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Museum of Thermalism: A development project and a shared heritage between Italy and Egypt

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متحف المياه الجوفية: مشروع تنموي وتراث حضارى مشترك بين إيطاليا ومصر
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الموضوع

تتمتع كل حضارة بثقافة مائية فريدة ومميزة، فالماء يعد عنصر مشترك بين جميع الحضارات البشرية مما أدى إلى ظهور مجموعة متنوعة من المصطلحات المادية والاجتماعية. لذلك يقدم البحث عناصر تحديد ووصف تراث المياه، حيث يحتل الماء مكانة خاصة في العلاقة بين الإنسان والطبيعة، فالمياه ضرورة إنسانية دائمة وأساسية.

تحاط ظاهرة ينابيع المياه الجوفية الساخنة منذ البداية بهالة من القداسة والغموض، حيث تمثل المياه الساخنة والبخار أحياناً وجوداً معيناً لقوة الهية ويشير إلى ذلك العديد من القرابين البسيطة التي تم إيداعها بالقرب من الينابيع والبحيرات بالإضافة إلى منشآت العبادة وخاصة معابد الوحي.

يتناول هذا البحث بشكل خاص المياه الجوفية الساخنة في مقارنة بين إيطاليا (Montegrotto Terme) ومصر (سيوة) من حيث الاستخدام والقيمة التراثية لهذا المورد الطبيعي من حيث التنمية المستدامة للمجتمعات البشرية وخاصة العوامل التقنية والاجتماعية والثقافية المرتبطة بالحصول على المياه الجوفية واستخدامها وإدارتها على شكل منتجعات أو حمامات رومانية أو غيره.

في إيطاليا، تتميز منطقة (Terme Euganee)، والتي كانت تسمى سابقاً (*Aquae Patavinae*) بوجود ينابيع المياه الجوفية الساخنة، وذلك لتدفق المياه بكثرة، لذلك، بعد تاريخ طويل من الدراسة والبحث، تم إنشاء متحف للمياه الجوفية الساخنة في " *Aquae Patavinae* " ، بمدينة (Montegrotto Terme) بإيطاليا عام 2021.

يعرض المتحف آثاراً ارتبطت بالتراث الحضاري للمياه الجوفية الساخنة ومعبودها الإله أبونوس (Aponus)، أله المياه الجوفية بمنطقة (Terme Euganee). وبالتالي يمكن تطبيق الفكرة في منطقة المياه الجوفية بسيوة، والتي تتمتع بتراث حضاري وطبيعي طويل الأمد يحتاج إلى نقلة نوعية نحو استراتيجية حماية متعددة التخصصات، بالإضافة إلى وجود معبد الوحي الذي ربما ارتبط بطريقة ما بينابيع المياه الجوفية تماماً مثل الإله أبونوس في (Montegrotto Terme).

Introduction

Thermal water is a phenomenon characterized from the very beginning with an aura of sacredness and mystery. Hot, seething, steaming and sometimes smelly waters represented a certain presence of a divinity. A fact, that was attested through certain traces that varied from the simple offering deposits nearby the springs and lakes till the real cult buildings especially the oracles.

This paper deals particularly with the use of thermal water in a comparison between Italy (Montegrotto Terme) and Egypt (Siwa) in terms of use and evaluation of the heritage value of such a natural resource, the sustainable development of human societies and particularly the technical, social and cultural factors linked to access and use of thermal water. In addition to the acquisition, management and control of thermal water in the form of spas and baths.

In Italy, the Euganean thermal area, near Padua, was formerly called "*Aquae Patavinae*" because then, as today, the characterizing element of the territory was the healthy water that gushed abundantly on surface. Therefore, after a long history of study and research, a museum, dedicated to the "*Thermalism in Aquae Patavinae*" was established in Montegrotto (north-eastern Italy) in 2021.

The museum represents traces of a long tradition associated with the thermal water and the god *Aponus*, the divinity of water in the Euganean area (Italy). An idea that can be applied in the thermal water spot of Siwa (Egypt), which enjoys a great cultural and landscape heritage that needs a paradigm shift towards a more multidisciplinary conservation strategy, in addition to the oracle temple that

should have been connected with the thermal springs exactly like the case of “Montegrotto Terme”.

The formation of thermo-mineral waters is the result of an underground journey made by the meteoric waters after being absorbed by the ground and during the capillary phase; indeed, their properties depend on the contact with different soils and rocks that enrich them with mineral substances, including sulphur, iron, magnesium, sodium and calcium. Moreover, during this journey, waters can intercept gaseous formations, which make them effervescent such as the case of certain springs in Siwa (Ain Juba spring), and they can be warmed by the earth's heat: therefore, when they emerge to the surface, they can reach different temperatures and cause spectacular phenomena in the form of conspicuous mineral concretions, hot springs, *soffioni*, fumaroles, muds and the so-called *salse*, i.e., emissions of gas carrying clays and salty waters.

Basically, two elements determine the classification of waters: the heat that distinguishes hot waters (above 30° C) and "cold" waters (below 20° C), and the mineral salts released by the subsoil rocks which qualify them as bicarbonate, sulphate, ferruginous or “salso-bromo-iodic” as in the Euganean case.

