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THE IRAQI-ITALIAN ARCHAEOLOGICAL MISSION
AT THE SEVEN MOUNDS OF ERIDU (*AMER*)

[nam]-lugal an-ta è₁₁²-dè-a-ba³
[eri]da^{ki} nam-lugal-la⁴

When kingship was lowered from heaven,
the kingship was in Eridu(g).

(JACOBSEN 1939, pp. 70-71)

1. THE ARCHAEOLOGICAL MISSION AT ERIDU (*AMER*)

Eridu is situated about 12 km south-south-west of Ur and it includes seven mounds, a composed settlement morphology that indicates dynamic mobility in different periods over 25 km² ca. Mound 1 (Abu Shahrein) is almost 580 x 540 m mound extending from north-west to south-east and arising at the top of its ziggurat 25 m. It contains the Enki Temple sequence and the remains of a ziggurat of the Ur III period. Mound 2 (Northern Mound) is 1 km north from Abu Shahrein, it is almost round shape, 350 x 350 m, with a height of 4.30 m. It belongs to the Middle Uruk period but it continued to be inhabited to the end of the Early Dynastic period. Mound 3 is a small, oval mound occupying 300 x 150 m and rising to a height of 2.4 m, situated 2.2 km south of Abu Shahrein, where pottery of Isin and Larsa period has been recovered in the upper trench. Mound 4 is an oval shape mound measuring 600 x 300 m, orientated north-west to south-west and situated at 2.5 Kms to south-west of Abu Shahrein, where pottery of Kassite period has been observed in the five test trenches. Mound 5 is an oval mound of 500 x 300 m, with two summits at a height of 3 m above the plain; the trenches fixed the date of the settlement to Neo-Babylonian and Achaemenid periods. Mound 6 is 300 x 200 m and 2 m height and it was not tested, although it is spatially related to the south edge of the watercourse opposite to Mound 3. Mound 7 is a 400 x 200 m Tell, rising to a height of 1.30 m and it is crossed by a track made after the Second World War. The flat patch of land with sherds of Eridu phase (Hajj Mohammed and later Ubaid), situated in a shallow depression 8 km northwest of Abu Shahrein, is called the Usalla (*Fig. 1a-b*).

This synthetic description deduced from the first pages of the final and unique report of the last archaeological campaigns held in Eridu sixty-five years ago (1946-1949) and published

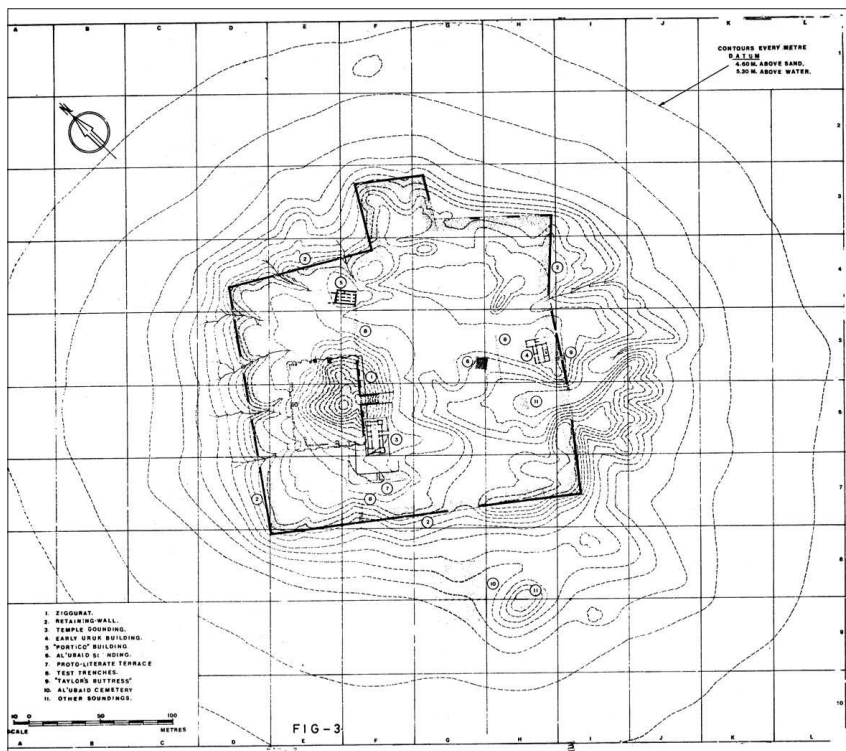
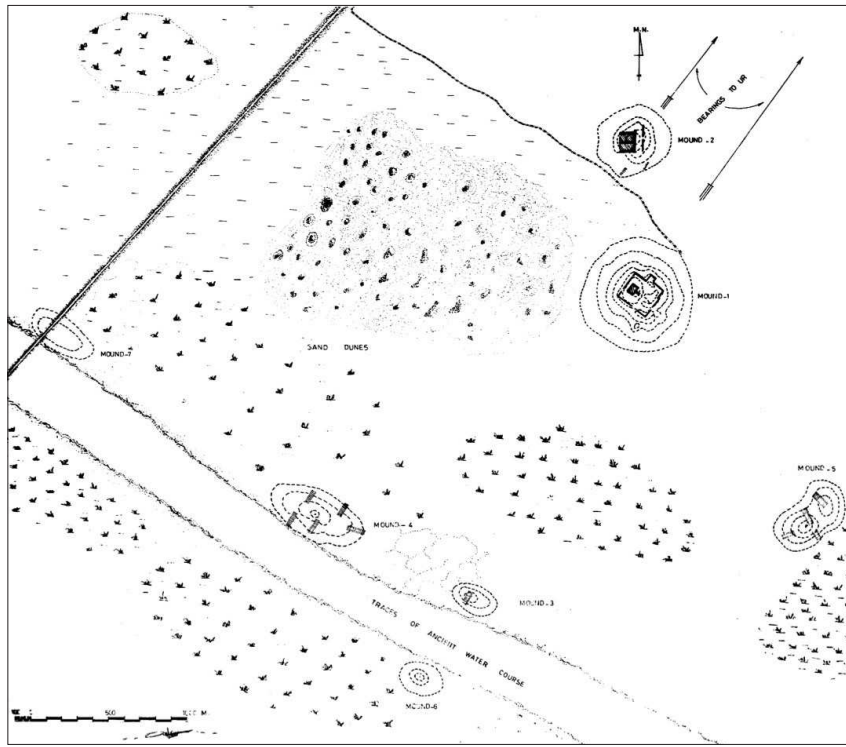


Fig. 1a-b – The topographic assessment of the archaeological landscape of the Seven Mounds of Eridu and b) the topographic map of Mound 1/Abu Shahrein, with the major buildings revealed (SAFAR *et al.* 1981).

in 1981 by Safar, Mustafa and Lloyd, simply describes the unbelievable extension and extraordinary complexity of what can be considered one of the most important archaeological sites of the ancient World. In August 2014, the institutional permit for the archaeological excavation of Eridu, in the Thi Qar region of southern Iraq has been signed by Franco D'Agostino, my colleague and assyriologist at La Sapienza University of Rome, and myself. It is a turning point in the history of cultural and political relations between Italy and Iraq, which in the past had never ventured with interdisciplinary research teams in the Land of Sumer, and even more in this site of exceptional relevance. For this reason, the official concession for the excavations of Eridu is also a great scientific honour attributed to the Department of Ancient World Studies and to the Department of Oriental Studies of La Sapienza University of Rome. Eridu is both an inestimable patrimony of humankind, and one of the most fascinating challenges of the contemporary Near East archaeological research. We believe in this project as an international research perspective for the future generations of students and scholars, and of course as an unexpected chance to support a new model of cooperation between Iraq and Italy, rooted inside the scientific patrimony of the Italian orientalist studies¹.

The present paper is a first attempt to resume briefly the historical-cultural role played by the Seven Mounds of Eridu at the crossroad between Near East prehistory and history, in the historiography of the Near East pioneering archaeological research, and as a crucial context for the diachronic and synchronic analysis of the Mesopotamian urbanism. At the same time, it is also the precious occasion for us to prepare the project plan of the Iraqi-Italian Archaeological Mission at Eridu (*AMEr*) for the next five years, a project plan discussed, verified and approved by the Iraqi Minister of Tourism and Archaeology, by the Iraqi State Board of Antiquities and Heritage and by the General Direction of the Excavation at Baghdad².

