

Coastal Research Library 36

Laith A. Jawad *Editor*

Southern Iraq's Marshes

Their Environment and Conservation



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Night at the southern marshes of Iraq



Houses and rest home in the marshes of Iraq.



Marsh Arabs in part of their daily life.



Upper photo, Iraqi bread; lower photo, water buffalo grazing.

*Dedicated to every member of my delightful
family who wonders if I'm devoting this work
for them.
I am*

Preface

I am always fascinated by the southern marshes of Iraq and the way of life that the Marsh Arabs are living in. This captivation has augmented when I read the works of the British explorer Wilfred Thesiger, a retired soldier, who spent several years in the marshes between 1951 and 1957 and published his memoirs, *The Marsh Arabs* and Gavin Young, a British journalist, visited the region and befriended Thesiger with whom he photographed the area during the 1950s. Young published his remembrances about the marsh areas in his well-known book "*Return to the Marshes*". These works have created an idea in my mind of writing a book about the marshes of Iraq and their inhabitants, but in different ways that the previous writers have done. This was sometimes in the early 1970s and since then and for more than 50 years I am embracing this idea that accompanied my travels through the countries until I settled down in New Zealand and decided to put this idea on paper.

The new technology of the internet and fast communication have assisted my goal in producing my book on the southern marshes of Iraq. Inputting the proposal of the book and the preliminary contents table, I visited hundreds of literature, videos and television programs about the marshes of Iraq. Such materials enrich my idea with several aspects of the marshes ranging from the environment to the Marsh Arabs lifestyle.

When I decided to edit a book about the southern marshes of Iraq, the idea that I had in mind is to see this book having information that not have been dealt with anybody previously. Therefore, I decided the contents of the book should include wide range spectrum of aspects about the marshes of Iraq including the historical, geological, environmental, the fauna and flora, the fisheries, the impacts and challenges that the marshes experiencing, the conservation of the marshes and finally the daily life particulars of the Marsh Arabs.

The longest chapter in the present book is that on the daily life of the Marsh Arabs. Although several authors have written on the habits and habitats of the Marsh Arabs in the form of books and articles in magazines and journal, I decided this chapter to hold information that has never been told before. Such differences are placed in attaining facts about the daily life of the dwellers of the marshes

accompanied by figures. A step that never been presented in any book about the marshes of Iraq before. This chapter takes more than 4 months to finish as I used to relate each daily act and habit of the Marsh Arabs to the ancient Mesopotamian and see whether there is any similarity can be derived. In doing so, I explored an extensive number of kinds of literature on ancient Mesopotamian and retrieved from these kinds of literatures what are comparable to the life of their present-day descendants that inhabit the marsh area in Iraq. Besides, I included several facts about the daily life of the Marsh Arabs that I assume to be documented for the first time. Among these are answers for many questions such as, why the number of the main pillars of the guesthouse “Al-Madhif” of the Marsh Arab and pot of coffee in this guesthouse is always odd and even? Are the Marsh Arabs recognise several types of water buffaloes? If so, what are the names of these types? Are the Marsh Arabs specialised in making different food items such as bread, milk products and sweets? In order of not ruining the surprise that readers of this book in general and the chapter about the daily life of the Marsh Arabs in particular, I shall not give the answers for these questions here and leave it for the readers to discover them while they are reading this book.

I would like to convey my thanks to all the contributors of this book that agree to share their scientific work as chapters are written about different aspects of the southern marshes of Iraq in order make it accessible by the readers in all over the world. Also, my sincere thanks should go to Springer Publisher that agrees to publish this book and make my dream a reality.

Auckland, New Zealand

Laith A. Jawad

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Contents

1	Introduction	1
	Laith A. Jawad	
Section I Historical Perspectives		
2	Cities in the Water: Waterscape and Evolution of Urban Civilisation in Southern Mesopotamia as Seen from Tell Zurghul, Iraq	15
	Davide Nadali	
3	Reed-Swamps in the Sumerian Material Culture: Archaeological, Archaeobotanical and Experimental Insights from the Abu Tbeirah Excavations	33
	Licia Romano, Alessandra Celant, and Maria Virginia Montorfani	
4	Human Ecology of the Marshes	55
	Ariel I. Ahram	
5	Role of Women in Ancient Mesopotamia and the Southern Marshes of Iraq: A Comparative Account	77
	Laith A. Jawad	
Section II Environmental Factors		
6	Physical and Chemical Characters of Mesopotamian Marshes: A Short Review	95
	Bahram K. Maulood and Fikrat M. Hassan	
7	Hydrologic Structures in the Tigris-Euphrates Basin and Their Impact on the Vitality of the Marshes	113
	Toon Bijmens	

8	Importance of Hydrological and Hydrogeological Studies in Wetlands: Examples from Turkey	127
	Melis Somay-Altas	
9	Use of Multispectral and Hyperspectral Satellite Imagery for Monitoring Waterbodies and Wetlands	155
	Mahdi Hasanlou and Seyd Teymoor Seydi	
10	Usage of Satellite Technology in Monitoring the Wetlands of Turkey, Tigris, and Euphrates Watershed	183
	Gordana Kaplan, Zehra Yigit Avdan, and Ugur Avdan	
Section III Geology		
11	Sedimentology and Mineralogy of Quaternary Sediments of Marshes, South of Iraq	201
	Badir N. Albadran	
Section IV Major Biotope		
12	Phytoplankton and Primary Production in Iraqi Marshes	217
	Bahram K. Maulood and Fikrat M. Hassan	
13	Distribution Patterns, Diversity Centers, and Priorities for Conservation of Aquatic Plants in Iran	233
	Ahmadreza Mehrabian and Farzaneh Khajoi Nasab	
14	Compiled Checklist of Aquatic Invertebrates of the Southern Marshes of Iraq	251
	Laith A. Jawad	
15	The Indian Shad <i>Tenualosa ilisha</i> (Hamilton 1822) in the Southern Marshes of Iraq: A Revision and Evaluation of a Compiled Data	271
	Laith A. Jawad	
16	The Presence of <i>Gambusia</i> Fish in the Southern Marshes of Iraq: Bad or Good	285
	Laith A. Jawad	
17	Checklist of Freshwater Fishes of Southwestern Wetlands of Iran	295
	Hamid Reza Esmaeili	
18	Checklist of Fishes of the Caspian Sea Basin: Land of Wetlands	319
	Hamid Reza Esmaeili and Keyvan Abbasi	

