

3. JUSTIFICATION FOR INSCRIPTION

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3.a BRIEF SUMMARY

Sennacherib's water-management system consists of a network of canals that the Assyrian king designed and built between 702 and 688 BC to supply his new capital, Nineveh, and its hinterland with water. Four different sections of channels came to constitute a single complex engineering enterprise that was without rivals in the same historical period. The territory affected by the entire hydraulic infrastructure (Fig. 6) lies between the hinterland of Mosul (1st and 2nd phases) and the Governorate of Duhok in Iraqi Kurdistan (3rd and 4th phases). The evidence present in the Governorate of Duhok, concerning in particular the 3rd and 4th phases of the irrigation system, is included in the archaeological park project presented in chapter 5.

Study of these remains was initially focused on the rock-cut reliefs and cuneiform inscriptions (Bachmann 1927) and on the imposing Jerwan aqueduct (Jacobsen and Lloyd 1935), while in more recent years it has started to consider the entire canal system, with the use of remote-sensing images (Ur 2005). Only recently (2012) has systematic research been undertaken in the field, that has led to the discovery not only of various new canal sections, aqueducts and rock-reliefs (Faideh) pertaining to the irrigation system, but also a large number of Neo-Assyrian settlements that had spread throughout the territory – benefiting from the constant availability of water, even out of the rainy season (Morandi Bonacossi 2014, 2016, 2018a; Morandi Bonacossi and Iamoni 2015).

The system consists of a complex network of canals with a gentle and uniform slope, dug into the limestone bedrock or earth, that conveyed water from the larger streams and piedmont springs to the River Khosr, which traversed the city of Nineveh before flowing into the Tigris. Along their paths, the canals supplied water to the surrounding land through a well-organized distribution system. The ditches and wadis that they encountered along their route were crossed by stone aqueducts; most of these are poorly preserved, but a splendid example is conserved on the site of Jerwan.

The fourth construction phase is certainly the most impressive, and is also that of which most survives today. The canal, which follows a 90-km-long route passing between hillsides, has its starting point at the Khinis site. Here on the rock face Sennacherib placed the symbols of his power, and aggrandized the work with a large rock relief that depicts him in the presence of the main gods of the Assyrian pantheon, a majestic monolith with *lamassu* figures and a series of sculpted niches inscribed with a description of this great engineering achievement.

The sites of Khinis and Jerwan, which were the fulcrum of the entire system and are the focus of the future Archaeological Park, transmit their exceptional universal value through their monuments, figurative sculptures and written records. Sennacherib's water-management system incorporates a series of various kinds of features that embody its great significance for civilization: technical and functional (main and secondary canals, dams, weirs, quays, tunnels, aqueducts), artistic (rock reliefs, sculpted monoliths, fountains, statues), cultural (concept of kingship, religious and symbolic aspects) and celebratory (monumental inscriptions in cuneiform writing). The archaeological complex thus represents an important example of technological advancement and landscape-design ability in the fertile crescent in the 8th and 7th centuries BC (Criterion II), offering a unique testimony of Assyrian society from the perspective of the relationship between towns and the countryside, its vision of empire, and its cultural and ritual manifestations (Criterion III). The whole hydraulic system is an expression of the relationship between man and landscape at that precise time in history (Criterion IV).

It is an important demonstration of how man can impose change upon the landscape while respecting its characteristics and morphology, making it more habitable without radically transforming it. Sennacherib's irrigation system is still today an example of an ecologically compatible landscape design and an efficient and sustainable project in a territory subject to increasing aridification (Criterion V).

The preservation state of canals, monuments and rock reliefs is often precarious due to poor control of archaeo-

logical sites and, more generally, an inadequate awareness of the local population towards its cultural heritage. However, a management plan aimed at the cultural fruition of the entire water-management system and enhancement of its technical implementation will increase the universal value of Sennacherib's work. For this reason, the proposal for its inclusion in the World Heritage List is supported by the Sennacherib's Irrigation System Archaeological Environmental Park project, which includes the Khinis and Jerwan sites and the whole Shifka Valley, and which provides for a computerized, multimedia connection with the Maltai and Bandawai sites and any future discoveries identified in the field by archaeological research. The intention is to create a "network park" in which the – not necessarily contiguous – archaeological sites are conceptually linked together and united by a specific, unified cultural project.

3.b CRITERIA UNDER WHICH INSCRIPTION IS PROPOSED

1. *Category ii: the monuments "exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design"*.

The canal system created by Sennacherib is the most complex work of engineering in the pre-classical Near East. Dating to the Neo-Assyrian period, it was born of a series of hydraulic interventions implemented by Assyrian rulers from the 13th century BC onwards to increase the productivity of the territory under their rule and to foster contacts and trade between the various areas of the empire.