Quality and quantity of mineral salts determine the healing properties not only of the waters, but also of the derived vapors and muds: some are more suitable for articular, dermatological, reproductive and digestive problems, others treat eyesight, metabolism or respiratory disorders and so on. Such properties were already known in the antiquity and therefore, thermo-mineral waters and their derivatives were used in bathing or sludge application; In some cases, drinking was beneficial for the internal systems. Today,

Hydrotherapy is a branch of medicine, specialized in the therapeutic use of different types of water and their derivatives, that treats the aforementioned pathologies in compliance with specific protocols established by the Ministry of Health. (Bassani, M. et alii. 2021. 19 ff.).

During the Roman period, thermal bathing habit spread out and became more common. Bathing establishments were evolved to be large complex patronized by the emperors. They became holiday centers for the wealthy. In addition to being famous for their hedonistic atmosphere (Yegül, 1992: 93ff).

The factors that shaped the phenomenon were the rise of a secular culture of physical well-being, care, and recreation among the aristocratic and bourgeois social strata, who was engaged in leisure activities, as well as the development of a scientific discourse and practice in medicine and physical chemistry (Walton, 2014). Hot, seething, steaming and sometimes smelly waters represented a certain presence of a divinity in the imaginary of the ancients. A fact, attested by the simple offering deposits in the caves, nearby the springs and lakes, in addition to the oracle temples and cult chapels (Bassani, M. et alii. 2021: 32-37).

Bathing in thermal springs was a common practice in ancient Greece and Rome. Many thermal springs were turned into centers of worship for Asclepius (Aesculapius), the god of medicine and healing, and the Nymphs as bathing in the springs was a part of the cultic practices that provided healing to the ailing who visited the shrines (Tzedopoulos, Y. et al. 2018: 205 - 219).

Thermalism in the Euganean area (Italy)

Thermo-mineral waters (above 80° C) of the Euganean area, in the north-eastern part of Italy, are the result of a long path followed by the rainwater that comes from the Venetian Prealps; the track enriches them with sodium chloride, iodine and bromide. These waters are used in both balneotherapy and inhalation therapies, but their main contribution is the ripening, the conservation and the regeneration of thermal mud. This process brings together the clay, extracted from the nearby lakes, with the thermal water that allows the proliferation of microalgae and cyanobacteria (with anti-inflammatory properties) in about 60 days. The Euganean thermal area was formerly called “*Aquae Patavinae*” as the main characteristic element was the healthy water that gushed abundantly on surface.

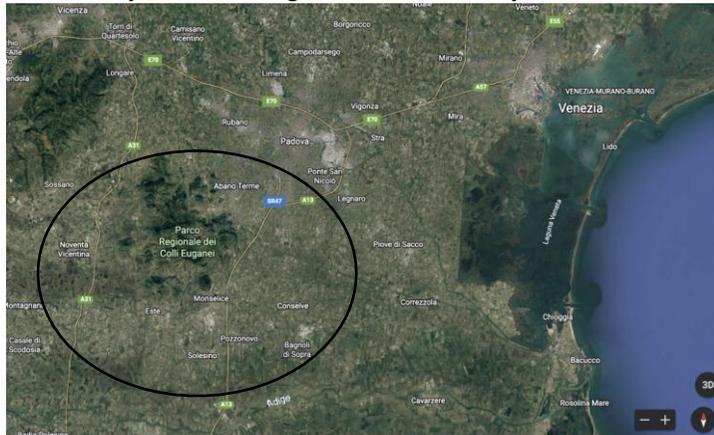


Fig. 1

A sector of the north-eastern Italy including Abano terme
and the regional park of colli Euganei (*Aquae Patavinae*).
Google Maps.

This important resource attracted great interest since the 7th century BC, when a cult was developed around a natural water outcrop. Thousands of ex-votos (miniature cups and vases and small bronze artifacts of offerers and horsemen) were found on the banks of the water spring in a thanksgiving for healing men and animals (fig. 2).



Fig. 2

Left: ex-votos, after, Bassani, M. 2021. Fig. 43, 48.

Right: The hall dedicated to the ex-votos and offerings to the thermal water divinity. Photo by the Author (Prof. P. Zanovello).

Thereafter, an increasingly intensive use of the precious water was recorded in the area of water springs, which was no longer exploited only for religious-sacral reasons, but also for medical purposes, with clear economic repercussions.

The area became a subject of the typical Roman interventions, including road planning and aqueduct constructions since the 1st century BC. Baths, villas and farms rendered *Aquae Patavinae*, a spot for care and wellness. This vocation lasted until the end of the Late Antiquity.

The medieval ages witnessed a more sporadic presence with a concentration of settlements on the heights. The occupation of the territory was also extended to the plain area in the following centuries when more religious buildings were constructed. This led to the first discoveries of the ancient remains, which attracted the local scholars, who were interested in understanding and reconstructing the history of the territory.