19	The Ornithological Importance of the Southern Marshes of Iraq	351
	Mudhafar A. Salim, Salwan Ali Abed, and R. F. Porter	
Section V Biodiversity Aspects		
20	Northern Gulf Marine Biodiversity in Relevance to the River Discharge	379
	Faiza Al-Yamani, Igor Polikarpov, and Maria Saburova	
21	A Possible Threat to the Fish Biodiversity in the Southern Marshes of Iraq: A Mini-Review	439
	Laith A. Jawad	
22	Biotic Homogenization: A Process That Is Happening in the Southern Marshes of Iraq	449
	Laith A. Jawad	
Section VI Natural Resources		
23	Fish, Fishing Methods and Fisheries of the Southern Marshes of Iraq	459
	Laith A. Jawad	
24	The Artisanal Fishers in the Southern Marshes of Iraq and the Traditional Ecological Knowledge	479
	Laith A. Jawad	
Section VII The Marshes and Human Health		
25	Fish Consumption of Mothers and Their Children in Fishermen Society in the Marsh Areas	487
	Laith A. Jawad	
26	Ingestion of Fish Bones: Clinical Cases from the Marsh Areas of Iraq	497
	Laith A. Jawad	
Section VIII Environmental Challenges		
27	The Status of Pollution in the Southern Marshes of Iraq: A Short Review	505
	Nader A. Salman, Hamid T. Al-Saad, and Faris J. Al-Imarah	
28	The Effects of Man-Made Noise on the Fishes in the Marshes of Iraq	517
	Laith A. Jawad	

29 Heavy Metals in Wetlands in Turkey 527
 Onur Can Türker and Jan Vymazal

30 Locals’ Awareness of Ecotourism in the Southern Marshes of Iraq 551
 Laith A. Jawad

31 The Effects of Thermal Pollution on the Aquatic Life in the Southern Marshes of Iraq 559
 Laith A. Jawad

Section IX Conservation

32 What Ecological Principles Required for a Proposed Establishment and Management of National Parks in the Southern Marshes of Iraq 575
 Laith A. Jawad

33 The Possible Difficulties and Outcomes of the Biodiversity Conservation of the Southern Marshes of Iraq 579
 Laith A. Jawad

34 Co-management Scheme to Protect the Southern Marshes of Iraq: A Proposal 591
 Laith A. Jawad

35 Eradication as a Method to Manage the Non-native Fish in the Marsh Environment: A Proposal 599
 Laith A. Jawad

36 Freshwater Commercial Bycatch in the Southern Marshes of Iraq: The Unexploited Aquatic Wealth and Understated Conservation Problem 611
 Laith A. Jawad

Section X Socio-economic Aspects

37 Ornamental Fish Farming: A Proposal for a Successful Small-Scale Aqua Business Project in the Southern Marshes of Iraq 621
 Laith A. Jawad

38 Migration of Youth to the Big Cities from the Southern Marshes of Iraq: Solutions to Keep Locals with an Upgrading for Their Skills and Livelihood 631
 Laith A. Jawad

39 The Daily Life of the Marsh Arab of the Southern Marshes of Iraq Through a Camera Lens 641
Laith A. Jawad

40 Socio-economic Status Comparison of Fishermen Community in Two Marsh Areas in Southern Iraq 809
Laith A. Jawad

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Section I
Historical Perspectives

Chapter 2

Cities in the Water: Waterscape and Evolution of Urban Civilisation in Southern Mesopotamia as Seen from Tell Zurghul, Iraq



Davide Nadali

Abstract Ancient canals, marshes and proximity of the sea heavily characterised the landscape and environment of the ancient State of Lagash in southern Iraq, from the mid-fifth to the second millennium BC: indeed the diachronic changes that can be analysed thanks to geological and archaeological observation and investigation show how this waterscape definitely influenced the shapes of settlement and the organisation of ancient societies from a cultural, economic and biological point of view.

Recent excavations at Tell Zurghul in southern Iraq are giving the possibility to test, in the field, the presence of water: ancient cuneiform sources, from the mid-third millennium BC, show the intense programme of the rulers of the State of Lagash in managing water through the construction of canals and the regulation of marshes characterised by marine water due to the proximity of the sea. In this respect, human actions (such as the digging of canals) and natural conditions (such as the reduction in the fifth millennium and the progressive growth in the fourth millennium BC of water level) are recognisable in the field, and they of course explain the morphology of the site in the past and the changes it suffered even in the present: water in fact is doubtless a fundamental resource for suitable conditions of formation and growth of a urban centre, but it also limits the possibility of extending occupation on the entire surface (as, e.g. the exploitation of lands for agricultural purposes).