The canal network was designed for the purpose of increasing the productivity of agricultural land, by overcoming the heavy reliance on seasonal rain (Ur 2005; Morandi Bonacossi 2018a). The aim of the Assyrian monarchs was therefore to redesign the landscape, rendering previously isolated areas habitable and providing them with infrastructures, villages and roads. The extensive water-distribution network made up of canals, rivers and waterways also became an important means of communication and its components continued to be used for a long time, perhaps with alterations to their original function. An example of the latter is the Jerwan aqueduct itself: recent studies conducted by LoNAP (Morandi Bonacossi et al. 2016) have found evidence of its later use as a bridge and connecting road.

It can therefore be argued that Sennacherib's hydraulic complex, born from experience acquired by the Assyrians over the course of a few generations, has universal value as an early, but technologically advanced process of landscape transformation, the forerunner of similar engineering solu-

tions developed in antiquity. This transformation did not only have an aesthetic and ideological motivation, as has been repeatedly suggested (Reade 1978, 174), but was also – and above all – an economic operation, involving trade, cultural exchange and the advancement of civilization.

2. *Category iii: the monuments "bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared"*.

Extensive remains of the Assyrian civilization, which developed in Mesopotamia between the 13th and 7th centuries BC, have been found in the cities of Ashur, Nimrud (Kalkhu), Khorsabad (Dur-Sharrukhin) and Nineveh (Mosul), by various archaeological missions from the mid-19th century onwards – and, very often, much of this material has been removed from its original location to be displayed in museums all over the world.

Among all this surviving evidence, an infrastructure with technical, social and artistic aspects – such as that of Sennacherib's irrigation system, which affects a territory of almost 3,500 km², is of particular importance. This impressive work comprises not only the design of the hydraulic engineering features, but also the celebration of these in a series of rock reliefs, sculptures and inscriptions. The rock reliefs show us the sovereign in the presence of the principal gods of the Assyrian pantheon and represent a valuable example of Assyrian art, which used rock reliefs as a means of communication and manifestation of power, given that writing was the prerogative of only an elect few. By closely studying the Maltai and Khinis rock reliefs it is possible to trace the stylistic and conceptual development of the subjects depicted. For example, at Maltai the sovereign is shown in a position of worship in front of statues of seven gods of the Assyrian pantheon, while at Khinis Sennacherib is in the presence of the two main deities, Ashur and Mullissu/Ninlil, exhibiting the characteristics of a deified ruler (Ornan 2007). This evident evolution of the concept of kingship is associated with a more refined execution that lacks the stylistic features typical of reliefs from the time of Sargon II (Morandi Bonacossi 2018a). Furthermore, study of the rock reliefs reveals some social and religious habits and details of the Assyrian elite's dress and costumes, as well as the procedures and tools that were used for working the stone.

The Assyrian civilization also expressed itself in writing. The Khinis and Jerwan inscriptions, which give evocative accounts of the various phases of Sennacherib's enterprise, and all that resulted from it in terms of environmental change (e.g. flora and fauna), have a unique value for the study of Assyrian language and writing, and our knowledge of the history, culture and religion of one of the greatest Near Eastern civilizations.

3. *Category iv: the monuments are “an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history”.*

Sennacherib’s irrigation network was the first unified project for the transformation of a semi-arid area by means of an advanced system of water collection and distribution. Putting to use the more limited experiences of his predecessors (such as the local canals probably built by Sargon at Maltai and Faideh; Morandi Bonacossi 2018a), the sovereign created a complex and extensive network of canals equipped with all the technical features appropriate for collecting water, deviating it from its natural path, and conditioning its slow, regular flow in a predetermined direction.

The canals are equipped with cleaning paths; as at Khinis, their margins are made of large rectangular ashlar blocks and provided with stairways. To the south of Khinis a rock-cut canal section excavated by LoNAP has shown the existence of a footpath about 50 cm wide dug out of the rock during the canal’s excavation, possibly to be used as a canal maintenance and cleaning walkway (Morandi Bonacossi 2018a, 100). Where necessary, the canals are regulated by dams and locks situated along the main watercourses. Recent archaeological investigations on the River Gomel, in the Shifka Valley, brought to light stone quays that served as docks for loading and unloading goods and remains of stone aqueducts, now almost completely destroyed by wadi erosion, that were built to cross wadis. One of these was the – still well preserved – Jerwan aqueduct, a testimony of exceptional value and one of the most significant engineering works in Mesopotamia. This monument, built with about 450,000 blocks very probably quarried at Khinis, is the oldest known example of a man-made stone aqueduct. Along its sides, there are alternate buttresses and recesses, which were made using a refined ashlar technique, in which the edges along which the squared blocks make contact points are smooth and straight, leaving the central parts rough and rusticated for decorative reasons. This technique, like the entire monument, was modern and innovative at the time the work was carried out and is recorded also in the Assyrian capital cities (Nimrud, Khorsabad and Nineveh). The central pillars, under which passed the water of the wadi, were erected using the false vault technique that was widely employed in the Minoan-Mycenaean world, and had semi-circular blocks at both ends, which functioned as breakwaters. The aqueduct was floored with stone slabs laid on concrete, and the parapet – of unknown height – was robust.

