

# The Impact of the Desert Environment on the Formation of the Ancient Egyptian Heritage

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**Abstract:** *Although the desert environment occupies no less than ninety-six percent of the total land mass of Egypt, ancient Egyptians managed to create a successful and long lasting civilization in such an arid desert environment. This paper sheds light on the impact of this desert environment on the formation of the ancient Egyptian heritage, examining both the tangible benefits of the desert as a source of raw materials and suitable environment for construction work, and as an inspiration for the intangible religious beliefs concerning immortality, the gods and the hereafter. The paper tries to clarify to what extent the desert environment contributed to and impacted the shaping of the heritage of ancient Egypt.*

## Introduction

Despite being one of the oldest countries in the world to practice agriculture, Egypt is predominantly desert. Only the Nile Valley and its Delta are the cultivated areas in the country. The Nile divides the desert plateau through which it flows into two unequal sections, the Western Desert and the Eastern Desert. Each of the two has a distinctive character, as does the third and smallest of the Egyptian deserts located within the Sinai Peninsula. Yet these desert environments played an essential role in shaping both the tangible and intangible heritage of the ancient Egyptians, as discussed within the following points:

### 1. Geological Description

The Western Desert extends from the Nile valley to the borders of Libya and is therefore known as the Libyan Desert (Fig.1). It comprises more than two-thirds of the land surface of Egypt as it covers an area of about 680,000 square km (Ibrahim & Ibrahim 2003:57). The Western Desert is essentially a plateau desert with vast flat expanses of rocky ground and numerous extensive and deep closed-in depressions. Its

greatest altitude is in the Gilf el-Kebir sandstone plateau which is approximately 1000 m above sea level in the southwest corner of Egypt. From Gilf el-Kebir the ground slopes gradually north and eastwards to the southern oases of the western desert. Beyond these oases starts the great plateau of Eocene limestone which is over 500 m above sea level. This plateau extends for about two-thirds of the length of Egypt and forms the dominant feature of that desert. It gradually falls towards the north till it descends far below sea level in the Qattara Depression before rising again. Then starts the second important escarpment, the great plateau of Miocene limestone at approximately 200 m high and which extends northwards to the Mediterranean (Said 1962:12).

There are three pronounced features of the western desert. Firstly, the complete absence of well marked drainage lines as a result of its arid climate. Secondly, the distribution of its water sources where wells and cisterns fed by local rainfall are found in the extreme north and springs fed by occasional rains in the extreme south, while the land in between is practically rainless. Thirdly, the occurrence of parallel belts



**Fig. 1:** Map of Egypt (After: Google Earth, prepared by author)

of sand dunes as well as extensive flat expanses of drifted sand, especially in the south and the west from which the western desert has gained its fame as a 'sea of sand' when in fact the total area covered by sand in Western Desert is in fact less than that occupied by bare rock (Said 1962:12).

The Eastern Desert extends from the Nile valley eastwards to the Red Sea separates between Africa and Arabian Peninsula so known as the Arabian Desert (Fig.1). It covers an area of approximately 222,000 square km. The Eastern Desert consists essentially of high and rugged mountains running parallel to the coast. These mountains are flanked to the north and west by intensively-dissected sedimentary plateaus (Said 1962:15).

The Red Sea hills do not form a continuous range, but rather a series of mountain groups. These begin with Gebel Elba (1,437 m) at the extreme south-eastern corner of Egypt, extending northwards some further mountains such as Gebel Faraid, Gebel Hamata, Gebel Nugrus, and Gebel Abu Tiyyur. Almost in the middle of these stands the 2,187 m high Gebel Shayeb, the highest peak in African Egypt,

whose glance ranges over 320 km from the Nile at Qena to Sinai. To the north of the igneous mountains are the extensive and lofty limestone plateaus of Galala, south and north, and Gebel Ataqa separated from one another by broad valleys. To the west of the northern portion of the Red Sea hills, and partially separated from them by wide valley, is an extensive limestone plateau, over 500 m above sea level in some places and extending southwards towards Qena. Further south, the mountains are flanked by a lower broad sandstone plateau extending further southwards beyond the Sudanese frontier (Ibrahim & Ibrahim 2003:60; Said 1962:15).

