KING GHAZI LANDSCAPE MUSEUM

متحف الملك غازي للمناظر الطبيعية

Museum Guide

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مرحبا بكم في متحف الملك غازي للمناظر الطبيعية

بيئة بلاد الرافدين

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افتتاح المتحف الوطني للعراق و الهيئة العامة للأثار والتراث

التقنيات الحديثة لعلم الآثار
WELCOME TO THE KING GHAZI LANDSCAPE MUSEUM
The King Ghazi Landscape Museum is the first museum in Iraq that aims at telling the history of the region's landscape, from the late prehistory until today. The King Ghazi Landscape Museum is born from the cooperation between the Iraqi State Board of Antiquities and Heritage (SBAH) and the University of Bologna in the frame of the European-funded project EDUU - Education and Cultural Heritage Enhancement for Social Cohesion.

The museum is divided into two parts: the four main exhibition rooms focus on different themes regarding the relationship between man and territory over the millennia. The visitors’ path continues with two rooms dedicated to the history of King Ghazi. An additional space devoted to educational activities allows children to learn the history of Iraq.

“EDUU – Education and Cultural Heritage Enhancement for Social Cohesion in Iraq” was a 30-months (2017-2019) international project funded by the European Union in the frame of the EuropeAid - Civil Society Organisations - Local Authorities Programme in Iraq.

EDUU means “to know” in the ancient Akkadian language spoken by the first inhabitants of the region, and it serves as a symbol of the museum's educational mission.

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itants of Mesopotamia. The project seeks to create an EU-Iraq partnership in the fields of education and cultural heritage, connecting universities, secondary schools and museums. Italian and Iraq partners are working together to enhance the pluralism of Iraqi civil society as well as to raise awareness on the diverse and multicultural past of the country.

The EDUU project aims at: 1. increasing the knowledge of the pre-Islamic societies in Iraq through archaeological research in the Qadisiyah and Wasit regions, and raising awareness on the Iraqi cultural heritage; 2. protecting and promoting cultural heritage as a tool for dialogue between different actors of society; 3. increasing the interest in the common cultural heritage and identity of Iraqi society among young generations, through courses in secondary schools and rural communities; 4. improving local museums and engaging the civil society in cultural heritage initiatives; 5. promoting and disseminating the value of cultural heritage as a tool for community building in Iraq and internationally.

The QADIS survey project is a joint Iraqi-Italian initiative of the Alma Mater Studiorum - University of Bologna and the SBAH. Seven campaigns were carried out between 2016 and 2020 under the direction of Nicolò Marchetti. The project aims at reconstructing the settlement patterns and hydraulic landscape of the region between the town of Afak to the North-West, the reservoir of Delmej to the East and the southern boundary of the Qadisiyah region. A new integrated approach to investigate the ancient landscape has been applied using the most updated methodologies (see panel on "Modern Techniques of..."
Landscape Archaeology” in Room M) such as remote sensing, drones, surface intensive material collection and geoarchaeology, among others. Thanks to this methodology, the QADIS team has been able to recognise and document more than 120 archaeological sites previously unknown and over 700 ancient canals dating from the Uruk period (4th millennium BCE) to the Ottoman period (1800 CE). The newly acquired high-resolution photos provided by drones have allowed to shed new light on the urban layout of the Mesopotamian cities through time. These results permit to propose a new reconstruction of the history of ancient Mesopotamia.
King Ghazi Landscape Museum

The Mesopotamian Environment

The Mesopotamian Civilizations

Water and Agriculture in Mesopotamia

Archaeological Researches in Mesopotamia

The Mesopotamian Civilization Environment

Museum

Director's Office

Restroom

Tea Shop

Children's Room

Court

Children's Room

Director's Office

Restroom

Tea Shop

Children's Room

Director's Office

Restroom

Tea Shop
The first room “A”, green in color like the plants of the Mesopotamian floodplain, introduces the visitor to the history and natural environment of Mesopotamia. The objects on display show in particular which were the first tools used by the Sumerians to cultivate the fields and produce food. The second room “B”, light red like the mud-bricks of which the ancient houses of the Mesopotamian civilizations are made. In this room the theme of the birth of cities, which took place in southern Mesopotamia, today’s Iraq, is explained. While the various panels illustrate the formation process of the first urban centers, the objects on display mainly represented architectural elements used in buildings. The third room “C”, in blue like water, shows the importance of rivers and canals in the development process of Mesopotamian civilization from antiquity until today. The panels in this room explain the development of agricultural techniques and water channels over time, while the display cases have been organized to show objects that relate to the processes of production and consumption of food and daily life. In the fourth room “M”, in purple, the explanatory panels tell the story of the discoveries in Mesopotamia, and the research techniques used by archaeologists to document the past. In rooms “G” and “F”, yellow in color, the main color of the coat of arms of Iraqi royalty, daily objects and photographs of King Ghazi, the second king of Iraq, who reigned between 1933 and 1939 are shown. Given the importance of communicating the past to the new generations, the museum has a children room where ad hoc activities aimed at children will be carried out. We hope you will enjoy this journey in the ancient history of Iraq!
THE MESOPOTAMIAN ENVIRONMENT

بيئة بلاد الرافدين
The Iraqi environmental setting is rich and diversified. It is in the North of this region that, around 10,000 years ago, people started farming and in the South, approximately 5,500 years ago, the first large cities were created.

The wide and almost flat land extending for several hundreds kilometres from Baghdad to Basrah is dominated by the Euphrates river to the west and the Tigris river to the east. These two important rivers formed the so-called Mesopotamian floodplain a few millennia ago. They are generated by the spring snowmelt in the mountains of eastern Turkey and they arrive to Iraq passing through

Map of the main archaeological sites of Southern Iraq.
the region of Dohuk and Mosul (Tigris) and the region of Anbar (Euphrates).

Already from remote times, it is possible to distinguish two main environmental areas that have profoundly influenced the ancient culture of the country: the first one, north of Baghdad, centered around the Tigris river and its confluents, while the other one, south of the Iraqi capital, constellated by hundreds of cities and villages that flourished between the two rivers. These differences have created different types of anthropized landscape. The abundant rains in the North allowed to develop a rain-fed agricultural system in this region. Cereal crops could be extensively grown and in the moister fringes tree crops and legumes provided a more diversified agricultural economy.

Reconstruction of the urban layout of the ancient city of Puzrish-Dagan (modern Tell Drehem) 5,000 years ago. In blue the rivers and the harbor, while in black, yellow and red the ancient buildings.