¹ In addition to the decades-long relationship of esteem and cooperation between Italian scholars and Iraqi colleagues, the procedure for obtaining the permission for Eridu excavations was supported by the Iraqi Ambassador at the Holy See, HE Dr. Habib Al-Sadr, by the Iraqi Ambassador in Italy, HE Dr. Saywan Barzani, and by the Italian Ambassador in Baghdad, HE Dr. Massimo Marotti, who firmly believed in the project proposal since its early stages. At the beginning of 2014 the procedure was started by the Iraqi Government, with the aim of preparing the Marshes and the three sites of Ur (Tell Muqayyar), Uruk (Warka) and Eridu for their entrance in the list of the sites protected by UNESCO and considered "Patrimony of Humankind". Therefore, the Iraqi-Italian Archaeological Mission at Eridu (*AMEr*) has the task of preparing the site according to the UNESCO standards. This plan will follow the technical indications already used by the Italian Ministry Team working in Ur (Tell Muqayyar) both for the maintenance of the main structure and for the valorisation of the site in its hinterland. At the same time, while

the archaeological survey of the Eridu hinterland will be realized and analyzed, archaeological excavations will start in different sectors. The first survey that we conducted in October 2014, with Dr. Alessia Savelli (archaeologist), Dr. Renzo Carlucci (topographer), Dr. Salvatore Monaco and Dr. Vesna Davidovic (epigraphists), confirmed the importance and the complexity of the integrate work that lies ahead, and on the base of the first field study, discussed with HE Dr. Liwaa Sumaisem, Minister of Tourism and Archaeology, and with Dr. Ahmed Kamil, General Director of the Excavations in Iraq. We present here the first general prospect of the scientific activities, which the Iraqi-Italian researchers aim to do in the legendary holy place of Eridu, at the heart of the Sumerian world, during the next five years.

² Franco D'Agostino and I have written the last paragraph of this contribution, since it will present and describe the *AMEr* project plan discussed and approved by the Iraqi State Board of Antiquities & Heritage (SBAH) for the next five years of the co-signed excavation concession.

2. ERIDU BETWEEN MESOPOTAMIAN PREHISTORY AND HISTORY

The extraordinary archaeological relevance of Eridu, in the Land of Sumer³, as guideline for the Mesopotamian prehistory, was summarized by the fundamental study of Joan Oates (1960). Here, the scholar suggested that the pottery uncovered in the earliest *strata* at Abu Shahrein and called by its excavators “Eridu” and “Hajji Muhammad” pottery, were properly to be considered part of the same cultural complex, and she suggested naming these Ubaid 1 and 2⁴. This interpretation was delivered in the last moment of the so-called *Sumerian Problem*, when Near East Archaeology, History and Assyriology were debating on how to categorize the Sumerian anthropological, aesthetic and linguistic identity and how to locate the exact point of entry onto the historical stage of Sumerians, also through the analysis of their material culture⁵. Oates’ aim was to emphasize that the Eridu sequence did not need the influx of new peoples at the end of the Hajji Muhammad phase to explain the emergence of what we would now call the later Ubaid 3 and 4 material. His conclusion, which manifestly still holds, supports the indelible inner roots of the Mesopotamian civilization (*Fig. 2a-b*)⁶.

³ The term Šumeru, which cannot be derived from any known Sumerian word nor by any Babylonian toponym, seems attested for the first time as a designated Sum-ar-rúm^{ki} with Subur^{ki} and Dilmun^{ki} in literary texts from Ebla ARET 5, 7, xii. See STEINKELLER 1993, p. 112, note 8.

⁴ “[...] my choice of a “numerical” classification was made at a time when (1) archaeologists tended to associate innovations in material culture with new people, often proposed as migrations; (2) the prehistory of Sumer was still plagued by the long-held belief, first challenged by Lees and Falcon (1952), that Eridu and Ur were situated on the shores of a receding Gulf, that is, that there could be no earlier prehistory in Sumer; and (3) there was an underlying assumption that all painted pottery originated in Iran. Thus the migration of new people into Sumer provided the obvious model, especially in considering the origins of the Sumerians themselves, the focus of my initial interest”. OATES 2010, p. 46.

⁵ The transition from the Ubaid period to the Uruk period, the period of the birth of the first cities in southern Mesopotamia, produced the still open debate, known in modern and contemporary historiography as the *Sumerian Question*, in which different interpretative theories, mainly aesthetic, anthropological and linguistic, were confronted on the theme of the origin of Sumerian (LANGDON 1920, pp. 145-154; FRANKFORT 1932, pp. 16-20; COOPER 1991, pp. 47-66; BAHRANI 2006, pp. 48-59). In particular, a strong support to a presumed ethnic-racial unity of the Sumerians was given by those physical anthropology studies that aimed at connecting cultural identity with anthropometric

similarity. In this perspective, the prevailing evidence of Mediterranean dolichocephalous skulls in Tell el-Obeid, in the Land of Sumer, was considered as a reliable sign of that identity just because, instead, further north, in Kish, 12 km east of Babylon, other skeletal remains would have indicated the existence of brachycephalic skulls (generally referred to more advanced groups) in the oldest levels. The transfer of these physical anthropology differences into the identification of the ethnic-racial differences occurred, however, shortly after, when Langdon explained these anthropometric differences between North and South with the hypothesis of a fast Semitic Mesopotamian occupation (LANGDON 1930, p. 609). This old thesis was decidedly scaled by Scottish anatomist Sir Arthur Keith, who had worked with Woolley in Ur first, and subsequently in Kurdistan with the Oriental Institute of Chicago, who recognized the ancient Mesopotamia as a land inhabited by different races, the result of an intermediate stage of evolutionary development between two extreme human types (DI PAOLO 2013, pp. 117-131). On the linguistic level, instead, it is sufficient to recall the so-called anti-Sumerian position of Joseph Halévy, appeared in 1874 in the *Journal Asiatique*, which aimed to demonstrate the Mesopotamian civilization as a Semitic creation, to combat the existence of a Sumerian language perceived as a threat to Babylon Jewish Patriarchs, and to develop a theory that Sumerian was a primitive way to write the Akkadian language of Semites. COOPER 1991, pp. 47-66; ID. 1993, pp. 169-205.

⁶ According to Oates reconstruction, the Eridu Ubaid pottery can be divided into four phases: levels

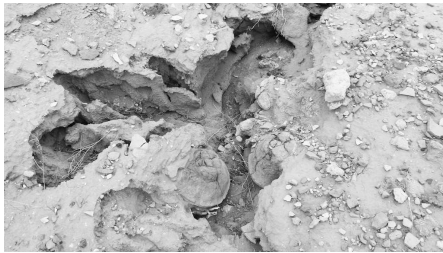


Fig. 2a – Mound 1/Abu Shahrain from East (© AMEr); b), Bevelled Rim Bowls in a earth fracture of the Mound 1 southern slope, quadrant H4 (© AMEr).

However, in the Mesopotamian historical period, and despite being the location of the very first Mesopotamian kingship, the relevance of Eridu was always more religious than political. Eridu, (sum. NUN^{ki} / ERIDU^{ki}; akk. *irîtu*) also transliterated as Eridug (probably the guidance place)⁷, was placed near an important Euphrates canal / branch like many other southern Mesopotamian *Tell*⁸. In Sumerian mythopoeic thought, Eridu was reputedly founded by Enki/Ea who warned Zuisudra, the Sumerian Noah, about the flood of Eridu. The urban nucleus of Eridu was Enki/Ea's temple, called House of the Aquifer (Sumerian: E₂-abzu; Akkadian: *Bitu Apsû*), as Enki/Ea was believed to live in the primeval ocean Abzu/Apsû⁹,

XIX-XV = Eridu Ubaid 1; XIV-XII = Hajji Muhammad - Ubaid 2; XII - VIII = Ubaid 3; and VII - VI = Ubaid 4. OATES 1960, pp. 32-50. As Ubaid Phase 0 (6500 - 4900 BC) has been called a southern ceramic complex recognized in the trenches Y27 and X36 at 'Oueili *niveaux 0* (CALVET 1983, pp. 15-69; CALVET 1987, pp. 465-472; GEYER - SANLAVILLE 1996), but poorly distinguishable from that of the two subsequent *facies* (COURTOIS - VELDE 1984, pp. 153-162) and not comparable with the related assemblages of Gawra XX-XVII (PORADA 1965, pp. 142-143). For the synchronization problem posed by the Hajji Mohammed sequence see CRAWFORD 2010, pp. 163-168. For the last sequence of the Ubaid period, the assumption of Finkbeiner must be considered: with a typological analysis of the Late Ubaid pottery in XVI-XIII layers of Warka, he intended to recognize an intermediate *facies* between Ubaid 4 and Early Uruk, which he proposed to classify as Ubaid 5 (FINKBEINER 2001, pp. 151-162).

