

Water culture in Egypt

Gad A.

in

El Moujabber M. (ed.), Shatanawi M. (ed.), Trisorio-Liuzzi G. (ed.), Ouessar M. (ed.), Laureano P. (ed.), Rodríguez R. (ed.).
Water culture and water conflict in the Mediterranean area

Bari : CIHEAM

Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 83

2008

pages 85-96

Article available on line / Article disponible en ligne à l'adresse :

<http://om.ciheam.org/article.php?IDPDF=800927>

To cite this article / Pour citer cet article

Gad A. **Water culture in Egypt**. In : El Moujabber M. (ed.), Shatanawi M. (ed.), Trisorio-Liuzzi G. (ed.), Ouessar M. (ed.), Laureano P. (ed.), Rodríguez R. (ed.). *Water culture and water conflict in the Mediterranean area*. Bari : CIHEAM, 2008. p. 85-96 (Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 83)



<http://www.ciheam.org/>
<http://om.ciheam.org/>

Water culture in Egypt

Abdallah Gad

National Authority for Remote Sensing and Space Sciences, Egypt

Summary. Water is considered fundamental for life, as living creations can't survive for long without it. Egyptians, as religious people, derive lots of their culture features from their beliefs. The Bible referred that God instructed Profit Moses to strike a rock, and out of this flinty hardness flowed sufficient water to meet the needs of all people and their livestock, the Bible writers later saw this rock as a symbol of Christ. Quran has deepened the basic belief of water importance through the text, that all living organisms are originated from water. Throughout man's history, the basic requirement for water has led developing communities to be centralized along waterways due to the power and life sustaining qualities that water provides. Modern societies are often influenced by man's dependence on water for the sustenance of life. Runoff from hills, mountains, and plains, flowing across watersheds, and channeling water into nearby ponds, lakes, and rivers provides the moisture required to produce crops and support both animal and plant life on which man feeds. Rivers provide the means to transport grains, minerals, materials, products from one region to another. This article reviews the footprint of water importance in different phases of Egyptian culture through out the history.

Keywords. Water - Nile - Culture - Egypt - Irrigation

Culture de l'eau en Egypte

Résumé. L'eau est fondamentale pour la vie, car aucune créature humaine ne peut survivre sans eau. Chez les Egyptiens - un peuple religieux - les aspects culturels et leurs crédos sont étroitement liés. La Bible nous dit que Dieu ordonna à Moïse de frapper sur un rocher et que des eaux abondantes jaillirent pour satisfaire les besoins de la population et du bétail. Plus tard, les rédacteurs de la Bible ont reconnu dans ce rocher le symbole du Christ. Le Coran a approfondi le crédo fondamental de l'importance de l'eau dans tout le texte, affirmant que tous les organismes vivants dérivent de l'eau. Au cours de l'histoire de l'Homme, la nécessité fondamentale de l'eau a conduit les populations à s'installer le long des cours d'eau qui représentaient un support pour la vie. Dans les sociétés modernes, l'Homme dépend souvent de l'eau pour assurer sa survie. Le ruissellement superficiel le long des collines, des montagnes et des plaines, compose des bassins versants et véhicule l'eau vers les lacs et les cours d'eau, en assurant l'approvisionnement en eau nécessaire pour la production des cultures et le soutien des espèces animales et végétales qui alimentent l'Homme. Les cours d'eau assurent le transport des céréales, des minéraux, des matériaux et des produits d'une région à l'autre. Cet article passe en revue l'empreinte de l'importance de l'eau dans différentes étapes de la culture égyptienne au cours de l'histoire.

Mots-clés. Eau - Nil - Culture - Egypte - Irrigation

I - Introduction

Water is fundamental to man's existence. As a living being, man can't survive for long without it. Egyptians, as religious people, derive lots of their culture features from their beliefs. Islam has deepened the basic belief of water importance through the text of Koran confirming that all living organisms are originated from water. The Bible referred that God instructed Profit Moses to strike a rock, and out of this flinty hardness flowed sufficient water to meet the needs of all the people and their livestock. The Bible writers later saw this rock as a symbol of Christ (1 Cor. 10:4). In the midst of a sin-parched life, Christ offers a well of living water that never runs dry, no matter how often we drink from it. Jesus said "Whoever drinks of the water that I shall give him will never thirst, but the water that I shall give him will become in him a fountain of water springing up into everlasting life" (John 4:14).