The technical features described above indicate that the monument was an exceptional construction, and the aqueduct has a unique value also for the inscriptions pres-

ent along its sides, which describe Sennacherib’s work and the glory of the “white limestone bridge”, as the sovereign himself defines it.

4. *Category v: the monuments are “an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change”.*

As Sennacherib proudly recounts in the so-called Bavian inscription, the fields around Nineveh “had fallen into disuse due to the lack of water and were covered with cobwebs, while the people, who knew nothing of artificial irrigation, turned their eyes to heaven (praying) for downpours”. In a semi-arid territory like that of Upper Mesopotamia, agriculture was dependent on seasonal rainfall – the main source of water. The risk of harvest failure was therefore extremely frequent and this uncertainty regarding agricultural production was a brake on the empire’s economic growth. For these reasons, starting from the 13th century BC, Assyrian rulers several times undertook the construction of large-scale irrigation canal networks. Especially in the Neo-Assyrian period (9th-7th centuries), extensive irrigated areas were systematically created in the semi-arid regions of the imperial heartland for the purpose of intensifying production with respect to subsistence agriculture, protecting the rural economy from the risks associated with low and unreliable annual rainfall (Ur 2017; Morandi Bonacossi 2018c). It was ‘landscape engineering’ on a regional scale, and Sennacherib’s irrigation complex constituted its maximum achievement. Furthermore, the design of extensive canal networks supplied the empire with supplementary watercourses (in addition to rivers) for the low-cost transport of voluminous and abundant products (foodstuffs, raw materials) between the capitals and administrative centres in the imperial core region.

Sennacherib’s water-management system is thus one of the oldest examples of organized and large-scale central intervention aimed at modifying an area where settlement and agricultural production were subject to uncertainty associated with rainfall irregularity, with constant respect for natural features. The path of the canals is completely adapted to the morphology of the terrain; longer and more sinuous routes are preferred rather than digging out massive cross-watershed canals or building embankments. We can therefore argue that the canal network constitutes an example of innovative use of the land that is strongly representative of Assyrian culture – of the sovereigns’ expansionist ambitions, the strength of imperial power, and the desire to shape the landscape leaving a tangible sign of royal intervention. Above all it bears witness to the bond between the Assyrians and their land, and to an eco-

conomic hegemony based on the combination of extensive (dry-farming) and intensive (irrigation-based) agricultural systems. Sennacherib's canal network is an example of an environmentally friendly means of transforming a territory subject to increasing aridification, and is of exceptional value because of the historical period in which it was built.

3.c INTEGRITY AND AUTHENTICITY

The archaeological complex of Sennacherib's water-management system, both in terms of all the canals, dams, weirs and aqueducts spread across the landscape, and with regard to the individual artefacts and archaeological areas, comprises innumerable examples of cultural, historical and constructional integrity that justify the definition of exceptional universal value.

The lengthy planning and construction work that lasted for over 15 years in search of wadis, mountain watercourses, karst springs, gorges and cliffs, and the creation of canals, inscriptions and relief carvings gave rise to a landscape of human design, but imprinted strongly by the natural environment, often wild and still largely intelligible in its original form.

A series of events that occurred over time, some historically identifiable (gaps made by the tombs or hermitages of late antique monks/hermits in the reliefs), others due to acts of vandalism or the removal of stone for reuse in construction or because of its sculpted decoration (Khinis, Jerwan, Maltai), or because of collapse (the Khinis Monolith), and not always historically datable, do not prevent full legibility of the monuments in their totality. Therefore the system of canals built by Sennacherib, both as a whole and in its single architectural manifestations, today constitutes a work that possesses the properties required for its evaluation as being of exceptional universal value.

This regards both the more specifically technical aspects such as the construction material and associated stone quarries, the hydraulic components for water collection and flow regulation, and the slopes calculated over many kilometres, and the figurative and textual aspects, such as the impressive relief sculptures and suggestive inscriptions, themselves inexhaustible sources of information on the history, royal costumes and religion of the Assyrian Empire.