⁷ "The logogram NUN means "prince", "princely", "lofty". In the archaic period it could be used as a substitute name of a local deity, as a title of a digni-

tary, or as a designation of an institution connected with one of them. NUN could also indicate the name of the city Eridu(g), although written without the second designation KI, as in later times". SZARZYŃSKA 1996, p. 9.

⁸ Following Jacobsen, the wide canal identified by Fuad Safar and Mohammed Ali Mustafa (SAFAR 1950, p. 28), which in the second and presumably in the 3rd millennium BC traversed the plain of Eridu, can hardly be other than the Id - edin - Eriduga (nun)^{ki}, the canal of the Eridug plain, later called the *Susuka*. It must have been on this canal that Inanna travelled back to Uruk with the many and varied divine offices that she had obtained from Enki in Eridu, as told in the Myth of Inanna's Journey to Eridu. This myth is almost certainly the *hieros-logos* of a cult festival, an actual ritual journey of the divine barge from Uruk to Eridu and back with stops at the places indicated. JACOBSEN 1960, pp. 174-185.

⁹ Apsû is translated as the Primeval Ocean (GREEN 1978, pp. 127-167; SJÖBERG 1994, p. 202; HOROWITZ 1998, p. 335) on which the earthly order rests as a celestial order (RAMAZZOTTI 2009a, pp. 54-59; RAMAZZOTTI

an aquifer from which all life was believed to stem, which in later history was called House of the Waters (Sumerian: E₂-engur; Akkadian: *Bītu Engurru*)¹⁰, one of the most ancient and sacred place in the Land of Sumer¹¹. In Sumerian literature, Eridu is claimed to be the First City to hold kingship¹² and later on, Eridu is both the city whose name became interchangeable with Babylon¹³ and the holy city in which Hammurabi king of Babylon was crowned¹⁴. These correlations are not accidental and could be related to the myth known as the *Eridu Genesis*, in which Eridu and Babylon refer to the same primeval city¹⁵. The holy place of Eridu was also deeply related to Inanna¹⁶ and Adapa¹⁷ religious semiospheres, but for the Near East mythopoeic thought Eridu was, first of all, the sacred place of Enki/Ea, the primeval god of

2013a, pp. 13-30), although the etymology of the word is still largely uncertain (LAMBERT 1997, pp. 75-77).

¹⁰ "After the water of creation had been decreed, After the name hegal (abundance), born in heaven, Like plant and herb had clothed the land, The lord of the abyss, the king Enki, Enki, the lord who decrees the fates, Built his house of silver and lapis lazuli; Its silver and lapis lazuli, like sparkling light, The father fashioned fittingly in the abyss". KRAMER 1988, p. 63.

¹¹ During the Ur III period, a ziggurat was built over the remains of previous temples by Ur-Namma and restored by AmarSin with many singular inscribed mud-bricks (MONACO in press). It is interesting also that "the temple of Enki of Ur, the water-god of Eridu, lies partly on and partly behind the city rampart at the SE end of the town, a point from which the ruins of the Ziggurat of Eridu can still be seen, 12 miles away across the plain; it was set up in the ninth year of the king's reign, which was called the year in which he built the temple of Enki at Ur". WOOLLEY - MALLOWAN 1976, p. 9.

¹² GREEN 1975, pp. 180-182; HALLO 1996, pp. 231-234. Moreover, in the Sumerian King List, the holy city of Eridu was the first city, since the opening line reads: "When kingship from heaven was lowered, the kingship was in Eridu". The List gave particularly long rules to the kings who ruled before the great flood occurred, and it shows how the centre of power progressively moved from the south to the north of the country. Eridu is named as the city of the first kings and the Sumerian King List records: "In Eridu, Alulim became king; he ruled for 28800 years. Alalngar ruled for 36000 years. 2 kings; they ruled for 64800 years. Then Eridu fell and the kingship was taken to Bad-Tibira". WILCKE 1989, pp. 557-571; ZETTLER 1998, pp. 15-18.

¹³ Eridu was the name of the religious quarter of Babylon (GEORGE 1992, pp. 251-253). Other texts mention Eridu while they are supposed to be meaning Babylon (ZADOK 1985, p. 52). The lex-

cal list Erimhush (V 26) and the topographical list TIN.TIR_{ki} (I 21 and V 90-91) show that Eridu was a name for Babylon; in the Neo-Babylonian period the king of Babylon occasionally called himself Lugal NUN, meaning king of Eridu (in Babylon). An Achaemenid reference to a governor of Babylon as LÚ *paba* (t) NUN_{ki}, literally "governor of Eridu", in the reign of Darius, shows that the tradition survived beyond lexical texts and scholarly circles, as an administrative term in use during the Persian period. DALLEY 2008, pp. 25-33.

¹⁴ VAN DIJK 1966, pp. 57-74.

¹⁵ CIVIL 1969, pp. 138-145.

¹⁶ Since the main attributions of her religious sphere are: NUN "prince", HÚD "morning", SIG "evening" and KUR "mountain". Westenholz observed that the earliest epithet, NUN, might be related to NUN, the sign with which the god Enki and the city Eridu were written. Thus, instead of Inanna "the princely", Inanna-NUN could be interpreted as Inanna of the city of Eridu. Such an interpretation would give some support to the genealogy of Inanna as daughter of the god Enki, or to an early diffusion of the worship of Inanna and her establishment outside Uruk. It may also relate to her stealing the me-principles from her father Enki. WESTENHOLZ 2001, pp. 333-334.

¹⁷ When the gods created humanity, Enki sent seven sages to teach humanity. The first of these wise men (*apkallu*) was Adapa. For the strong relations between Adapa and Eridu, and for the epistemic interpretation of the myth see: JACOBSEN 1976, pp. 110-121; DALLEY 1998, pp. 182-188; SASSON 2008, pp. 1-8. The distinction between and takes on a symbolic relevance in the Adapa Myth where, refusing the offer of his father, Enki / Ea, to drink the water of life, he flees immortality. For the semiotic convergence between the Babylonian Adapa Myth and the biblical story of Adam and Eve see LIVERANI 1992, pp. 293-319.

the humankind creation¹⁸ and his destinies (ME)¹⁹, the infinitely precious concepts to how the Mesopotamians viewed their Humanity²⁰.

3. ERIDU AT THE BEGINNING OF THE MESOPOTAMIAN PIONEERING ARCHAEOLOGICAL RESEARCH

The site at Tell Abu Shahrain, was initially excavated by John George Taylor, East India Company's Agent and British Vice-Consul at Basra²¹, for two weeks in 1855, following the request of Sir. Henri Rawlinson, the undisputed father of the Assyriology, crown director of the East India Company and then president of the Royal Geographical Society²². His first report in the *Journal of the Royal Asiatic Society* (1855), in which he appears under the incorrect initials J.E., shows evidence of a "certain sense of disappointment, in that his expectations of finding spectacular antiquities such as had recently come to light in Assyria, had not been realized"²³. After Taylor's pioneer and colonial exploration, Tell Abu Shahrein, the Mound 1 of Eridu, seems to have been abandoned for sixty-four years, a long period animated by some European biblical researches considering this specific site as the place of the Eden Garden²⁴.

¹⁸ The clay from the Primeval Ocean is plastic and allows to shape the humankind. In this specific sense, we understand the Enki's epithet Nu.dím. mud (image fashioner, god of shaping). See JACOBSEN 1976, p. 111; CAVIGNEAUX - KREBERNIK 1998-2001, p. 607. The fertility brought to the land is echoed in Enki's association with semen and amniotic fluid, and he played a leading role in creation myths, shaping humanity out of clay, filling the empty world when the cosmos was formed, and impregnating not only Ninhursaga but also her daughter, granddaughter, and great-granddaughter. COOPER 1989, pp. 87-89; DICKSON 2007, pp. 1-32.

¹⁹ In the Sumerian myth *Inanna and Enki*, the goddess Inanna travelled to Eridu where Enki was keeping the ME to himself and was lavishly entertained by him. When Enki became inebriated, Inanna succeeded in stealing the ME and taking them to her own city of Uruk, bringing civilization to it and to the world. At first Enki attempted to retrieve these sources of his power, but later willingly accepted that Uruk now was the centre of the land. The myth concerns the transfer of the arts of civilisation from Enki's cult city of Eridu to Inanna's city, Uruk. CASTELLINO 1959, pp. 25-32; FARBER-FLÜGGE 1973; FARBER-FLÜGGE 1995; KRAMER 1989, pp. 38-56. In one legend, the *Tablet of Destinies*, a symbol of supreme divine authority, was stolen from Enki by Imdugud (Anzu), a vast lion-headed bird that raised sandstorms, whirlwinds, and other violent weather with the beating of its wings. After a devastating battle, Imdugud was slain

by Ningirsu (Ninurta), whose symbol it became, and the *Tablet of Destinies* and its powers were restored to Enki. In the Akkadian version of this story, the *Tablet of Destinies* was stolen from Enlil, but Ea (Enki) worked out how Anzu could be defeated. Principal among the divine powers held by Enki were the ME (Akkadian *parsu*), which embraced everything related to civilized existence. JACOBSEN 1976, p. 74.