The widespread of thermal water fashion between (17th - 18th) centuries converted the region into a privileged holiday center for the aristocrats of the epoque. Simultaneously, the intellectuals from the University of Padua dealt with the study of waters and their components in a scientific manner in order to discover a possible medical use (Bassani, M. et al. 2011, 2012, 2013).

God *Aponus* and the oracle of *Aquae Patavinae*

Waters of *Aquae Patavinae* were referred to as waters of “*Aponus*”, the main male deity of the Euganean thermal waters during the Roman period. The recently inaugurated

museum of Montegrotto displays numerous dedications to the god *Aponus* (fig. 3).

Numerous local inscriptions indicated a diversified social structure who lived or frequented the thermal baths in search of a cure from their ailments or a period of relax and regeneration away from the daily life routine. However, there was probably another reason to visit *Aquae Patavinae*, which is the renowned oracle dedicated to the mythical figure of Geryon, a three-bodied monster, who according to the legend, inhabited the infernal zones and communicated through caves and crevices in the ground. Therefore, the Euganean area, which is rich in rocky gorges and steaming water springs, was particularly suitable to host the cult of such mysterious oracular deity.

The historian Suetonius (Life of Tiberius, 14, 3) stated that emperor Tiberius stopped near Padua to consult the oracle of Geryon about the outcome of his campaign against the populations of Illyricum “Dalmatia”. For this consultation, the oracle invited him to throw golden dice into the fount of *Apono* and he obtained the highest figure which was a favorable sign by the gods. Thereafter, his campaign was successful.

The historian pointed out that those dice were still shining under the water surface during his life time.

“... *et mox, cum Illyricum petens iuxta Patavium adisset Geryonis oraculum, sorte tracta, qua monebatur ut de consultationibus in Aponi fontem talos aureos iaceret, evenit ut summum numerum iacti ab eo ostenderent; hodieque sub aqua visuntur hi tali.*”¹

¹ Suetonius, Lives of the Caesars, Volume I: Julius. Augustus. Tiberius. Gaius



Fig. 3

Left: imaginary scene of the sacred lake of Aponus including the sacrifice to the divinity of water

After, Bassani, M. 2021. Fig. 33, 47

Right: Votive altar of Apono (Aponus) in the national museum of Trento (Italy). 1 century AD.

After, Photo by the author (Prof. P. Zanovello).

. Caligula. Translated by J. C. Rolfe. Introduction by K. R. Bradley. Loeb Classical Library 31. Cambridge, MA: Harvard University Press, 1914: 314 – 315. (“When later, on his way to Illyricum, he visited the oracle of Geryon near Patavium, and drew a lot which advised him to seek an answer to his inquiries by throwing golden dice into the fount of Aponus, it came to pass that the dice which he threw showed the highest possible number; and those dice may be seen today under the water.”)

The museum and the Euganean thermae (Heritage value)

Setting up the Museum of Thermalism in “Villa Draghi”, Montegrotto is the final step of the long process initiated in 2000 with the archaeological excavations (Bassani, M. 2021, 11-15).

The Euganean thermal area enjoyed an uninterrupted history since the first millennium BC., that was thought to be represented in the museum. The display starts with the introductory hall that sheds the light on the multiple aspects of thermalism, especially the formation of various types of water (hot, cold, highly mineralized). Then a timeless space that offers an immersive experience recounting the origin of waters and the related spectacular manifestations (salty mud pots, fumaroles, vapours and so on) through short videos, images and natural sound effects. Epigraphic, literary and topographical resources describe the phenomenon in the antiquity, with special focus on the thermal sites in Roman Italy.

Ancient maps show the distribution of baths along the roman routes; a touch screen provides the documentation of each site in the context of a national project, with maps, finds and cult objects.

The following halls represent the themes of sacredness, healing and wellness in relation to the Roman world, with a photo-gallery showing the most evocative sites. Moreover, a Roman thermal establishment is reproduced in an evocative manner: along the walls of one of the halls, large panels with line drawings illustrate the hygienic baths from the entrance till the exit, passing through the changing

room, the pools, the caldarium, the tepidarium, the frigidarium, the palestra, the library and the toilets.

The museum represents the Euganean local context: a short video accompanies the visitor on a journey through the time, while the "wall of time" shows also through some original finds, the great phases of the Euganean history. However, the cult of waters in the proto-historic age is emphasized through a display of ex-votos (ceramics and bronze figurines) that were found during the 19th century along the banks of the ancient "pond" of thermal water.

The history of Aqua Patavinae continues through the museum halls and corridors with the Romanization of the territory during the II century BC. The road and water infrastructure interventions, implemented by the Romans are represented through images and original objects. In addition to the widely exploited natural resources such as water, precious building stones, timber, and clay. Original and replicas of votive, funerary and juridical inscriptions are collected to recount the daily life of both inhabitants and visitors.

Finally, a series of halls display more specifically the various archaeological areas of Montegrotto, the use of water for drinking purposes and in the baths, scale-modelled *norias* to explain how they were used in lifting water. In addition to some original fragments of architectural decorations and a replica of the large statue of a dignitary figure in the guise of the god of water, found in the 18th century (fig. 4).