Keywords Marshes · Canals · Lagash · Mesopotamia · Tell Zurghul · Waterscape · Urbanisation · Water

The study of the presence and management of water in southern Mesopotamia recently increased, thanks to the research that principally focused on the analysis

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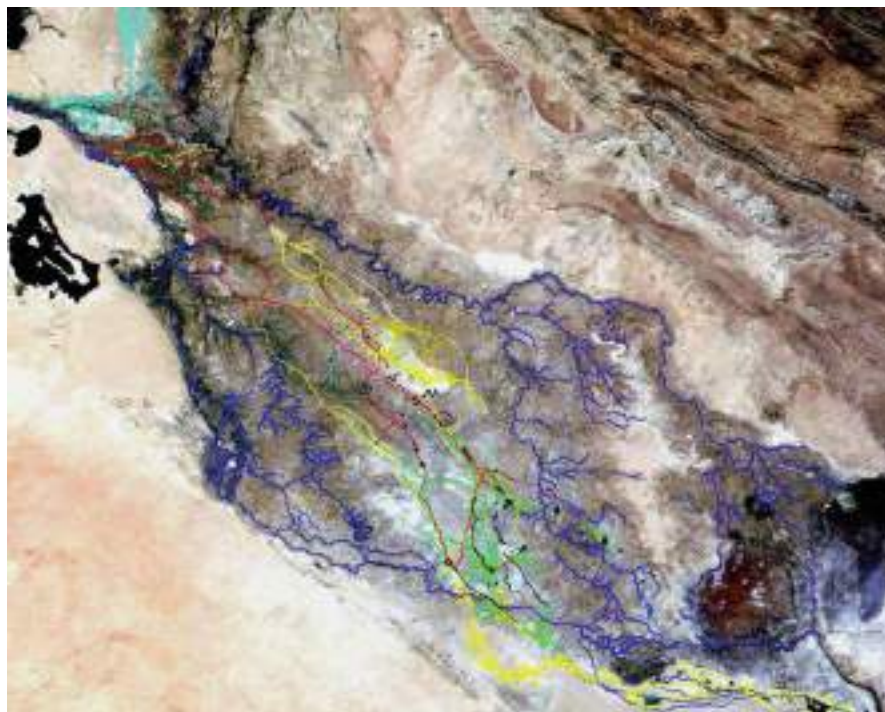


Fig. 2.1 Tigris and Euphrates alluvial watercourses, 8000–1720 BC. (After Pournelle 2003: fig. 26)

of the morphology of landscape and the detection of ancient canals on the surface, specifically between the main Mesopotamian rivers, Euphrates and Tigris (Fig. 2.1).¹ Indeed, the two rivers strongly characterised and shaped the Mesopotamian landscape, particularly if we think of the changes their riverbeds suffered:² at the same time, changes to the morphology of the landscape have also been caused by the anthropic action of digging new canals, a feature that allowed the regulation of water, the irrigation of fields as well as the transportation and movement of both people and goods.³

Up to now, little research has been conducted in the field: with the few exceptions of surveys made in southern Iraq (Hammar district, Dhi Qar, and Basra)⁴ and

¹Pournelle 2013; Wilkinson 2013; Wilkinson and Hritz 2013. The present research stems from the 3-years research “Fluid Crescent. Water and Life in the Societies of the Ancient Near East”, funded by the Italian Ministry of University and Research (PRIN 2017, no. 2017NMK5FE).

²Garzanti et al. 2016: 112–113; Pournelle 2013: 14–16; Ur 2013: 132; Wilkinson 2003: 82; Wilkinson and Hritz 2013: 20–21.

³Liverani 1990; Widell 2013: 58–59; Widell et al. 2013: 66–73.

⁴Hritz et al. 2012a; Al-Hamdani 2014a.

excavation of palaeochannels aimed at their reconstruction and dating,⁵ studies have been so far limited to the analysis of CORONA satellite images:⁶ on the one hand, if this kind of research allows the possibility of detecting traces of canals on the surface, it does not allow on the other hand the complete understanding of the formation and use of those waterways in antiquity. In particular, the real question concerns the time: that is, when have those canals been dug? How long have they been used? Assumptions merely based on the observation of satellite images are not sufficient: a careful analysis and survey directly in the field must necessarily complete the preliminary considerations. At the same time, cuneiform sources give very important and useful information on the system of canals and the water environment of ancient Sumer: excavations of canals, constructions of dams and the existence of an organised bureaucracy for the management of this complex water network are extensively documented in the texts of the third millennium BC, showing not only the high degree of technology but also the constant and necessary care of the waterways that were used for irrigation, transport and communication.⁷ In this respect, it is interesting to point out that the first real developed system of irrigation network can be precisely identified, in the Early Dynastic IIIb Period, in the ancient Sumerian State of Lagash that included the cities of Girsu, Lagash, Nigin (Tell Zurghul) and the yet unidentified Gu'abba.⁸

Extensive surveys on terrain – that offer the possibility of matching the archaeological evidence with the information provided by texts – have been possible only in recent times: the resumption of archaeological investigations in southern Iraq in the provinces of Basra, Dhi Qar and Al Diwaniyah provides the opportunity to shed light on the morphology and formation of the ancient waterscape, taking into consideration the presence of rivers, the artificial excavation of canals and the area of the marshes (that must also encompass the study of the ancient marine shore that should be considered more as a threshold rather than a proper border).⁹

The archaeological project – a joint expedition of Sapienza University of Rome and the University of Perugia established since 2014 in the region of Dhi Qar at the site of Tell Zurghul, ancient Nigin (Fig. 2.2) – also encompasses the study of the territory and the morphology of the area focusing on how landscape has been transformed and affected by water. Actually, the entire area of the site (with the sole exception of the two main mounds, labelled A and B) has been deeply characterised and transformed by the presence of water: in this respect, the landscape of Tell Zurghul can rightly be labelled as a waterscape, and one might even advance the hypothesis that the growth and formation of the settlement strongly depended on

⁵See in particular in Jotheri et al. 2016 and Jotheri et al. 2018.