The Eastern Desert differs markedly from the Western Desert in that it is intensely dissected by valleys and ravines and all its drainage is external. The climate of the Eastern Desert is arid and the desert contains extensive waterless tracts. In spite of that, it is no less inhabited than the Western Desert as some rain falling on the mountains, so that many valleys contain wells and vegetation. The geographic province of the Eastern Desert also includes some islands in the Red Sea (Said 1962:15).

The Sinai Peninsula covers an area of 61,000 square km (Ibrahim & Ibrahim 2003:60). It is triangular in shape (Fig.1). Its core, situated near its southern end, consists of an intricate complex of high and very rugged igneous and metamorphic mountains that rise to considerably greater heights than any of those in the African portion of Egypt. The highest is Gebel Katherina at 2,641 m above sea level. These gaunt mountains and deep rocky gorges form one of the most rugged tracts on the earth's surface.

The northern two-thirds of Sinai are occupied by a great limestone plateau whose higher part, Gebel el-Tih, flanks the igneous core to the north. The central portion of this plateau's surface

forms fairly open country, draining northwards to the Mediterranean via numerous affluents of Wadi el-Arish. The eastern and western edges of this plateau are dissected by numerous narrow and deep rocky valleys draining to the Gulfs of Aqaba and Suez.

In the northern parts of the peninsula, the general northward dip slope of the plateau's surface is broken by hill masses of considerable size. Beyond these, and extending nearly to the Mediterranean coast, is a broad tract of sand dunes, some of which attain heights of over 100 m above sea level (Said 1962:16).

## 2. Protection

Although not impassable, the deserts of Egypt formed a natural barrier protecting the land from its neighbours. Throughout its long ancient history, Egypt was seldom invaded through its deserts. The military Way of Horus was the road along which all Egyptian armies marched into Asia, and which was utilized by all Asiatic conquerors of Egypt (Valbelle 1994: 379). It crossed the narrow strip of land at Sile, near modern Al-Qantra, and then ran over a salty flats south of the Pelusian arm of the Nile to reach the north-eastern Delta in the direction of Fikus. In Pharaonic times it was not a simple matter for the conquerors, even the Assyrians and Persians, to cross the desert between el-Arish and Pelusium, as the region could easily be defended. Reaching the eastern nomes of Egypt could only be achieved through the difficult desert track from Syria or from Palestine (Kees 1961:117).

Ancient Egyptian kings defended their eastern borders as early as the first dynasty (Hall 1986:2). Although nomadic tribes living in the desert did cause troubles in the border regions during the Old and Middle Kingdoms, it was not a hard task for the pharaohs to overwhelm them. Such tribes were not able to cross the

hundreds of kilometres of desert in order to invade the Nile Valley, the mountainous surface of the Eastern Desert and the seas of soft sand dunes in the Western Desert preventing them. Even the Hyksos rule in Egypt was a result of gradual infiltration rather than an organized military invasion (Säve-Söderbergh 1951:38). It took a further one thousand years until Egypt was invaded in such a manner by the Assyrians during the reign of Esarhaddon (Spalinger 1974:295). Even when Egypt was no longer a powerful state and had been invaded and ruled by the Persians, the desert again defended Egypt by swallowing up 50,000 soldiers of Cambyses II (Herodotus III:§25) after they were lost in the Western Desert.

## 3. Raw materials

The desert was exploited as a source of numerous raw materials since the beginning of ancient Egyptian civilization. In spite of the absence of modern geochemical knowledge, the ancient Egyptians had a practical understanding of nature and were able to recognize the land formations, rock colours and even the flora associated with metal deposits. For example, it has been noted that the presence of acacia trees can reflect the presence of copper and lead ores (Ogden 2000:148).

One of the most important metals found in the Egyptian deserts was gold (Fig.2). The gold mines stretched southwards through the Eastern Desert from the region of Qena-Quseir to the present Sudanese borders, as well as some others further north in the Eastern Desert. According to ancient Egyptians documents, the Egyptians defined three gold mining regions: the first stretched from Hammamat to Abbad, and its gold was known as "gold of Koptos". The second, further south mainly at Wadi Allaqi and Gabgaba, produced the "gold of Wawat". While from the third region, located in the

present Sudan and parts of Ethiopia, came the “gold of Kush” (Vercoutter 1996:71).