Water is fundamental to man's existence, as man cannot survive for long without it. Throughout history, this basic requirement for water has led developing communities to centralize along waterways due to the power and life sustaining qualities that water provides. In looking back in history, the importance of water to a society's prosperity has not changed much in time. Just as modern societies are often influenced by man's dependence on water for the sustenance of life.

Runoff from hills, mountains, and plains, flowing across watersheds, and channeling water into nearby ponds, lakes, and rivers provides the moisture required to produce crops and support both animal and plant life on which man feeds (MWRI, 2002). Rivers provide the means to transport grains, minerals, materials, products from one region to another. Thereby, the River Nile and its tributaries has caused the Valley often a center of trade and finance. To townsfolk living on the banks of a river, the river also functions as a center of social life, offering both romance and recreation.

II - The Nile and Egyptian life

The Nile Delta and the Nile River of Egypt, is one of the oldest agricultural areas in the world, having been under cultivation for at least 5,000 years (Hemdan, 1962). The arid climate of Egypt, characterized by high evaporation rates (1,500- 2,400 mm/year) and little rainfall (5-200 mm/year) leaves the river Nile as the main fresh water supply. Under these arid conditions, no natural soil development can take place. The river Nile, therefore, is the life of the country serving:

- Fresh water supply for agriculture, industry and domestic use;
- Hydro-electric power generation;
- Navigation.

Despite advances in industrialization and increase urbanization, the agricultural sector will accounts for more than 30% of the gross national product and about 80% of export earnings. Egypt, however, is now facing a challenging problem of how to increase the rate of growth in agricultural production to provide food that is sufficient for a very high annual rate of population increase at about 2.5%. Given limited water resources, the available release of water supply at Aswan High Dam is 55.5 billion cubic meters per year with an increase in population and increase in industrial development, the water requirements will, in turn, increase. Therefore, improvement of irrigation systems, irrigation practices and cultivation practices became policies of the Government. Consequently, an increase in overall irrigation efficiency to at least 75% is required. A development approach to water management is given. This will result in reclaiming a minimum of 150,000 acres per year for the next 10 years.

(<http://carbon.cudenver.edu/stc-link/AE/culture.html>)

III - Canonization of the Nile in Ancient Egypt

In ancient times, Egyptian society depended upon the Nile River for its existence. Society flourished for approximately 3000 years because of the Egyptian people's ability to harness the power of the river for agricultural purposes, social events, community projects and religious purposes. The central importance of the river in the Ancient Egyptian's daily life is evident in history and is reflected in their art, religion, writings, politics, and social life. The river shaped nearly every facet of their existence. The ancient Egyptians were a religious people. Two of the earliest religious cults were sun and nature. As an agricultural society, they depended upon the cyclical nature of the Nile floods to replenish the lands with fertile topsoil and they depended upon the sun to help produce a bountiful harvest. Witnessing the natural processes of the earth likely influenced their beliefs in the afterlife.

(<http://www.nemo.nu/ibisportal/0egyptintro/1egypt/index.html>).

The River Nile was called in Egyptian “Iteru-aa.” The water of the Nile, together with canals, wells, and lakes, was important for washing, purification, and rituals. The ancient Egyptians worshiped several Gods and Goddesses associated with the Nile. <http://www.eternaegypt.org>

The main God of the Nile was Hapy or “Hapy, father of the Gods” (<http://www.touregypt.net/featurestories/hapi.htm>). Hapy was portrayed as a man with full breasts and belly, painted black or blue, and symbolizing the fertility that the Nile gave Egypt (Fig. 1). Hapy was depicted holding flowers, fowl, fish, vegetables, and fruits, as well as the palm frond, the symbol of years. Sometimes the Nile god would have the lotus flower of Upper Egypt and the papyrus of Lower Egypt on his head. Another god of the Nile was the crocodile god Sobek, (Fig. 2) who was worshiped in Esna, Kom Ombo, and Faiyum (<http://www.touregypt.net/featurestories/sobeka.htm>).

