adjusting to my new work environment at the RBINS (partially because I've done short research visits to the institute in 2008 and in 2009) and to Brussels (again for the same reason). However, I have noticed that the following enhancements to the BELSPO program would be very useful for future postdocs.

1. A program **booklet** explaining issues about moving to Belgium. For the new comer, especially from non-European countries, issues ranging from finding an apartment to health insurance (arguably the most important issue of all) may be very difficult to grasp at once, considering the amount of work pressure postdocs tend to have from the moment they arrive at their new work place. This could be e-mailed to the candidates upon invitation as postdocs.
2. It is great that the **moving costs** are covered, however it would be useful to receive this sum immediately upon arrival. Some postdocs (even if they have 5 years of prior experience) may not have large sums ready for moving for up to 18 months, and since the first salary is not deposited until the end of the first month (naturally), I can guess that receiving the moving cost allowance would be a great relief to many postdocs.
3. Museum employers are granted a **toeristische attraktiekaart** (Passport). Providing the postdocs with this card would greatly help postdocs integrate into Belgian ways and culture.
4. One or two socials (drinks at a federal scientific institute, activity day etc.) with other BELSPO postdocs, perhaps supervisors and the administrators would not only lead to informal exchanges about how the program could be enriched and made more attractive, but could also provide an environment to start interesting interdisciplinary research.

Canan Cakirlar canancakirlar@yahoo.com

Brussels, 29th June 2012