This gigantic enterprise undertaken by the Assyrian ruler, due to its great extension, had a profound effect on a large part of northern Iraq, causing social and territorial changes due to the practice of agriculture sustained by irrigation and no longer dependent on rain, and creating new modes of communication. Various scholars have suggested that the great canal systems built by Sennacherib, and other

sovereigns, not only transformed agricultural production but also facilitated the transportation of staple food items and raw materials and their commercial exchange through the creation of new waterways (Morandi Bonacossi 2014; Ur and Reade 2015, 45-47; Morandi Bonacossi 2018a, 107-108). All this may still be seen, not only in the form of individual constructions, but also in various landscapes such as in the Shifka Valley on the Gomel, where the slope of the original channel towards Nineveh may be followed, or south of Jerwan, as revealed by recent LoNAP surveys.

In the Khinis area, notwithstanding the poor preservation state of the Rider Panel, the collapse and breakage of the Monolith and the burial of much of the initial part of the canal, as a whole the imperial project has remained intact and the intent of celebrating the enterprise and the link between the king and the god who protected and sponsored the work may be clearly perceived.

The original part of the canal visible near the tunnel, and the large rock reliefs, niches and cuneiform inscriptions, are part of a dramatic natural landscape that, overall, still looks like it originally did, keeping intact its suggestive aspect of a lost gorge in the mountains.

The great monument of Jerwan has suffered a considerable loss of material, especially in the central section where three of the four pillars that supported the aqueduct over the wadi have been demolished. But the remaining pillar on the west side and its attachment to the neighbouring false vault still express the artefact's technical mastery, which involved the ordered installation of thousands of squared stone blocks and the construction of buttresses on both sides to support the structure.

The rebuilding of the aqueduct's south-west face, probably carried out in the post-Assyrian period and evidenced by the random positioning of the blocks with cuneiform inscriptions, is very clearly visible, and therefore does not affect the full integrity of the monument and its history.

Beyond the perimeter of the archaeological park, the sites of Maltai and Bandawai feature two still intact aspects of the natural landscape in which the canal complex was built. At Maltai, on a cliff on a steep hillside, were carved four large rock reliefs visible only from a distance, and immersed and almost hidden in a landscape full of trees and shrubs. In Bandawai, the valley crossed by a watercourse has abundant vegetation and contains small historical artefacts, and thus appears intact in its potential landscape value.

As laid down by the Nara Conference, which followed and specified the definition expressed in the Venice Charter, the judgment on the authenticity of an artefact or monumental complex depends on various factors linked to various forms of analysis and information. In this regard, it is worth mentioning that contributions to the definition of the authenticity of Sennacherib's irrigation network have

been – and continue to be – made by a multidisciplinary collaboration involving scholars of many different disciplines and nationalities. A variety of study methods have been employed, ranging from archaeological survey and excavation, to the analysis of aerial photographs and satellite images, and UAV survey carried out by LoNAP in recent years.

Many aspects of the monumental complex must be considered to justify and validate its authenticity also in consideration of the individual sites. In the case of Khinis, for example, a series of interventions has repeatedly altered the Rider Relief – with historical hypotheses even involving Alexander the Great, and the digging of late antique tombs or hermitages has resulted in large holes in part of the cliff and the Great Relief. Furthermore, the large stone quarry on the west side of the Gomel and the smaller quarry on the east side have been reliably identified. Analysis of the stone has confirmed that blocks of it were probably used for the Jerwan aqueduct, transported on the River Gomel on barges or rafts up to the quay discovered in Zinawa and from there moved overland on wooden rollers to the construction site in Jerwan (Morandi Bonacossi 2014, 451).

However, much of the original symbolic aspect of the Monolith with *lamassu* has been lost; it has fallen to the ground and broken into several parts. Nevertheless, the base is clearly visible, still under water where the Monolith always stood, and the large fragments visible justify considering the possibility of its recomposition and vertical repositioning.

Many interventions are recorded in Jerwan on the original structure in the period since the monument's excavation by Lloyd and Jacobsen in 1933. Much of the structure, composed of large squared stone blocks, has been removed from the central part of the aqueduct and reused elsewhere, in particular in a small nearby village that initially leaned against the monument, but was knocked down. Other indications of the monument's authenticity are to be found in events that took place on its south-west side. In an indefinite but probably post-Assyrian era, a long external stretch of the aqueduct collapsed here. This was subsequently rebuilt, with the random insertion of stone blocks bearing a long cuneiform inscription, which probably came from another construction. Furthermore, recent excavations carried out by LoNAP have revealed that in a period following the aqueduct's abandonment it was also used as a bridge and road.

