

EGYPT: ORIGINS OF COMPLEX SOCIETIES

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INTRODUCTION

When Pharaoh Pepy II died at c. 2230 BC, Egypt was nearing the end of what can be considered its first dynastic cycle. Pepy II's empire was in disarray; yet the people bearing his body to his tomb at Saqqara would have seen all around them pyramids, temples, towns, and other reflections of a great civilization then already many centuries old.

The dynastic cycle Pepy II's reign completed—which constitutes the primary subject of this review—began at about 4500 BC. At that time the Nile Valley and Delta appear to have been occupied by people living in small, functionally similar agricultural communities that were only weakly interconnected politically and economically. By 2500 BC, however, Egypt had become an integrated empire whose ruler's power, as expressed through a complex hierarchical bureaucracy, touched every citizen, and whose economic and military force was felt throughout the eastern Mediterranean and North African world. From this pinnacle Egypt devolved, shortly after Pepy II's death, to a much contracted polity, where, in the words of one who lived at that time, "grief walk[ed] the land" in the ancient specters of starvation and civilian revolt (4: 102).

Egypt's history is a complex cumulative pattern of evolutionary change, but in some ways its basic themes and dynamics had been established by the time of Pepy II's demise; and the 20 centuries that followed, until the Ptolemies transformed Egypt, saw many repetitions of these cultural themes, punctuated by the baroque variations of an Akhenaten and the traumas of foreign invasions.

Egypt's past has profoundly affected Western arts and sciences, from Herodotus to Thomas Mann, from Thales to Verdi. Its influence was particu-

larly strong on those scholars who formulated some of the classic general explanations of the origins of complex societies (33, 56, 131, 133, 134, 161).

But more recently the Egyptian archaeological record has played only a minor role in archaeologically based cross-cultural comparisons and explanations of early social complexity (3, 28, 66, 123, 156, 162), in part because there was relatively little archaeological evidence about ancient Egyptian demography, economy, settlement patterns, and chronology (5, 18, 25, 77, 148).

During the past decade, however, archaeological research on early Egypt has intensified considerably. My purpose in this paper is to summarize this research and set it in the context of contemporary debates about analyses of early complex societies in general. I focus here rather narrowly on how traditional views of the Egyptian past have been modified by recent work. Space limitations preclude a discussion of events beyond the northern part of the main Nile Valley and Delta (Figure 1); for more extensive and detailed reviews the reader is referred to recent surveys by Hassan (77), Trigger (136), and Hoffman (87) (also see 6–8, 14, 15, 25, 107).

THEORETICAL ISSUES

In scientific analyses one's theoretical principles tell one what analytical units to create. But there are no powerful theories of history or archaeology that tell us how ancient complex societies can best be categorized and measured for the purpose of explaining their origins. The sense of "complex society" I use here is the traditional one involving a nonquantitative composite of monumental architecture, inferred mortuary cults, rank and wealth hierarchies, specialized craft production, etc; but such trait lists must be considered descriptive, not analytical. Johnson (93, 94) and others (162, 163) have developed useful archaeological methods of relating social complexity to variations in settlement patterns and site composition, but evidence for similar analyses of Egypt is just beginning to accumulate. Elsewhere I have considered (154, 155) the use of archaeological measures of functional differentiation within and among communities in analyzing evolving cultural complexity. For example, as in other early civilizations, Egypt eventually became a society in which neither the extended family nor the village could reproduce all the economic, social, and political activities necessary for physical and cultural survival. With additional archaeological data, this concept of the transition from functional redundancy to functional interdependence may eventually be useful in evolutionary analyses, in that the change to functional interdependence may involve a change in the scale at which cultural selection operates (17, 22, 32, 40).