Between 1989 and 1993 surveys undertaken by an Egyptian Geological Survey team and Munich University studied around 130 ancient gold mining sites in the Eastern Desert over an area between the twenty-second and twenty-eighth parallels. This research revealed extensive mining activity in the Eastern desert from the Predynastic period onwards, and showed how the types of gold deposits exploited changed with time as recovery techniques improved (Klemm & Klemm 1994).

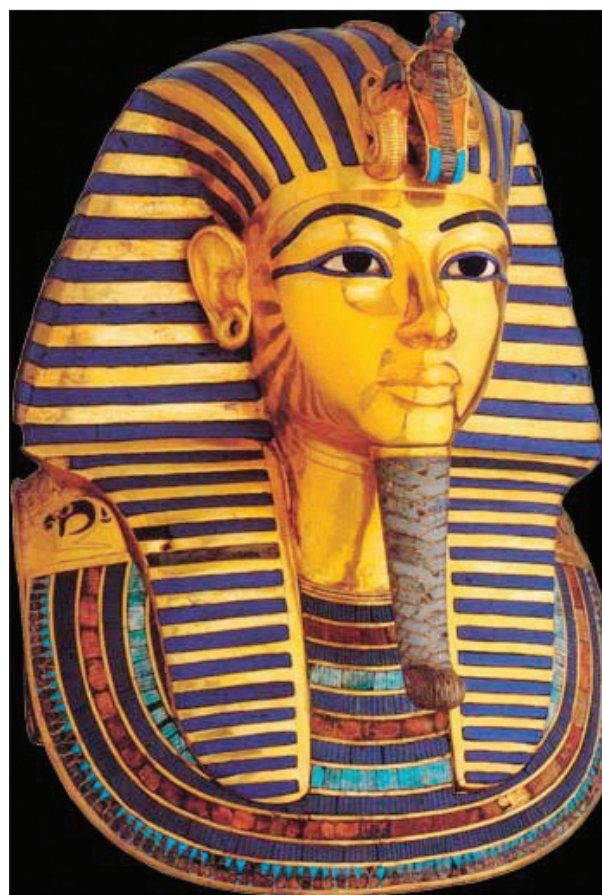
The famous map of the gold mines now preserved in the Museo Egizio, Turin, dates from the Twentieth Dynasty, may be the oldest surviving map in the world (Harrel & Brown 1992:81). It may also reflect a resurgence of interests in the Koptos gold at that period (Ogden 2000:161).

There is still much work to be done collating the geological, archaeological and documentary evidence regarding the exploitations of the various gold mines within reach of Egypt. Until then there is no way of proving the succinct words of Greaves and Little that “no workable deposits of gold have been discovered that they [the ancient Egyptians] overlooked” (Greaves and Little 1929:123-7).

The platinum group of metal grains, including platinum itself together with palladium, ruthenium, iridium, osmium and rhodium are common in the gold deposits exploited by the ancient Egyptians. Thus they must almost certainly occur in the gold deposits of the Eastern Desert or Nubia (Ogden 1976:140).

In addition to gold, the desert granted the Egyptians many other metals. Silver was presumably the natural “aurian silver” extracted from Egyptian and Nubian gold mines (Gale & Stos-Gale 1981:103). Antimony is common in

small amounts in ancient copper alloy objects and as a trace element in lead (Lucas 1962:222). Copper-bearing deposits can contain copper ores of varying complexity and purity and some native copper. Apart from metallurgy, copper and copper ores were also employed in ancient Egyptian medicine (Weser 1987:189-94), and as pigment and a coloring agent in glazes and glass (Ogden 2000:149). Copper ores occur along the entire length of the Eastern Desert into Nubia. There is a cluster of copper deposits in the Eastern Desert inland from Safaga, and between Safaga and Quseir there are copper ores with various lead, zinc and nickel associations (Nassim 1949: 143-50; Kaczmarczyk & Hedges 1983:235). The most important copper mines according to Hume and Lucas, were at Um



**Fig.2: The famous golden mask of Tutankhamen inlaid with semi precious stones, mostly native Egyptian materials (After: Saleh & Sourouzian 1986:174)**



**Fig. 3: The Pyramids of Giza with their millions of limestone blocks (photographed by author).**

Semiuki in the Eastern Desert, not far from Ras Banas (Lucas 1962:236). Copper was always found associated with other metals ores such as gold (el-Gayer and Jones 1989b), tin, lead, and zinc (Baumgartel 1960:18).

