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Some Early Dynastic clues relating to the environment of Ancient Egypt

Our effort to understand the culture of ancient Egypt, both prehistoric and historic, must include a study of the vegetation in all its phases (Nibbi, 1976; 1981 a and b).

The tree is usually represented in the ancient Egyptian reliefs and paintings as though it had an almost magical quality. Gods are often shown within its foliage. It has generally been assumed that this is because of the rarity of trees in a predominantly desert environment. But scientific evidence in recent years is suggesting that trees in the natural environment were a much more frequent sight in ancient Egypt than they are today.

The areas remaining fertile in Egypt today are shown in red on a land satellite map of Egypt prepared by Dr. Abdel Hady of the OSU-Remote Sensing Centre, Academy of Scientific Research and Technology, Cairo (Abdel-Hady, 1974). This map also carries some interesting marks, which could represent an ancient Nile valley running north-westwards, from the general area of Sohag and Assiut, through a depression between the oases of Qattara and Siwa and into the Mediterranean Sea. We cannot yet be sure what these marks represent, but we cannot exclude the possibility that it was an old bed of the Nile.

In another of his studies, carried out jointly with others, Dr. Abdel Hady tells us that the desert is encroaching upon Egypt from the west, thus moving eastwards (Abdel Hady, 1976). It is only in recent years that we have begun to look carefully at the ancient environment of these regions, in order to try to understand it. The work of scientists during the last twenty years shows that the whole of north Africa and the southern countries of the Near East were very thickly forested in the not so distant past and that much of this forest was denuded mainly during this last century. We are all familiar with the writings of early travellers in these regions from the fifteenth century A.D. onwards, among the latest of whom, Richard Pococke and H. B. Tristram describe this vegetation in some detail (Pococke, 1743-45; Tristram, 1876). But the best description of this situation that I have been able to find is by a present-day botanist, G. E. Wickens of the Herbarium, Royal Botanic Gardens,

Kew who said (Wickens, 1975): "There is ample evidence from the literature to show that the vegetation of the Sudan, in common with many other African countries, has greatly deteriorated since the beginning of this century. There is similar evidence of a decrease in both numbers and areas of distribution of many African ungulates (Sidney, 1965) and other mammals. Consequently the present-day conditions of flora and fauna will give a false impression of the natural environment in relation to the climate, which until recently has remained relatively static..." "The recent drastic reduction in the density of the mammals can be attributed to a number of factors. The rapid increase in the human population has resulted in increased pressure upon the natural resources. More land is being required for cultivation and grazing, resulting in a rapid deterioration of the vegetation due to cultivation malpractices, overgrazing, burning etc. (Wickens, 1968). The increase in the use of motor transport has led to the opening up of remote areas, which, with the improvement in firearms, has increased the chances of both hunter and poacher. More and more, animals are being slaughtered for "sport", food or to protect cultivation and stock. The mammal populations have had to change because their habitats have been destroyed, their migration routes interfered with, their numbers reduced..." Wickens goes on to tell us that in prehistoric times, the impact of man upon the environment would have been insignificant, partly because man was then a relatively inefficient hunter and partly because he was not present in sufficient density in that environment.

Among the trees which we see represented on the scenes from ancient Egypt, we recognize the sycomore fig and the acacia, which Karl Butzer found to be present in the Nile valley in approximately twenty varieties (Butzer, 1959). These are plants which thrive in warm and fairly dry conditions. But we see many other kinds of trees which we cannot properly recognize, because of the schematic way in which they are presented artistically. In thinking about these problems, it is important for us always to remember that forests do not disappear quickly if left to nature. When we see a group of trees in a natural evironment, which in Egypt today will occur in a desert or semi-desert area, these trees will certainly be survivals of a former forest rather than a new burst of growth.

The Algerian botanist P. Quézel studied some pollen and wood remains from the last wet period in the Sahara and he found that a Mediterranean vegetation flourished there as far south as Hoggar and Tibesti (Quézel, 1963). He found that around 10,000 B.C., oak and cedar forests are present in these regions. Some remains of this Mediterranean type of vegetation continue to exist even today, in favoured pockets of these highlands, but only in a small and stunted form. Quézel's study consisted of twenty-six boreholes taken within a confined area. Above the layers revealing oak and cedar, Quézel found an even richer vegetation including deciduous oak, *Pistacia lentiscus*, maple, tree heather, ash, walnut, lime and alder.