The ram-headed god of inundation, or flooding, and creation was Khnum (Fig. 3) who was worshiped at Aswan. He was responsible for creating humans together with their Kas, or guardian spirits. Khnum’s wife was the goddess Satet and Khnum’s main cult center was at Aswan. The Aswan cult center supervised the water and its distribution from the island of Elephantine northward and from the island of Begah at the First Cataract to the south.

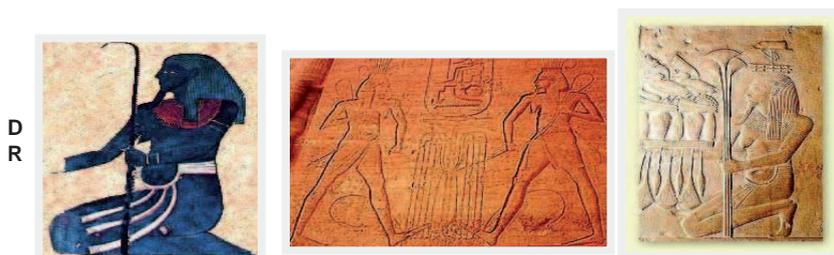


Figure 1. Hapy, the mail god of the Nile and father of gods in ancient Egypt.



Figure 2: Sobek, the crocodile god worshiped in Esna, Kom Ombo, and Faiyum.



Figure 3. Khnum, the ram-headed god of inundation, or flooding, and creation, worshiped at Aswan.

The frog Heket (**Fig. 4**) was a goddess of water who was usually portrayed near Khnum, when Khnum fashioned the child and its Ka on the potter's wheel (Office of the Chief Rabbi, 2006). The goddess Heket was known already during the pyramid era in magical texts. With time she was connected to growth, and fertility in general as frogs were, due to the fact that they produced hundreds of eggs and tadpoles. She also stood for eternity and her amulets protected all women when giving birth. Magical knives had her image to protect the homes.

She was the wife of Heh and gave all creatures the breath of life before they were placed to grow in their mother's womb. She helped Osiris to rise from the dead and was taken as a form of Hathor, and called the mother of Horus the Elder. Her centre of worship was in nome five of Upper Egypt in the old towns Qus (Parva) and Gesy.

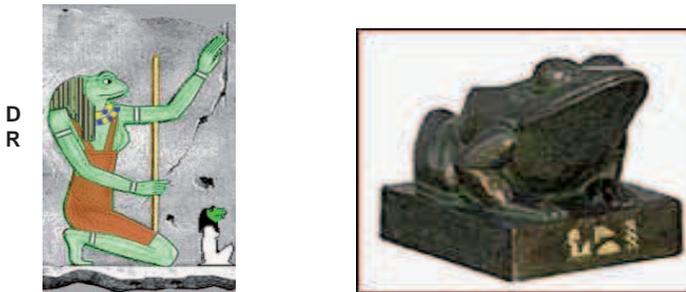


Figure 4. Frog Heket, the goddess of water, usually portrayed near Khnum.

IV - The Ancient Egyptian People's Dependence on the Nile

“The sun and the river, which together formed the dominating cause of existence, made a deep impression on the people. They were two natural forces with both creative and destructive power (**Fig. 5**). For the life-giving rays of the sun that caused the crop to grow could also cause it to shrink and die. And the river that invigorated the soil with its life-giving silt could destroy whatever lay in its path or, if it failed to rise sufficiently, bring famine. The sun and the river, moreover, shared in the pattern of death and rebirth: the sun ‘died’ when it sank on the western horizon only to be ‘reborn’ in the eastern sky the following morning. And the ‘death’ of the land followed by the germination or ‘rebirth’ of the crops each year was directly connected with the river’s annual flood. Rebirth was, therefore a central feature of the Egyptian scene. It was seen as a natural sequence to death and undoubtedly lay at the root of the ancient Egyptian conviction of life after death. Like the sun and the crops, man, they felt assured, would rise again to live a second life.”