The authenticity of Sennacherib's irrigation complex is demonstrated by various aspects of its technical, historical and cultural values. As mentioned above, the building material was obtained from the nearby Khinis quarries.

The Bavian inscription, repeated in three different niches, closely links the Khinis site with the imposing hydraulic

system and with the various technical interventions, barriers, water inflow points and aqueducts that were implemented in other localities to make it function.

Lastly, the many inscriptions present at Khinis and Jerwan, including some in Jerwan that only came to light after the removal of component blocks, as well as glorifying the works of the sovereign and illustrating his close ties with the gods, throw an interesting light on the Neo-Assyrian cultural world, confirming the use and function of the various building operations.

3.d PROTECTION AND MANAGEMENT REQUIREMENTS

Sennacherib's irrigation network covers circa 3,500 km², mostly on privately owned land that is largely used for agricultural purposes. With regard to Khinis and Jerwan, both are listed in the Iraqi register of major archaeological sites and their extensions are defined at the cadastral level. In the case of Jerwan, the property is owned by the state, while the Khinis site is still privately owned, even though the state has a documented purchase option on it (van Ess 2011). The bodies responsible for the protection of sites and, more generally, of the archaeological heritage of the entire area are: the Baghdad State Board for Antiquities and Heritage, the responsible authority of the Republic of Iraq central government; the Ministry for Municipalities and Tourism of the Kurdistan Regional Government; the Directorate General of Antiquities of the KRG; the Directorate of Antiquities of the Governorate of Duhok, which manages the sites directly and has conducted some small interventions to improve the monuments' appearance. Khinis and Jerwan are protected by precarious fences that do not include the entire archaeological areas; a proper entrance and caretaker's house are present in Khinis, while in Jerwan a small custodians' building is located next to the aqueduct. In general the sites, especially Jerwan, have an atmosphere of isolation and abandonment. As far as Malta and Bandawai are concerned, no protective or supervisory measures have been taken to date.

It is therefore very important that the proposal to register the hydraulic system in the World Heritage Tentative List be accompanied by a detailed management plan that takes account of not just the main sites, but the entire territory over which the canals are distributed. The project involves the establishment of the Archaeological Environmental Park of Sennacherib's Hydraulic System as an instrument for the protection, management, enhancement and fruition of the complex at the international level. The Archaeological Park will be controlled and managed by the Directorate of Antiquities of the Governorate of Duhok, but for its better functioning it will have need of the

collaboration of the Ninawa governorate in which other remains of the canal sections are located. The aim is to create a “network” archaeological park, including the entire Shifka Valley between Khinis and Jerwan within the park and connecting the Maltaï and Bandawai sites to it through computer-based and multimedia tools, together with any new discoveries made during the course of archaeological exploration.

This would seem to be the best way to have the possibility of enhancing the entire canal system, safeguarding the integrity and authenticity of the main archaeological sites. Short-term interventions include the definition and installation of the core and buffer zones in the park territory and the Khinis, Jerwan, Maltaï and Bandawai sites. As mentioned above, the existing fences are utterly insufficient, while a buffer zone has never been devised.

Plans within the park foresee the maintenance of traditional farming activities and cultivation of new organic crops, the establishment of a botanical garden and recreation area (Garden of Peace), and tourist paths to be travelled with electric vehicles or on horseback. Some short-term initiatives for individual archaeological sites are: setting up of entrances to the Khinis, Jerwan, Maltaï and Bandawai archaeological sites with illustrative totems bearing the logos of the institutions responsible for protection; conservation treatment for the Khinis and Maltaï reliefs; clearing the path leading to the Maltaï reliefs; protection and surveillance of the Maltaï site; establishment of a Bandawai hiking trail; consolidation and safety work on the Khinis rock face; repositioning the Khinis monolith; beginning archaeological investigation at the Jerwan site and cleaning the monument; reconstruction of the aqueduct pillar bases to make the monument’s shape clear.