⁶Hritz and Wilkinson 2006; Hritz 2010, 2014.

⁷Bagg 2017.

⁸Steinkeller 2001; for a detailed analysis of the “canal which goes to Nigin” that, with its total length of about 50 km, was the largest canal in the ancient state of Lagash, see Carroué 1986 and Rost 2011.

⁹Pournelle 2007, 2013: 19–20.

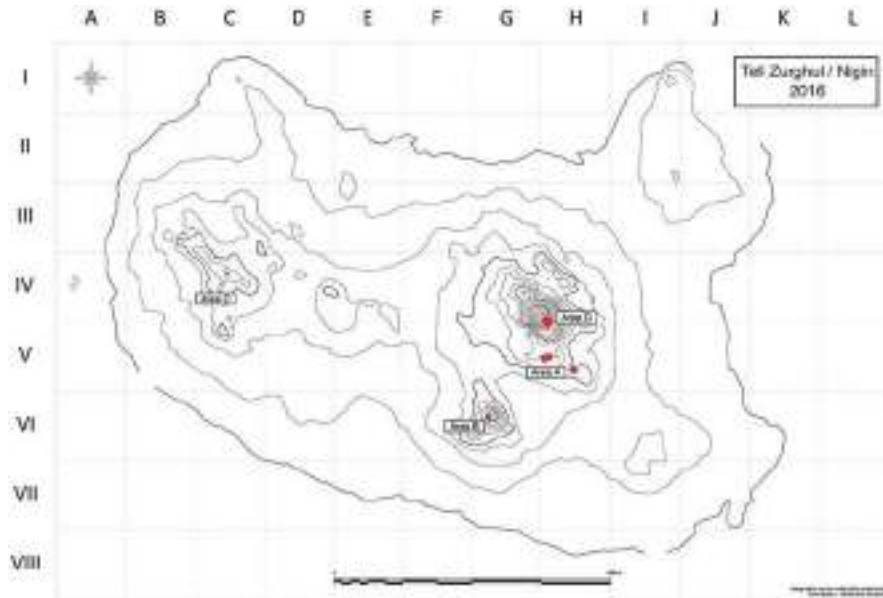


Fig. 2.2 Topographic map of Tell Zurgul (© MAIN)

the presence/absence of water.¹⁰ In this respect, for example, the sea ingression, with the sea level gradually rising during the Holocene Period (about 6000 years BP), led to the advance of the coastline to close proximity to sites such as Ur, Eridu and Tello (ancient Girsu);¹¹ in the Ubaid Period (fifth millennium BC) – as it has been possible to recognise in southern Mesopotamia near Tell Oueili and Larsa¹² – the sea level was slightly higher than today, and early Ubaid villages and settlements mainly occupied exposed surfaces of Pleistocene “turtlebacks”:¹³ the later process of sediment accumulation therefore hid the earliest occupation levels;¹⁴ conversely, the heavy aeolian degradation revealed parts of archaeological sites dating to even earlier phases.¹⁵ Environmental and natural conditions heavily affected the archaeological landscape of the south plain of Mesopotamia,¹⁶ particularly taking into

¹⁰Wilkinson and Hritz 2013: 18.

¹¹Sanlaville 1989; Pournelle 2013: 19.

¹²Sanlaville 1989; Geyer and Sanlaville 1996.

¹³Hritz et al. 2012a: tab. 1; Pournelle 2003, 2007, 2013: 22.

¹⁴As has been recognised in the levels Ubaid 0 and 1 at Tell Oueili (Vallet 1996; Pournelle 2007: 46–48).

¹⁵Pournelle 2013: 20; Wilkinson and Hritz 2013: 19.

¹⁶The study of the morphology and topography of Mesopotamian sites in the southern plain heavily depends on the analysis of natural conditions, environment and landscape in a diachronic perspective, showing changes across time. In this respect, it seems useful to point out the altitude of Tell Zurgul with the highest point at 12 m asl (on the main Mound A) and the lowest point of –1 m

consideration the role of water and the consequent possible seasons of inundation of the area (Fig. 2.3).¹⁷

Not only do cuneiform sources of the third millennium BC (Early Dynastic IIIb and Neo-Sumerian Period) testify to the intensive and programmatic actions of the rulers of the first and second dynasty of Lagash in excavating canals (the “canal which goes to Nigin” is only one of the most documented and well known).¹⁸ Archaeological evidence on the site also shows a massive and almost constant presence of water that can be clearly recognised in the quite large white bands and pools (made of sandy soil);¹⁹ therefore the presence of water has been long lasting, and it might be inferred that it deeply affected the morphology of the settlement as well as the stratigraphy and integrity of archaeological deposits.