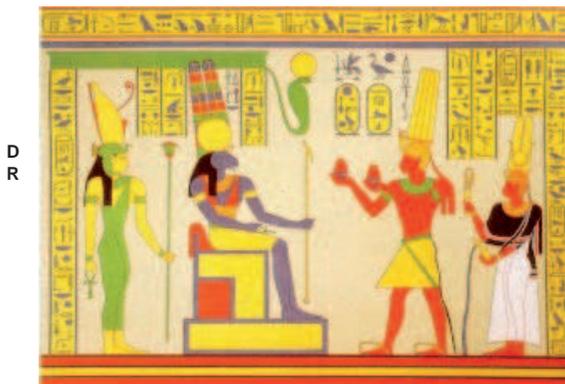


Figure 5. Influence of natural forces on Ancient Egyptian's life.

Such religious beliefs pervaded society. The Nile was the center between life and death in the belief of ancient Egyptians. They often buried their dead on the West bank of the Nile River presumably on basis of their belief that the underworld was located in the west where the sun died each day. Relatives of the dead often buried small boats in their tombs to transport the soul in the afterlife. Like many other tomb artifacts, these were often marked with symbols of the sun God Re.

V - Nile in Ancient Greek and Roman Histories

Herodotus, the Greek historian, is considered to be one of the best historians to have written about the Nile. The Greeks learned about the Nile when they sailed to Egypt. In his works, Herodotus mentions how Egypt is a gifted land. In ancient books, others speak about the area of Egyptian land that lies between and spreads around the two branches of the Nile. They accurately named this area the Delta. Herodotus supported this ancient idea when he said that this area of Egyptian land is “a gift of the Nile”. Modern geologists have proved that the land of the Delta was once submerged under the sea until the Nile built it up and shaped it by depositing fertile soil. This area is a type of wadi, or riverbed that is usually dry except during the rainy season, (Morcos et. al, 2003). By examining the nature of the whole wadi, from Aswan to the Mediterranean Sea, it can be seen that “the gift of the Nile” is not just the area north of the wadi that Herodotus and others speak of, but the entire valley. If it had not been for the Nile, Egypt would have remained part of the vast desert that was divided into two by the Nile’s course, and the green valley would have remained submerged under sea water. The Egyptians had much respect and praise for the Nile. Ancient artists were greatly influenced by the Nile and depicted it in the form of a god or goddess.

Bagnall and Roger (1995) referred that the Ptolemaic rulers were involved with the internal government of Egypt and collected taxes. The annual flooding of the Nile had a big impact on Egyptian agriculture, so taxes were exacted based on flood levels. In the beginning, a portable tool, called a Nilometer, was placed vertically into the Nile to measure the flood levels.

It was probably a long reed stick on which different levels were marked. To assess taxes fairly, the Ptolemaic rulers built temples along the Nile and installed Nilometers in them. The Nilometer uncovered on Philae Island is a staircase with reliefs of Nilometers with arms carved on its internal walls, along with the timing and duration of the flood. During the Roman period in Egypt, the Roman rulers showed interest in the monuments built along the Nile with Nilometers, but did not construct any new buildings themselves.

Until the time of the Emperor Constantine, a portable Nilometer was kept in the temple of the god Serapis. The ancient Egyptians believed that they were in debt to Serapis for bringing them the annual Nile flood. After every measurement that showed a rise in the Nile waters, they would return the portable Nilometer (**Fig. 6**) to the temple of Serapis. This became a custom. The portable Nilometer was called “the arm, or branch, of the Nile”, (Bazza, 2007).



Figure 6: Roman Nilometer - these markings were used to measure the level of river Nile, to get an indication of how this year would be in terms of harvest.