Reconstruction of the urban layout of the ancient city of Puzrish-Dagan (modern Tell Drehem) 5,000 years ago. In blue the rivers and the harbor, while in black, yellow and red the ancient buildings.
SOUTHERN IRAQ

The South of the country, the heart of ancient Mesopotamia, is characterised by the flat and arid plains of the Tigris and Euphrates rivers interrupted by scattered palmgroves, canals and dunes. This extended plain is bordered by the high Mesopotamian steppe to the North, by the Zagros moun-
tains to the East, by the Arabian Gulf to the South and by the desert to the West.

Thousands of years ago, due to the scarcity of rains, the inhabitants of southern Iraq implemented and slowly improved a complex system of entangled artificial water channels that had origin in the Tigris and the Euphrates. This clever solution allowed to bring irrigation to the most remote areas of the valley.

The natural marshes are the most notable feature of the landscape of central and southern Iraq. In this type of environment, extremely rich for its biodiversity (many different animal and plant species living together), the ancient inhabitants founded large cities and exploited water as the main communication system.

Both the big urban centres and the small villages of the region were located along the waterways, which were fundamental for the
irrigation of the fields and the subsistence of men and animals, as well as being the most important way of communication. In this scenario, more than 6,000 years ago, important cities, such as Warka, Ur, Nippur, Kish, Lagash, Umma and Adab emerged. It was in southern Iraq that the oldest forms of writing in the world were tested and adopted and where the first states and, later, empires were born.
THE IRAQI MARSHES: A UNESCO HERITAGE SITE

Mesopotamian Marshes are located mostly in southern Iraq and partly in south-western Iran. Historically, they represent the largest wetland ecosystem of Western Eurasia, originally covering an area of 20,000 km². They are divided into three areas: the Central Marshes, between the Tigris and the Euphrates, the Hammar Marshes, south of the Euphrates, and the Huwaizah Marshes, east of the Tigris.

The Huwaizah Marshes receive high quantities of water from floods and limited amounts of seasonal rain. It is the only area that was not drastically drained in the 1990s, allowing the preservation of its ecological elements.

The Central Marshes is the core of the area and the setting of a high biodiversity. The Hammar Marshes are characterised by a specific ecological condition, given by the salt water from the sea: East Hammar is used by marine fish species for reproduction, while the West Hammar is the last stopover area for millions of migrating birds before entering the vast Arabian Desert.

The importance of this area lies in its richness of biological diversity, as it contains significant habitats for birds, mammals, fish, including several threatened species. More than 197 species of migrating water birds spend periods here during their migrations towards Africa. The area is also particularly significant for the flow of fish and shrimp species from the Arabian Gulf to the marshlands.

الاهوار العراقية: موقع تراث عالمي

تقع أهوار بلاد الرافدين في معظمها في جنوب العراق وجزئياً في جنوب غرب إيران.

تاريخياً، يمثلن أكبر النظم البيئية للأراضي الرطبة في غرب أوراسيا، والتي تغطي في الأصل مساحة 20000 كم². وهي مقسمة إلى ثلاث مناطق: الأهوار الوسطى بين نهر دجلة والفرات، أهوار الحمار جنوب الشرقية، وأهوار الحويزة في شرق نهر الفرات.

الاهوار الوسطى هي جوهر المنطقة ووضع التنوع البيولوجي العالي. تميز أهوار الحمار بحالة بيئة محدودة، يتم الحصول عليها بواسطة المياه المالحة من البحر: يتم استخدام مياه الحمار الشرقية من قبل أنواع الأسماك البحرية للتكاثر، بينما تعد منطقة غرب الحمار آخر محطة توقف لعديد الطيور المهاجرة قبل دخول صحراء الجزيرة العربية الشاسعة.

تكمن أهمية هذه المنطقة في ثرواتها في التنوع البيولوجي، حيث تحتوي على مساحات طبيعية ذات أهمية كبيرة للطيور والثدييات والأسماك. بما في ذلك العديد من الأنواع المهددة. أكثر من 197 نوعاً من الطيور المائية المهاجرة تفضي فترات هؤلاء هجرتها نحو إفريقيا. كما أن المنطقة مهمة بشكل خاص لتدفق الأسماك وأنواع الروبيان من الخليج العربي إلى الأهوار.

لسوء الحظ، هذه الجنة الطبيعية في خطر في الخمسينيات من القرن الماضي، بدأ استنزاف الأهوار
Unfortunately, this naturalistic heaven is in danger!
In the 1950s, the Central Marshes began to be drained, with the aim of gaining land to be devoted to agricultural activities and oil explorations.

**A UNESCO HERITAGE SITE**
The Ahwar in southern Iraq, also known as the Iraqi Marshlands, has been listed as a UNESCO Heritage Site since 2016. Three archaeological sites, the cities of Uruk, Ur and Eridu, and four wetland marsh areas, constitute this protected area, covering over 210,000 hectares. This is a unique environment, as one of the world’s largest inland delta systems in a hot and arid place. Moreover, archaeological excavations and ancient sites have been carried out in these areas, revealing the richness of the cultural heritage of the region.
texts inform us that this environment was an essential component of the ancient economy. This was the heartland where the first cities flourished 6000 years ago. Uruk, Ur and Eridu were among the most important cities of southern Mesopotamia. 4,000 years ago, the sea started regressing towards the South in connection to a climatic change making this area more arid. Also for this reason, the great cities of ancient southern Mesopotamia declined. Meanwhile, new marshes formed to the Southeast, the ones that we can see today.

The inclusion of this area into the UNESCO Heritage Site List has also the purpose of devoting a more careful attention to its preservation. Indeed, dam projects, intensification of irrigation, pollution and drought remain challenges that have to be systematically considered, as they will increase the pressure on these fragile wetlands. In addition, regulation measures need to be put in place in buffer zones where potential oil
extraction activities could constitute an important threat to the integrity of the Ahwar. Finally, the impact of agricultural, fishing and hunting activities on ecosystems needs to be regulated.

Today, the integrity of the three cities of Uruk, Ur and Eridu, threatened by irreversible erosion and collapse, is vulnerable. No major preservation projects have been carried out since the 1930s, with the exception of the 1960s rebuilding of part of the Ur ziggurat by using baked bricks and, in limited amount, cement. Recent conservation projects at the site have employed more appropriate materials, but the authenticity (one the UNESCO criteria for the inclusion in the world list) of the three cities remains highly vulnerable because of poor protection and maintenance.

The Iraqi State Board of Antiquities and Heritage (SBAH) is working in partnership with foreign archaeological missions to implement the management plan of the archaeological sites and to train local staff.
The Marshes protection falls under the responsibility of the Ministry of Water Resources. The priorities are the staff training in all areas relevant for the conservation of the area's natural value, the involvement of local stakeholders in the decision-making process, and the ability of local communities to improve their living conditions and preserve their traditional way of life.