²⁰ "Latin *humanitas* may fairly be described as a kind of calque or loan translation of Sumerian nam-lú-ulu₆, an abstract noun formed from the Sumerian word for "man, human being" (lú) perhaps via its Akkadian loan translation *amelutu*. Like the Latin abstract, the Mesopotamian terms have a double meaning, referring both to "humanity" in the sense of humankind in the aggregate, and to "humanity, humanism," in the sense of that special quality of breeding and deportment that distinguishes the educated person from the masses". HALLO 2010, p. 129.

²¹ SOLLBERGER 1972, pp. 129-139.

²² LESLEY 2003; FERRIER - DALLEY 2004.

²³ LLOYD 1974, p. 130.

²⁴ "In 1881, the German archaeologist, DELITZSCH [1881], quoting a Menant French publication of 1875 [MENANT 1875], in support of a theory that the site was located on the east bank of the Euphrates, opposite Suk-ash-Shuyuk. This curious error was corrected in 1898 by R.P. Schie, (*Recueil de travaux relatifs à la philologie et à l'archéologie égyptiennes et assyriennes*), though still without reference to Taylor". LLOYD 1974, p. 134.

However, Seton Lloyd noted that the tradition of Taylor's "intriguing finds" was not forgotten in the British Museum, and in 1918, before the end of the 1914-18 war, the Trustees requested that Dr. (then Major) Reginald Campbell Thompson should be temporarily detached from his military duties, in order to make a new investigation at Tell Abu Shahrein. Using mostly Turkish prisoners-of-war as labor, he excavated for about three weeks, remaining at the site from April 10 to May 8²⁵. As noted by Lloyd, Campbell Thompson followed the precedent set by Taylor, over half a century before, in digging a succession of small trenches and pits all over the site, and ignoring the well-tried technique that the German excavators had perfected during the long years of their excavations at Babylon. Nevertheless, in his report he records the results of these soundings in almost exaggeratedly meticulous detail, registering the discovery of every sherd or layer of ashes, according to its depth in feet beneath the surface of the ground²⁶.

Campbell Thompson's work at Abu Shahrein was resumed by the Egyptologist H.R. Hall, who briefly excavated at Tell Abu Shahrein in 1919, from April 21 to May 8 in order to find buildings, as at Ur, which could provide some chronological and topographical idea of the urban assessment, of what was temple and what was town, and proceeded to clear and examine a group of chambers and streets in Square G/4²⁷. On the credit side, Hall foreshadowed a comparative connection between Pre-dynastic Egypt and Eridu architectural and material cultural *milieu*, and he supported the theory that, at least after the end of the 3rd millennium BC, Eridu, as represented by the main Mound 1, could not have been considered as an inhabited city²⁸. Hall's theory was confirmed after the major investigation in Abu Shahrein led, between 1946 and 1949, on behalf of the Iraqi Directorate General of Antiquities and Heritage, by Fuad Safar (1911-1978) and Seton Howard Frederick Lloyd (1902-1996) as technical ad-

²⁵ "No Arabs of the Rif or cultivated valley (Muntafiq) would go out into the desert to Shahrain, nor would the Badu' permit them to come there. Shahrain was in their territory, and they alone could dig it. But they probably would not object to a few Turks any more than to Europeans. So, as in Mr. Thompson's case, negotiations had to be begun with the Dhafir chief, Hamud ibn Suwait, for his consent and for the hire of his tribesmen. These negotiations were undertaken, the military authorities having given permission for a few of the most responsible Turks to be employed at Shahrain, by Major Dickson, the Political Officer at Nasiryah". HALL 1930, p. 206.

²⁶ The great majority of his soundings were oriented to penetrate into buildings of the Early Uruk period or the later occupations of the Ubaid settlement, and to make a plane-table survey of the Abu Shahrein mound, which he published (*op. cit.*, fig. 2, p. 104). CAMPBELL THOMPSON 1920, pp. 101-144.

²⁷ Inside the SE retaining wall, in Square H/5, Hall found rooms with formal niches, windows and doors, some with the flat lintels over them still intact.

They were filled with clean sand and contained few objects, though he does mention "scraps of gold-foil and copper nails with heads overlaid with gold". Lintels and niches bore painted decoration, the latter in the form of horizontal stripes of alternate red and white. Hall's work was first published in the Proceedings of the Society of Antiquaries, in December 1919. HALL 1919; ID. 1923, pp. 177-195; ID. 1930.

²⁸ In his Eridu *memorandum* Seton Lloyd remembers that Hall asked: "Was the ancient Eridu, the ziggurat, temple and Sumerian town, uninhabited after the 3rd millennium BC, save by a few priests and acolytes? Did it survive merely as a sort of Babylonian "cathedral close", with perhaps a later town, not yet discovered, nearby, to which later burials belong? Was this as yet hypothetical Eridu the town to which later records refer as existing and inhabited? Or is Eridu mentioned later merely on account of its holiness and ancient state? Was it in later times never much more than a shrine to which rich people were brought to be buried as rich Shiahns are now carried to Najaf and Kerbela?". LLOYD 1974, p. 136.



Fig. 3a-b – A fragmentary eggcup from the house of the Iraqi Archaeological Mission, imported from Thai Wan and dated to 1944, two years before the Seton Lloyd e Fuad Safar field works in Eridu (© AMER).

viser²⁹. The emergent result of Lloyd and Safar field-works was a strongly supported thesis of the posthumous sanctity of Abu Shahrein, like other important ancient sacred places such as Tell el-Ubaid and Tell-Uqair, which were inhabited settlements in the Ubaid period, and then, when abandoned, became mere burial-grounds or destinations for pilgrimage (Fig. 3a-b)³⁰.

This image of Eridu as a progressive isolate religious cathedral in the desert was drastically reduced by the Oriental Institute of Chicago surveys in southern Mesopotamia. In particular, by the Ur and Eridu regional survey directed by Henry Wright and analytically discussed as the *Southern Margin of Sumer* in the Appendix of the monumental *Heartland of Cities* of Robert McAdams (Chicago - London 1981). This undisputed theoretical, methodological and practical Settlement Archaeology guide of the land use analysis on the Central Floodplain of the Euphrates has been, during the Nineties, changed for the epistemic paradigms of many different experimental studies, and in particular of those focusing on the multifactorial and dynamical nature simulation of the Mesopotamian urbanism through the advanced methods of Spatial Archaeology³¹.

²⁹ LLOYD - SAFAR 1947, pp. 100-111; SAFAR *et al.* 1981.

³⁰ HALL 1930; LLOYD - SAFAR 1943, pp. 131-158. “For the earliest examination which we made in 1947 of the mound called Abu Shahrein showed that its structural formation corresponded exactly, only on a much larger scale, with that of Al ‘Ubaid and ‘Uqair. It had originated in an ‘Ubaidian mound larger than those just mentioned; and a well-appointed cemetery containing probably over a thousand graves bore witness, already in ‘Ubaidian times, to the sanctity of the temple in whose vicinity it was located. Nor did this temple survive into the Uruk period as an isolated building. It was surrounded by a *temenos* at least two hundred metres square, partly filled with buildings of a type which, in our report, we felt justified

in calling “non-secular”. In the “protoliterate” period these buildings, now buried up to their eaves in drifting sand, were enclosed in a retaining-wall to form the basis of a new and gigantic temple platform. The same platform, stripped of its earlier buildings, was used by the Third Dynasty kings of Ur as an emplacement for their *ziggurat*”. LLOYD 1960, p. 31.