When Constantine ordered the Nilometer to be placed in the Church of Alexandria, chaos ensued in Egypt. The people thought Serapis would be angry and not allow the Nile to rise that year. However, the Nile did rise. The Emperor Julian the Apostate later ordered the Nilometer to be returned to the temple of Serapis. It remained there until the time of The Emperor Theodosius the First, who ordered the entire temple to be destroyed

VI - Nile in Islamic Egypt

Islamic civilization in Egypt was affected by the Nile through agriculture, construction and trade. Arabic documents have been found that mention the times of the flooding, the methods for measuring this event, and Nilometers built by the Muslims to measure the increase and decrease of the Nile waters. Taxes on agricultural products were exacted based on the Nile's flooding. The Arabs built channels, bridges, and canals for irrigation and farming. Celebrations and prayers to increase the water of the Nile were held inside the Mosque of Amr Ibn al-As, which had once overlooked the Nile (<http://www.solarnavigator.net/geography/egypt.htm>).

Water played a lively role in religious Islamic rituals since it is connected with ablution, or ritual washing, which is necessary before prayer. The Mosque of Amr Ibn al-As (Giza) and the Mosque of Ahmad Ibn Tulun (Cairo) were built close to the Nile. Islamic architects added fountains inside mosques and schools so people could perform ablutions before praying. The "sabil", or public fountain, provided passersby with water for drinking. Sometimes, sabilis were connected to mosques as in the Sultan Al-Mansur Qala'un Complex in al-Nahaseen, the brassmakers' quarter, old Cairo. The distribution of water from the Nile to the public was very important to the Muslims. The uppermost part of the Walls of Sultan Salah al-Din, built to surround Cairo, was used as a channel from the Nile to transport water to the Citadel and Cairo. The water was then distributed to different parts of a building using what is called the "Miqsam" of the Nile. The architect might also distribute water through channels in the form of a U carved in stone, which continued throughout the wall to supply water to the kitchen, bathrooms, "qa'as", or main halls, and basins.

The Nile influenced the urban development of Cairo, as the development of the capitals Al-Fustat, Al-Askar, and Al-Qata'i was limited in a south-north direction as the Nile prevented development toward the west. Westward development only took place as the course of the Nile itself moved. However, the riverbank was only 500 meters or one-third of a mile west of the bank during the early days of Islam in Egypt. The Nile also played an important role in the commercial life of Egypt (Hemdan, 1967). Ships carrying goods such as ceramics from China and Iran came from the Red Sea through Qabt, Qus, and Al-Qulzum on the Red Sea and reached the Nile from the east to Al-Fustat. Ships also came from Europe and the Mediterranean Sea. Hotels were constructed on the banks of the Nile for travelers.

The Muslim rulers made an effort to maintain fairness by measuring the level of water of the River Nile to determine and collect the taxes from the farmland. Produce from land that is flooded by the Nile differs from that from land which is difficult to irrigate. To measure the Nile's flooding, various Nilometers were placed along the river including the ones in Ansana, Manf, and Qasr al-Shama'. As these Nilometers stopped being used in AH 247 (AD 861), only the one which is installed on Roda Island is still operational. The employee responsible for measuring the level of water was known as "Sahib al-Miqyas," or "the man of the Nilometer." He measured the increase in the Nilometer daily between afternoon and sunset. He also compared the increase in water level on each day with the same day of the previous year. He recorded the results in a document sent to the high authorities. If there was a decrease in the inundation, this was kept secret from the people. When the water level reached 16 cubits or 8.4 meters or 27.5 feet, he would inform the people of the happy news, and they would celebrate the increase in the flooding.

VII - History of irrigation in Egypt

Since prehistoric times, agriculture in Egypt depended on waters from the Nile River and its steady annual flooding of the Egyptian lands, providing it with water and silt. The fertile strip of the Nile offered the only possible resource. The people congregated on the steep banks of the river despite its annual floods and shifting marshlands. The land was irrigated annually in a regular way known as “beds” irrigation, which is a system dividing the agricultural land into beds by mud barriers. The water flows into the beds through canals. Each canal carries water to about eight beds, one after the other. In this way, the lands nearer to the river banks have a bigger share of water than the lands farther away. Eventually, Egyptians advanced to artificial irrigation. The dependency on the Nile is not only for the irrigation necessary to raise crops, but also for the topsoil deposited annually by the floods. Every year from July to October the Nile River valley is gradually flooded. Its annual cycle of flooding and the depositing of silt create a new layer of topsoil each year. This topsoil is rich in organic nutrients and nitrogen. By October the waters begin to recede, leaving behind pools of water in depressed areas of the floodplain. After the water subsides enough to let the remaining water be absorbed by the soil, the Egyptians would plant their crops in the mud

(http://mstecker.com/pages/egyptist_fp.htm).