It seems that the maximum and optimum period for this vegetation corresponded

to the expansion of the flint industries throughout the Sahara. Quézel found the continuation of this Mediterranean vegetation after the appearance of the Neolithic culture, but with the addition of Aleppo pine, juniper, *Duprez cypress*, the southern alder (micocoulier) and the *Laperrine olive*. This shows that drier conditions had begun and that the savanna vegetation would follow in due course as the drying out process continued. Quézel concluded that in the last four thousand years, that is, since approximately 2,000 B.C., the Mediterranean vegetation in the region of the Sahara which he studied had moved northwards by fifteen hundred kilometres. Wickens (1975) noted a similar phenomenon for the Sudan. We are taking of a movement of the vegetation over thousands of years. Wickens discusses the work of Quézel in detail and points also to some problems in his important study of the flora of Jebel Marra (Wickens, 1977 a).

Two geographers, F. Alayne Street and A. T. Grove, found support for these from a study of lake-levels in Africa (Alayne Street and Grove, 1976). These were based on the fluctuations during the Late Quaternary period. Their technique relied exclusively on radiocarbon-dated chronologies from which they constructed a series of maps representing lake-level patterns during each millennium since 21,000 years B. P. They found the lake-level record to be more complex after 8,000 B.P. Their conclusion was that since 3,000 B.P., desert conditions have once more descended on the central Sahara, causing many East African lakes to become dry or saline. It is interesting to note that these scientists found minor moister fluctuations during the past two millennia and even in the present century. In terms of vegetation the results of the work of these scientists indicates that after 10,000 years B.P., there was a general restoration of forest across Central Africa. They tell us that a lowland forest species advanced 300 - 400 kilometres north of their present limits in the Sudan and they noted the formation of lagoonal clays and swampsoils from 12,000 to 4,000 B.P., which must have been of great agricultural and economic significance.

The Eastern Delta of Egypt has yielded a number of pollens of the Mediterranean vegetation which have been studied by scientists, but as yet only on a limited scale. Some years ago, Martine Rossignol analysed some marine sediments on the coast of Israel and found in them deposits of Nile mud which had been left by the currents moving northwards, which is their normal pattern (Rossignol, 1960). This mud contained pollens of many kinds, including Aleppo pine. She was able to compare these results favourably with actual samples from the Nile Delta, namely from the Berenbal region south of Rosetta and she tabulated her results in that study. Further work on core samples from this same area in the Delta was done by Professor Shukri Saad from the University of Alexandria (Saad and Sami, 1967). In his published results there is pine pollen, as well as its related vegetation. This scientist has taken samples from other areas in the Egyptian Delta and all seven sites have produced pine pollens as well as pollens of its related family of plants. We look forward to the further publication of these important results.

Although we are as yet unable to date these levels from the Egyptian Delta, we now have some pollen and vegetation studies from Israel and the Negev, which should help us to co-ordinate the various levels. Although we have as yet no published pollen results for the Sinai, these results from Israel seem to point to the fact that there may well have been some correlation right across north Africa at least during the Early Neolithic period. Aharon Horowitz found the Upper Palaeolithic spectrum of the Central Negev to reflect a cool Mediterranean climate while the vegetation of the following period which he calls the late Upper Palaeolithic reflects an increase in the vegetation and arboreal pollen which continued to increase into the Pre-Pottery Neolithic period (Horowitz, 1971; 1974; 1976).

In a recent study, Menashe Har-El emphasized that oak and pine forest is well attested in southern Palestine from biblical times until the First World War, when the remains of that forest was cut down by the Turks who were building a railway (Har-El, 1977). Evidence for this forest has been brought forward by a number of scholars, among them M. B. Rowton, in his study of ancient topographical names which reflect the presence of trees (Rowton, 1967).

So far, then, we have referred to the present-day remains of two ancient forests: in the Sahara and in southern Palestine, both of which are relevant to the Egyptian situation. There is another one adjacent to Egypt whch we must mention here as well. It is the juniper forest of the northern Sinai. Stands of juniper have been seen today in the area between the Suez Canal and Wadi El Arish in places called Gebel Hallal and Gebel Maghara (which has nothing to do with the ancient mining place further south bearing the same name). A study of the prehistoric period in these regions by James Phillips of the Department of Anthropology, University of Illinois and Ofar Bar-Yosef of the Institute of Archaeology, Jerusalem, found large amounts of coals from *Juniperus*, proving that it was burnt for firewood and must therefore have been abundant at that time (Phillips and Bar-Yosef, 1974).