³¹ Among interpretative and predictive methods, models and paradigms dealing with the complexity of the ecological context of southern Mesopotamian urbanism (ADAMS - KRAELING 1960; HOLE 1966, pp. 605-611; ADAMS - NISSEN 1972; REDMAN 1978, pp. 329-347; ADAMS 1981; POURNELLE 2000), starting from the second half of the nineties of the last century, the experimental applications of the Artificial Neural Networks must be remembered as one of the most appropriate Artificial

After this long, intriguing and intensive but episodic history of the Iraqi and British Museum archaeological excavations at Eridu, and before the first *AMER* survey held in October 2014, Abu Shahrein was last officially visited for two hours (11.00-13.07) on June 5, 2008, after the proposal to develop an Iraqi-British project to protect and promote cultural heritage in Southern Iraq (Fig. 4a-b). The last picture left to our present investigation can thus be represented by the words of John Curtis, Keeper of the Department of the Middle East at the British Museum: “There is no evidence of looting or of recent visits to the site – car tracks were visible near a neighbouring canal and the site fence, which was not visited; from the air, it was possible to see the posts of the fence. Surface scraping close to the fence is presumably the result of field irrigation. Two site guards, who were not present during the inspection, are based at a village some distance from the mound”³².

4. THE MAIN STRATIGRAPHIC AND ARCHITECTURAL SEQUENCES OF ERIDU

In Mound 1, the Ziggurat (É-u₆-nir) was similar in shape and almost in size to the ziggurat of Ur-namma at Ur (62.50 x 43). Its length is estimated in 61.8 m and its width most probably in 46.5³³. Near the eastern corner, a structure of Plano-convex bricks cut by the Ziggurat was discovered, indicating that beneath the ziggurat were structures not only of Jemdet Nasr, but also of Early Dynastic and Early Akkadian periods. The most impressive architectural and stratigraphic sequence at Abu Shahrein is the well-known Enki/Ea’s “Temple Sounding”³⁴. What is very clear is that there is an undoubted break in the architectural sequence: three build-

Adaptive System (AAS) to learn and to interrogate the complex morphological variables, configuration and environmental technology qualifying the formation of cities, villages, and urbanisms (RAMAZZOTTI 1999). In the late 1990s, in this particular direction, such Artificial Intelligence models were applied and tested for the first time with the intention to explore and classify the diachronic sequence of the Uruk period pottery assemblages in the Ur-Eridu region during the first half of the 4th millennium BC (RAMAZZOTTI 1997, pp. 495-522) and in the Uruk Hinterland (RAMAZZOTTI 2000, pp. 9-38); to the macroeconomic relations expressed by the settlement phenomena of the urban revolution in Central-Southern Mesopotamia; to the anthropological and cultural mechanisms that produced the organic spread of Mesopotamian urban revolution and the formation of the towns of the 3rd mill. BC (RAMAZZOTTI 2002, pp. 651-752; ID. 2003, pp. 15-71; ID. 2005, pp. 511-565); to the most relevant demographic tendencies of the region during the 4th and 3rd mill. BC. (RAMAZZOTTI 2009b, pp. 193-202); and to the variables outlined by the major territorial surveys of Southern, Central and Northern Mesopotamia in order to address and explore the political and economical settlement morphologies of the Ubaid, Uruk, Early Dy-

nastic, Early Syrian and Akkadian period on a comparative level (RAMAZZOTTI 2011, pp. 341-375; ID. 2012, pp. 53-72; ID. 2013a, pp. 10-34; ID 2013b).

³² The proposal to develop an Iraqi-British project to protect and promote cultural heritage in Southern Iraq was first mooted at a lunch in the British Museum on September 24, 2007. At the lunch, it was suggested that the greatest need would be to arrange for the inspection and, if necessary, the protection of archaeological sites. It is known that archaeological sites, particularly in Southern Iraq, suffered grievously from looting, particularly after the Second Gulf War. CURTIS *et al.* 2008, pp. 215-237.

³³ SAUVAGE 1998, pp. 45-63.

³⁴ The distance between the “Temple Sounding” and “Hut Sounding” in the central part of Abu Shahrein is 100 m (SAFAR 1950, p. 28). Following Wright, at this time, nearby EP-104 had not reached its maximum size yet and was probably about 1 ha. “Thus, there is evidence from the Hajji Muhammad period in the Eridu area of some differentiation both within and between settlements. If the *Terminal* Ubaid period was one of slight diminution in settlement, the Early Uruk period was one of fundamental change”. WRIGHT 1981, p. 323.



Fig. 4a-b – A war surplus left on the eastern lower part of Mound 1 (© AMEr); b) The southern margin of Eridu archaeological landscape from the top of the Ziggurat (© AMEr).

ings of indeterminate *status* were recovered from levels XV, XVI, and XVII in the lower part of the sequence, and there is then an absence of building remains until level XI, where part of a monumental building, generally considered to be a temple, was recovered. This is the first of a series of six buildings so defined. Between these two groups of buildings, there are level XIV, which comprises the brick packing of the ruins of the building in level XV, and levels XIII and XII, which are said to be occupation levels³⁵. In Square H/5, inside the SE retaining wall, a multifunctional building was oriented toward a point beneath the centre of the Ziggurat, completely covered by sand. Most part of the material consist of Uruk pottery and cone mosaic ornament, but here were also Plano-convex bricks and pottery dating from as late as Akkadian Period and the beginning of the Ur III (Fig. 5a-b).

³⁵ A large robber trench had been sunk to these levels, and robbers had also dug out a second trench from the base of the first leading toward the ziggurat (SAFAR *et al.* 1981, p. 90). Since there are no published sections, it is not clear whether XIII and XII are real occupation levels or whether they mark two phases in the construction of the platform on which Temple XI

stood. In either case, the packing of the temple platform and/or the digging of the robber trenches indicate that the finds from these levels are bound to be chronologically mixed. Unfortunately, these intermediate levels are the levels that have yielded the highest concentrations of Hajji Muhammad Pottery.



Fig. 5a-b – The south-western slope of the Ziggurat from the top of Abu Shahrain (© AMEr); b) a fragmentary basalt stele discovered on the eastern slope of the Mound 1, quadrant G4 (© AMEr).

In this extraordinary building, the fire-chamber, intact, was spanned by a succession of arches, between which the flames rose³⁶. In Square EF/4 is located a 15 x 9.7 building divided in three long chambers, and each chamber has three entrances leading to the next chamber. As the building in H5, the so-called Portico Building was found buried gradually in windblown sand, but the pottery discovered was probably later than the pottery revealed in the Square H/5³⁷. Outside the temple precinct, in square G/7, G/8 and G9, a large cemetery of the late Ubaid Period was found; this contained perhaps 1000 graves, in rectangular boxes of unbaked bricks 49 x 22 x 8, of which 193 were excavated³⁸. The excavation began in the second season

³⁶ The purpose of the kiln was the incineration of surplus offerings, in a manner similar to that revealed in the Temple VI. SAFAR *et al.* 1981, p. 76.

³⁷ Numerous fish bones found on the floor of the shrine and in the sacred building discovered in Square 5/H – offerings or the remains of ritual meals – suggest it was dedicated to Enki from the outset. The finding of extensive deposits of fish bones associated with the earliest levels also shows a continuity of the Abzu cult associated later with Enki and Ea. VAN BUREN 1948, pp. 101-121.

³⁸ The number of individuals recovered amounts

to 206, their final resting place was usually a mud-brick coffin or box, but in rarer cases, they were buried directly in the soil. In some cases, the bodies were lying on a reed mat, but most of them lay directly on the soil. Grave goods include painted pottery vessels, terracotta figurines and baked clay tools such as sickles and shaft-hole axes. However, there does not seem to be any clear or transparent social, ritual, or economical distinction in burials at Eridu. The mortuary practices at this site were, therefore, more or less the same as they had been at nearby and contemporary Ur. SAFAR *et al.* 1981, p. 123.

on December 13, 1947 and continued until March 2, 1948³⁹. In the Mound 2 / North Mound no Ubaid pottery was found and the main settlement belongs to the Uruk and Early Dynastic periods. The excavation here was undertaken during the third season and a section of the large city wall contemporary to the city wall of Khafajah was discovered. The foundation (55 cm h) is built in Plano-convex bricks (40 x 21 x 1-8 cm) without finger mark; the wall (1.10 h) is built in bricks (20 x 13 x 7-4.5 cm). In the center of the Mound 2, a four building layers Palace was discovered, unfortunately completely washed away in the western part. In level 2, the Palace is composed of two almost identical buildings, 161 x 68 m, and each building bears some similarity with the Early Dynastic Palace at Kish⁴⁰.

