The Tulul Al-Baqarat and Eduu Projects : Archaeological Research , Education and Cultural Heritage Enhancement

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INTRODUCTION

The present paper stems from the research activities carried out within the framework of EU funded project "EDUU - Educational and Cultural Heritage Enhancement for Social Cohesion in Iraq" (EuropeAid CSO-LA/2016/382-631). EDUU is an international project funded by the European Union. EDUU consists of an EU-Iraqi partnership in the area of education and cultural heritage enhancement, connecting Universities, secondary schools, and museums. This consortium operates with the aim of enhancing the pluralism of Iraqi civil society, raising awareness on the diverse and multicultural past of Iraq via developing initiatives for the promotion of the pre-Islamic cultural heritage.

Keywords : project EDUU , Cultural Heritage , excavation , Tūlūl al-Baqarat .

Since 2013, the team of the University of Turin has been involved in the archaeological investigation of the Tūlūl al-Baqarat area, located about 20 km. south of al-Kut (Fig. 1). Tūlūl al-Baqarat is a modern toponym that refers to a series of mounds of different size and chronology. The main of these (named TB1), already partially investigated by the State Board of Antiquities and Heritage in 2008-2010, revealed a rather continuous stratigraphic sequence from the third to the first millennium BC and showed significant archaeological evidences, while the other surrounding mounds seem to have been occupied for shorter periods, between the fourth millennium BC and the Islamic era.

The alluvial deposit in the region has gradually raised the level of the soil and covered the archaeological remains. Moreover, during

the last years widespread agricultural works considerably modified and partially damaged the Tūlūl al-Baqarat archaeological area.

However, it seems to be possible to state, through the surface information, that the sites of Tūlūl al-Baqarat were hypothetically part of a larger settlement system based on complex political and economic relations that are still difficult to assess. The analysis of the regional settlement patterns and of the growth and de-growth phenomena of these sites (located just 6 km to the north-east of the well-known Tell al-Wilaya site) is one of the fundamental aims of this research.

Historical and archaeological data allow us to suppose a rather systematic exploitation of the area, through a system of canals that had been connected to the Tigris river since ancient times, even in this eastern sector of the Mesopotamian flood (where a more recent settlement phenomenon is traditionally reconstructed). The identification of the settlements network and of land and water communication routes could provide crucial data in this regard.

The excavation and survey project in the Baqarat area, therefore, aims to analyse the territorial and settlement data, through the use of survey techniques such as the remote sensing, the geomorphological and paleobotanical analysis and the integration of the archaeological data with textual and philological information that are useful to reconstruct the ancient landscape.

In 2015 and 2016 preliminary surveys have been conducted (investigations and data processing are still ongoing) and excavation trenches have been opened on two of the mounds of the area, then expanded during the 2017 season of work.

The project obviously involves also Iraqi personnel: in addition to the members of the State Board of Antiquities and Heritage, archaeologists and restorers from Baghdad participate in the field researches; furthermore, it has been planned to involve soon Iraqi university students as well. Additionally the local workers, more or less specialized, are involved in the excavation activities and in the guardianship and the operations of enhancement and protection of the sites (in particular, the maintenance of structures in raw clay and mud bricks using construction techniques still common today). Another active collaboration is actualized with the Iraqi archaeological police forces that escort the Italian archaeologists and monitor the territory

against illicit diggings and unlawful expropriations of land. Their role as mediators with the local communities is in fact crucial.

PROBLEM OF THE SITE

The 2008-2010 Iraqi rescue excavations at Baqarat were undertaken to stop the spread of illicit diggings that seriously damaged all the mounds in the area. On the main tell, archaeologists unearthed a mud-brick temple rebuilt in the Neo-Babylonian period, probably on older structures, accessible by a monumental staircase.

The western and central sectors of the site were strongly damaged by illicit diggings, that mixed the archaeological material and sometimes removed the faint traces of the already heavily eroded structures. The site, in fact, suffered from strong wind and water erosion phenomena, particularly on the north and east sides of the hill.