Artificial irrigation was considered an Egyptian achievement that required the people’s and government’s cooperation and persistence. Ancient Egyptians dug canals to direct water to places far from the banks of the Nile and used the shadouf (Fig. 7), a counterbalanced sweep, to bring water from the Nile or a canal to higher fields. A sweep is a long pole which pivots on a high post and is used to lower and raise a bucket containing water from a river or canal. Water was also transported in jugs that were carried with a yoke, which is illustrated in some scenes of daily life. The ancient Egyptians dug a long canal called Bahr Yousuf (Fig. 8) to bring water from the Nile to the Faiyum Depression for irrigation (Kemp, 1991).

After the unification of Upper and Lower Egypt by King Menes (3200 BC) and the establishment of the capital at Memphis, the king was credited for constructing basins to contain the flood water, digging canals and irrigation ditches to reclaim the marshland. By 2500 BC an extensive network of canals, ditches, dikes, and levees were built.



Figure 7. Shadouf and Sweep in ancient Egyptian irrigation practices.



Figure 8. Bahr Yousuf canal bringing water from the Nile to the Faiyum Depression.

Basin irrigation is a style of irrigation that goes with the natural flow of the Nile. The canals are dug from the river through the basins networking them in series. The entrances are blocked until word is received from the city of Nubia and other southern cities that the flooding has begun. This signaled the cresting of the Nile in the north was forthcoming. After the basins are filled for a period of time the canals are then blocked up again. By using old abandoned river beds that run parallel to the Nile along the valley floor serving as dikes and levees.

VIII -The Nile and ancient Egyptian settlements

The Nile has affected the settlements since ancient Egypt, as the first builders used the silt from the Nile, which was available in great quantities. The farmers homes have walls constructed from bundles of reeds coated with a mixture of chopped straw and argillaceous mud taken from nearby irrigation ditches. The roofs were covered with palm frond to provide them with protection from the sun and from extreme temperatures (**Fig. 9**).

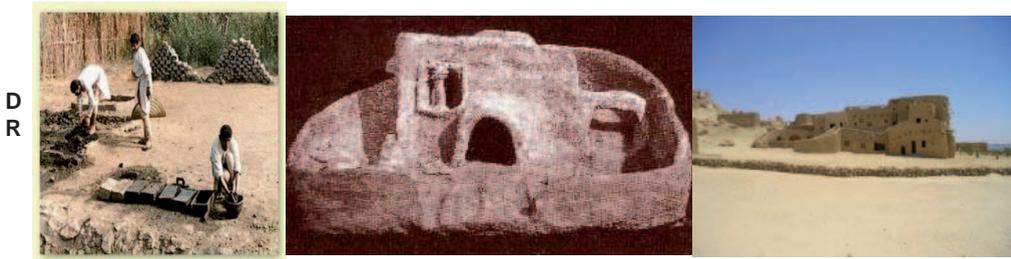


Figure 9. Mud bricks and Houses of ancient Egypt.

The Ancient Egyptians also required more protection for the elements of their dead. The tombs could not withstand the weight from the blowing and drifting sand that was deposited on top of the tombs. The tombs were originally marked with bench like monuments but something stronger was needed (Dieter, 1991). At first, a sun-dried mud brick was sufficient but later on hardier materials were used along with new techniques.

In the Western desert, the villages were not compact, but instead scattered over the oases surrounded by green patches of cultivation, and separated by patches of sand. These were known as crop basins resulting from the basin irrigation used for watering crops. A system of crop basins is connected by a network of dikes and levees, which in turn are connected to canals. By connecting these dikes and levees in series running east to west the enclosed rectangular crop basins were formed.