5. THE COMPLEXITY OF ERIDU COUNTRYSIDE

The Eridu Countryside can be considered both as an *ecosystem* related to the Marshlands political and ethnographical history⁴¹ and an important geo-economic southern Mesopotamian

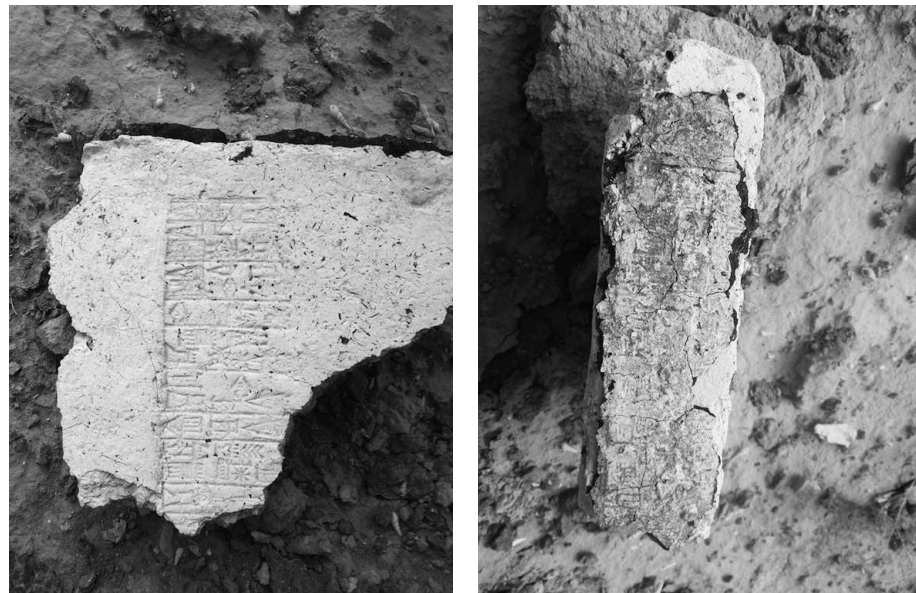


Fig. 6a-b – An inscribed mud brick with a bitumen mortar (b) from the top of the Ziggurat, quadrant F6 (© AMEr).

³⁹ Coon states in his preliminary report that “all of the crania had been deformed in one fashion or another, presumably after burial, by earth pressure. This had made them look superficially like certain *maya indian* crania, deformed intentionally in infancy”. COON 1949, p. 103. While Coon is thus sceptical about the cultural origin of the shape modification of the Eridu crania, several lines of evidence support the view that the Eridu crania were modified by circumferential head shaping. LORENTZ 2010, pp. 125-148.

⁴⁰ The two buildings seem to have been levelled

to an average height of walls of 55 cm, a 20 cm high alabaster statue of man IM54599 was found in the courtyard 1, near the entrance to room 11, and the near of another alabaster male statue was found in the southern corner of the room 4 (IM 54600). MARGUERON 1983, pp. 225-231.

⁴¹ On the political history and on the contemporary ethnographic assessment of the Iraqi marshlands see THESIGER 1967, OCHSENSCHLAGER 2004, and the recent bibliographic survey of the cultural heritage prepared by TOULI - AL HAMDANI 2011.

ecotope located along a beach ridge of the Early-Mid Holocene Persian Gulf shoreline⁴². From the beginning of the 6th millennium BC, the Eridu anthropic landscape was the southernmost core of the Land of Sumer and during the 4th millennium BC, the Ur-Eridu area is occupied by a dense network of protohistoric *Tall* adapted to the particular hydrogeological environment⁴³. They represent a large, organic settlement system, the crossroad of economic, technological and cultural contacts between Meluhha (India), Magan (Oman), Dilmun (Bahrain), that have preserved some peculiar and distinctive traits of the oldest world urbanization process⁴⁴ (Fig. 6a-b).

While a number of known archaeological sites at the edges of the marshes were visited, the site of Eridu shows high promise as a location for future geo-archaeological coring and investigation to collect evidence for the western extent of Mid-Holocene Gulf incursion and marsh formation. Archaeological survey conducted in the 1960s in the area around this 5th millennium BC site had already demonstrated that it sits in a topographic depression separating it from the rest of the alluvium through a sandy ridge known as the Hazim⁴⁵. Although a comprehensive coring program will be required to define the boundaries of fresh marshes, in the Awar and the Abu Shahrein basin the symbiotic relations between Eridu and the Marshlands have been strongly suggested, and should be analyzed as a highly integrated and osmotic economic process⁴⁶. At Eridu itself, it has been noted that fossil aquatic shells not only cover

⁴² A series of accurate analysis have discussed the potential Paleoenvironmental scenario related to the ecosystems of the first settlements in Lower Mesopotamia. 14000-15000 years ago, Tigris and Euphrates resulted directly in the Gulf of Oman, because a progressive increase in North sea levels at the end of the Pleistocene would have exceeded the determined current coastline (LEES - FALCON 1952, pp. 24-39; NÜTZEL 1975, pp. 101-110; Id. 1976, pp. 11-24; VITA-FINZI 1978, pp. 255-261). A millennium later, Hillman states the so-called *Woodland-Expansion*, the spread of non-domesticated vegetal species; this expansion offers a further possibility of livelihood for the early hunter-gatherer groups causing, simultaneously, an increasing of the time of their stay (HILLMAN 1996, pp. 198-202). The *phenomenon* of the domesticated species diffusion meets, at the beginning of the 6th millennium, the environmental oscillation followed by the sudden maritime *Transgression* occurring near the coastline (POURNELLE 2000, p. 115). An increase in overall humidity caused a lowering of average temperatures in the summer months and a slight decrease in winter (BRYSON - BRYSON 1997, pp. 565-594). The convergence of these factors, that certainly produced a multiplication of subsistence possibilities, is the main reason of the seasonal and stable onset anthropic occupations in the South.

⁴³ Between 6500 and 5500 BP, Sanlaville has placed the first of three phases of the *Shoreline Mo-*

bility (4500-3000 3000-2000 BP - BP-2000-1500 BP) that transformed the alluvial plain in an area rich in silt and sediment, probably even arable. See: SANLAVILLE - DALONGEVILLE 2005, pp. 9-26. In this area, the first settlement activities are recognizable in prevailing sequences rather than in a simultaneous spatial articulation since their chronological thickness is still imperceptible. RAMAZZOTTI 2002, pp. 651-752.

⁴⁴ Recently, Robert McAdams synthesized: "The environmental context of the beginnings of southern Mesopotamian states and urbanism looks substantially different today than it did just a very few years ago. Studies of declassified satellite photographs by Jennifer Pournelle (University of California, San Diego) shed new light on the lower plain in particular. They persuasively establish that widespread-flooded areas were only gradually draining during the 4th millennium. Marshes and tidewater lagoons formed a major constituent of the landscape and played a correspondingly substantial role in human subsistence". ADAMS 2004, p. 43.

⁴⁵ WRIGHT 1981, pp. 297-362. Excavation reports describe markers of a swampy environment (SAFAR *et al.* 1981), but no samples of flora and only a small faunal sample were collected and analyzed (FLANERY - WRIGHT 1966).

⁴⁶ "While it is true that the city in Mesopotamia was an outstanding innovation of the Protoliterate period, the great divergence between city and coun-

the top and base of main mounds, but are visible embedded in and eroding the mud-bricks of remaining structures⁴⁷.

Recent flooding could have resulted in shell deposits at lower elevations, but the dispersal of the shells throughout the visible buildings and preserved mud-brick, well above the flood zone, more likely indicates the presence of a persistent marshy environment prior to or at the time of construction⁴⁸. Moreover, one of the most interesting discoveries of the *Hut Sounding* in Eridu is that the baked clay sickles are found only in the upper levels probably indicating that the lower group depended more upon fishing and hunting birds rather than upon agriculture⁴⁹. Therefore, it is tempting to see in these findings some confirmation of the role which may have been played by the marsh-dwelling communities in the formation of al-Ubaid culture⁵⁰ and of course the symbolic role played by this complex economy on the first urbanism process⁵¹.

Thanks to the accurate and recent territorial studies, it is now possible to summarize the general settlement trend of the Southern Mesopotamian Urbanism (SMU) focusing on the Eridu Countryside. The first Early Ubaid farming villages in the Ur-Eridu area, which span approximately two millennia, are uniformly located atop Pleistocene-era turtlebacks, average

tryside, between rural and urban life, is, in the form in which we are familiar with it, a product of "industrial revolution" and emphasis on this contrast mars our perspective when we view earlier situations". FRANKFORT 1948, pp. 57-58.

⁴⁷ The predominant species, *Melanoides tuberculata*, is an aquatic gastropod mollusc common throughout Eurasia and North Africa. In southern Iraq, the *Melanoides*-dominated multi-species assemblage collected at Eridu is typical of calm, freshwater lacustrine and marsh bottoms. HRTZ *et al.* 2012, p. 44.