The ancient ziggurat of Ur built by King Ur-Nammu (4,100 years ago)
The risks threatening the Iraqi landscape

In recent years, the risks threatening the Iraqi landscape and cultural heritage have notably increased. From the 1980s until today, Iraq has been hit by continuous conflicts and looting, as well as disastrous effects caused by natural catastrophes and unregulated constructions. The threats impacting cultural heritage originate both from human-made activities and environmental processes.

**Human-Caused Threats**

People damage archaeological sites and monuments both voluntarily or involuntarily in different ways. The three main threats are: 1) illicit trade of antiquities resulting in looting; 2) military conflicts, mostly represented by bombing of sites and plundering of archaeological sites.

**Environmental Threats**

Disastrous effects caused by natural catastrophes and unregulated constructions also pose a threat to cultural heritage. Examples include earthquakes, floods, and environmental degradation caused by human activities.

**Conclusion**

The protection of cultural heritage requires a multifaceted approach that addresses both human-made and environmental threats. International cooperation and increased awareness are essential to safeguard the rich cultural legacy of Iraq.
museums; 3) economic development, characterised by unregulated construction and soil exploitation.

Results of illicit digging are the destruction of ancient sites and the loss of ancient finds that are part of the country’s history. A looter digs trenches and pits to recover ancient objects to be sold on the international black market. After the conflict in 2003, the amount of looted sites dramatically increased, especially in southern Iraq. Thanks to a more stable political situation, this action has gradually been reduced, even though the risk is still real. Looters usually prefer sites far from inhabited villages and towns.
Military conflicts have struck Iraq for more than 30 years. During this long period, hundreds of ancient monuments and archaeological sites, have been targeted during the fights by shelling.

The unregulated urban sprawl of the last decades has caused the partial or total destruction of archaeological sites and urban heritage buildings. Agricultural-related activities can severely affect the archaeological landscape as well. Earth moving machines, generally used to level the ground for farmland, have a critical effect on what lay below the surface, removing the archaeological deposits. The daily ploughing and the excavation of new water channels often hit and cut buried ancient places.

Rescue excavation at Tell Arris for the construction of a modern road.
ENVIRONMENT-CAUSED THREATS

The impact of nature on our heritage is continuous and pervasive. It can affect historical places in different ways and in most cases it is only possible to mitigate its effects rather than stop them. In this regards, climate change is playing a crucial role in accelerating the different threats. Among others, wind and water erosion represent the most dangerous ones, while less frequent but highly impacting are floods and desertification.

Wind and water erosion affect archaeological sites and monuments continuously. Their long-term threat, coupled with ineffective strategies of conservation, may lead to the slow decay and eventually destruction of historical places.

Desertification is the result of the movement of dunes over large territories or the gradual increase of desert areas. Sand dunes slowly move toward the archaeological sites covering them. This process does not damage the ancient remains below the sand, but make them inaccessible for long periods of time.
A MASSIVE HERITAGE LOSS: THE DELMEJ RESERVOIR

The Delmej reservoir is located between the Qadisiyah and Wasit governorates. It is a huge hydraulic infrastructure (616 km²), created between the late 1960s and early 1970s in the framework of an economic development project. The area was, in fact, characterised by desertification and lack of waterways, thus making agricultural activities difficult. Therefore, this project represented a major improvement in the economy of the region, thus providing substantial benefit for the local population.

The creation of the reservoir also resulted in the partial or total flooding of more than 130 archaeological sites. Some of these sites, heavily eroded, are still visible in some periods of the year, with a dry climate and a lower water level.
An archaeological site in the Delmej region partially flooded by the water.

موقع أثري في منطقة دلمج غمرته المياه جزئياً.
THE MESOPOTAMIAN CIVILIZATIONS AND THE FIRST CITIES
THE RISE OF THE FIRST CITIES

Since the birth of agriculture, the population of Mesopotamia was aggregated in small settlements. The emergence of urban centres in the modern sense took place around 6,000 years ago, during the so-called Urban Revolution. The first cities differed from the previous villages for various factors: a major population density, a clearer urban plan, the presence of numerous monumental governmental buildings (palaces, large granaries, fortresses, etc.), religious buildings (temples like ziqqurats), public works (water channels) and the division of labour. However, these first examples of cities collapsed before the end of the 4th millennium BC (5,000 years ago) both for exogenous and endogenous reasons including a notable desertification event.

After approximately five centuries of slow regeneration, new extended cities emerged throughout the ancient Mesopotamian floodplain and beyond, around 4,500 years ago. In the North of Iraq, Ashur; Tell Taya or Nineveh represented some of the major centres reaching 100 ha, roughly corresponding to 10,000-15,000 people. In the southern part of the country, the fertile plain providing a higher agricultural yield contributed to the development of numerous centres such as Eshnunna, Nippur, Kish, Adab, Isin, Umma, Ur; Larsa and Lagash. These cities could reach up to 400 ha, corresponding to about 40,000-50,000 inhabitants.
HOW ANCIENT CITIES FUNCTIONED

The different climate and environment greatly influenced the shape of southern Mesopotamian cities, differentiating them from the northern ones. In the South, due to the crucial role of water, both large and small cities developed along rivers or artificial channels. In many of these centres, such as Adab, Kisurra, Nippur, Puzrish-Dagan, the neighbourhoods were separated by waterways. The shape of these cities was elongated and strongly related to the water stream along which they were founded.

Domestic buildings were densely packed in large neighbourhoods, while most of the elite buildings were located close to the palaces or temples. These centres were equipped with landing points for boats that around 4,500 years ago evolved into large and equipped harbours. Water thus remained the key com-

ponent in the development of southern Iraqi cities. The use of mud and reeds as the main building materials in southern Mesopotamia has prevented the preservation of the major part of the buildings, thus making difficult our understanding of the ancient ways of life and urban layout.

The stone or backed brick architecture (that characterised the cities of other areas of the ancient world) is obviously less subject to erosion and destruction, and the remains of those structures are usually monumental. However, even in southern Mesopotamia there are some visually impressive architectural remains: the ziggurats of Eridu, Uruk and Ur, for example, are heavily eroded, but still well visible over the desert landscape, becoming one of the most emblematic architectural features of the Southern Mesopotamian cities.
The northern Mesopotamian cities had different characteristics. Although large sites such as Ashur or Nineveh developed along main waterways, in the area between Iraq and Syria, where rainfall was lower and water-courses were smaller and more scattered, the inhabitants implemented different settlement strategies. The most common one, documented by the archaeologists, was that of the so-called circular cities. These were medium or large centres of circular shape, enclosed by city-walls and with a radial layout. The high mound, where the government buildings were located, was generally placed in the centre of the city, a feature generally lacking in southern Mesopotamia.