Fig. 4
The statue of a man in the guise of “Apono”
After, Bassani, M. et al. 2021:74, Fig. 67.

The archaeological finds offered the basis to project an archaeological park, which is a park of different archaeological sites that can be visited separately but, grouped together in one system and a common scientific project such as the “Museum of Thermalism”. A project that conveys unexpected potentials on the scale of urban qualification and development with an eventual positive outcome in tourism. The Museum and the archaeological park can reconstruct the Euganean uninterrupted historical timeline, allowing the recognition of “Thermalism” as an identity label of the Euganean thermal territory.

Thermalism in Egypt: Case Study (Siwa Oasis)

Egypt is rich in the ground water of which the largest presence is distributed in the Western Desert region which occupies approximately two-thirds of the Egyptian territory. This resource which is important for both agricultural and domestic uses helped in creating agricultural productivity and attracted people settlements since the ancient times. Groundwater, sometimes thermal and hot waters are found in five locations; Kharga, Dakhla, Farafra, Bahariya, and Siwa Oases (Moghazi, N.H., Kaluarachchi, J. J. 2020) (Fig. 5).²

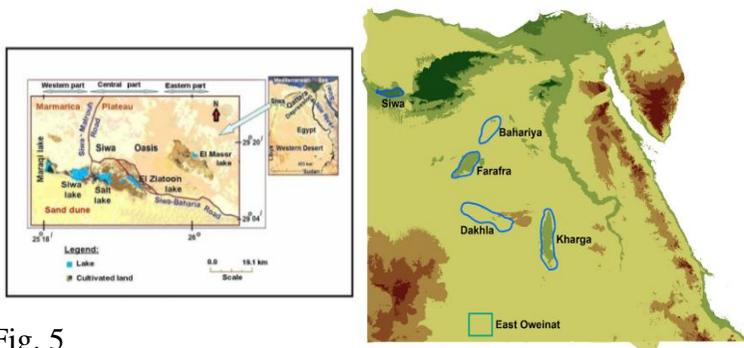


Fig. 5

Left: Map of Siwa. After, El-sayed, S. A. et al. 2017. Fig. 1, 160

Right: Groundwater in the Egyptian western desert. After, Moghazi, N.H., Kaluarachchi, J. J. 2020: 151, fig. 2.

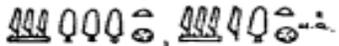
Siwa oasis is located about 300 Km south of the Mediterranean Sea in the extreme western part between the

² CEDARE, Regional Strategy for the Utilization of the Nubian Sandstone Aquifer System, Volume I, Cent. Environ. Dev. Arab Reg. Eur., 2001.

Qattara Depression and the Great Sand Sea, closer to the Libyan Desert. A depression in a calcareous sandy plateau with many springs that are fed from the deep underground water. An east-west elliptical shape that occupies the north-western part of the Egyptian Western desert in Matrouh Governorate (Wali, A. et al. 2005; Alhaddad et al. 2017).

A landscape that extends for about 1,200 km² (285,714 acres) with an elevation ranging from 0 to -25 m above the sea level. The oasis is located between longitudes 25° 16' and 26° 7' E and latitudes 29° 70' and 29° 21' N. (Sakr, F. A. et al. 1999; Moghazi, N.H., Kaluarachchi, J. J. 2020)

Siwa is famous for the different types of springs and wells that offer the fundamentals for fertility and cultivation. Therefore, the depression witnessed different civilizations since the Pharaonic period till now.

The oasis was referred to in the ancient Egyptian language as  "sḥt j3mw", that means "Field of Trees" due to the abundance of water and consequently the vegetation. (WB. IV, 230).

The main geomorphological units can be categorized into: lakes (including marshes and sabkhas), sand dunes and hills (Fig. 6). The hills surround the oasis particularly from the north as a cliff representing the limestone Moghra Formation, marls and shale sequences as represented by Gebel Abu Berig and Gebel Takrur (to the south). The hills elevation ranges between 100-200 m (above the sea level), while a large part lies at -18.5 below the sea level (Embabi, 2004).

Lakes of ephemeral type are: Maraqi, Siwa, Aghurmi, Zeitoun, Tamera, and Masser. Around these lakes, there are wet and dry marshes which cover 40% of Siwa's land area, whereas cultivated areas cover about 6%. The great sand sea represents the southern margins of the Siwa Oasis, but its load of sand resembles the source for local sand forms in the area. The Siwan waters are divided into two types: normal hot water and sulphurous hot water which is used to cure many skin diseases such as Psoriasis (Wali, A. et al. 2005.). Our main interest in this study is the thermal aspect of Siwa that includes six saline lakes (Abdulaziz, A.M., Faid, M. A. 2015; Moghazi, N.H., Kaluarachchi, J. J. 2020).