Some of the largest temples that were built held a sacred lake made from a large rectangular pool where priests performed purification rites and rituals involving the sacred barque. The temples built along the Nile had steps leading down to the river to measure the water level. Since the stabilization of the central government, Egyptians annually recorded the Nile water level and registered it in official records. The oldest record for the flood levels is found on the Palermo stone from the Fifth Dynasty (**Fig. 10**), on which 63 Nile water levels were recorded. The Egyptians used a device called a nilometer to record the level of the river during the inundation. Nilometers were staircases (**Fig. 11**) that descended into the Nile with marks indicating various levels above the low water mark. This served as a basis for calculating the taxes.

D
R



Figure 10. Palermo stone from the Fifth Dynasty, on which 63 Nile water levels.

D
R



Figure 11. Staircases Nilometers descending into the Nile with marks indicating various levels.

IX - Hydro-techno politics of the Nile River

Hydro-techno politics of the Nile River is more difficult to manage than a water body that falls entirely within the frontiers of a single state. Egypt throughout time has constantly been split by subdividing the country into the upper and lower regions of the Nile. The Nile has seen many rulers throughout time and few have unified the country under one political rule. The Nile for centuries has been used as a tool by the inhabitants of its surrounding communities as control for power. To follow the course of the organizations and political structures that governed the Nile one must start with Early Predynastic Egypt (4000-3500 BC). The first of the many developmental steps of Predynastic Egypt was the Amratian civilization. This period witnessed the spread of grain and flax farming on a wide scale along the Nile Valley. During this period amazing advances in civilization were made. Copper was required for and pounded into needles and fishhooks. The construction of vessels was created for travel up and down the Nile (**Fig. 12**). This increased use of the Nile as a highway anticipated the unity of cultural features which was to make Egypt unique in the ancient world.

The Late Predynastic Egypt directly follows the Amratian society. The Gerzen period (3500-3200 BC) coincides with advanced society, where towns and cities and political structures were developed. Soon Egypt was split into two districts: Lower Egypt and Upper Egypt. Unification of these two Kingdoms came under King Menes in 3100 BC. Menes unified the two areas and divided the land into 40 regions where a governor was appointed to rule each region and report back to the Pharaoh.



Figure 12. Predynastic Egypt (4000-3500 BC), construction of vessels and increased use of the Nile as a highway.

The Archaic Period begins in 3200-2680 BC. From the unification of Egypt many things become apparent. Political rulers began to be looked at as demi-gods and all the while the Nile fed these civilizations with life and power. The presence of the Pharaohs seems to illustrate the reason for fertile land and bountiful crops. The Pharaohs were worshiped as “bringers of good”.

These periods are just a few of many that depict the gradual succession of human civilization along the Nile. Throughout time man’s drive to tamper with nature and engineer the environment to meet the needs of society has taken its toll on the river. A river that for a millennium was an object of worship, a beneficent symbol of fertility and renewal, is no longer. The terrestrial force that was so dominant in Egypt was trapped behind a man-made dam at Aswan. For 7,000 years the inhabitants of the Nile Valley have been mastering their river in order to master their land. But each technological advance has eventually entailed ecological setbacks.

X - Fishing and Hunting in Egypt

The Nile, the canals, swamps, and lakes provided the Egyptians with many kinds of food. Fish in particular were an important source of nutrition. The fish were mostly cleaned and salted for long-term preservation. Boats and canoes were used for fishing, which was done with nets, spears, and basketry cones. Scenes of fishing are found on the walls of tombs. Dried fish were given to the dead as offerings and were depicted among offerings for the gods and the deceased. The fertile land of the Delta was full of swamps where wild papyrus and flowers grew in an ideal environment. Families of rich people and their servants spent their leisure time in these places, enjoying fishing and hunting animals such as hippopotami, hyena, gazelle, wild buffalo, and crocodiles. Birds were brought down with a boomerang or caught in nets. Flowers, young birds, and fruit were also collected.

(http://www.reshafim.org.il/ad/egypt/timelines/topics/fishing_and_hunting.htm).