**THE CORES OF THE EARLIEST CITIES: TEMPLES AND PALACES**

Archaeological excavations and cuneiform texts suggest that the temples and the palaces were the core places around which the early cities developed. Already from the late Neolithic period, when the idea of urban centres was still far from being established, the temple was a place of great importance within the communities. During the Uruk period, the temples reached a level of importance never achieved before. The formerly small buildings, almost hidden within the urban fabric, became central places in the settlement, with large dimensions and elaborated decorations, managed by a powerful priestly body that also held the city’s political control. Some examples are the large Eanna Complex in the ancient city of Uruk, the Temple of Eridu and the Painted Temple at Tell Uqair.
The birth of the first cities is also linked to the labour division and the emergence of a stratified society, with a central power: elites, soldiers, specialised workers and slaves made up the urban society.

The central power was made of administrators, who controlled the politics, economy and religion of the cities, and was in charge...
of managing the resources and the surplus of production.
Intensive agriculture produced food surpluses, allowing some members of the community to carry out activities other than farming. Craftsmen, scribes, were some of the new professions that appeared in the Mesopotamian cities.
The strong needs of forms of control, required by the new socio-economic system, gave rise to the first writing system. Trade also started to be centrally organized and managed and, as a result a conspicuous amount of imported goods appeared and were consumed in the Mesopotamian cities.

THE BIRTH OF WRITING
The cuneiform writing was created about 5,300 years ago. The earliest type of writing is characterised by pictograms that depicted objects, such as animals, plants, objects or abstract symbols to indicate concepts. 4,800 years ago, this writing evolved into real signs called cuneiform because they were made with a wedge-shaped tool.
Around 2,000 BCE, the Akkadian language replaces Sumerian as the main spoken language with several variants in northern and southern Iraq. The Akkadian language was still used 2,500 years ago, but afterwards documents were gradually written in Aramaic. However, in southern Mesopotamia, the Akkadian language continued to be used among temple officers for religious purposes for the entire Achaemenid and Seleucid periods.
Scribes writing in cuneiform on clay and in Aramaic on papyrus in an Assyrian painting at Til Barsip (Syria), 8th century BCE.

An economic cuneiform tablet from 4500 years ago.

النقوشات المكتوبة باللغة المسمارية على الطين والأرامية على ورق البردي في لوحة آشورية في تل برسيب (سوريا)، في القرن الثامن قبل الميلاد.
THE PRODUCTION AND USE OF POTTERY VESSELS

Pottery represents a major category in the archaeological record. Through the study of pottery from an archaeological context, three types of evidence can be obtained: 1) the dating, i.e. when the vessel was used, 2) the distribution, i.e in which place it was used, providing also hints on trade and exchanges, 3) the function, i.e. for which purpose it was used.

Pottery had a central role in the ancient Mesopotamian daily life and its main functions involved food-related activities. Vessels in different shapes and dimensions were used to store and preserve dry and liquid goods, to cook food, to eat and drink. Preparing food in pottery containers represented an essential step in the human cultural evolution.

Early Dynastic I (5000 years ago) pottery beakers from Umm al-Fugas (Afak).

إنناث واستخدام اواني الفخار

يمثل الفخار فئة رئيسية في السجل الأثري. يمكن الحصول على ثلاثة أنواع من الأدلة من خلال دراسة الفخار بسياق أثري وهي: 1) التاريخ ، أي عند استخدام الأنانرب 2) التوزيع ، أي المكان الذي تم استخدامه فيه ، مع تقديم ادلة أخرى على التجارة والتبادل ، 3) الوظيفة ، أي لأي غرض تم استخدامه

كان للفخار دور اساسي في الحياة اليومية القديمة في بلاد الرافدين وكانت وظائفه الرئيسية تتضمن أنشطة متعلقة بالأغذية. تم استخدام الأواني باشكال وأبعاد مختلفة لتخزين وحفظ البضائع الجافة والسائدة ، لطهي الطعام ، لتناول الطعام والشراب. يمثل إعداد الطعام في وعية الفخار خطوة أساسية في التطور الثقافي البشري. في الواقع ، يفضل استخدام حاويات الفخار ، زاد نطاق الطعام الصالح للأكل.
Indeed, thanks to the use of pottery containers, the range of edible food increased and additional natural resources could be consumed. The vessels used to transform raw materials into cooked food were of various types, depending on the cooking technique. For example, pots used on fire required specific properties, not to be damaged or deformed by heat. Also the vessels used for serving and eating were very different in shape and size, depending on the type of food (solid or liquid) and on the occasion of consumption (a daily meal or a special feast).
LANDSCAPE AND CITIES IN SOUTHERN IRAQ THROUGH TIME

SHAPING THE MESOPOTAMIAN ENVIRONMENT: THE FIRST TOWNS

About 7,000 years ago, the humid climatic conditions caused the formation of a marshy environment in the southern Iraqi floodplain, characterised by a jagged system of rivers, natural canals and marshy environments. The people of southern Iraq approached this complex landscape by building small towns near the minor canals and the edges of the marshes, in order to avoid the powerful floods of the two rivers. During the Uruk period (about 6,000 years ago), a more arid climate caused a retreat of the Tigris-Euphrates delta and a possible reduction in the river flow. This event led to a gradual transformation of the territory by the local population, thanks in particular to a new capacity of water management and to a change in the distribution of residential areas. The people of central-southern Mesopotamia began to build locks and dig artificial canals to regulate the water and irrigate the fields. The population grew and large centres, like Uruk, Eridu, Tell Uqair and Tell Rumah, were established. In specific, in the QADIS survey area the centres dating to the Uruk period are scattered along three main waterways, the Euphrates and two branches of the Tigris, and along some of the main artificial canals. The majority of the settlements did not exceed 10 hectares and probably housed a few hundreds people. Some larger centres might have reached even 40 hectares and were inhabited by thousands of people.
GROWING NETWORKS AND LAND-USE: THE SUMERIAN CITY-STATES

Between 5,000 and 4,000 years ago, the people living in the Mesopotamian floodplain reached a high level of control over waters courses and created complex artificial networks of canals for both cultivation and navigation. The rivers and larger channels became the main communication systems, the highways of Sumer.

The growth of cultivated fields and the improvement of both water and land routes corresponded to a substantial increase in the population, and the emergence of city-states and large urban centres. Cities like Kish, Nippur, Shuruppak, Umma, Ur, Lagash and Girsu extended over several hundred hectares and counted from 10,000 to 30,000 people. The majority of these cities grew along the Euphrates or Tigris rivers with minor channels cutting through their neighbourhoods and larger water basins hosting the first harbours in history. Massive mudbrick walls crowned the capitals and the other major centres; all around scattered villages and cultivations lined along the artificial water channels completed the rich Mesopotamian landscape.

THE FIRST EMPIRES

Starting 4,300 years ago, new political orders unified the country, first under the Akkadian empire, also known as the first world empire, and then under the kings of Ur. The emergence of these previously unknown large-scale state entities had a substantial impact on the development of landscapes and cities of southern Iraq.