We thus have the ancient remains of tree forests, attested by several scientists, in close proximity to Egypt.

We are not so fortunate in our information from Egypt itself. The root systems of trees and pieces of wood are often found in excavations, yet few excavators treat these as serious finds. It is good to hear that Professor Elmar Edel is having a large number of his woods from Qubbet El Hawa analysed, with results which will be certainly very exciting. We must be grateful to Madame Desroches Noblecourt who has had all the wooden objects in the Louvre analysed, even if some of the results are thought to be tentative and not final. Not all the museums, even the large and important ones, are equipped for such work and it is not easy to get it going. However, what we require most of all is a belief in its importance on the part of the keepers of the collections. Such a belief would soon be followed by the will to get such a project going. Until this is done, we shall go on arguing about what we think the ancient Egyptians meant by the terms they used.

The importance of having a precise knowledge of the woods which were used by the ancient Egyptians must be:
a) that far less cedar was used by the ancient Egyptians than is at present believed,
b) much of the wood called cedar may in fact be juniper because they look the same to the naked eve,
c) as Victor Loret (1916) rightly argued, the most prized wood in ancient Egypt was shown as pale gold, with no grain markings, consistent with a variety of pine (Nibbi, 1981 a and b). It could be found growing much closer to Egypt than we have so far believed possible. Thus the recent work of scientists shows that the ancient Egyptians did not need to go to the Lebanon for this wood. It is, in any case, an absurdity to define cedar as being of the Lebanon when we have the remains of a cedar and oak forest in the highlands of the Sahara.

As far back as 1970, Jean Lauffray with great perspicacity rightly questioned our assumptions about the sources of the woods used by the ancient Egyptians. He was discussing the timbers in the Taharqa shrine and the massive trunks which the large columns had demanded. Lauffray challenged the average dimensions quoted by G. Post in his *Flora of Syria* and quoted the evidence of P. Mouterde, who attested that the variety of *Juniperus* called *Excelsa Bieberstein*, rendered in Arabic *lisab*, can attain the height of thirty metres, as high as any cedar, whereas the variety called *J. drupacea*, rendered in Arabic *difran*, now on its way to extinction, can reach a height of over twenty metres. Only the cypress could reach a height of forty metres (and not a maximum of 25 metres, as Post stated), and this seems to be the tree most likely to have been employed in the building of the Taharqa shrine. There is, however, no evidence that it was to be found in the Lebanon. Lauffray tells us that Lucas quotes Beekman as saying that it could be found there, but there seems to be no basis for this. Moreover, Lauffray emphasizes that, in addition to the question as to whether such trees could actually be found in the Lebanon, we have the added problem of the political situation in the time of Taharqa, which would have made imports from these regions difficult. Thus Lauffray rightly posed the problems inherent in our assumptions concerning the importation of wood from the Lebanon into Egypt, at any time in history, in effect.

There is the added problem of the physical importation of logs from such a distance. The Sargonid reliefs from Khorsabad (Pritchard, 1954) show us logs being transported by boat, with four usually lashed overhead and three being hauled in the water behind the boat. The Egyptian story of Wenamun confirms that seven logs are full load for any boat transporting timber (lines 2, 35 - 40), so we must suppose that we are speaking of a system very similar to that shown on the Khorsabad reliefs. Such boats as these carrying a heavy load and subject to the constantly changing strain of the logs in the water could not be controlled in the sea. They would be at the complete mercy of the waves, particularly in the rough waters along that coast. We must therefore abandon any idea that large and heavy timbers could ever have been imported

into Egypt in this way. The impossibility of transporting long whole logs from the Lebanon into Egypt, either by sea or by land, which is extremely mountainous, must make us reconsider fundamentally the sources of timber for ancient Egypt. I have already pointed out (Nibbi, 1981 a) that the assumption that cedar was imported from the Lebanon by Egypt depends on the wrong intepretation of the word *ᶜš* as cedar, which Egyptologists today agree to be wrong.

Lastly, we must draw attention to the presence of antlered deer among the animals portrayed by the ancient Egyptian artists of the pharaonic period and later (Nibbi, 1980). Thirty-three antlered deer have been counted, the number of representations dwindling from the time of the Old Kingdom to the Coptic and Byzantine period. This signifies beyond doubt the survival of forest environment, at least in isolated stands, along the Nile valley during this time.

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