Concerning stones, the desert offered the Egyptians the three main types of stones: hard stones, soft stones and gemstones (Klemm & Klemm 1993). The hard and soft stones were mainly used for building and ornamentation (Fig.3), while gemstones were primarily employed in the manufacture of beads, pendants, amulets, inlays and seals (Aston, Harrell, & Shaw 2000:5).

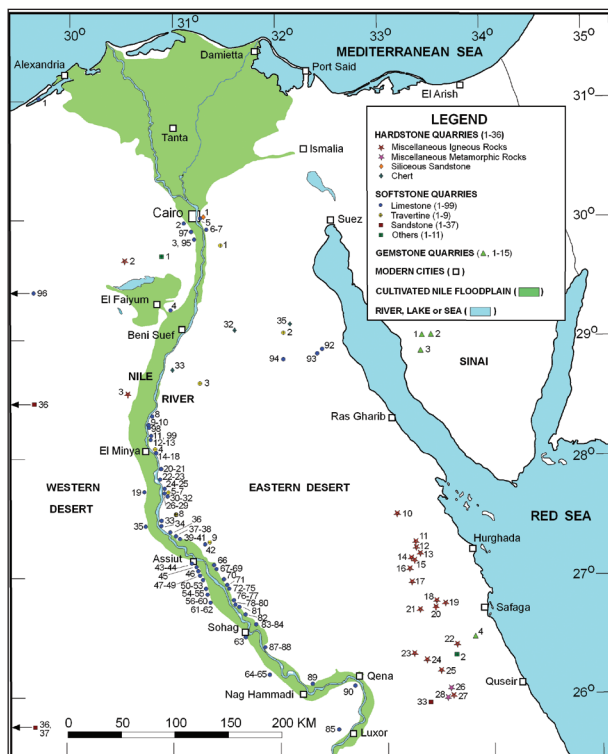
Thirty-three kinds of hard stones were quarried from thirty-six quarries. Among these were granite, basalt, diorite, greywacke, quartzite, gneiss, granodiorite, porphyry, tuff, serpentine, siltstone, etc. Ten of the hard-stone quarries were located in the Nile Valley and Western Desert, while the other twenty-six were

in the Eastern Desert.

Seven kinds of soft stones included limestone, sandstone, travertine, steatite, talc schist, marble, and gypsum, were quarried from one hundred and fifty-six quarries. Only two of those quarries are located on the Mediterranean coast, about sixty of them on the west bank of the Nile and the Western Dessert while More than ninety soft-stone quarries were located on the east bank and the Eastern Desert.

More than ten kinds of gemstones including haematite, jasper, beryl, amethyst, garnet, fluorspar, malachite, peridot, calcite, amazonite, chalcedony, smoky quartz and turquoise were quarried from fifteen quarries. Only one gemstones quarry was located in the Western Desert, two in Sinai, and the other thirteen in the Eastern Desert (Harrell 2009).

It is very obvious that the Eastern Desert had the largest number of quarries and offered the largest amount of stones, so it was considered



**Fig.4: The stone quarries in Lower and Middle Egypt (After: Harrell 2009)**

the treasury of the ancient Egypt’s raw materials (Fig.4).

#### 4. Desert Routes

In spite of seeming isolated from the rest of the world by the deserts that hem in the narrow valley of the Nile, Egypt was in constant contact with other countries. It was the desert that offered the ancient Egyptians routes and roads to reach places both inland and abroad that were not accessible to them by water (Kees 1961:116). Doubtless the Nile was the easiest way to travel throughout Egypt from north to south and vice versa, but in the case of travelling from east to west and vice versa there was no choice but desert. Even in some cases of north-south travel, it was the desert rather than Nile that was utilised, as in the case of southern borders where navigation through the Nile was, and is still, obstructed by rocky cataracts. Travel along Wadis and over sand is indeed a more ancient form of travelling than

by boat (Kees 1961:116).