The archaeologists have documented a slight decrease in the settled sites during the Akkadian period. This phenomenon is...
clearly visible in the QADIS area, where the landscape between Umma and Shuruppak appears to have been partly abandoned and the majority of sites were clustered along the major waterways the Euphrates and the Tigris rivers. After the fall of the Akkadian empire and a short period of upheavals, the powerful 3rd Dynasty of Ur took control of the Mesopotamian alluvium. The capillary and complex administrative organisation of the so-called Ur III empire is reflected by the newly changed landscape. The number of sites increased, with newly funded large-centres and capital cities, such as Puzrish-Dagan and Tummal, and several new towns and villages throughout the previously largely abandoned countryside. In the QADIS area, the Ur III kings largely invested in new hydraulic works, opening new canals for both cultivation and navigation, and carefully maintaining the older ones.

BABYLONIANS
About 2,000-1,500 BCE, the emerging power of Babylon and other major cities like Isin and Larsa profoundly modified the political scenario of the region. The population growth and the settlement distribution of the previous period were not reached until the Sasanian rule over the alluvium. The conflicting kingdoms of Isin, Larsa and eventually Babylon remarkably influenced the landscape with many people leaving the more dangerous countryside in favour of the largest urban centres. As a consequence, the farmland was somewhat reduced.
Distribution of ancient sites in Central and Southern Mesopotamia during the Akkadian-Ur III period.

Distribution of ancient sites in Central and Southern Mesopotamia during the Old Babylonian period.
SASANIAN PERIOD

By the time of Sasanian occupation over southern Iraq, the settlements distribution and dimension further increased. This trend corresponded to a substantial growth in the scale of irrigation system, which at that time covered almost the whole floodplain. Megacities, like Ctesiphon in the North and Tell Jidr in the South, extended over more than 400 hectares and were inhabited by more than 50,000 people. These cities had a high degree of urban organisation with a central neighbourhood often protected by a defensive wall with high circular towers. Palaces, religious buildings and households completed the urban scenario.
The rest of the city consisted of several neighbourhoods with parallel roads separated by large canals.

The QADIS area mirrored the situation observed in rest of the country with the landscape constellated by hundreds of small towns and villages evenly scattered along or close to canals.
WATER AND AGRICULTURE IN ANCIENT MESOPOTAMIA
Irrigation, probably more than any other practice developed by men, deeply modifies the landscape. This is particularly true in the floodplain of southern Iraq, where the irrigation channels have determined the pattern of settlements. The annual flood comes in the spring, when the cereals have reached maturity and are ready to be harvested. Irrigation is not necessary in this period, but it is essential after sowing and in the first stages of growth, when the river level is low.
In order to prevent too much flow during the spring floods, the Sumerian farmers used to construct temporary reed dams in the main channel, raising the water level so that it could flow into the canal off-takes. In this way, the irrigation system received the optimum amount of water, avoiding flood. It was crucial to monitor flow into canals, as it is explained in the cuneiform texts. Several decades of archaeological researches have demonstrated how the early civilisation of Mesopotamia changed the landscape from initially small-scale water channels and cultivated field to large-scale systems supported by complex state bureaucracies.

THE NEOLITHIC BEGINNING (10,000-7,000 YEARS AGO)
The earliest irrigation systems, meaning the human manipulation of river flow or floods, were developed during the Neolithic period about 10,000-7,000 years ago in northern Iraq. The first farmers used to cultivate lands in areas where the natural water channels were smaller, as they could more easily control and manipulate them. Indeed, when the rivers overflowed, small streams of water (called crevasse splays) were naturally created. The late Neolithic settlements (8,000-7,000 years ago) grew and developed along these first water streams in southern Iraq.

EARLY CANAL SYSTEMS AT THE DAWN OF THE URBAN REVOLUTION (7,000-5,000 YEARS AGO)
The 5th, 4th and early 3rd millennia BCE (7,000-5,000 years ago) had been crucial times for the development of early Mesopo-
tamian cities. During this period, the area of southern Mesopotamia was transformed from a predominantly rural pattern of small settlements to an urban environment. The population began to manipulate the waterways, creating complex webs of artificial irrigation and navigation channels. The more and more sophisticated water control led to a refined regulation of the flooding of large rivers and to an increase of the arable area.
This phase of Mesopotamian history represented a first step towards the systematic manipulation of the landscape. However, swampy areas still remained very extensive, particularly in the South, and continued to play an important role in the landscape and in the economy.

**THE RISE OF THE SUMERIAN CITY-STATES AND EMPIRES (5,000-2,500 YEARS AGO)**

As the Mesopotamian plains became more and more populated, the inhabitants refined their capability in manipulating the natural course of the channels, in order to accomplish the needs of food production and pasture.

This action contributed to the transformation of the natural landscape into a cultural landscape. The excavation of the main canals is attested since the Early Dynastic period (4900-4350 years ago), when the Sumerian city-states developed. 5,000 years ago, the water management became sophisticated enough to respond to the needs of growing cities and agricultural hinterlands. At the same time, the first harbours were created in several large centers of Mesopotamia, such as Adab, Puzrish-Dagan and Tummal.

4,000 years ago, the engineering skills in digging canals allowed to irrigate and at the same time to evacuate surplus flood into the sea. Irrigation canals served and still serve to discharge excess water into flood basins, thus creating something similar to temporary marshes.

The cuneiform texts inform us that the predominant features in southern Mesopotamia were the shorter canals, which formed the lateral components of a herringbone-shaped irrigation system. This system lasted until the Achaemenid times (2300 years ago).
PARTHIAN, SASANIAN AND ISLAMIC PERIODS
(2,500-1,000 YEARS AGO)

During the Parthian, Sasanian and early Islamic periods, the management of the landscape in the Mesopotamian plain achieved the maximum development ever reached up to that moment. Under the Parthian and Sasanian empires, which extended far beyond the current border of Iraq, and subsequently during the early Islamic epoch, there was a strong urban and agricultural development. Previously peripheral areas, such as

Reconstruction of potential ancient water canals in the QADIS survey region on the basis of remote sensing.
THE FIRST AGRICULTURAL TECHNIQUES IN SOUTHERN IRAQ

Southern Mesopotamia became one of the most productive agricultural areas in the ancient world, thanks to the work and ingenuity of its ancient inhabitants. The archaeological discoveries and the interpretation of the textual sources have made possible to broadly reconstruct the different land uses and exploitation techniques developed in ancient Mesopotamia. The study of the origin and spread of agriculture is based on the integration of different sources, including the study of the ancient plant remains, recovered from archaeological excavations. Also the study of artefacts, such as tools used for agriculture and ancient artistic representations are important to reconstruct the first agricultural techniques.