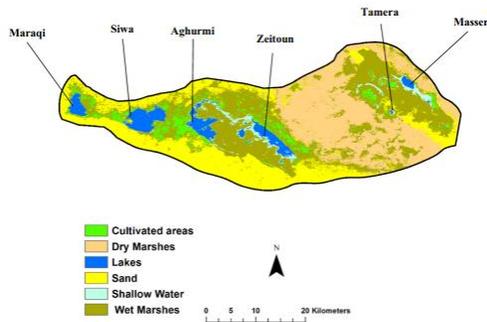


Fig. 6

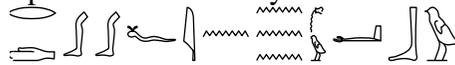
The five main lakes in Siwa

After, Moghazi, N.H., Kaluarachchi, J. J. 2020: 152, fig. 3.
Siwa lakes are considered to have healing properties for sinus, skin and eye conditions, in addition to the relaxing experience they offer because of the insulated location. They allowed the promotion as a medical and recreational destination. To the east, about 600 km from Cairo, the Zeitoun Lake, which is the biggest salty lake in the oasis,

extends with her crystal waters for more than 12,000 hectares on the edge of the wilderness. On the western side of the oasis, another significant lake is Maraqi, that covers about 5,300 hectares and contains the highest salt concentration. The lake is also known as “Fatnas Lake”. Moreover, Aghormy, between Zeitoun and Maraqi, extends on about 8,100 hectares and is used by the local companies for health treatments. These salty lakes form the first destination of medical tourism in Egypt. Moreover, Siwa was recognized as a global destination for medical and environmental tourism by the Matrouh Governorate in 2017. Hot springs of the oasis are used for therapeutic treatments, since these waters are said to have the properties to treat diseases ranging from psoriasis, rheumatism, digestive system diseases and joint inflammation. The most famous hot spring is Kegar, whose waters reach 67 degrees Celsius in addition to the mineral values. (Espanol, M. 2019.)

Amun and the waters

According to the theology of Heliopolis, namely the theology of the great Ennead  *psdt* meaning the group of nine deities (Wilkinson, R. H. 2003: 78-79; Allen, J. P. et al. 1998: 65), Nun is the origin from which the creator god Amun appeared (Bommas, M. 2005: 260; Otto, E. 1966: 123; Otto, E. 1975: 239-246; Ions, V. 1988: 92-93; Shorter, A.W. 1937: 4-10). Amun was described washing the king with pure water in the Pyramid Texts as follows;



rdwy.f in mw w'bw

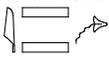
His feet are kissed by the pure waters



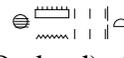
Wnn.(s)w r tm

Which exist through Atum (Faulkner, Raymond O. 1969: 295; Pyr. 2065)

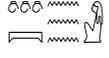
Atum appeared as a primordial hill from the Nun water. This deity gave birth to Shu (air)  (*Wb I, 429, 1*) and Tefnut (moisture)  (*Wb V, 299, 5*) who in their turn gave birth to Nut (sky)  (*Wb II, 212,7*) and Geb (earth)  (*Wb V, 164, 6*). The last couple gave birth to Osiris  (*Wb I, 359,5*), Isis , Seth , and Nephthys . (Corteggiani, J. P. 2007; Hart, G. 1995; Dondelinger, E. 1978; McBride, D. R. 2001; Lamy, L. 1981; Allen, J. P. et al. 1998).

It was thought that the god Shu, manifesting the void or the air, was created through Amun's sneeze $j\check{s}\check{s}$  (Wb I, 135,15). As for Tefnut, she was created, through Amun's spit tf  (Wb V,297, 6).

The assimilation between the two creator gods "Amun" and "Re" formed another water deity. A spell from the Pyramid Texts confirms this idea as follows "(he is) the cold water which sprinkles the filed and makes grow (their) fruits" (KNIGGE, C. 2005). The Theban theologians described their god Amun as "the great Nun who created everything". Therefore, some scholars believe that Amun and Nun were various aspects of the same deity. They represent the supreme creator god in the Egyptian religion.

The role of water in creation is also realized in the theology of Hermopolis hmw  $hmnw$ in ancient Egypt (The Hermopolitan Ogdoad) (Bently. P. 1996: 154-155). The primordial water played an important role in the creation mythology. Nun or the primordial water was thought to be located in Hermopolis, the so-called island of Flames (Westendorf, W. 1986: 870).

The world was imagined to be created by four couple of deities of amphibious and reptiles. Four of these deities were frog-headed while the four other deities were snake-headed females. They formed by this way four couples. Each manifested certain type of creation powers or the primordial abyss and was described to be "the fathers and mothers of life" (Derchain, P. 1980: 750-751; Harris, G. 1982: 20).

Nun and his female counterpart $nwnt$  embodied the original power originated in water (Daumas, F. 1982: 263),

hh , and hht (Wb III, 152, 11 - 12) represented the power of the Nile flood, $kk(w)$ and kkt (Wb V, 144, 13 - 14) manifested the darkness. As for the final couple, imn and $imnt$ (Wb I, 84 - 85), they represented the hidden powers of life or the wind. This Ogdoad was believed to have created the primordial hill which rose from the Nun or the primordial water. The lotus flower, or the cosmic egg appeared from the primordial hill. Then the sun god Re appeared from this egg (Lachaud, R. 1992: 14; Traunecker, C. 2001: 73).