Their quest for raw materials, their trading interests and the need to secure their borders sent the Egyptians even further afield into what were considered dangerous regions. Although the Western Desert is the most arid region in the world (Harris 2003:33) and the largest part of the Egyptian land mass, it contained the routes to its scattered remote oases and the neighbouring lands of Libya to the west and Sudan to the south. The ancient Egyptians travelled through its Wadis from very early in their civilization (Mitwally 1952:117). Excavations proved that Dakhla oasis was inhabited since at least the sixth dynasty (Vercoutter 1977:275; Fakhry 1973:73). Although its inhabitants were concerned with the agricultural products of the oasis, control of the roads connecting the south to the north and the west was of prime importance (Giddy 1987:206-12).

The ancient Egyptians travelled through the Western Desert westwards to reach the Egyptian oases and southwards to reach Nubia. They used to travel along three main roads. The first, starting in the Thinite region, extended southwest to reach Kharga Oasis where it divided into two sub-roads, one directed northwest to Dakhla Oasis then continuing northwest to Farafra Oasis and further west to the land of Tamehu, while the other continued south following Darb el-Arbain to Selima Oasis (Darnell 2002:106). The Darb el-Arbain or “The Forty Days’ Road” links Asyut in the Nile Valley to El Fasher in the Dar-Fur Province of Sudan (Morkot 1996:83). It was the shortest and safest distance to travel into West Africa. The road now known as the Darb el-Taweel was the second Western Desert road, starting near the present day Menfalot and leading to Dakhla Oasis where it meets the previous one (Minault-Gout 1985:216). The third road began at Aswan and went to El Fasher in Dar-Fur via

the Selima Oasis and Bir Natrum (Mutwakil 1970:25). It branched off to Semna West, where the caravans and expeditions transferred to ships in order to continue the journey beyond the trading post established at Kerma above the Third Cataract. In order to protect the travellers passing through those regions, a fortress was built at Semna during the Middle Kingdom (Lawrence 1965:70). Many inscriptions on the rocks of Elephantine testify that this road was in use during the time of the New Kingdom and throughout the Roman Era (Berg 1987:2).

The sixth dynasty was considered the golden era of travelling through the Western Desert. The Egyptians of that dynasty passed through the desert into Nubia as part of exploratory missions, commercial expeditions and military campaigns. The most famous explorer of that time was Harkhuf who led four expeditions during the reigns of Merenre and his successor Pepi II (Goedicke 1981:2). In these four expeditions Harkhuf travelled through the first two above-mentioned roads. In his first expedition, which took seven months, he arrived in the land of Yam (Sall 1966:56). In the second expedition, he started from Abydos in the Thinite region, travelled along the road known as "Ivory Road" for 1,725 km according to Dixon, and arrived at Donkola at the third cataract before returning after eight months (Dixon 1958:54). He also started his third expedition from Abydos, travelling through Darb el-Arbean which connects Darfur in the Sudan and Assiut on the Nile via Kharga Oasis, and which is still used by modern caravans. Although his tomb inscriptions at Aswan state he brought a pygmy when returning from his last journey (Murray 1965:75), the inscriptions also state that he undertook his travels "in order to open a way to that desert" (Lichtheim 1973:25), an aim which makes him the first desert explorer in history.

The Nile Valley was connected to the Red Sea via routes originating between Qena and Thebes, where the Nile is closest to the coast and the desert's rock formations force the Nile to turn east and flow west-east and then east-west before resuming its normal northwards flow. Many Wadis open along this pronounced bend of the river and lead into the Eastern Desert, with two important roads connecting the valley to the coast (Majer 1992:228).

The first road started at Qena and extended for approximately 190km. At Al-Heita, the road left Wadi Qena, crossed its main tributary, Wadi Fatira, and followed the course of Wadi Al-Atrash to its source near a pass in the Red Sea mountain range between Gebels Gattar and Dokhan. From there, it descended along the course of Wadi Bili to the Red Sea. The second of these roads was the oldest and most important road along Wadi Hammamat. Starting at Coptos, the Wadi was reached after passing the Laqeita Oasis, the road travelling through the wadi Atalla and the Wadi Gasus to the harbor of Mersa Gawasis, south of present day Hurghada, the departure point for maritime trade with the southern land of Punt (Sayed 1977:138). Boats were prefabricated on the wharfs of Coptos and their components then transported by huge donkey caravans of up to three thousand men to the Red Sea Coast where they were then assembled (Wachsmann 1998:23; Sayed 1977:170).