In addition to the archaeological evidence, a great source of information on the ancient cultivations is provided by the study of the living plants, which allows to identify the wild progenitors of the modern crops. Moreover, the observation of the modern methods of cultivation, especially where a “traditional” system is employed, is very useful to infer
some data on the ancient agricultural techniques.

Starting from the Neolithic period, people began to cultivate cereals and to employ domesticated animals not only for food, but also for work, thus increasing the productivity of agricultural activities. Animal-drawn ploughs made food production more efficient. Barley was the most cultivated cereal as it is apt to dry and saline soils, as well as to very hot climate, and has the shortest growing cycle, a characteristic that allowed its cultivation even in the driest years. Also emmer wheat and spelt were farmed, but in smaller quantities, while rice was introduced later, around 3,000 years ago.

An important development in the cultivation history happened 6,000 years ago in the

Akkadian stele from Tell Mozan in Upper Mesopotamia showing a ploughing scene from 4200 years ago.
Agricultural activities in ancient Mesopotamia. Above, a Kassite period seal impression (4400 years ago) showing ploughing activities.

Zagros piedmont and involved the domestication of fruit trees, in particular olives, figs, pomegranates and dates, followed by apple, pear, plum and cherry. The choice of the fruit crops was influenced by several factors, such as the ease in their propagation, the possibility of preserving the fruits out of season and the use of their fruits to make other products, like oil and wine.

In this second phase in the history of agriculture, animals started to be used also for the production of secondary products: the four main species of animals exploited for food were sheep, goats, pigs and cattle.

The variability of rainfall had fundamental implications on the creation and extension of the irrigation systems and consequently on the development of the Mesopotamian civilization.

In southern Mesopotamia, rain was scarce and the development of agriculture, together with the increasing food demand, required
large-scale irrigation works, which were constantly supervised by the central institutions. The ancient farmers implemented effective strategies to exploit the arid and poor soil, to the point that the marshy lower Mesopotamian plain provided plentiful resources for daily life. People were used to the constant labour of cutting irrigation channels and doing a periodical maintenance in order to cultivate large areas of the territory. This practice led to a profound alteration of the natural landscape. In the North, the rainfall was more abundant, allowing dry agriculture without a massive use of irrigation canals. On the other side, the efficiency of production was lower and more depending on the fluctuation of the climate year by year. So, other systems of controlling agricultural land were required.

الناس على العمل المستمر لقطع قنوات الري وإجراء صيانة دورية من أجل زراعة مناطق واسعة من الإقليم. أدت هذه الممارسة إلى تغيير عميق في المنظر الطبيعي. في الشمال، كان هطول الأمطار أكثر وفرة، مما سمح للزراعة الجافة دون استخدام مكثف لقنوات الري. على الجانب الآخر، كانت كفاءة الإنتاج أقل وأكثر اعتمادا على تقلب المناخ عاما بعد عام. لذلك، كانت هناك حاجة إلى أنظمة أخرى للسيطرة على الأراضي الزراعية.
THE CULTIVATION OF CEREALS

The cultivation of cereals has several advantages, as they complete their life cycle in less than one year, the yields are generally high, they have a high nutritive value and they can be stored for a long period of time. In particular, wheat and barley are considered the “founding crops” which started agricultural production in Europe and western Asia. They first appeared within human diet in the Near East 10,000 years ago and by 8,000 years ago several species were cultivated. The birth of agriculture is acknowledged as one of the most crucial steps in human history. The utmost importance of agriculture is not, in fact, only based on the introduction of cultivations and the capacity in growing crops, but it is also related to the increasing competence in cooking these products, leading to a change in the dietary practices of our ancestors. The beginning of a more sophisticated food production marked an essential shift in human behaviour. Indeed, with the increasing of yields, surpluses could be accumulated, allowing the feeding of a higher number of people and marking the starting point of the wealth’s accumulation.

But how was barley cultivated? At the end of summer, the field was irrigated and the soil started to be prepared with the use of plough. In autumn, seeds were sowed, by employing the ploughs. During the winter, the field should be frequently irrigated. In spring the fields were harvested, before the river level began to rise. The tools used in this phase were crescent-shaped sickles, mainly made of clay, but also of flint and metal. In the archaeological record there are numerous examples of this tool, found both in large and small settlements, indicating its widespread use for a very long period of time.
time. The wheat was collected in threshing areas where the grain was separated from the chaff and then winnowed.
The second part of the crop-processing chain included crushing, fine-sieving, hand-sorting and grinding. All these activities were made with stone tools, such as mortars, pestles, grinders and grinding stones.
ARCHAEOLOGICAL RESEARCHES IN MESOPOTAMIA
SURFACE ARCHAEOLOGICAL EXPLORATIONS IN IRAQ

The history of the archaeological explorations in Iraqi territory began in the early decades of the 19th century, but those first explorations were intended to map the archaeological sites in order to choose a potential candidate where starting an excavation. It is only since the 1950s that archaeologists have begun to explore the ancient Mesopotamian landscape to address issues such as the complex relation between man and its territory. The onset of the digital era further boosted our understanding of Iraqi past since, archaeologists started looking at sites from a new perspective: the space.

1800s-1900s: EARLY TRAVELERS IN MESOPOTAMIA

The interest for the ancient Mesopotamian past has its roots in the Middle Ages, when European explorers arrived in the Middle East looking for the remains of the Babylonian and Assyrian cities mentioned in the Christian Bible. As these early explorers were motivated by the need to visit the places narrated in the Sacred Christian texts, they did not employ scientific methods and their work was not driven by scientific purposes. Notes, sketches and, after 1870, photographs are the most frequent testimonies of those journeys.

Among the first explorers, there were C.H. Rich and J.S. Buckingham, who documented the ruins of Babylon and nearby sites in 1810s, and the famous G. Smith.
1900s-1950s: THE DAWN OF THE ARCHAEOLOGICAL EXPLORATIONS IN CENTRAL IRAQ

Beginning in the early 1900s, many archaeologists started to investigate the Mesopotamian territory with more systematic methodologies. These explorations were mostly conducted by foreign expeditions and targeted small areas for only one or two seasons. Among the pioneers of this research was the Deutsche Orient-Gesellschaft expedition led by W. Andrae who, between 1902 and 1903, mapped the sites in the territory corresponding to the modern Qadisiyah governorate. Thanks to these first explorations it was possible to identify the sites of Tell Abu Hatab/Kisurra and Shuruppak/Fara where archaeological excavations were also conducted. A similar approach was applied by H. Well-Blundel who, in the early 1920s, explored the region between Babylon and
Kish, in today’s province of Hilla, on behalf of the Field Museum of Chicago. A different case is represented by the survey carried out in 1926 by R. Dogherty who mapped numerous archaeological sites in the area of Babylon in order to create a first archaeological map of the territory.
1950s-1990s: DISCOVERING THE HEART-LAND OF CITIES