Another problem is related to the structures that emerged through the archaeological excavations. The mud-bricks structures, now exposed to atmospheric agents, are subjected to a progressive deterioration and some walls collapses begin affecting even portions of the buildings brought to light.

Then there is a further problem related to the agricultural works. The territory of Baqarat is crossed by a dense network of irrigation canals that often cut anthropic and archaeological sediments, and levelling interventions of entire archaeological areas are also attested. Unfortunately, one of the mounds of the Baqarat's archaeological area – the so-called TB5 – was affected by such activities. This site (that measures about 400 x 250 m.) was only superficially surveyed during the 2013 expedition, proving to be an area of remarkable archaeological interest as it was probably occupied by a settlement dated to the end of the third - beginning of the second millennium BC. Unfortunately, when the Italian team returned to the site during the 2015 autumn expedition, the entire area – although it was officially stated archaeological area – had been flattened by bulldozers and tractors to obtain a new cultivable area. The micro-reliefs and the surfaces layers – as well as the archaeological traces – have been removed for a depth between 50 and 100 cm at least. In addition, small ditches to channel the waters have been excavated within this area, reaching even deeper archaeological strata.

The EDUU project, which in recent years supports the field activities, also aims to train local workers in the excavation techniques and in the protection and preservation of the archaeological structures, and to increase the awareness of the dangers that affect the Iraqi archaeological and artistic heritage. In addition, the involvement of archaeological police forces – which monitor the area during the excavation works – can contribute to prevent further illicit diggings and agricultural works that continuously erase archaeological areas. The archaeological risk level for the archaeological heritage in these rural areas is remarkably high.

HISTORICAL FRAMEWORK AND IMPORTANCE OF BAQARAT

The main aim of the project is to draw a more complete historical and geographical picture of the whole region of Baqarat. The area of Kut is still rather unknown from the archaeological point of view. In addition to the important site of Wilaya, located 6 km to the south-west of Baqarat, there are very few data concerning the settlement patterns and historical dynamics in ancient times. Although 90% of the sites in the region are dated to the late periods (between the Seleucid-Parthian and the Islamic phases), the presence of two sites such as Wilaya and Baqarat attests that the area was inhabited since the third millennium BC if not before. In fact, the Baqarat area consists of several archaeological mounds (tells: Fig. 2); the oldest one (the south-eastern, called TB7) represents an rural settlement likely to be dated between the end of the fourth millennium and the first half of the third millennium BC. This chronological frame is based on the preliminary analysis of the surface material collected through a systematic survey conducted on the tell. Furthermore, in the last seasons a rural farm has been identified during the excavations, where the archaeological materials found confirm a dating at the beginning of the third millennium BC if not before.

About 500 m to the north of this site, there is the main tell of the area called TB1. Here, the Iraqi excavations have unearthed the remains of a sacred complex characterized by a temple on a high terrace accessible via a monumental staircase. Behind this temple, to the north, another sacred sector, perhaps also composed of a high terrace or a small ziggurat, were placed. On TB1 different cultural phases are attested, dated to the Early Dynastic II-III, the Akkadian,

the Ur III and the Neo-Babylonian periods. To date, information about a second millennium settlement phase are lacking. To the south and to the west of the main tell TB1, there are two other archaeological areas, which are currently only marginally investigated; these tells should respectively belong to the third millennium chronological horizon (Early Dynastic period, TB4) and to the third-beginning of the second millennium phase (TB5).

The sanctuary brought to light by the Iraqi excavations and subsequently investigated by the Italian mission, was of great importance: the remains of its structures are monumental and the archaeological materials from TB1 reveal a very high quality and often bear the names of the main Mesopotamian sovereigns (Naram-sin, Ur-Namma, Shulgi, Amar-Suen, Shu-Suen, Nebuchadnezzar). The presence of imprints on backed bricks and royal dedications on stone objects and sculptures, indicates that the temple on TB1 played a role of great importance in the religious and political life during the third millennium and perhaps also the first millennium BC. Actually we don't yet know the ancient name of Baqarat. None of the inscriptions so far found shows the ancient toponym. However, we know that the temple was dedicated to the goddess Ninhursag; this is an important clue that will help in identifying the site.