After passing by the limestone plateau, great ranges of primary rock rising to over 6000 feet necessitated the laborious threading of routes through wadis in the course of which the track, as in the case of the Hammamat route, climbs to a height of 2,500 feet in order to gain the watershed between the Nile and the Red Sea. Yet the primary rocks in that area would reward labour by concealing in their midst more springs and green places than are found in the northern

regions. These rocks also contain the gold, semi-precious stones and coloured hard stones which first attracted the predynastic inhabitants of the Nile valley to such mountains (Kees 1961:121).

The earliest inscriptions of Wadi Hammamat date from the first Dynasty (Wilkinson 1999:169). They were carved on the rocks of the Wadi by the leaders of the expeditions, recording their names and the names of their pharaohs and the reason they were there, either for quarrying, mining, or simply passing through the Wadi on their way to the Red Sea ports (Goyon 1957; Couyat & Montet 1913). Some of these aims were recorded in an inscription dated to the reign of Montuhotep IV of the Eleventh Dynasty. This states that the one thousand men of the expedition aimed to bring a sarcophagus for the king, search for new wells in the desert, and, most importantly, seek out a better site on the Red Sea coast as a port for the navigation to Punt (Goedicke 1964:47; Couyat & Montet 1913), the siting of such a port at Mersa Gawasis later achieved under the Twelfth Dynasty (Sayed 1978:70). Another inscription from the reign of Senwosret I of the Twelfth Dynasty claims his men quarried a sufficient quantity of stone to sculpt 60 sphinxes and 150 statues (Simpson 1959:22).

A further southern route started at Edfu and went across the Wadi Abbad and the Wadi Barramiya to the Red Sea. Although evidence of its use dates back to the Ptolemaic Period after the founding of the harbour of Berenice (Sidebotham & Zitterkopf 1995:41), it was surely employed during the Pharaonic Period, as Seti I of the Nineteenth Dynasty built a temple at Kanayes 55 km from the Nile inland that road (Brand 2000:279). Secondary routes running towards the ultimate branches of the great Wadi Qena which thrusts upwards from the south, lead towards the east, with the exception of the

sprawling Wadi Tarfah that opens 37 km to the north.

The ancient roads in the northern region of the Eastern Desert cannot be accurately traced, nor can the road that ran parallel to the Red Sea coast be mapped. A Rammesside Period stela found near Nag' 'Alalma suggests that a road may have existed to connect el-Saff-Atfih north of Beni Suef to the Red Sea (Kitchen 1999:184). There may also have been some subsidiary routes from the Central Egyptian villages of the eastern bank of the Nile, particularly from Beni Hasan in Middle Egypt to the Red Sea. Although these routes are unconfirmed, they may perhaps be inferred from Beni Hassan tomb scenes of Khnumhotep, nomarch of the 15th upper Egyptian nome, which depict a group of thirty-seven Asiatic Bedouin (Newberry 1893:pls.30-1); as Overseer of the Eastern Desert, Khnumhotep was responsible for its security. Some further northern land roads lead to Mesopotamia through Syria-Palestine (Mark 1997:5).

Travel to the land of Punt was mainly via the Red Sea, the Egyptians travelling to the coast of the Red Sea either through Wadi Hammamat to reach the port of Qusir or Wadi Gasus, through the northern eastern desert to arrive at the present day Suez, or through Wadi Tumailat to the Suez Gulf and then the Red Sea (Bard & Fattovich 2010:2; Vandersleyen 1996:110).