The Ogdoad was believed to have settled in many temples especially in Madinet Habu which was described as "*the burial place of the eight primordial deities*". It was believed that they created the mound that emerged from the waters of Nun. In the Græco-roman period, the kings of Egypt proclaimed their deep homage to this Ogdoad by visiting their burial place every ten years (Wilkinson, R. H. 2003; Lurker, M. 1986). Unlike the previous theology, the creation mythology of Hermopolis added hh , and hht to represent the power of the Nile flood. Moreover, the goddess Naunet appeared here as a water and creator deity and became the consort of the god Nun. Her name was mentioned in the Pyramid Texts as , , , or as . So, the role of water divinities in this case was confirmed through the theology of Hermopolis. (Sethe, K. 1964: 4). Moreover,

Nun was described as the rain waters that dwell in the heaven and the waters of wells (ROTSCH, H. 2005: 234 – 236; Kitat, S. 2010).

The Ammoneion of Siwa

Siwa is characterized by large expanses of water and "Inselberge". One of the latter carries the Acropolis and the Temple of the Oracle, while a "contra temple" (Umm Ubaydah) is situated on a low rise amongst the palm groves below, some 400 m further south. Both temples were connected by a "dromos" or processional road.

The oasis was first mentioned in the 6th century BC when the Temple of the Oracle on the Aghurmi Acropolis, was dedicated under King Amasis II (26th Dynasty). In pre-Roman times, Siwa was an independent territory that adopted the Egyptian language and the cult of Egypt's paramount deity, Amun (Ammon to the Greeks, who was assimilated with Zeus). The Greco-Roman Mediterranean world, however, by mediation of Greek emigrant settlers in Cyrenaica, became very interested in this mysterious oasis-retreat of Zeus and his outlandish Egyptian-style oracle. Therefore, Alexander the Great visited the oracle when he conquered Egypt. The procession of the god's barge descended from the Temple of the Oracle to the dromos leading towards Umm Ubaydah. (FERSCHIN, P. et al. 2008).

The oracle of Siwa in the ancient sources

Diodorus Siculus, *Library of History*, (I c. BC):

The image of the god is encrusted with emeralds and other precious stones, and answers those who consult the oracle in a quite peculiar fashion. It is carried about upon a golden boat by eighty priests, and these, with the god on their shoulders, go without their own volition wherever the god directs their path. A multitude of girls and women follows them singing hymns as they go and praising the god in a traditional hymn. (50. 6: 265)

Quintus Curtius Rufus, *History of Alexander* (I c. AD):

What is worshipped as the god does not have the same form that artificers have commonly given to the deities; its appearance is very like that of a navel fastened in a mass of emeralds and other gems. When an oracle is sought, the priests carry this in a golden boat with many silver cups hanging from both sides of the boat; matrons and maidens follow, singing in the native manner a kind of rude song, by which they believe Jupiter is propitiated and led to give a trustworthy response. (4. 23-24: 233). Then, after sacrifice had been offered, gifts were given both to the priests and to the god, and the king's friends also were allowed to consult Jupiter. They asked nothing more than whether the god authorized them to pay divine honours to their king. The prophets replied that this also would be acceptable to Jupiter. (4. 28: 235)

The oracle complex

The Temple of the oracle was erected in the 6th century BC during the reign of Amasis (26th dynasty, 570-526 oc). Soon it gained fame as the oracles of Zeus or Jupiter in the Mediterranean world. In 332-31 Bc, Alexander the Great asked Amun for his consent to ascend to the throne. Therefore, the oracle of Amun in Siwa is the only remaining monument where it is still possible to walk, virtually, in the footsteps of the great conqueror.

The acropolis of Aghurmi in the centre of the oasis was the abode of a dynasty of indigenous Libyan kings. Though they were politically independent, these "Etarchs" were culturally oriented towards Egypt. They acted as high priests in the temple lying adjacent to the king's palace. They presided over the Egyptian-style public oracles involving the barge of the god that was carried about in procession. It is noteworthy that neither the god nor his cult show any traces of Libyan or even Greek influences but remained purely Egyptian.

The plan of the temple follows the Egyptian architectural guidelines. However, the building was erected by Greek architects and craftsmen (probably from Cyrenaica). This is clear from some details of the building technique (Kuhlmann, K. P. 1989; Kuhlmann, K. P. 1996).

The freestanding pseudo-isodome walls, the technique of anathyrosis and the telltale marks of the saw-toothed claw chisel, a tool not used by Egyptian stonemasons, as well as lewis holes that are found at Aghurmi have no parallels in Egyptian architecture. The latter indicate that pincers and pulleys were used to hoist up strange blocks, unlike the standard procedure followed by Egyptian craftsmen. The

temple, therefore, represents a unique example of Greek involvement in the realisation of Egyptian temple architecture in pre-Hellenistic times (Muller, U. et al. 2002).

Approximately 400 m south of the temple of the Oracle lie the remnants of a second temple of Amun from the reign of Nectanebos II. This temple was dedicated to the mortuary cult of one of the Ammonian kings called "Wenamun" following the example of mortuary temples in Thebes. The axis of this temple is aligned with the Aghurmi temple. Therefore, this temple should have been connected with this sanctuary by a procession road (Kuhlmann, K. P. 1996; Kuhlmann, K. P. 1989).