⁴⁸ Mud for the bricks is likely to have been locally collected from extraction pits in the environs of the site. AMS datings of four samples of fossil shell collected from denuded mud brick at three locations on the Eridu mound range in age from 5770 cal. BC near the base, to 2291 cal. BC at the top of the mound. HRTZ *et al.* 2012, p. 45.

⁴⁹ The southern Mesopotamian wetlands were tacitly viewed as an impediment to expanded irrigated grain production, and hence expanded urbanity, until the region became sufficiently dry during the late-4th millennium BC Uruk period. NISSEN 1983.

⁵⁰ Pournelle's reconstruction of 5th millennium landscapes from satellite imagery suggests that wetland conditions predominated to such an extent in the Ur-Eridu region that settlements were restricted to long linear "turtle-back" formations surrounded by marsh and water (POURNELLE 2003a, 2003b). If this reconstruction is correct, then it calls into question the role of irrigation as the predominant Ubaid subsistence technology and reminds us that we must also

recognize the importance of wetland subsistence resources, at least in the southernmost alluvium. However, the recovery of carbonized cereal remains, flax seed, and an 80 m² granary at 'Oueili (HUOT 1989, p. 26) clearly indicate that irrigated cereals did play a significant role in the early economy of this region. Conditions apparently became drier moving north, so that sites such as Uqair were much more likely to have been more dependent on an irrigation economy, corresponding to the traditional view. It therefore seems that Ubaid southern Mesopotamia had a diversity of environments in which the predominant economic strategy and the precise mix of exploited subsistence resources varied significantly across the landscape.

⁵¹ The finds at Eridu show that in this place the people dedicated to Enki his portion of their goods, not in the form of grain or meat, the basic form of wealth among farming communities, but in fish. Indeed, throughout the Ubaid and Uruk periods some of the largest, southernmost early Mesopotamian settlements (Eridu, Ur, Uruk, Umma) were situated directly within, on the margins of - and along waterways intercommunicating with - marine, coastal, estuarine, and riparian ecotones at the head of the Gulf. Both modern ethnographic observations and ancient textual sources suggest that they would have provided substantial and easily exploitable resources usable as food, fodder, fuel, and raw materials (minimally including fish, reeds, dates, flax, salt, dyestuffs, shell and bitumen) that were not available to peer societies away from the Mesopotamian delta region. POURNELLE - ALGAZE 2010, pp. 1-27.

less than 10 ha in size, and are presumed to have supported relatively low permanent populations⁵². By the Late Ubaid period, the excavations at Eridu indicate that it had grown to about 12 ha. The earlier mound now forms the nucleus of a broad platform on which was a temple, the Enki Temple, on a raised terrace, and some substantial buildings of a residential character close to the huge cemetery. Ur was apparently similar in scale to Eridu, covering about 10 ha, and it also had modest buildings and a cemetery on its margins⁵³.

Rather than the isolated clusters atop turtlebacks that were characteristic of Ubaid period settlements, by the Early Uruk settlements were dispersed throughout the *alluvium*, and could be mapped in linear patterns along what were presumed to be relict branches of the Tigris and Euphrates Rivers⁵⁴. More and larger sites were visible as surface scatters, some approaching genuinely urban scale (20 ha and above)⁵⁵. Notable among these was Eridu, at 40 ha⁵⁶ but in the succeeding Late Uruk period, while Ur continued as a small town of 10 ha, Eridu seems to be gradually abandoned⁵⁷, probably in connection with a fast desiccation of the plain⁵⁸.

⁵² WRIGHT 1981, pp. 297-362; WRIGHT - POLLOCK 1984, pp. 317-329; HUOT 1989; SANLAVILLE 1989; RAMAZZOTTI 2009b, pp. 193-202; HRITZ 2007, pp. 45-49; POURNELLE 2007; POURNELLE 2013, pp. 13-32; POURNELLE *et al.* 2012, pp. 37-49; WILKINSON 2013, pp. 33-54.

⁵³ WOOLLEY 1956, pp. 14-21; WRIGHT 1981, pp. 324-325. "Adams's argument that the earliest cities of the Ubaid and Uruk periods, such as Eridu and Uruk, with their astoundingly elaborate and monumental architecture, are best understood economically as "central places"- that is, as centres for pilgrimage to religious festivals and for exchange of goods, and so drawing support widely from both settled and nomadic populations - fits remarkably well with the apparent meaning of many of the oldest city names. They suggest terms for tribal storehouses of nomadic or seminomadic groups in which the tribe's valuables, especially its religious emblems, were kept. Again, the "heroic age" in Sumer-Early Dynastic-was, like heroic ages anywhere, a period of unchecked raiding and feuding". JACOBSEN 1981b, p. xiv.

⁵⁴ POLLOCK 2001, pp. 191-192.

⁵⁵ Following Adams and Nissen, only a single rather small site (WS 298) may antedate the site of Eridu; this and an additional small site (WS 267) were occupied during the Eridu sub-phase of the Ubaid period, and surface sherds at Uruk may testify to the earliest beginnings of the great centre at about the same time. The massive infusion of clustered rural sites around Uruk in the Uruk period had no parallel farther south and southeast, where small settlements of this period are described as rare. Like Uruk, to be sure, Eridu went on at this time to become a large temple-centred town, although afterward it was abandoned as population became concentrated around Ur.

ADAMS - NISSEN 1972, p. 9.

⁵⁶ "The various excavations of Eridu have exposed a number of substantial buildings, some decorated with cone mosaic, all on the central platform, which had grown to cover 4 hectares (TAYLOR 1855, pp. 404-15; HALL 1930, pp. 208-13; LLOYD - SAFAR 1948, pp. 115-127, fig. 7). Around this must have been an extensive lower town covering perhaps 40 hectares, as indicated by the sherds scatter. An early test excavation visible approximately 700 meters northwest of the ziggurat revealed Early Uruk ceramics and copper fragments. Little else is known about this lower settlement. However, it is clear that while small settlements were abandoned, Eridu had expanded greatly". WRIGHT 1981, p. 325.

⁵⁷ The situation during the Jemdet Nasr period is still more uncertain, in the succeeding Early Dynastic I there is no evidence of occupation on the plain of Eridu, while the Ur area covered about 21 ha; during the later portion of the Early Dynastic period, or Early Dynastic III, there is a strong reorganization in the pattern of settlement. Ur itself certainly grows (50 ha) but Eridu becomes the site of two palaces. SAFAR 1950, pp. 31-33; WRIGHT 1981, pp. 333-334.

⁵⁸ The water resources decline slightly in the Late Uruk period and the beginning of the Early Dynastic, as already registered by NISSEN (1983, pp. 75-81). The data is still accurate today and documented by Butzer analysis, according to which during the 4th and 3rd millennium BC a strong reduction of the amplitude of the flow rate and of the flow velocity of the major rivers, indirect outcome by a strong marine transgression (BUTZER 1995, p. 143), would have occurred. "The encroachment of sand on the central precinct of Eridu may represent a cutting off of the

In the Early Dynastic II Period, when a Royal Palace has been excavated on the top of Mound 2, Eridu becomes an important urban center (*Fig. 7a-b*). During the Third Dynasty of Ur, Abu Shahrein reached its greatest size, as attested by the eroded platform of the impressive still preserved ziggurat, which only rises to a height of about 9 m, though it is clear that the base of 46 x 61 m supported a much higher superstructure. Eridu was abandoned for long periods, until it was finally deserted and allowed to fall into ruin in the 6th century BC. The encroachment of neighboring sand dunes, and the rise of a saline water table, set early limits to its agricultural base so, in its later Neo-Babylonian development, Eridu was probably rebuilt as a purely temple site, in honour of its earliest history.

The transformation of the Eridu Countryside settlement pattern is argued to be the result of a confluence of various political, social and economic factors that do not appear as the result of a Darwinian and orthogenetic economic *process*, but the surface of a more complex, variable, dynamic and adaptive *system*⁵⁹. The strict connection between *AMEr* and *LAA&AAS* will attempt to apply Artificial Adaptive Systems to the analysis of the southern Mesopotamian urbanism complexity⁶⁰. In this approach, the Urban Revolution in the Land of Sumer will



Fig. 7a-b – The northern limit of the Early Dynastic Royal Palace in Mound 2, on the background the Abu Shahrain northern profile (© *AMEr*); b) a perforated green agate pearl from the northern surface of Early Dynastic Royal Palace in Mound 2 (© *AMEr*).

southernmost channel of the Euphrates and desiccation of the Eridu plain. However, one suspects that even with vegetation a great deal of sand would blow into the area from the large dunes to the southwest, and that lack of maintenance alone would lead to an accumulation”. *WRIGHT* 1981, p. 326.