Excavations, carried out at Tell Zurghul in the recent years (2015–2017), precisely showed and pointed out this aspect: on one hand, water was a fundamental resource for the growth and transformation of the urban centre; on the other, speaking from a strictly archaeological perspective, water was, indeed it has been until recent times, extremely invasive: the formation of small rivers during the heavy winter rains erodes the archaeological deposits, resulting in the presence of strata of accumulated debris and archaeological materials (namely pottery) that are dragged downstream from the main mounds and elevations (Fig. 2.4). As previously mentioned, erosion by wind and heavy rains, moreover, contributed to the disappearance of the upper layers of occupation of the archaeological sites:²⁰ taking the original environment of the archaeological sites of southern Mesopotamia into consideration, one might evaluate how the presence of water affected the growth and formation of ancient settlements with the consequent result that if occupation of places has been favoured by water, it has also been adapted to water; as suggested by Carrie Hritz and Jennifer Pournelle,²¹ the system of southern Mesopotamia can be described as resilient due to the ability of coping and adapting to change. New archaeological

below sea level: this last datum shows the very special morphological nature of Mesopotamian sites in the southern alluvium characterised and shaped by the natural actions of water, wind and accumulation together with anthropic activities. In particular, the morphology of Tell Zurghul reflects the processes of sedimentation and the Gulf ingression with the continuous changes of sea level (increasing in the Holocene period, with a retreat to approximately modern sea level at the beginning of the second millennium BC). See Potts 1997: 33–4; Hritz et al. 2012b; Ur 2013: 132.

¹⁷Wilkinson 2003, 76–80, 87. The extensive presence of water covering the surface of Tell Zurghul has been also documented by some of the first visitors to the site: the American scholar Raymond Dougherty (1926) could in fact reach the site only by boat; again, at the end of the 1980s, Jeremy Black (1989–1990) says that to reach Zurghul from al-Hiba/Lagash, it was necessary to travel around the marshes.

¹⁸On the “canal which goes to Nigin,” see the analysis by Rost 2011.

¹⁹Soundings in Operation A1 (to the south-east of Mound A) in fact revealed the presence of a thick deposit of sand corresponding to a place originally occupied by water, maybe one of the streams that crossed the city. It is interesting to point out that the northern limit of the strata of sand presented consistent layers of accumulation with materials (pottery) carried by water from the main mound.

²⁰Wilkinson 2003: 81–83.

²¹Hritz and Pournelle *in press*.

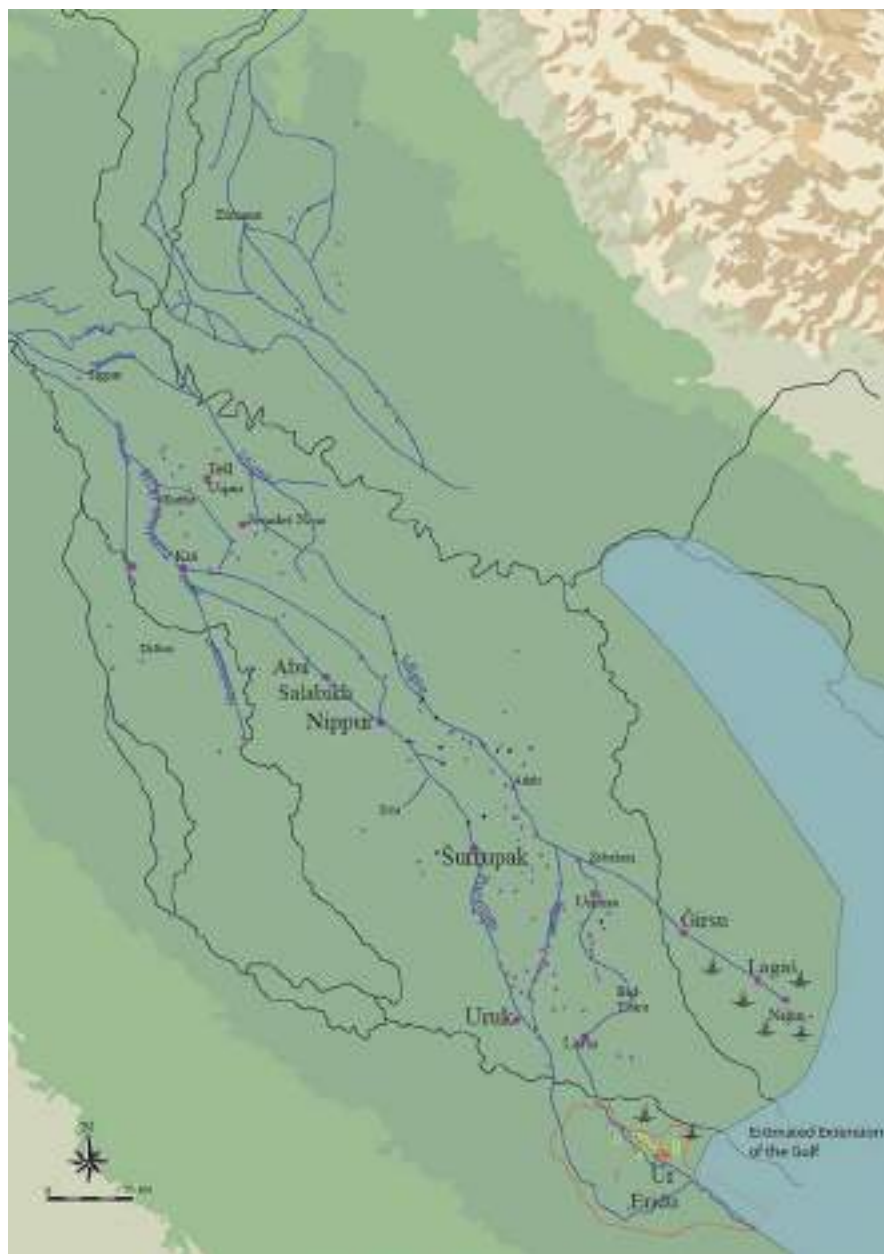


Fig. 2.3 Third millennium BC southern Mesopotamia. (After Benati 2015: fig. 2.1)