A part of this holy road can still be traced in a structure made up of large ashlar masonry excavated at the foot of the Aghurmi acropolis. To the right hand side of the presumed road, the remains of a third ashlar building were discovered. Mason's marks in Greek letters indicated that the building was erected during the Greco-Roman period. In later times, the oracle complex should have consisted of an impressive grouping of monumental structures (Muller, U. et al. 2002).

Diodorus left a description of the acropolis of Aghurmi, probably during Alexander's visit stating that the plateau of the temple mound was divided into three walled districts enclosing the palace, temple and quarters for the soldiers. (Diodorus 50.2: 263).

Only the temple area including the sanctuary of Amun, the quarters of the women and the holy well, have been undoubtedly identified. The large building bordering the temple to the west and still hidden under the rubble of the city of Aghurmi, which was destroyed by torrential rainfalls

in 1927, is presumably the palace mentioned by Diodorus. This assumption gains support from the fact that an underground corridor connects the courtyard of the building to the well, presumably to allow servants to fetch water without having to enter the sacred ground. However, the third district mentioned by Diodorus, the quarters of the king's bodyguard and of the soldiers, might be located to the east of the entrance to the acropolis.

In the bedrock under the temple structure and its immediate vicinity five shaft tombs have been found, two of them were contemporary to the temple building period. Though they are undecorated and rather crudely hewn, these tombs probably represent the last resting-place of the members of Siwa's royal family. The burial nearby the temple recalls the late period burial practices in the Nile valley. The god and his priests of royal descent should have laid claim to the largest and most fertile grounds surrounding the acropolis as only members of the royal family and addicted to the cult of the oracle lived on the acropolis.

The same can be assumed regarding the wells, such as the famous "spring of the sun" dedicated to Amun-Re, where the bubbles of rising carbon dioxide might have nourished the myth of its alternating boiling hot and cold waters (Muller, U. et al. 2002).

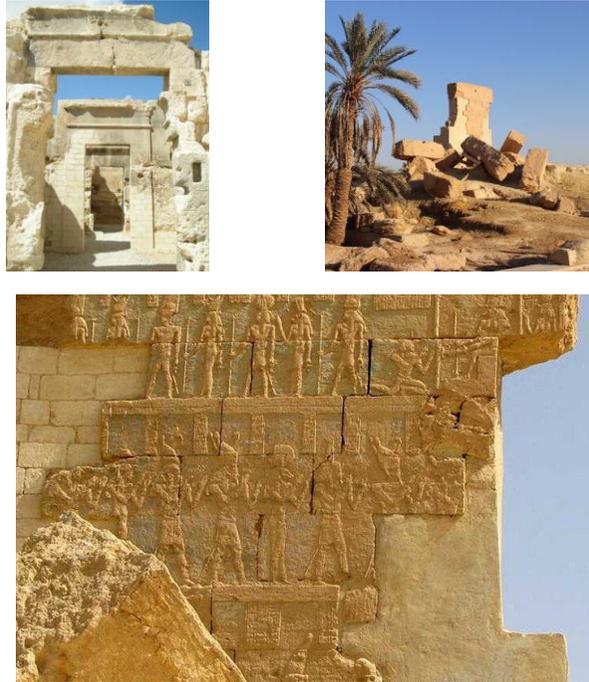


Fig. 9
Left: temple of the oracle
Right temple of Um Ubayda (Photo
by the author taken in 2013).

Fig. 10
Plan of the temple of the (Oracle)
After, Bagnall, R. S. et al. 2004.

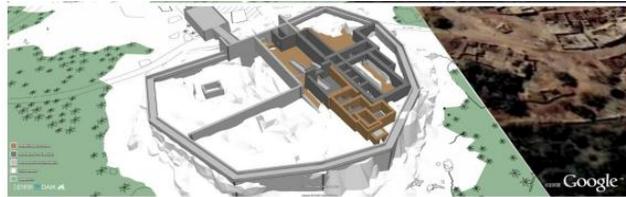
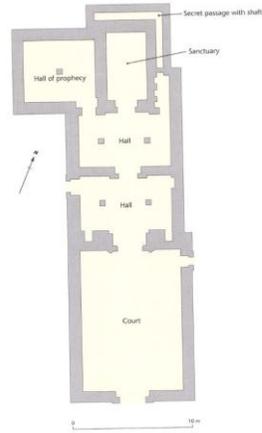


Fig. 11
Reconstruction of the two temples of Amun (The
Ammeion Oracular Complex) in Siwa
Upper: The acropolis of Aghurmi
Lower: The Umm Ubaydah Temple
After, FERSCHIN, P. et al. 2008. Figs. 8 – 9.

Water in the cult of Amun

It can be assumed that water was an essential element in the cult of Amun Re. Therefore, a source of water was crucial in the temples of Amun. The Ammoneion of Siwa as well as the temple complex of Thebes had two temples of Amun and a sacred lake. Siwa represents two temples nearby a thermal source of water better known as “Cleopatra Bath”. However, Thebes, represents a sacred lake that was created in Karnak to serve in the execution of rituals.