The Egyptians were also drawn to the barren mountains valleys of the Sinai Peninsula by the lure of raw materials, in particular the region's rich deposits of turquoise. Their mining activities are revealed by numerous inscriptions in the Wadi Maghara and Serabit el-Khadim, particularly from the Middle Kingdom when a sanctuary of Hathor was built (Bonnet & Valbelle 1997:82). The tools discovered at Wadi Maghara might indicate that it was not a major



mining area but a treatment center for ores from the surrounding mines (Petrie 1906:151). Expeditions from Memphis and Heliopolis took the direct route over the desert plateau between the present day Cairo and Suez in order to avoid the round-about way through the Wadi Tumilat. It is the same route followed subsequently by pilgrims from North Africa to Mecca so as known as Darb el-Hagg (Rothenberg 1979:46).

### 5. Religion

The desert played an important role in forming some of the fundamental religious concepts of the ancient Egyptians. The nature of their land was reflected in the characteristics of their gods. Osiris was often coloured black as he was believed to manifest the blackness of fertile land and was therefore described as “the great black one” (Griffiths 1980:154; Erman, 1971,V,126:1). His brother and murderer Seth was considered “the red god”, the god of chaos and the ruler over the desert known as ‘dSrt’ meaning ‘the red land’ (te Velde 1977:66,150).

Yet there were also many patron gods of the desert itself. As one of their oldest land formations, the Egyptians associated the desert with one of their oldest gods, Min, who was worshiped from predynastic times (McFarlane 1995:3). He was the patron god of the Eastern Desert who offered protection to travellers and traders passing along the caravan routes to the Red Sea. Prayers and thanks to the god Min were found at Wadi Hammamat, and Min was also worshiped by the men who worked the mines and quarried the stone at Hammamat. At this particular Wadi, Min was given the title “Min, the Male of the Mountain”, or “Min, the foremost of the Mountain” (Goedicke 2002:247). He was also described there as “Lord of the Foreign Lands”, “Lord of the Hill Countries”, the hill countries “desert” were always described as “the hill countries of Min”

(Bleeker 1956; Hayes 1946:3-23).

In the Western Desert, the god Ash was the master of the Sahara Desert and the “Lord of Libya” (Scharff 1926:23). Although sometimes depicted as a companion of Seth, the red god, Ash was a benign deity who created the oases. He also looked after those who had to travel through the desert, ensuring that they did not die of its cruel heat (Murray 1934:115).

The desert itself was traditionally considered to be the place of death, Particularly the Western Desert which was regarded as the entrance to the underworld. It was here where the sun sets each night, and so was therefore established as the location of cemeteries (Černý 1957:16). Reflecting its status, various religious texts describe the perilous desert surrounding the kingdom of the dead. In one example the deceased asked the god “how can I travel to desert which has no water, and which is deep, dark and unsearchable” (Taylor 2010:240). This idea is also represented in the image of the fourth hour of the Amduat, represented as the desert of Rosetau, the land of Soker who is on his sand (Hornung 1999:36), a desolate sandy realm teeming with snakes whose uncanny movements are emphasized by the legs and wings on their bodies. For the first time in the Amduat the solar barque needs to be towed to make progress and the barque itself turns into a serpent whose fiery breath pierces pathway through the otherwise impenetrable gloom (Hornung 1999:36).

In spell 1 of the Book of the Dead, the deceased was always described as the one who is in the sacred desert (Faulkner 1972:35). It was considered sacred as it was the place of the two gazelles in which Geb found Osiris after he had killed by his brother Seth (Griffiths 1980:25).

The Egyptians recognized that the sun rises and sets on the horizon by passing through



**Fig.5: a Predynastic naturally preserved sand dried body, British Museum EA 32751.**

two mountains, represented the hieroglyphic sign of akhet, sometimes guarded by two lions (De Wit 1951:465). The same idea was also encapsulated in the form of temple entrances, whose pylons represented the akhet (Arnold 2003:183; Shubert 1981:135).

## 6. The Concept of Mummification

Because the agricultural land was so limited and valuable, the ancient Egyptians were unwilling to bury their dead close to towns or villages. They chose instead to dispose of them in the immediately adjacent desert sands (David 1978:58). It is usually assumed that they buried their earliest dead naked, laid on their sides in the foetal position in order to save more space, in a shallow grave in the sand at the edge of the desert (Spencer 1982:30).