Fig. 2.4 Action of rain and traces of salt on the surface (© MAIN)

excavations in southern Iraq should also start from this premise: shapes and extension of sites change according to the features and evolution of natural ecosystems, and water is doubtless the most prominent element to which ancient Mesopotamian inhabitants and rulers paid specific attention with the construction of new and the care of old canals for the regulation of hydric resources. This is in fact a precise duty of Mesopotamian rulers: the care of ancient canals is prerogative for the good management of cities and territory they received from gods. The management and control of waterways was so important for Mesopotamian kings that hydraulic warfare occurred in the mid-third millennium BC between the cities of Lagash and Umma:²² for a long period, the two cities confronted each other for the control of Gu'edenna, a very fertile and well-irrigated portion of land. These events explain how water was important for the economy of the cities of southern Mesopotamia, particularly in the area where cultivation of arable lands was possible only, thanks to artificial irrigation,²³ a situation completely different from the northern Mesopotamia, the region of Babylonia – as defined by Piotr Steinkeller – to make a distinction from the southern alluvium that can properly be labelled as the land of Sumer.²⁴

The archaeological excavations at Tell Zurghul concentrated on three areas with operations that delivered layers of occupation dating to the Late Ubaid Period

²²I owe the definition of “hydraulic warfare” to Ingo Schrakamp who used these terms in a communication presented at the workshop “Ancient Lagash— a workshop on current research and future trajectories” held at Vienna in 2016 within the 10th ICAANE. See also Selz 1998: 312.

²³Widell 2013.

²⁴Steinkeller 1999: 290.

(Area B),²⁵ the final phase of the fourth and beginning of the third millennium BC (Area A), and finally to the late third millennium BC (Neo-Sumerian phase) (Area D) (Fig. 2.2). At the same time, an extensive survey has been conducted along the western edge of the site (Area C) with a collection of pottery sherds showing that the site has long been occupied up to the very beginning of the second millennium BC (Isin-Larsa Period in common Mesopotamian chronology): the nature of the soil and the high percentage of slags so far recovered and registered seem to confirm that this area has probably been devoted to working activities with the presence of workshops and kilns for the production of pottery and bricks.²⁶

As pointed out, the morphology of the site and the nature of the soil clearly show that water was a natural element that deeply characterised and, as we might infer, transformed the settlement: beyond the canal quoted in the inscriptions of Urukagina and largely described by Gudea,²⁷ the site has been largely and extensively covered by water (flooded) in the last century. This situation lasted for years, and only recent reclamation and climatic changes made the site drier with the presence of water pools (swamps and lagoons) localised along the margins.²⁸

Since 2017, an agreement with geologists from Sapienza University of Rome and the University of Perugia has been specifically initialled for the study and analysis of the geological and hydrogeological aspects of the site and, more in particular, of the white areas made of sandy soil to detect the persistence of water as well as the period of formation of either natural or artificial aquatic surfaces (Figs. 2.5 and 2.6). However, information gathered from geological soundings can then be compared with the data of cuneiform sources of the first and second dynasty of Lagash – thus having the possibility of mapping in the ground the public works of digging canals since the mid-third millennium BC. At the same time, results of geological analyses can supply important and fundamental hints for the comprehension of the development of the settlement across time:

- How and when was the site occupied?
- Was it extensively occupied in all periods?
- Did water prevent the occupation of some areas of the site?
- Did water force and therefore guide the process and progress of occupation and growth of the urban centre?

These are only a few questions that new archaeological and geological investigations at Tell Zurghul and in the area of the ancient State of Lagash can answer. In few words, as a very preliminary assumption, the extensive presence of marshes and

²⁵Nadali and Polcaro 2016.

²⁶Area C is also extensively characterised by the presence of drain pipes that could in fact be attributed to domestic structures no longer visible and preserved or, in fact, to workshop and activities related to the use and management of water (drainage). See McMahan 2015; see also George 2015.

²⁷See Heimpel 1998, with references to aquatic environment and canals of the ancient city of Nigin.

²⁸Still today in winter time, pools of water can be seen on the western and north-western margins of the site, but not directly touching and covering the site.

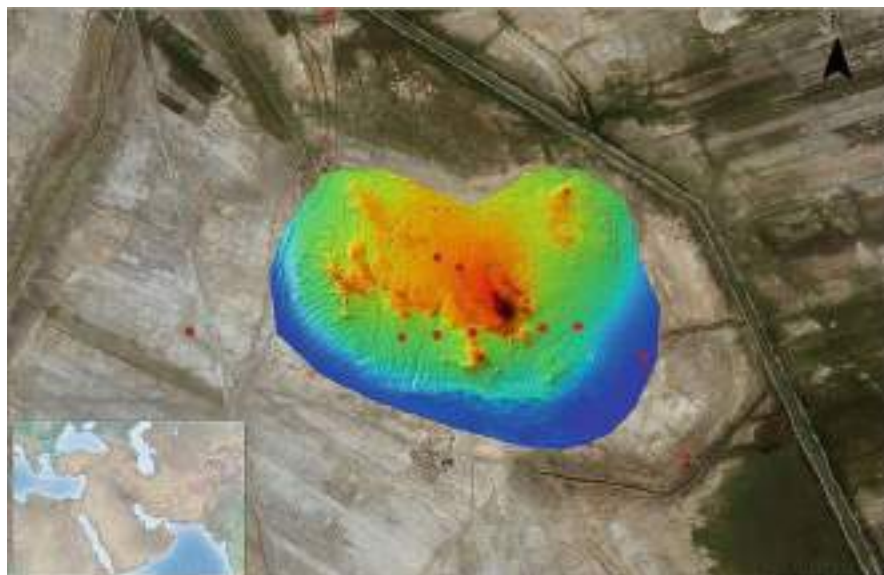


Fig. 2.5 Elevation core locations, Tell Zurghul (© MAIN)