It was thanks to R.McC. Adams from the University of Chicago that, since the mid-1950s, a new season of study and understanding of the history of Mesopotamia began. Between the 1950s and the 1970s, Adams, in collaboration with the Iraqi State Board of Antiquities and Heritage, systematically mapped all the archaeological sites from the river Diyala down to Ur. His goal was no longer to find a site suitable for excavation, but to understand the relationship between men and environment from the prehistoric periods to the present day. This project gave rise to initiatives by Iraqi and international archaeologists, such as S. Al-Shukri who explored...
A map of the archaeological sites in southern Mesopotamia of about 4,000 years ago from the Heartland of Cities project. Between the 1960s and 1970s, R. Adams (photo to the left), in collaboration with Iraqi archaeologists applied scientific methods to reconstruct the ancient Mesopotamian landscape.
the Afak region around the ancient city of Nippur in the early 1970s or McG. Gibson and H. Wright, who, in the same period, investigated respectively the area around Kish and the region of ancient Ur. This new generation of Iraqi and international archaeologists discovered how the civilizations flourished from the prehistoric periods onwards in the ancient Mesopotamian floodplain. The relationship between men and water in this region promoted major debates: the birth of agriculture, the development of the first cities, the management of land, the emergence of state and empires. It is also thanks to these discoveries that Iraq was identified as the cradle of civilization.
1990s-2010s: REMOTE SENSING AND SPACE ARCHAEOLOGY

Since the early 1990s, the complex political situation in Iraq caused considerable halt to archaeological discoveries. Notwithstanding, field research has been continued thanks to numerous Iraqi archaeologists from the SBAH that led to the excavation of new important sites.

At the end of the 1990s, the emergence of new open access technologies paved the way to a revolution in the exploration of the ancient Mesopotamian territory. Archaeologists began to use the photographs taken by the satellites to identify new sites and to better understand the intricate channel

A WebGIS platform is a digital map accessible through the Internet, which allows to visualise the location of ancient archaeological sites and to obtain information on their chronology and the current damages. The picture shows archaeological sites of southern Mesopotamia included within the FloodPlains WebGIS developed in the framework of the EDUU project.
system that contributed to the development of great civilisations such as the Sumerians, the Babylonians and the Assyrians. The use of different types of imagery taken by satellites has led to the identification of thousands of archaeological sites and ancient irrigation and navigation channels. In the area South to Afak, for example, the Iraqi-Italian QADIS project has mapped over 150 new archaeological sites and more than 700 ancient canals, in places where R. Adams and other Iraqi and international colleagues had already worked. These new technologies are contributing to a more complete picture of the history of Iraq over its history.

THE OPENING OF THE NATIONAL MUSEUM OF IRAQ AND THE SBAH

THE BIRTH OF THE NATIONAL MUSEUM OF IRAQ (1920s)
The National Museum of Iraq is the main Iraqi cultural institution and one of the most important in the world. Established in 1926 in Baghdad, it has been the point of reference for the study of the Iraqi past for decades. The protagonist behind the birth of the Museum was Gertrude Bell (1868-1926), an English writer, political officer, administrator, and archaeologist, who travelled and worked in Syria, Mesopotamia and the Arabian Peninsula. Appointed Honorary Director of Antiquities.
of Iraq in 1922, Bell started her pioneering work with the collection of the artefacts retrieved from the archaeological expeditions in the country and their storing in a government building. In 1926, shortly before her death, the Iraqi government moved the ancient objects to a new building, and the Baghdad Archaeological Museum, then renamed National Museum of Iraq, opened to the public.

Gertrude Bell during her visit to the site of Babylon in 1909.
THE EARLY YEARS OF THE MUSEUM AND
THE NEW SEAT (1930s-1980s)

The first aim of the Iraq Museum was to
preserve the history and culture of Iraq, by
keeping the ancient artefacts in their country
of origin.

The museum was originally placed in the
Ottoman Administrative Complex in Baghdad,
but the project for a new building, located
on the west bank of the river Tigris, was
commissioned by the Director of Antiquities,
Satī’ al-Husri, to the German architect Wer-
nner March. However, due to the outbreak of
the 2nd World War, the opening of the new
building was postponed and the new museum

صورة لساتي الحصري ، مدير
آثار العراق

السنوات الأولى للمتحف والمقر الجديد
1930s-1980s

كان الهدف الأول لمتحف العراق هو الحفاظ على
تاريخ وثقافة العراق، عن طريق الحفاظ على القطع
الأثرية القديمة في بلدهم الأصلي
تم وضع المتحف في الأصل في المجمع الإداري العثماني
في بغداد، لكن مشروع المبنى الجديد، يقع على
الضفة الغربية لنهر دجلة، قام مدير الآثار ساطع
الحصري بتكييف المهندس المعماري الألماني ويرنر
مارج. ومع ذلك، بسبب اندلاع الحرب العالمية الثانية
تم تأجيل افتتاح المبنى الجديد حتى عام 1966،
حيث افتتح المتحف الجديد للعامة. في عام 1982 تم
FROM THE LOOTING TO THE REBIRTH (1990s-2010s)

With the outbreak of the war in 2003, the Iraqi archaeological heritage suffered serious threats and damages both to the archaeological sites and the museums. The lack of protection of the National Museum of Iraq caused its looting between April 10 and 12, 2003. Around 15,000 ancient artefacts were stolen from the museum and then disappeared, probably destroyed or sold abroad. Almost 4,000 objects stolen from the museum were then recovered by the Iraqi people in the days after the plunder, but the great majority of them were never retrieved.

After this catastrophe, the international community has made great efforts to get looted antiquities back. Italy intervened immediately after the looting, thanks to the strong relationships with the Iraqi government, and planned to rearrange part of the Museum in collaboration with the State Board of Antiquities and Heritage of Iraq.

In 2015, after more than a decade of work, the Museum reopened its doors to visitors and today is again a point of reference for the people interested in studying the history of Iraq.

The collections of the Iraq Museum cover a long time period, spanning from the earliest phases of the Mesopotamian history to the Ottoman period. The organisation of the
The Iraq Museum after its looting in 2003 and the newly rearranged Assyrian galleries.

متحف العراق بعد نهبه في عام 2003 والمعرض الآشوري المرتب حديثًا
The exhibition, still partially in use, was designed in 1968 by Faraj Basmachi, who followed a chronological criterion: from the most ancient periods to the Islamic and Ottoman eras. In recent years the collaboration between SBAH and the CRAST of Turin (Italy) has allowed the renovation of several rooms according to modern museum display methodologies. Further improvements, including the opening of an educational room in January 2020, have been made possible thanks to the collaboration of the SBAH and the Universities of Baghdad, Bologna and Turin in the frame of the European Union funded project EDUU.