The dryness of the desert sand and the hot rainless climate gradually dried out the corpse (Fig.5). The hot dry sand absorbed the water which constitutes up to 75 % of the weight of a human body and without which bacteria cannot breed and cause decay (Andrews 2004:4). This process therefore arrested decomposition quite quickly, and while these conditions persisted the body could survive indefinitely. The Egyptians would also have observed this phenomenon

when such burials were accidentally uncovered by shifting sands or disturbance due to jackals, dogs or other scavengers, or when digging new graves (Ikram & Dodson 1998:108).

The idea that human existence continued after death, requiring the preservation of the lifelike appearance of the body and a supply of food and drink, may have resulted from accidental exposure of these long-dead and desiccated bodies (David 1978:58). Yet with the development of increasingly sophisticated attitudes towards burial and the afterlife, the royal family and the nobility began to construct deeper and more elaborate tombs lined with wood or mud brick and often covered with a superstructure. The deceased was often enclosed in a wooden coffin, meaning that the body was no longer in direct contact with the hot dry sand which had been the means of preservation, and so decomposition became a serious problem (Spencer 1982:31; Andrews 2004:4).

Religious beliefs about the afterlife were by now, however, firmly established; the soul left the body at death but could then return, to continue their existence together in the hereafter. As it was essential to preserve the body in as lifelike a condition as possible by some other means (Assmann 2005:105), forms of artificial mummification were developed for the elite while the poor continued to use shallow sand graves to obtain natural mummification.

It could therefore be argued that it was the desert environment which allowed the Egyptians to first understand the preservation of bodies, and which helped them create their notions of eternity and everlasting life.

## 7. Language

Finally something should be mentioned concerning the names of desert in the ancient Egyptian language. The ancient Egyptians used

many words to name their deserts. Since the Old Kingdom, when the cultivated land was known as kmt “the black land” (Erman 1971 V: 126,7), the word dSrt meaning “the red land” (Erman 1971 V: 494,6) was used to describe the deserts surrounding the Nile valley. The word dSrt is believed to be the origin from which the present English word “desert” is derived (David 2003:112). Other names for desert appear in the pyramid texts are: nw (Erman 1971 II:217,1), xAst (Erman 1971 III:234,11), and smit (Erman 1971 III:444,9), while in the New Kingdom the word mrw was used (Erman 1971 II:109,5). Another ancient Egyptian word related to some desert localities and still in use, within both European languages and in Arabic, is the word wHAt, the origin of the English word “oasis” and the Arabic word “Wahat واحة” (Erman 1971 I:347,18; Černý 1971:205).

### Conclusion

Without the Egyptians deserts, it would have been impossible for the Egyptian civilization to develop as it did. The deserts were the natural protectors which defended the land and people

of Egypt from being subjugated for a long time, giving them security both in feeling and reality, and without which they could surely not have achieved what they did. The deserts were the main domestic and international net of transportation connecting remote sites together, the only source for the raw materials needed in the construction of the Egyptian temples, pyramids, the most characteristic of the ancient Egyptian architecture, as well as the other shapes of tombs. The desert environment also inspired many of the Egyptian beliefs concerning religion and the hereafter, acting as a catalyst for the process of mummification. Moreover, the desert’s stable ground and dry conditions proved the main element in preserving the ancient Egyptian monuments till present in contrast to those sited in cultivated land which are now almost completely lost.

Although Herodotus may have claimed the Nile gifted Egypt its civilization, the desert was an equal counterpart in such gifting, making Egypt not only the gift of the Nile but of the desert as well.

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**ملخص:** على الرغم من أن البيئة الصحراوية تحتل ما لا يقل عن ٩٦٪ من إجمالي مساحة مصر، إلا أن المصريين القدماء استطاعوا أن يبنوا حضارة ناجحة، دامت طويلاً في مثل هذه البيئة. يلقي هذا البحث الضوء على أثر الصحراء في تكوين الموروث المصري القديم، ويستقصي الفوائد المادية للصحراء، بوصفها مصدراً للمواد الخام والبيئة المناسبة لعملية البناء، وبوصفها مصدر إلهام للمعتقدات الدينية التي تعنى بالخلود، والمعبودات، والحياة الآخرة. كما يحاول البحث توضيح مدى إسهام البيئة الصحراوية، وتأثيرها على قولبة الموروث المصري القديم.

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