Fig. 2.6 Sounding, Operation A1, showing the sediment of sand in the lower city (© MAIN)



Fig. 2.7 Area B, the rest of shark vertebrae in situ, sector B North, 2017 (© MAIN)

regularly excavated canals might have shaped the region more generally, and the city more specifically, with emerging places and hills occupied by buildings. Geological investigations are essential to verify and clarify where and how water was present at the site. Marshes of the southernmost alluvium of Mesopotamia were characterised by marine water, with an impact on the ecosystem (flora and fauna) and the possible use of water for irrigation.²⁹

In the northern sector of Area B, excavations brought to light a structure made of three rooms connected to each other. Two filling layers of soft sandy grey soil covered the floors: those two layers are characterised by the presence of many fishing net clay weights, shells and fish vertebrae and some preserved fish skins. Two sickles and two grinding stones, almost complete, were also found together with a small worked crystal. This archaeological evidence from Area B confirms that Zurghul, during the Chalcolithic Period, was largely covered by marshes of brackish-marine water. This explains in fact the recovery of fish vertebrae (Fig. 2.7) of “bull shark” (*Carcharhinus leucas*), one of the few species that are able to go back upstream in the rivers and that could perfectly live in a brackish-marine environment.³⁰ At the same time, the presence of the typical Ubaid sickle (Fig. 2.8) can be also connected with the waterscape of the region: sickles in fact, instead of being used for agricultural purposes (at least not exclusively), were employed to cut reeds in the marshes, thus making the movement on boats and the fishing easier. Interestingly enough, at

²⁹Wilkinson and Hritz 2013: 23–4, 27–8.

³⁰Jawad 2018.



Fig. 2.8 Area B, clay sickles and group of fishing net clay weights from the sector B North, 2017 (© MAIN)

Tell Zurghul, clay sickles have been found in association with the vertebrae and some fishing net clay weights.

Salinisation of soil affects the exploitation of lands for agriculture:³¹ the surface of Tell Zurghul is characterised by a thick stratum of salt, and it is interesting to note that this does not completely cover the surface of the site, but is located on precise spots – most precisely, salt is present in the western sector of the site, on the inner and outer side of the elongated elevation identified and surveyed in Area C. Once salt is removed, thick strata of silt (humid clay), often without consistent evidence of archaeological materials, are found, and they can be interpreted as the result of alluvial deposits created by the movement of water across the ancient city.

An inscription of Urukagina (Early Dynastic IIIb) states that “For Nanshe [the patron deity of Nigin] he constructed the Nigin-Going-River, built the Eninnu at its beginning, Sirara House at its end” explaining that he further “extended it for her into the midst of the sea”.³² The words of the ruler of Lagash show that the ancient city of Nigin, still in the third millennium BC, laid on or was very close to the sea: the indication of Urukagina is the proof of a wide work of hydraulic engineering with the canal entering into the sea or, as we might suppose, flowing into the marine delta of the southern alluvium that was characterised by marine incursion into the swamps of

³¹Powell 1985; Sanlaville 1989: 8; Widell 2013: 58; Wilkinson 2013: 37, 40, 43.

³²Heimpel 1998: 153.

the region. Also Gudea refers to the Canal Going to Nigin: the waterway linked the northern city of Girsu to the southernmost city of Nigin of the ancient State of Lagash – used for transportation and on occasion of religious ceremonies,³³ the canal surely shaped the landscape of the entire region, being a connection between the three cities of the State and even reaching the sea or seashore as it was during the time of Urukagina. Again, **texts from the period of the Third Dynasty of Ur show the existence of a harbour and shipyard at Nigin or in the surroundings of the city.**³⁴ **The location of the ancient Gu'abba, the harbour of the State of Lagash and the trade centre where merchants and goods from the Indus Valley reached Mesopotamia, is still a matter of debate.**³⁵ Based on the analysis of the description and measures given in the cuneiform sources, one might be suppose that the ancient canal excavated by Gudea coursed on the eastern side of the city, coming from the North: observing the satellite image of Tell Zurghul, it is possible to detect a canal on the eastern side, although it is difficult to ascertain whether it corresponds exactly to the ancient one that presumably ran into the city reaching, as Gudea says, the mountain – presumably corresponding to the main mound of the site – where the temple Sirara of the goddess Nanshe was built.³⁶

For that reason, the programmed geological and hydrogeological analysis in the field aims to precisely detect the real extension of waterway, the ancient trace and the identification of the levees that surely were quite impressive in dimension if one thinks of the total length of about 50 km of the canal, indeed the largest one in the ancient State of Lagash.³⁷

The dense network of canals crossing the landscape of central and southern Mesopotamia is not only clearly visible from aerial and satellite images, with the traces of waterways and pools of water; direct observation in the field is a necessary integration of the distance analysis, with the possibility of verifying the implications on the environment and morphology of ancient settlements. The excavation of canals required a huge involvement of large investment and labour:³⁸ the operation was a social, political and cultural activity having different levels of function and impact. The excavation of canals was a duty of Mesopotamian rulers, but indeed it was also a real necessity for the management and exploitation of arable lands: texts of the third millennium BC, from the Early Dynastic Period to the time of the Third Dynasty of Ur, clearly point to the attention Mesopotamian rulers paid to the care of old and the excavations of new canals. Texts also enlist the names of the positions of appointed employees, and they give the total amount of specialised workers that were specifically devoted to this office. Moreover, cuneiform sources also show that the general

³³Rost 2011.

³⁴On the Sumerian mar-sa, its function and management, in the time of the Third Dynasty of Ur, see Alivernini 2013a, b.