Long-term initiatives are connected with the creation of a Multimedia Museum Centre, which will be the focal point of the entire Archaeological Park. As well as performing the function of presenting Sennacherib’s system to visitors through the use of modern multimedia and virtual methods, the Museum Centre will also be a study centre where research and conservation activities regarding the sites will be coordinated, and the results of territorial surveys catalogued. The Museum Centre will house the GIS model of Sennacherib’s irrigation network, which will be an important tool for managing the park and explaining what is known about it. In addition, students from Duhok and foreign scholars will be able to make use of a history and archaeology library and reception and boarding facilities. This will thus also be a cultural centre, where initiatives aimed at bringing the local people closer to their heritage and raising young people’s awareness of respect and care for monuments will be organized. Instilling awareness of local history and culture is the project’s real challenge, and

the most important factor for ensuring the survival of the archaeological complex over time. Sufficient resources in terms of ideas, time, personnel and money will have to be dedicated to this aspect of management, because without real awareness on behalf of the local inhabitants, it will not be possible to stop vandalistic damage of the monuments and contamination of the landscape. For these reasons, the park project includes creating a “Garden of Peace”, a recreational area dedicated to the contemplation of nature, as well as the man-made landscape, in which educational and recreational initiatives and occasions involving cultural encounter and integration will be organized. The Museum Centre will also have the task of promoting the Archaeological Park in the country and abroad, through the creation of an attractive and updated website.

The funds required to support the entire park structure will not derive exclusively from ticket sales and budgeted contributions, but also from the presence of genuinely productive areas inside it: farms specialized in traditional local produce, craft workshops, tourist guides and horse trekking activities. In addition, the park facilities, powered by a photovoltaic system, will be autonomous with regard to electrical energy – and may indeed produce a surplus for sale.

All the above can be achieved only on the basis of a strong commitment by the Kurdistan Regional Government to preparing legislative decrees needed for the enclosure of areas subject to control, the definition of legal restrictions regarding core and buffer zones, and ensuring compliance with the rules through an adequate control and monitoring system.

In this regard, since 2013 the project “Land of Nineveh: Training to enhance the cultural heritage of northern Iraqi Kurdistan” has been funded by the Italian Ministry of Foreign Affairs and International Cooperation (MAECI) and the Italian Agency for Development Cooperation (AICS). The aim of the project is the creation of national and regional institutional capacity to manage and protect archaeological sites and museums in northern Iraqi Kurdistan, also contributing to the autonomy in these sectors of the institutions involved. Professionals have been trained in the fields of archaeology, conservation work, the survey and digital recording of monuments; the latter may form part of a group of specialists involved in site protection and monitoring. Monitoring, which could be assisted in an initial phase by Italian experts, will be focused on the integrity of the landscape, compliance with core and buffer zone rules, the preservation states of relief carvings, the cleaning and maintenance of the known canal sections, the preservation states of monuments spread throughout the territory (quays, watermills, graves etc.), the state of health of the Khinis cliff, and the condition of the architectural structures.

3.2 COMPARATIVE ANALYSIS

Rock reliefs constitute some of the most pervasive features of Near Eastern archaeological landscapes and are attested from the mid-third millennium BC onwards across a wide geographical area stretching from the Levant to Anatolia, Iraq and Iran. Rock reliefs represent a type of public monument that was particularly important in the ancient Near East and marked – through images and texts that usually communicated the official ideology of a state or a political claim – symbolically significant places, which were often located in dramatic landscapes (springs, caves, mountain passes, gorges and rock massifs). These monuments, which by their very nature were long-lasting, often had a commemorative function and represented the fulcrum of a significant series of ritual practices and public ceremonies.

Due to their complexity and detail, the Khinis and Maltai rock relief complexes fit well into the vast panorama of ancient Near Eastern rock art, in which they represent two of its most multifaceted manifestations in terms of extent and significance. With regard to their importance and meaning – the commemoration of a massive regional irrigation system and the legitimation of the king's authority by the main deities of the Assyrian pantheon – they resemble other famous Near Eastern rock reliefs. Several Assyrian rock reliefs of the 8th-7th centuries BC representing rulers underneath divine symbols are known, such those of Eḡil (Turkey), Nahr el-Kelb (Lebanon), Shikaft-i Gulgul and Tang-i Var (Iran). Rock reliefs are also well attested in earlier and later cultural contexts, e.g. the important late 13th century BC Hittite rock art complex of Yazılıkaya, in the immediate vicinity of the capital Hattusha, and the Behistun relief, established around 500 BC by Darius the Great on a cliff in Mt Behistun in the Kermanshah region of Iran. Common to all these rock art complexes, which belong to different periods and are the product of very different cultural environments, is the theme of a sovereign's divine legitimation by the gods. This subject is central also in the 3rd and 4th century AD Sasanian reliefs of Naqsh-e Rostam, Naqsh-e Rājab, Bishapur, Taq-e Bostan and other Iranian sites. The subjects of these rock art complexes include investiture scenes in which Sasanian kings are handed the ring of kingship by the god Ahura Mazda – as in the Khinis reliefs Sennacherib is invested with royal power by the deities Ashur and Mullissu.