NEW TECHNOLOGIES ON THE FIELD

During the last seasons of work on TB1, we acquired mass data with a terrestrial laser scanner FARO Focus 3D X330 to document and archive the actual state of conservation of the tell, the buildings and the excavation areas (Fig. 3).

The laser scanning method permits to measure surfaces producing accurate and precise point clouds from which it is possible to extract 2D data and drawings (plans and sections), contours, surface analysis and 3D models to represent the archaeological area.

The scans have been acquired on the Temple area, on the lower open area of the tell TB1 and around the area of the so-called ziqqurat.

Finally, a seminar on the laser scanner use and application has been held directly on the field, involving the workers, the representatives of the Iraqi State Boards of Antiquities and Heritage and the personnel of the archaeological museum in Kut.

KUT MUSEUM

One of the goals within the framework of EDUU project and the Italian archaeological activities is the fruitful cooperation with the Kut Museum. During the activities on the field the team of the University of Turin is flanked by Iraqi experts of the Museum to allow a continuous exchange between the two groups in the activities of safeguarding, preserving and enhancing the Kut region's archaeological heritage. To date, the Museum is still closed to the public, but a new opening is scheduled for the future. It is hoped that the cooperation between the Iraqi and Italian teams within the framework of EDUU project will lead to a rapid reopening of the museum to the benefit primarily of the local population and of the preservation and enhancement of their heritage.

TRAINING ACTIVITIES AT TŪLŪL AL-BAQARAT

Within the framework of the EDUU project, during the 2017 Italian expedition a group of Iraqi archeologists and university students were involved in an actual archaeological investigation on the field through training courses carried out at Tūlūl al- Baqarat under the supervision of Professor C. Lippolis (University of Turin) and of his collaborators. The courses lasted 10 days, during which the trainees took part in theoretical and practical lectures in the field of archeological methodologies. The trainings proved to be a unique social and scientific experience for the trainees: indeed they have been involved directly in the organization of an archaeological excavation; for many of them it was the first actual archaeological experience. Moreover, they had the possibility to meet foreign colleagues and Iraqi experts from different governorates, specialized in archaeology, history, sociology and engineering. This meeting gave the opportunity for exchange of ideas, competences and knowledges about the most adequate archaeological methodologies, the features of Mesopotamian architectural materials and the ancient patterns of this archaeological area. This fruitful collaboration could enlarge the future detailed studies of the Iraqi heritage.

TOPOGRAPHY

During the first days of the training courses held at Noumaniya during the 2017 expedition and destined for Iraqi university students and SBAH personnel, through the expertise of the topographer of the

Italian team, Dr. Mirko Furlanetto, we focused our attention on the topographic field and on its connection with the archaeological researches. The main methodologies and tools related to the topographic study and to the measurement of archaeological data have been introduced and explained to trainees.

During the morning lessons on the field, the topographic tools were used directly on the site; during the afternoons the collected data, which were obtained through the collaboration and the effort of the trainees, were processed and analysed through software packages, providing information about the investigated archaeological frame.

The first examined topic was the use of the total station, the main tool employed by the topographers on archaeological field.

The total station is an electronic/optical instrument used in archaeology to record excavations and to obtain precise data about the measurements, the distance and the location of archaeological finds. The tool is composed by a theodolite integrated with an electronic distance measurement. The theodolite is a precision instrument for measuring angles in the horizontal and vertical surfaces and composed of a movable telescope. All the phases related to the setting-up and the application of this tool have been shown. First of all, the trainees tested how to extend, arrange and stabilize the tripod legs, and how to mount the levelling head on the top of the tripod. The most delicate phase is centring the bubble level and turning the station several times to make adjustments in any direction. After the total station arrangement, the trainees used directly the instrument, measuring, through a preliminary triangulation and the use of a prism, the distances, the coordinates and the exactly location of the architectural structures explored on TB7, the most ancient site in Tūlūl al-Baqarat archaeological area.