⁵⁹ Including techno-ecological innovations in irrigation, the development of networks of hybrid, natural and artificial canal systems through new forms of labor control and organization. *POURNELLE et al.* 2012, pp. 37-50. But it should be also reminded that “The study of Mesopotamian prehistory has perhaps suffered overmuch from the anxiety of archaeologists to trace the evolution of civilization as a single Darwinian process, for such an approach often blinds us to

the complexity, and the geographical variety, of early society”. *OATES* 1960, p. 49.

⁶⁰ The Artificial Adaptive Systems (AAS) as a specific set of algorithms of the Artificial Intelligence (AI) are animated in the Connectionist reaction to Behaviourism and they are therefore proposed here as a new analytical model to explore the systemic complexity of the Ur and Eridu urbanism through Natural Computing (NC). In this research, complexity was almost completely removed from the undisputed supremacy of external interpretation, able to be analysed through mechanical and linear systems, and it became the context of AAS experiments and simulations. The analogy between cultural complexity and the complexity of intelligence gave rise to a

be considered as a natural and cultural complex phenomenon of the 4th and 3rd millennium BC, but also as the product of cognitive behavior that can be critically discussed both on the historiographical and on the analytical level. The complementary exploration of these two research levels underlines the strong epistemic impact of the SMU on the Ancient Near Eastern historical, political and economic reconstruction and leads to a progressive human attempt to trace the systemic complexity of the first world urbanism back to the mathematical simulation of cognitive complexity.

6. THE *AMER* PROJECT PLAN FOR THE NEXT 5 YEARS

Since 2003, Iraq has been making major efforts to restore the Iraqi Marshlands around the confluence of the Tigris and Euphrates rivers, the largest wetland ecosystem in the Near East, with major environmental, biological and socio-cultural significance. The Italian Ministry for Environment, Land and Sea developed *New Eden* project, implemented since 2003 in coordination with the Iraqi Ministry of Environment, Ministry of Water Resources and Ministry of Municipalities and Public work, and managed through an Iraqi NGO, "Nature Iraq". A *New Eden* Master Plan for Integrated Water Resources Management in the Marshlands has been developed to assist Iraqi policy makers by providing information and analytical tools regarding water resource and environmental management. One of the objectives of this project is to create a *Mesopotamia Marshlands National Park* in order to improve the restoration, protection and development of the Marshlands and its population, with their rich biodiversity and unique Cultural Heritage, almost entirely destroyed through upstream dam construction and drainage operations. On July 28, 2009, Iraq deposited with the Secretary-General of the United Nations its instrument of accession to the Convention on Biological Diversity (CBD), and on October 26, 2009, it became the 192nd Party to the Convention on Biological Diversity. Iraq's accession comes in a series of significant efforts by the Government to tackle environmental issues of global significance.

The *AMER* project plan for the next 5 years was discussed on the field during the first survey of Eridu, held in October 2014, and contextually approved by the Iraqi Authorities. It will start on 2015 with the first step of an intensive archaeological survey of the entire settled area (25 km²). The survey will continue for the next 3 years, when we hope to publish the analysis of the cultural, technological and morphological assessment of the Eridu cluster patterns. Complementary to the territorial investigations of the site, will be also the stratigraphic excavations of some contexts. This approach, based on the Settlement and Stratigraphic Archaeol-

new system of theoretical knowledge, methods and applications linking archaeological research to the AI. The application of AAS through NC to the most ancient urbanism of the world can be considered as a new frontier of the theoretical and field archaeology. Though, it is also rooted "back to the future", since it has been inspired by the Analytical Archaeol-

ogy application of the System Theory to the complex phenomena, and moreover by the pioneer approach of British archaeologist David Leonard Clarke (CLARKE 1968) in connecting the epistemic nature of our contemporary archaeological researches to the Cybernetic (RAMAZZOTTI 2014a, pp. 15-52; 2014b, pp. 58-84).

ogy, was chosen in order to integrate a non-invasive and predictive strategy for the landscape knowledge with a verification of the most relevant anthropic sequences in the seven mounds.

This specific integration between the two field approaches will collect the archaeological records for the multifactorial analysis of Eridu and its Hinterland through the methods of the Spatial Archaeology and of the Analytical Archaeology in LAA&AAS Laboratory. In order to proceed in this direction, six complementary activities will be implemented since the beginning of the field works: 1) Pre-Topographic Activities: a topographic net with benchmarks to be used for any subsequent survey of the sites has been planned. This net will be connected to the Iraqi national grid reference in order to have all the acquired data directly geo-referenced for an easy use in a GIS (Geographical Information System). Following this perspective, a GPS (or rather Global Navigation Satellite System) Reference Station will be placed, able to provide differential corrections to be used on the site during the excavations with simple receiver instruments. This GNSS (Global Navigation Satellite System) differential station could be located in Ur, covering a range of 100 km with an accuracy of 5 cm and 200 km with an accuracy of 20 cm. A satellite imagery will be acquired by the most up-to-date satellite systems available (such as World-View 2, 45 cm of accuracy). 2) Topographic activities: a vectorial topography will allow the creation of future *Eridu Landscape Informative System* (ELIS), whose purpose is the computerized and integrated management of the alphanumeric, graphic and photographic data of the excavations and conservations on the field and in the laboratory of the LAA&AAS (Analytical Archaeology and Artificial Adaptive Systems Laboratory) at La Sapienza University of Rome. 3) Aerophotogrammetric plan: an aerial map of the entire area of Eridu (EAM) after its cleaning (see Pre-digging activities) will also be realized, using Unmanned Aerial Vehicle with a photogrammetric camera, able to guarantee the accuracy of 20 cm on ground. On the map, the vectorial topography of the site (of all its mounds) and the elevation with contour lines will be reported. A topographic net will be derived from the benchmarks, for the survey of the excavated areas or for any other topographic information needed. 4) Satellite analysis: a Remote Sensing analysis will be tested for the automatic monitoring and identification of lost or undiscovered archaeological features. One of the fundamental objectives is also the establishment of a procedure for the processing of high-resolution multispectral images taken from satellite platform targeted to the identification of archaeological evidences: settlement, relict canal, roads, archaeological buried structures and so. In alluvial areas of the Near East, the former locations of settlements are often represented by “tells”, small mounds resulting from millennia of human settlement activity. 5) Pre-digging activities: it is very important to clean the site before any topographical or archaeological activity can be started. For more than 50 years the site and the area of Eridu have not been systematically investigated and excavated. Moreover, in the last 15 years the war activities have very much affected the site. On its surface, it is possible to see bullets, fragments and shards of bombs, military devices (broken parts of guns, tires of army vehicles and tanks etc.) and a great quantity of garbage. 6) Excavations: as it has been highlighted in the study delivered to the Iraqi Authorities, since Eridu is a composed archaeological landscape with 7 different mounds, to which the near site of Usalla must be added, it is intention of *AMEr* to start: A) with the survey, cleaning, re-drawing and conservation of the most important architectural sequences discovered in Mound 1 and in Mound

2; B) with new archaeological soundings on Mound 1 and Mound 2 in order to verify and to synchronize the stratigraphic sequences of the settlement.

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RIASSUNTO

Nell'attuale ricerca storica, archeologica e filologica sul Vicino Oriente antico, Eridu è unanimemente riconosciuta come una delle più rilevanti capitali religiose della Mesopotamia antica, come il maggiore luogo di culto dedicato al dio della creazione Enki nel Paese di Sumer e come la sede prediletta su cui, secondo la Lista Reale Sumerica, discese la regalità universale. Per questi tre motivi, e per la straordinaria ricchezza archeologica del sito, esteso su un'area di ca. 2500 ettari e articolato in sette *Mounds*, la concessione di scavo firmata dal Dipartimento di Studi Orientali (Franco D'Agostino) e dal Dipartimento di Scienze dell'Antichità (Marco Ramazzotti) della Sapienza Università di Roma, rappresenta allo stesso tempo un attestato di grande stima che la Repubblica dell'Iraq ha consegnato all'antichistica italiana, e un'occasione unica di crescita e prospettiva offerta all'orientalistica internazionale. Il presente contributo è dunque solo una sintesi che ricorda brevemente l'importanza assoluta da Eridu nell'epistemologia della ricerca archeologica vicino orientale, e una descrizione del progetto quinquennale sul quale la Missione Archeologica Italo-irachena ad Eridu (*AMER*) ha già cominciato a lavorare dopo la prima ricognizione sul territorio che si è svolta nell'ottobre del 2014.

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