The Maltai and Khinis reliefs are therefore part of a common ancient Near Eastern artistic heritage characterised by the expression of royal power and the commemoration of rulers' deeds and their legitimation by the divine world. With regard to the ancient water-management systems built in the Middle East region, some are already present in the UNESCO WHL:

- Shushtar Historical Hydraulic System (Iran), inscribed as a masterpiece of creative genius, can be traced back to Darius the Great in the 5th century BC. It involved the construction of two main diversion canals on the River Karun – one of which, the Gargar canal, is still in use providing water to the city of Shushtar via a series of tunnels that supply water to mills. It forms a spectacular cliff from which water cascades fall into a downstream basin.
- *Aflaj* Irrigation Systems of Oman. The property includes five *aflaj* irrigation systems and is representative of some 3,000 such systems still in use in Oman. The origins of this irrigation system may date back to AD 500, but archaeological evidence suggests that similar irrigation systems existed in this extremely arid area as early as the Iron Age.

Daniele Morandi Bonacossi

3.3 PROPOSED STATEMENT OF OUTSTANDING UNIVERSAL VALUE

Brief Synthesis. Sennacherib's irrigation system was built by the Neo-Assyrian ruler to bring water to his new capital, Nineveh, and to irrigate its hinterland. The complex covers an area of over 3,500 km² located in northern Iraq, between the plain of Mosul (ancient Nineveh) and the Du-hok governorate of Iraqi Kurdistan.

The complex was built in four successive phases between 702 and 688 BC. The third phase is represented by the sites of Maltai (four rock reliefs with the Assyrian king in adoration before gods of the Assyrian pantheon) and Bandawai (underground channel and Shiru Maliktha relief). The fourth phase, with the sites of Khinis and Jerwan, is the most monumental. At Khinis the beginning of the canal was celebrated by a large rock relief, a monolith with *lamassu* and a series of twelve niches, while Jerwan is the oldest known aqueduct. With respect to hydraulic and engineering aspects, the water-management system is unique for its time. The canal network, with a total length of more than 240 km, maintain a regular slope but follow the lie of the land, crossing the numerous wadis on stone aqueducts. The Jerwan aqueduct is a building of great value, made of finely worked ashlar blocks; it is 280 m long and crossed the wadi on four piers erected using the false vault technique and protected by breakwaters. But Sennacherib's system is also remarkable from a historical and artistic point of view, for not only was the work commemorated by imposing rock reliefs, but also described in the inscriptions in cuneiform characters present in three niches at Khinis (Bavian inscription) and on stone blocks at Jerwan.

Justification for criteria. The inclusion of the complex in the WHTL is thus proposed on the basis of the following criteria:

Category ii: the monuments “exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design”.

Sennacherib’s hydraulic system was the most advanced version of a series of experiments conducted by Assyrian rulers from the 13th century BC onwards to increase the fertility of a semi-arid land subject to the uncertainties of seasonal rainfall. The economy of Assyrian society was based on farming and therefore every technical and engineering effort was aimed at improving agricultural productivity. The network of canals commissioned by Sennacherib was therefore not only intended to bring water to the gardens and royal palace of Nineveh, but also to irrigate farmland on a regular basis. Furthermore, this system of connections between natural and artificial watercourses made it easier to move between the city and the surrounding countryside and facilitated the transport of goods. Sennacherib’s water-management complex thus constituted a technological development that resulted in an evident and useful transformation of the Assyrian landscape.

Category iii: the monuments “bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared”.

The water system is of exceptional value not only from the perspective of technological progress, but also from an artistic and cultural viewpoint. The rock reliefs that celebrate the sovereign’s work and that establish his presence on the landscape are a unique manifestation of Assyrian art and of fundamental importance for our understanding of that society in its relationship with power and religion. The Maltai and Khinis rock reliefs, in particular, illustrate not only an artistic development – in which the more cursory representation of the Maltai reliefs is followed by a more natural rendering of the human figure in Khinis, but also demonstrate a modified concept of royalty and relationship with the gods. A vision of the sovereign in worship before the main deities of the Assyrian pantheon (Maltai) is replaced by that of a king *primus inter pares* in the company of the divine couple Ashur and Mullissu/Ninlil. The inscriptions of Khinis and those of the Jerwan aqueduct are historical and linguistic documents of exceptional value.

Category iv: the monuments are “an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history”.

Sennacherib’s water network was technologically advanced, especially for the era in which it was built. In fact, moving beyond the always very local and limited efforts of the previous sovereigns, Sennacherib’s system may be seen as a unique and complex enterprise that covered the entire agricultural hinterland of the capital Nineveh. The canals, dug into the limestone bedrock of the hillsides and the earth of the neighbouring alluvial plains, maintained a regular slope and were equipped with stairs and walkways for cleaning. The water was taken from several points along the way, while secondary canals left the main ones to reach all the agricultural fields.