PROTECTING THE IRAQI PAST: THE ESTABLISHMENT OF THE SBAH

The State Board of Antiquities and Heritage is the official Iraqi national institution in charge of preserving and managing the heritage sites and the national museums. It was established in 1923 as part of the Ministry of Culture, Tourism and Antiquities and it became active in 1936. The main headquarters is located in Baghdad, while several local SBAH offices are present in each of the governorate capital headed by a regional director. Beside the main seats, in each governorate there are also several branch offices, managed by the local SBAH officers. They are supported by a special police force that has received a specific archaeological training. In order to safeguard the Iraqi heritage in a more efficient way, the main archaeological sites are protected by keepers and chief keepers. Since its creation, the SBAH has always been at the forefront in the documentation and preservation of Iraqi cultural heritage. Some major examples are the

حماية الماضي العراقي: تأسيس الهيئة العامة للأثار

الهيئة العامة للأثار والتراث هو المؤسسة الوطنية العراقية المسؤولة عن الحفاظ على وإدارة مواقع التراث والتراث الوطنية. تأسست في عام 1923 كجزء من وزارة الثقافة والسياحة والآثار وأصبحت نشطة في عام 1936. يقع المقر الرئيسي في بغداد ، في حين أن العديد من مكاتب الهيئة العامة المحلية موجودة في مركز كل محافظة برئاسة مدير إقليمي. بجانب المقاعد الرئاسية ، يوجد في كل محافظة عدة مكاتب فرعية ، يديرها ضباط الهيئة العامة المحلية. يتم دعمهم من قبل قوة شرطة خاصة تلتقي دليلاً أثريًا خاصًا. من أجل الحفاظ على التراث العراقي بطريقة أكثر فعالية ، تم حماية المواقع الأثرية الرئيسية من قبل حرس وكار الحراس. منذ إنشائها ، كانت الهيئة العامة دائما في طائفة توقيت وحفظ التراث الثقافي العراقي. بعض الأمثلة الرئيسية هي مشاريع إنقاذ الحفريات المنسقة في سدود حدثية وحمرين والوصل. في منطقة قادس ، أجرت الهيئة العامة العديد من الحفريات الطارئة في منطقة دمج
WHAT IS LANDSCAPE ARCHAEOLOGY?

Landscape archaeology is the study of the methods and strategies employed by the people in the past to transform and use the environment around them. In particular, archaeologists focus on cultural landscapes that are environments modified by people through time. When studying the ancient landscapes, the archaeologists have to deal with many other experts, including geographers, geologists and historians. An important role, not to be forgotten, is also played by the people currently living in the landscape under research: their knowledge, traditions, stories can provide precious information to reconstruct the people’s interactions with nature.

The first scientific techniques for investigating ancient landscapes developed in the Near East during the 1950s. With the spread and higher accessibility of digital technologies, the study of the ancient territory has entered into a new era.

rescue excavations projects coordinated in the Haditha, Hamrin and Mosul dams. In the QADIS area, the SBAH has conducted numerous emergency excavations in the Delmej area and at other sites such as Tell Drehem, Bismaya and Tell el-Arris.

In other locations such as Tell Drehem and Bismaya, the SBAH conducts emergency excavations.
LANDSCAPE ARCHAEOLOGY IN THE 21st CENTURY

The analysis of an ancient landscape depends, above all, on the type of territory. The difficulties of circulation, the availability of spaces for growing plants and constructing buildings led to different systems of adaptation and manipulation of the territory by people living in the mountains or by inhabitants of the plains, or by people occupying coastal or landlocked areas. A landscape archaeologist must take into consideration all these variables when studying an ancient territory. The researches and study practices have notably

Reconstruction of the urban layout of Adab-Bismaya provided by the QADIS survey project.
been enriched since the beginning of the 21st century, thanks to new digital technologies and the availability of an enormous amount of geographical and historical datasets. In general, the work of the landscape archaeologist can be divided into three phases:

1. Data before fieldwork:
The first phase of the work consists in gathering the existing sources on the area: in particular, the data from previous archaeological or geological researches, together with aerial or satellite images. Aerial photographs provide a historical record of landscape as it was before the modern destruction of some features, allowing the recognition of specific archaeological traces. Satellite imagery has become increasingly important for archaeo-

A site in the Afak area as seen in four different Satellite photos from the 1960s to the 2010s.
logical research over the last 15 years. It can reveal anomalies, indicating paleochannels or human-made structures and archaeological sites. Then, a validation on the field is mandatory to confirm the features seen from above. All these data are generally merged into a searchable digital archive called GIS (Geographical Information System). GIS is a very widespread tool and people use it almost everyday. Indeed, examples of GIS are Google Earth or Alpine Quest, all available on our smartphones. Once the data have been created, the images are studied to identify the presence of possible unknown archaeological sites and ancient waterways. This process is called remote sensing.

In Iraq, these ancient structures are distinguished from the surrounding landscape due to the different colours of the soil and often to the shape of the site or the canal. These data

***Collecting pottery sherds on the surface of ancient sites.***
are preliminary and they need to be confirmed in the field.

2. Data during fieldwork:
In the field a team led by archaeologists and composed of geologists, topographers and anthropologists carry out different activities:
- Collection of materials: archaeologists collect all the ancient finds visible on the surface, by using specific methods. The presence of a large concentration of finds on the surface usually indicates an archaeological site.
- Geoarchaeology: it involves the study of soil and sediments to gain information on the effects of natural physical processes on buried archaeological sites. Through core sampling in places where remote sensing activity has suggested the presence of channels, geoarchaeologists collect sediment samples to confirm this hypothesis.
High-resolution photos with drones: drones are generally driven by topographers over limited areas to identify sites and structures. For example, ancient walls made of mudbricks leave a different colour trace than cultivated or natural soil.

Ethnographic research: anthropologists study the way of life and traditions of people in villages as well as the nomadic communities. This approach provides a basis for comparison with the daily life and practices of the ancient civilization.

3. Data after fieldwork:
Once the fieldwork is completed, the survey team works on the materials collected and specific analyses are performed.

A core through the fill of an ancient canal.
Recording traditional lifestyles.

- Study of the material culture: the ancient artefacts, including pottery, objects and architectural features, are carefully documented by archaeologists to understand the chronology of a site and to hypothesise specialised activities carried out in specific sectors.
- Archaeometric analyses: they are performed in laboratories and may be done for different purposes. Among others, radio-carbon dating allows to defining the precise age of an organic artefact (bones, seeds, etc.); chemical analyses help to establish the provenance of an artefact; DNA analyses provide useful information on ancient people’s lifestyles.
- Zoological and botanical analyses: their results lead to the understanding of agricultural practices and breeding strategies in antiquity. These analyses provide information on the diet of ancient people.