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Final Report for Training Activities

General guidelines:

1. Please complete this report in English.
2. This report should be as accurate as possible. You may include additional information, reports, publications, brochures or photos as annexes.
3. The report must be signed by the trainee and BANUU supervisor at the Host University.
4. The BANUU supervisor at the Host University will send the report to the BANUU Coordination Team of the University of Bologna

Title of the training: Archaeometry: A Fun Way of Practicing Archaeology

Period of training: From October 8 to October 11, 2023

Trainee's name: Dr. Ali Emre Kurucayirli

Home University: Bogazici University (Istanbul, Turkey)

Host Universities: University of Baghdad, University of Kufa, University of Al Qadisiyyah, University of Mosul.

To be completed by the trainee

1. Academic activities carried out at the host universities

Please give a brief description of the academic activities performed at the host universities and the knowledge transferred through the training emphasizing the outcomes. The answer should be at least 3000 characters.

The academic activity performed at the host universities was the delivery of the lecture entitled "Archaeometry, A Fun Way of Practicing Archaeology". The aim of the lecture was to introduce students to the research field of archaeometry (also known as archaeological science), which is defined as the use of knowledge and methods of natural sciences (physics, chemistry, biology and earth sciences) in archaeological research. The knowledge and methods of these sciences help archaeologist to remotely detect and effectively date archaeological remains. Constituting a significant part of archaeometrical research, material characterization studies examine how materials are



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modified and manufactured into artifacts and determine the possible sources of these materials. Archaeometrical research also involves scientific examination of plant and animal remains and soil sediments to investigate ancient environments and dietary patterns. Finally, studies of human remains seek answers to such questions as the physical characteristics, living conditions, migrations, diseases and causes of death.

The lecture is delivered in English. At the University of Kufa, University of Al Qadisiyyah and University of Mousul, Arabic translation accompanied the English presentation. This is considered a necessity by our colleagues at these universities, as part of the audience may not be acquainted with English language. However, this was not deemed necessary at the University of Baghdad. Without translation, the lecture was about one hour and fifteen minutes long, while a fifteen to thirty-minute extension became necessary with Arabic translation. Each presentation is followed by a session for questions from the audience.

The lecture began with a general introduction to the definition and scope of archaeometry and progressed with a brief summary of its historical development from the first archaeometrical studies at the end of the 18th century until recent developments. Subsequent to this, the introduction to the research directions and various methods of archaeometry is delivered with discussions of examples. The part of the lecture about the remote detection of archaeological finds focused primarily on the three most common geophysical methods: Ground Penetrating Radar (GPR), Archaeomagnetism and Electric Resistivity. The section on the scientific dating methods focused on Radiocarbon (C-14) and Dendrochronology (Tree-Ring-Dating), while some other methods are also briefly introduced. The discussion of the methods of material characterization first introduced the instruments most commonly employed in recent studies: Portable X-Ray Fluorescence (P-XRF) (for fast and non-destructive compositional analysis), Inductively-Coupled-Plasma-Mass Spectrometer (ICP-MS) (for high precision compositional analysis and isotope analysis), and Scanning Electron Microscope (SEM-EDX), which combines a high performance microscope with a component for compositional analysis. This section then progressed with the examples of the applications of these instruments to solve questions about ancient technology (by which manufacturing techniques and of which materials the artifacts were made), and exchange (from which sources the materials were obtained). The following section was an introduction to scientific studies of sediment core samples and food residues respectively to investigate ancient environment and diet. The final part of the lecture was a brief overview of scientific examinations performed on human remains to answer questions about dna profiles, living conditions, dietary patterns, migrations and causes of death.

2. Your stay at the host universities



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Please describe your stay and personal experience at the host universities, e.g. interaction with local staff including fellow professors and researchers. The answer should be at least 1000 characters.

I am very glad to have had the opportunity at each host university to meet fellow professors of archaeology and discuss with them the current issues in archaeology, particularly in the Middle East. At Kufa, I had chance to interact with fellow archaeologists for a longer time when they took me to an excursion to Kerbela, which was a marvelous experience. I would like to thank each of these brilliant researchers for the academic conversations, their hospitality and friendship.

I also would like to extend my thanks to the high-ranking academic personnel of the host universities. At the University of Kufa, University of Al Qadisiyyah and University of Mosul, I was kindly received by the deans of the colleges of archaeology in their own offices. At the University of Kufa, the president of the University was so kind to receive me at his office and attend the lecture. Likewise, the president of the Al Qadisiyyah and Kufa Universities were present at the lecture. Finally, I am very pleased and honored to have received a certificate of appreciation from the dean of the College of Archaeology at the university of Mosul.

Of the four host universities, only at the University of Kufa I had the opportunity to stay at the guesthouse for two nights. The guesthouse is well kept and administered with very spacious, clean and tidy suites and very kind personnel.

Students and academics asked several questions after my lecture, and there was a fruitful discussion. All of my lectures were translated by faculty of the College of Archaeology into Arabic, which helped to disseminate the goals of the topic. At the end of the lecture, the ppt was shared with all partner universities to be shared with faculty and students.

3. Sustainability and exploitation of the training results

Please describe how the results of the training will be exploited at the host universities and how the sustainability of the training will be ensured The answer should be at least 2000 characters.

Archaeometrical studies gradually intensified and started to occupy increasingly larger part of archaeological research, particularly in the last couple of decades. And this is an ongoing process as research methods and instruments continue to develop. Consequently, it is becoming increasingly more important for archaeologists,



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particularly students at undergraduate and graduate level, to possess the basic knowledge of the principles of archaeometrical methods and their practical applications. Hence, in a country like Iraq with a long history and tradition of archaeological practice and education but relatively little activity with respect to archaeometry, it becomes more important to familiarize archaeologists and future archaeologists with the subject.

In this respect, the lecture apparently reached its goal. First, at all four host universities a significant number of attendees were present, some of whom had to attend the lecture without being seated. Moreover, in the question sessions that followed the presentations numerous questions were received from the audience. These questions were predominantly received from the students and were notably intelligent and relevant to the subjects discussed in the lecture. All in all, the topic of the lecture attracted a significant number of archaeology students and the presentation kept them interested and attentive. As a consequence, it seems likely that at least some of these students may now be seriously interested in participating in research projects that involve applications of natural sciences to answer archaeological questions.

Each presentation was followed by informal conversations with the archaeologists from the host universities. During these conversations we discussed the possibilities of future collaborations. These may involve the delivery of new lectures, which may focus on various specific topics in archaeometry. Moreover, some fellow archaeologists showed their interests in learning the costs of certain instruments used in archaeometrical analysis. This indicates that the lecture invoked a serious interest in our colleagues to equip their archaeological institutions with such instruments so as to more actively participate in archaeometrical research. The acquisition of such instruments would not only broaden the scope of archaeology practiced at these institutions, but will also create opportunities for the training of students in the field of archaeometry.

I hereby certify that all of the information I have provided is complete and true.

12/10/2023

A handwritten signature in black ink, appearing to be "Zhang", written in a cursive style.

Date

Signature of the trainee

I hereby confirm and approve the report provided by the trainee.



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Date

BANUU SUPERVISOR
(signature and stamp)