Recently, Sea capture fishery is mostly dependent on Government for fishing vessels, where private vessels are small and lack modern equipment. The Egyptian shores on the Mediterranean and Red Sea are very poor in natural food, also poor in fish stock. That is why the solution will be fish farming especially marine fish farming and intensive fresh and brackish-water farming (**Fig. 13**). Lakes are being developed as well. Fish cultures represent an important source for animal proteins necessary for the huge overpopulation in Egypt. The total production from governmental farms is 4000 ton per Year, but the total production from the private farms is 40000 tons per year. The total production of capture fisheries in the sea, lakes and the Nile River is 319000 tons per year so total production in Egypt is 363000 ton per year (1993). The average person consumption of fish per year in Egypt is 5.7 kg that is a small amount compared to the countries.

D
R



Figure 13. Fish farming around Qaroun Lake, Faioum, Egypt.

XI - Nile water and social life

To the kings and queens of ancient Egypt, the Nile was the River of Life, the source of fertility and wealth. Today the Nile remains a river of fascination, an endless source of romance, pleasure and discovery. The Nile has played, along history, a role of being a social club for all Egyptians. Many traditions were developed in Egyptian daily life (http://www.nubiannilecruises.com/egypt/Egypt_Tours.html). For instance in the south, the day after wedding ceremony, the bride and groom walk to the Nile, with the rest of the village in procession. The couple enters the water, where they wash their hands and feet. The crowd on the bank cheers, and tries to splash the couple. Entering the Nile water is a very important symbolic act in the marriage ceremonies. Women are still often seen washing their utensils on canal banks though they have water tube water network at their residence, just to have woman Village Company (Fig. 14).

D
R



Figure 14. Social life along the Nile stream.

References

- Bagnall, Roger S., 1995.** Reading Papyri Writing Ancient History, London., Review of H el ene Cadell and Georges Le Rider, Prix du bl e et num eraire dans l' gypte lagide de 305   173, in: Schweizerische Numismatische Rundschau 78, 1999, pp. 197-203.
- Bazza, M., 2007.** Overview of the history of water resources and irrigation management in the Near East region, Water Science and Technology: Water Supply Vol 7 No 1 pp 201–209 Q IWA Publishing 2007 (available on www.tamu.edu/chr/agora/summer02/clouser)
- Dieter, A., 1991.** Building in Egypt; Pharaonic Stone Masonry, New York and Oxford, 1991
- Hmdan, G., 1967.** "Egypt's Identity", Dar el-Helal Publications, Cairo, 1967
- Kemp, B., 1991.** Ancient Egypt: Anatomy of a Civilization (London 8c New York: Routledge, (Available on <http://www.bookrags.com/history/ancient-egypt-geography/sub8.htm> .
- Morcos, S. Tongring, N., Halim, Y., El-Abbadi, M. and Wad H., 2003.** Towards integrated management of Alexandria's coastal heritage, (www.unesco.org/csi/pub/papers2/alex.pdf)
- MWRI, 2002.** Adopted measures to face major challenges in the Egyptian Water Sector. Cairo, Egypt. Special report to WWC for the World Water Forum. Kyoto, Japan.
- Office of the Chief Rabbi, (2006)** Covenant and conversation- The Difference between Signs and Wonders (<http://www.chief Rabbi.org/subscribe.html>).
- <http://www.nemo.nu/ibisportal/0egyptintro/1egypt/index.htm>
- <http://carbon.cudenver.edu/stc-link/AE/culture.html>, Ancient Egypt – Culture by Kari Phippen
- <http://www.eternalegypt.org> ,, Prayers to the Nile God

<http://www.touregypt.net/featurestories/hapi.htm>, Hapi, God of the Nile, Fertility, the North and South, By Caroline Seawright
<http://www.touregypt.net/featurestories/sobeka.htm>, Sobek, God of Crocodiles, Power, Protection and Fertility
<http://www.solarnavigator.net/geography/egypt.htm>: Egypt
http://mstecker.com/pages/egypthist_fp.htm , Egypt's Nile Valley Basin Irrigation, andra Postel
http://www.reshafim.org.il/ad/egypt/timelines/topics/fishing_and_hunting.htm, "Fishing, Hunting and Fowling".
http://www.nubiannilecruises.com/egypt/Egypt_Tours.html, Egypt Tours and Honeymoon Nile Cruises | Spiritual Tours to Egypt.