The Jerwan aqueduct is an exceptional example of this infrastructure type and may be considered the earliest known true stone aqueduct. The structure contains technical features not seen previously, such as the construction in carefully finished geometric ashlar blocks with rusticated surfaces, paving in regular slabs laid on concrete, buttressed side walls and, above all, four large piers equipped with breakwaters that allowed the passage of wadi water under false vaults. The whole hydraulic system in general, and the aqueduct in particular, represent a significant moment in human historical development.

Category v: the monuments are “an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change”.

The core region of Assyria was sustained by an essentially agricultural economy on land that was particularly fertile but conditioned by rainfall. As stated by Sennacherib himself in the Bavian inscription, his work allowed fields abandoned due to drought to be used again, and made harvests non wholly determined by rainfall. In short, the irrigation system made it possible to supplement the rain-dependent extensive cultivation traditionally characteristic of the region, with increased production made possible by intensive irrigation agriculture and the consequent development of the rural economy. This was real landscape engineering, based on an environmentally friendly and sustainable intervention adapted to the characteristics of the territory. Sennacherib’s enterprise led to a transformation of the Nineveh region, increasing its habitability and favouring human settlement. It is one of the oldest known examples of centrally planned human alteration of the environment in which the Assyrian imperial administration intervened in this land to exploit its full potential, thus permitting the socio-economic growth of the entire population.

Statement of integrity. The third and fourth phases of Sennacherib’s irrigation complex are substantially intact, both

in terms of landscape presence and individual monuments. In the Shifka Valley it is still possible to follow the path of the original channel from Khinis to Jerwan, in a landscape that appears substantially unchanged from the Assyrian era. The River Gomel is still today the main watercourse in the area – which, as in antiquity, is dotted with small farming villages. The same landscape integrity is found in the suggestive Bandawai Valley and on the rugged slopes of Maltai. In this context the individual sites, despite having been subject over time to transformations, the removal of material and acts of vandalism, have maintained intact their original atmosphere, as well as the celebratory message carved into the rock. Furthermore, in Khinis a large part of the Assyrian quarry from which stone was probably extracted to build the Jerwan aqueduct has survived. Signs left by quarrying, holes for anchoring the blocks and the “tracks” along which they were dragged are clearly visible. On the whole, in this isolated and impervious mountain gorge Sennacherib is still strongly present and with him all of Assyrian civilization. At Jerwan too, although the aqueduct has been partially robbed out over time for the reuse of its blocks, the functionality and grandeur of this extraordinary work of engineering are still perfectly comprehensible.

Protection and management requirements. The body responsible for the protection of archaeological complexes in the area is the Duhok Directorate of Antiquities, which in recent years has carried out a series of initiatives regarding organization and protection, especially at Khinis and Jerwan. In particular, the archaeological areas have been partially fenced and custody services have been started. The archaeological sites belonging to the hydraulic system, however, have not been sufficiently protected and enhanced, so that registration in the WHTL must necessar-

ily be associated with a management plan that regards the entire territory. For this reason, the Archaeological Park of Sennacherib’s Irrigation System has been designed to include the Shifka Valley within its borders, together with the Khinis and Jerwan sites. The Maltai and Bandawai archaeological and landscape sites are connected to the park by means of IT systems and guided tours, on the basis of a “network” system. The short-term objectives are the definition of the core and buffer zones of the various areas in the park and the installation of information totems at the entrance to the monuments that explain their nature and features. Other medium-term interventions will be the conservation of the rock reliefs of Khinis and Maltai, organization of the Maltai, Bandawai and Shifka Valley tourist itineraries, and cleaning and highlighting the pier bases of the Jerwan aqueduct.

In the long term, it is planned to create a Museum Centre in the Archaeological Park, which will become a management and cultural centre where training courses, meetings with young people of school age, and recreational and cultural initiatives may be organized. The aim is to increase local awareness of historical roots and thus favour respect for and enjoyment of this important cultural heritage. The idea of creating a “Garden of Peace”, a place for reflection, meetings and social integration, is based on the conviction that strong local participation is essential for the survival of Sennacherib’s canal system. The training of local operators, already started in the past by LoNAP, is another fundamental aspect for the project’s success and for the start of serious and constant monitoring activity. In addition to revenue from ticket sales and tourist accommodation, in the long term the Archaeological Park will be sustained by the commencement of productive activities connected to it: farms specialized in selling typical local products, craft workshops, guided tours and trekking on horseback.