Cleopatra Bath, known as “Ain Juba” and “Ain al Hammam”, was referred to in the ancient times as “The Spring of the Sun. Herodotus described the bubbling waters in his *Histories* as boiling hot in the chilly evenings and cool during the heat of the day. It was considered a wonder by the ancients who used to visit Amun. (Herodotus. 1996 - online)

Actually, the spring’s waters are a constant 29° C and the impression of boiling water is due to the changing air temperature and the bubbling water.³

However, Karnak Temple included the largest Sacred Lake to the south of the Middle Kingdom court. It measures about 128 m long and 83 m wide. It was dug by Tuthmosis III (1473-1458 BCE). The lake was used by the priests for purification and ritual navigation. It was also home to the sacred geese of Amun, another symbol of Amun and a symbol of the primeval waters from which life arose in the ancient Egyptian theory of creation.

³ <http://www.egyptpharaohstours.com/index.php/egypt-guide/egypt-western-desert/siwa-oasis>

Ruins of the priests' homes, living quarters and storerooms in addition to an aviary for aquatic birds were distributed on the borders of the lake. Moreover, a stone wall enclosed the lake and stairways like those of Cleopatra Bath (fig. 12) used to descend into the water. The lake may have replaced an earlier sacred lake located somewhere in the southern area of the temple. The Karnak Lake was used during religious festivals for flotillas of sacred barks and for the daily enjoyment of the geese of Amun. (Carlotti, Jean-François. 2001 ; Lauffray, J. S. et al. 1975 ; Lauffray, J. S. et al. 1969 ; Lauffray, J. S. 1995 ; Goyon, J. C. and Traunecker, C. 1982).



Fig. 12
Left: Ain Juba (Cleopatra Bath). After, photo by the author
(Dr. Ahmed Othman)
Right: reconstruction of the sacred lake of Karnak
After, <https://digitalkarnak.ucsc.edu/sacred-lake/>

Conclusion

Each civilization has a unique water culture as access to water is a vital common element to all human civilizations that led to a wide variety of tangible and social expressions. This thematic study provides elements to identify and describe the water heritage as water clearly has a special place amongst the many relationships between man and nature. It is a permanent and essential human need.

Among environmental factors, the most important is undoubtedly water, the historical miraculous source. Search of health has always been linked to the presence of water, as thermal baths, which became spas for treatments and regulation of the human organism since the Roman period.

Water has always represented the hauling and main element. From a historical point of view, water has played a fundamental role for human, productive settling down and popular religiousness that covered all water places with guardian divinities. Therefore, ritual immersion has always represented a twofold function: sacral and social, a sort of rebirth through the purification of the body that can be clearly emphasized through the two cases of Montegrotto Terme (Italy) and Siwa (Egypt).

In the case of Montegrotto (Italy), thermalism continued uninterruptedly since the early period till now. Tourists flock to the accommodation facilities all over the year which is an important source of income. Therefore, creating a museum dedicated to the "Thermalism" and the organization of an archaeological park, where it is possible to see the imposing traces of the past, is fundamental for the economic and social growth of the area. Besides, the

Euganean thermal area is located on the edge of a natural park, which is the “Regional Park of the Euganean Hills”. Hence, an increasingly conscious development of a sustainable type of tourism.

In the Egyptian case study (Siwa), the cult of Amun should have necessitated the presence of water due to the creation theory. A hypothesis that can explain the presence of a sacred lake nearby his main temple in Karnak as well as the construction of his two temples in Siwa nearby the natural water spring of Ain Juba (Cleopatra Bath). Therefore, it can be assumed that Amun in his attributes of “Amun-Zeus”, worshipped nearby Ain Juba (Cleopatra Bath) claimed the function of “God of thermal water springs” as well as “Apono” in Montegrotto Terme. Temples and shrines for both of them were constructed adjacent to a thermal source of water, they were invoked by the believers including great figures such as Alexander the Great (to Amun of Siwa) and Emperor Tiberius (to Apono of Aquae Patavinae) due to the fame of their respective oracle temples.

A paradigm shift towards a more multidisciplinary conservation strategy for Siwa, taking into consideration the tangible and the intangible heritage such as thermal water that can be considered as one of the main potentials for “ecotourism” in Siwa. Eco tourists enjoy the stunning desert landscapes, hot and cold springs in addition to the unique Siwan Amazigh culture and people who preserved their own traditions and language over centuries.

Siwa has many attractions which focus on the charming landscape; lakes, bird habitats, desert areas, and fossil

remains. Varied distinctive cultural sites and natural environment that reflect a great civilization through ages. These potentials can be a starting point for a museum project that may concentrate on the thermal water subject following the Italian model due to the similarity between the two cases included in this study in terms of thermal hot and cold springs, archaeological traces represented in the oracle temple, the temple of Umm Ubaydah and more relics distributed all over the oasis. Therefore, a development platform can help in managing and coordinating the different resources and projects between government entities and stakeholders, and ensure coherence and transparency with the government planning agendas.

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