The total station includes an internal electronic data storage; the recorded measurement results can be downloaded and transferred onto a personal computer where, through specific software, it is possible to collect data, check the topographical points, create a triangular terrain model, perform advanced coordinate based calculations and prepare maps. During the afternoon lessons, this procedure was explained; we suggested the use of Meridiana, a topography program that allows handling data from total stations, GPS receivers and digital levels. Through this software it is possible to collect data, plan maps,

calculate level curves and design; the results can be graphically displayed and further processed and implemented within a CAD platform that lets view and elaborates raster images. We also proposed a fundamental overview of AutoCAD; it is a computer-aided drafting software program that allow to produce two and three-dimensional drawings reproducing the archaeological context.

During the same work session, the trainees practised also using the optical level; this instrument, along with a level staff (a graduated rod), is useful to determine the relative height of architectural structures or archaeological strata.

A further in depth-analysis concerned the archaeological databases. The Italian archaeologists (supervisor Dr. Eleonora Quirico) presented to the trainees the platform used for the collection of archaeological data from the excavations at Tūlūl al Baqarat. This online database is composed of various sections related to different fields of the archaeological investigation: the stratigraphic contexts, the pottery, the burials, the small finds, the surveyed sites; through this application, all the attributes and features of archaeological indicators can be recorded and analysed inside specific forms.

Lastly, the trainees had the opportunity to learn the procedures connected to the elaboration of orthophotos. This images are orthorectified aerial photographs that are processed in order to delete potential distortions. These photos can be useful to produce a precise topographic relief of the archaeological area. The trainees participated to take archaeological pictures on the sites using a drone and a long rod. During the afternoon sessions, the software named Photometric, that is useful for the straightening of images, was introduced and examined.

EXCAVATIONS AND DOCUMENTATION OF THE ARCHAEOLOGICAL STRATA

The courses included the active participation of the trainees in the stratigraphic investigation of two sites within the area of Baqarat, Some excavation activities have been carried out on TB1 (the main tell of the area) and on TB7 (Figs. 4, 5), where the Italian archaeologists discovered a large domestic building. On TB1 the trainees opened a square sounding near the religious complex and handled the records of the archaeological stratigraphic units and finds compiling paper forms in which the main features, such as

composition, function and dating, were reported. The goal was to identify the presence of additional structures related to the temple area and to date the anthropic occupation

On TB7 the trainees collaborated with the Italian archaeologists in enlarging the excavation area with the aim to establish the limits of the building and in investigating some work installations brought to light inside several rooms. These installations could suggest the presence of some production activities held in this farm house.

SURVEYING

The trainees were also involved in activities related to the archaeological field-walking survey methodology. During two days of courses, field-walking surveys were carried out on TB7, where the Italian archaeologists opened stratigraphic soundings and discovered a domestic unit (Building A), and on Tell al-Zhubay, a tell located north of Tūlūl al Baqarat. Both mounds are characterized by the presence of abundant archaeological finds on the surface. For this reason, extensive surveys on these sites have been useful to collect data about the distribution of objects (such as pottery sherds, stone and terracotta tools, flint blades and sickles), and consequently about the settlement patterns and the chronological frame.

The trainees surveyed an area divided in two squares measuring 50 m on each side. These squares were located west of the main excavated area (Soundings 3). The trainees walked slowly along straight lines (transects) looking for artefacts or other archaeological indicators such as vegetation and soil characters, to pinpoint the presence of architectural traces. Throughout the survey, finds have been collected if intact or partially intact; if seriously fragmentary, the sherds have not been collected but their exact location on the surface, their distribution and their main features have been registered using a specific smartphone application, "Geopaparazzi". The main aim of this tool, based on a GPS system, is to give the chance to take georeferenced and orientated pictures and notes about archaeological indicators during the survey and to import them into GIS applications, using simple and intuitive functionalities. For example, the trainees used this application to mark the position of complete or fragmentary bricks, which are uniformly widespread on the surface of both tells; these finds can suggest the presence of ancient architectural

complexes.