³⁵Vermaak 2008.

³⁶Huber Vulliet 2009–2011.

³⁷See the reconstruction in Rost 2011.

³⁸Steinkeller 2013.

idea of a system exclusively based and depending on the central management and administration of the regulation of water sources must be questioned, having texts and data that in fact document the existence of different levels of action and people that were involved in the planning of the irrigation and regulation of the correct flow of waters (from the main rivers to smaller canals, with the construction of ditches, dykes and dams).³⁹

The analysis of the environmental landscape where the cities of the ancient State of Lagash arose and developed allows researchers to reconsider the role and importance of the presence (one might even say the predominance) of water around the sites, at least for the area of southern Mesopotamia with the very interesting and special environmental condition of the presence of rivers, artificial canals and the sea. However, the old view of the hydraulic society of Karl A. Wittfogel applied to ancient Mesopotamia should not be reformulated according to the archaeological evidence.⁴⁰ In this respect, the complex hydraulic system of southern Mesopotamia is not (at least not only) a derivation of city-states and political powers that transformed and used water to build and support their socio-economic system; in fact, it might be said that the contrary is true, that is, the waterscape of southern Mesopotamia worked as a prerequisite or even a fundamental condition to make city-states grow and enlarge their power to the level of regional and territorial states. The pre-existing hydraulic landscape (or waterscape) of ancient southern Mesopotamia contributed to the birth and the economic growth of cities, marking the development of social and political complexity.⁴¹

The operation carried out at Tell Zurghul since 2015 on the top and south-western slope of Mound B led to the identification of phases of occupation that can be dated to the Ubaid 4 Period (ca. 4800–4500 BC);⁴² although evidence is still too scanty to present comprehensive conclusions, the data so far unearthed in the area of Mound B are intriguing if historical period (Ubaid), morphology of the mound and archaeological evidence (architecture and material culture) are taken into consideration and matched together.

Mound B has a surface of nearly 0.7 ha, with an altitude of nearly 4 m on the surrounding level of the lower city (Fig. 2.9). It has been very briefly investigated by Robert Koldewey, with a trench on the south-eastern slope and a square sounding on the top.⁴³ The presence of well-preserved and undisturbed Ubaid layers just below the surface of the mound is not surprising: wind and heavy rains can contribute to the remodelling of ancient mound.⁴⁴ Interestingly, the preliminary data pointing to the occupation of Mound B of Tell Zurghul in the Late Ubaid Period fits in with the

³⁹On the administrative organisation and technical terms of the management of water in ancient Sumer, lastly see Schrakamp 2017.

⁴⁰Wittfogel 1955, 1957. See also the critical reconsiderations by Liverani (2013: 162–8, 280).

⁴¹Algaze 2001; Wilkinson et al. 2015.

⁴²Nadali and Polcaro 2016.

⁴³Koldewey 1887: 416, 429.

⁴⁴Pournelle 2013: 20.



Fig. 2.9 General view of Mound B, from North-East (© MAIN)

results of the survey of Abdulmir al-Hamdani that revealed that the area of Lagash was occupied in the Late Ubaid Period with settlements of no more than 3 hectares, mainly located around the city of Girsu and Bad-Tibira, as well as al-Hiba itself, and the southern city of Tell Zurghul, and having the shape of turtlebacks emerging from the water.⁴⁵

The settlement dated to the Late Ubaid Period so far excavated at Tell Zurghul seems to have the characteristic of a small turtleback mound: it might be inferred that the proximity of Tell Zurghul to the sea, within a waterscape characterised by marshes, definitely forced the occupation of the pre-existing natural mounds; at the same time, earlier phases of occupation,⁴⁶ as well as levelling and rebuilding, led to the increasing and enlargement of both the mound and the settlement, with a second lower hill to the south-west. The large presence of clay cones on the surface, mostly found within gullies, indicates the existence of public buildings, the pottery being coherent with the Ubaid phase.

Surrounded by marine marshes, the mound has been extensively occupied, and further research will be conducted to verify the real extension of Ubaid layers, encompassing the area at the foot of the mound: in fact, from a general observation and first investigation of the area, Mound B, at least according to the stratigraphy of the area,⁴⁷ has not been reoccupied and covered by later structures, although Koldewey collected later materials on the surface and in the deep soundings he excavated during his brief exploration to the site in 1887.⁴⁸

Excavation in Area A, to the south of the main mound, revealed layers of occupation from Late Uruk to the Early Dynastic I, thus showing an uninterrupted

⁴⁵Al-Hamdani 2014b; Hritz et al. 2012a; Nadali and Polcaro 2016: 82.

⁴⁶Sherds dating to the phase Ubaid 2 have been collected on the surface of Mound B: this datum therefore points to the previous occupation of the area.

⁴⁷Nadali and Polcaro 2016.

⁴⁸Koldewey 1887; Huh 2008: 245–6, 252, 752.

sequence from the end of the fourth to the third millennium BC: earlier occupation has not been detected, and one might therefore wonder and infer whether Tell Zurghul could thus have been made of several hills (turtleback mounds) or spots emerging from the surrounding waterscape of marshes.

Further study of the morphology and occupation of the site on its whole surface might in fact show that settlements moved from one spot to another according to the extension, presence and absence of water in each period: not only climate changes and natural sedimentation, but also anthropic actions (dams, canals, irrigation and reclamation) heavily affected the environment and the presence of water around and within the site. In summary, water on the one hand favoured the birth and growth of the settlement(s), but on the other hand, it might have forced and conditioned people to choose available and emerging places adapting to the changes, either natural or generated by man.

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