During the afternoon sessions, the Italian archaeologists showed how all these attributes could be imported on a Geographical Information System. Specifically, the Italian team make use of QGIS, a free and open source software that supports numerous vector and raster layers and databases formats, viewing, editing and analysing geospatial data; furthermore, the software can georeference images. Through this application, all data and attributes related to the topographic activities on the archaeological sites can be gathered and analysed from the geographical, archaeological and geological point of view.

POTTERY PROCESSING AND RELATED ACTIVITIES

Nowadays, the study of ceramic materials found during surveys and excavations is of fundamental importance for our understanding of archaeological contexts. In many archaeological sites the quantity of ceramic on the surface is such that one has the impression of walking on a "sherds carpet" and pottery is always, or almost, the most common material found during an excavation. In the frame of the EDUU project the Turin's team and the Iraqi trainees worked together side by side during the surface surveys at Tell al-Zhubay and TB7 as well as during the excavation of the Building A on TB7 where we have collected hundreds of sherds. But why we look at the pottery and which is the potential of its study? During the training activities we look at the pottery both in the field and back to the camp during the afternoon sessions to understand the potential of the pottery as archaeological evidence, that is dating evidence, distribution and function evidences. We started to look at the archaeological use of the pottery from the theoretical point of view to the practical application on what we have seen on the field. In the afternoon sections of the traineeship we went through the main reference bibliography for ceramics studies and defined a correct path to the pottery processing and recording. Our main effort was devoted to the initial recording and drawing of the pottery found during the archaeological activities in the Baqarat's area. During the afternoons, the trainees together with the Turin's team (supervisor Dr. Jacopo Bruno) have catalogued and drawn in pencil on paper numerous sherds found in soundings on TB1 and TB7. The main tools for the technical design of ceramics were

shown to the trainees and their use was explained (Fig. 6). These are: rim charts used to determine and mark the diameter of the vessel; callipers to measure the thickness of the vessel; profile gauges to draw the profile of the vessel. Once drawn on paper, it was shown to trainees how, starting from the scanning of drawings, it is possible using software such as Adobe Illustrator – or others vector graphics editors – to have the digital version of the drawing to be stored on computers and to be used in publications.

REFERENCES

ADAMS, R. McC.
1981, *Heartland of cities*, Chicago.

ASI
1970, *Archaeological Sites in Iraq,* Ministry of Information - Directorate General of Antiquities (eds.), Baghdad.

HOURS F., AURENCHE O., CAUVIN J., CAUVIN M.-C., COPELAND L., SANLAVILLE P., LOMBARD P.
1994, *Atlas du sites du Proche Orient (ASPRO)*, vol. I, (Travaux de la Maison de l'Orient Méditerranéen, 24), Lyon-Paris.

HRITZ, C.
2010, Tracing Settlement Patterns and Channel Systems in Southern Mesopotamia Using Remote Sensing, *Journal of Field Archaeology* 35/2, 184-203.

HUSSEIN, S. Y., ALTAWEEL, M., REJEB,Z.
2009, Report on excavations at Tell al-Wilaya, Iraq. Information on the 1999 and 2000 seasons. *Akkadica* 130/1, pp. 3-42.

HUSSEIN, S. Y., ALTAWEEL, M., REJEB, Z.,
2009, Report on Excavations at Tell al-Wilaya, Iraq. Further Information on the 1999 and 2000 Seasons, *Akkadica* 130/2, p.113-166.

LIPPOLIS C., DI MICHELE A., QUIRICO E.
2016, Preliminary report of the Italian Expedition at Tulul al Baqarat - 1st season 2013, *Sumer* LXII, 37-47.

LIPPOLIS C. (ed.)
2017, Preliminary report of the Italian Archaeological Expedition at Tulul al Baqarat. Seasons 2013-2016, *Mesopotamia* LI, 67-145.

RUMAIYDH, S. S.
2015, Excavations at Tell Wilaya, *Zeitschrift für Orient-Archäologie*, Band 8, 62-89.

STEINKELLER, P.
2001, New Light on the Hydrology and Topography of Southern Babylonia in the Third Millennium, *Zeitschrift für Assyriologie* 91, 22-84.

Captions

Fig. 1 - Southern Mesopotamia (3rd millennium main sites distribution).
Fig. 2 - Mounds at Tūlūl al-Baqarat (from Google Earth).
Fig. 3 - TB1, laser scanner rendering (by Cristina Bonfanti).
Fig. 4 - TB7, Sounding 3, Building A (2016).
Fig. 5 - Iraqi trainees during the excavations on TB7, Sounding 3.
Fig. 6 - Iraqi trainees during pottery drawing activities.

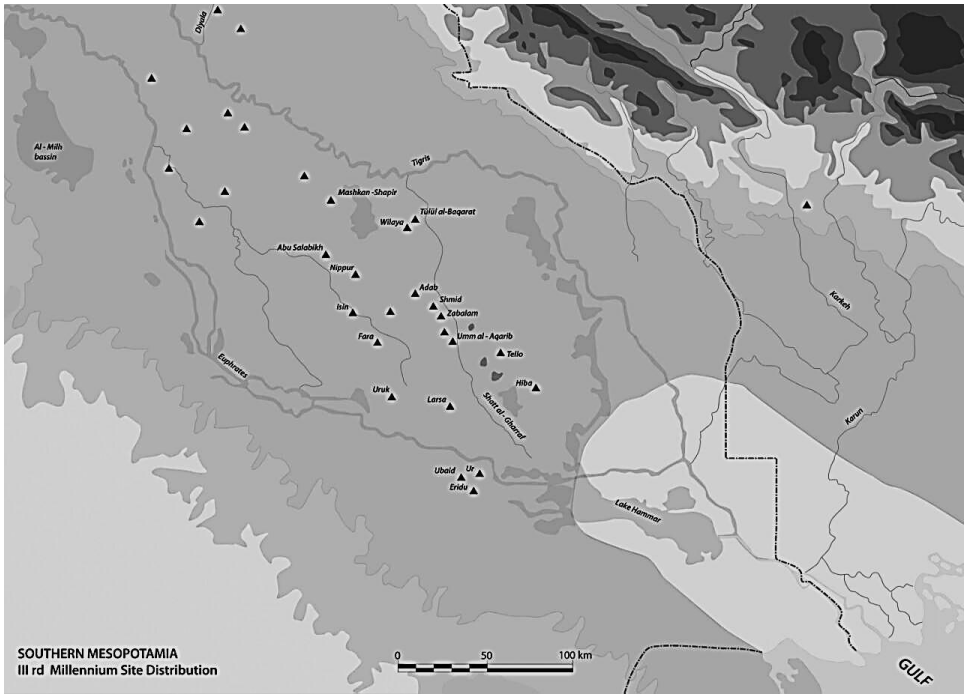

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

مشروع تلول البقرات ومشروع أيدو
تعزيز البحوث الأثارية والتربية والتراث الثقافي

المقدمة :

يعنى هذا البحث بالأنشطة البحثية التي تتم في إطار مشروع ممول من الاتحاد الأوروبي المسمى "EDUU" تعزيز التراث الثقافي والتربوي من أجل التماسك الاجتماعي في العراق ، علماً إن هذا المشروع EDUU هو مشروع دولي يموله الاتحاد الأوروبي .يتكون EDUU من الشراكة بين الاتحاد الأوروبي والعراق في مجال التعليم وتعزيز التراث الثقافي ، من أجل ربط الجامعات والمدارس الثانوية والمتاحف مع نظائرها . يعمل هذا المشروع على هدف تعزيز التعددية في المجتمع المدني العراقي ، وزيادة الوعي حول ماضي العراق المتنوع والمتعدد الثقافات من خلال تطوير مبادرات لتعزيز التراث الثقافي ما قبل الاسلام .

الكلمات المفتاحية : مشروع الاتحاد الاوربي ، التراث الثقافي ، التنقيبات ، تلول البقرات .