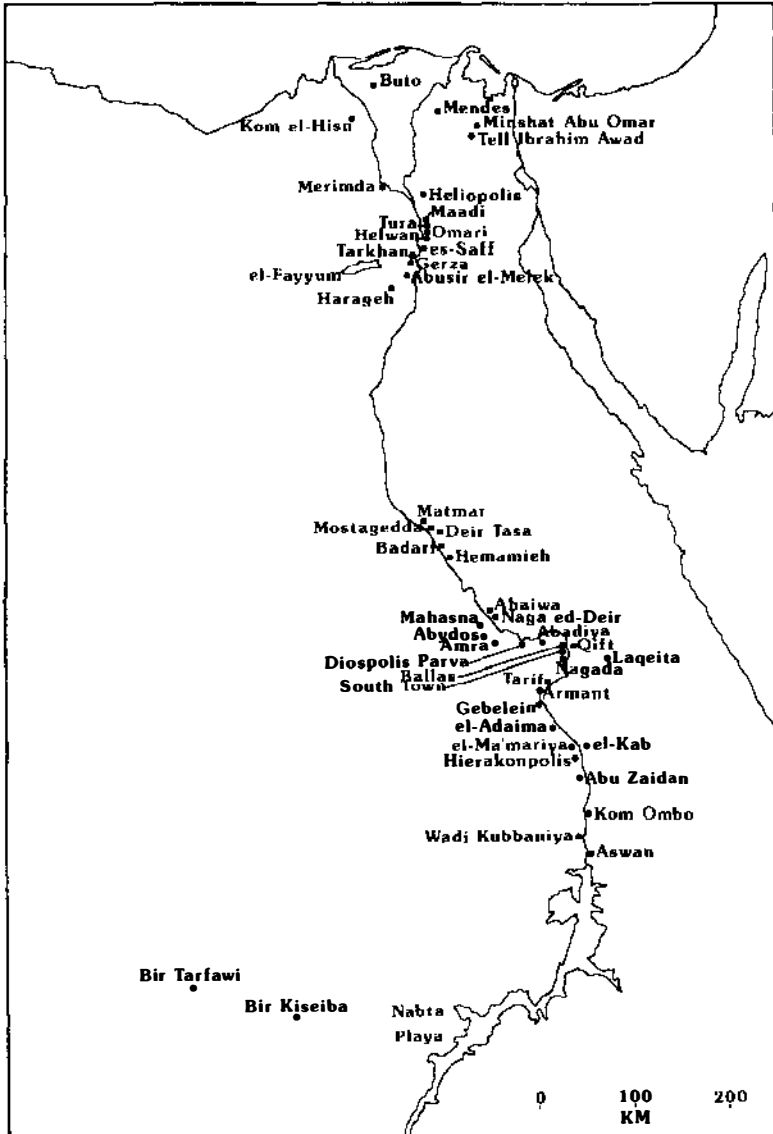


Figure 1 Some important Egyptian sites (c. 5000–2000 BC)

With regard to the problem of how we are to understand and explain the past in general terms, it must be stressed that most archaeological research in Egypt to date has taken the form of straightforward efforts to reconstruct some aspect of ancient Egyptian society or history, or to establish causal links

between ecological, technological, and demographic variables on the one hand, and sociopolitical variables on the other.

Some contemporary archaeologists argue that the techno-environmental determinism, functional argumentation, and cultural ecological “possibilism” typical of the past 20 years of research in Egypt, and in other early civilizations as well, are extremely limited forms of analysis (77, 87, 137); some scholars even argue that they are epistemologically sterile and morally wrong in their ethnocentrism and imperialism (85, 130). Generally, archaeologists of many different theoretical inclinations seem to be searching for a way to deal with what they presume to be the determining effects of intrinsically social, political, and ideological forces. These ideas are beginning to gain some currency in Egyptian archaeology (8, 77, 87, 137)—although even basic techno-environmental, demographic, and economic aspects of ancient Egypt are still only vaguely known (25, 26).

I am not optimistic that many “post-processualist” ideas will prove useful; but if archaeological explanations can ever usefully incorporate social theory, Egypt would seem to be the ideal case to demonstrate this: Its techno-environmental determinants are relatively simple, and its early evolution of a written language and elaborate material culture provide us with a long, rich record of ancient ideology. Thus, if current theoretical trends in archaeology continue, Egypt may once again become a primary data base for attempts to explain and understand cultural complexity.

EARLY EGYPTIAN CHRONOLOGY

Figure 2 summarizes much of the current—and quite tentative—periodization of the Egyptian archaeological record. Egypt’s chronology is still obscure in some segments, in part because Egypt has fewer deeply stratified sites than other early civilizations. With the establishment of agriculture in Egypt, settlements were concentrated in a small and dynamic floodplain, where alluviation, reoccupation, and reuse have been intense. Moreover, Neolithic and early Predynastic communities seem to have consisted mainly of unsubstantial pole-thatch structures, so that even long-term occupations did not leave thick, easily separable deposits. Where sediments are thick, they are now often below the water table, which has until recently prevented extensive exposures. Thus Predynastic culture history has been compiled mainly on the basis of ceramics seriations (21, 77, 89, 119).

Egyptian chronologies for periods after the Predynastic have been based primarily on king lists and other texts written after 1900 BC—long after the crucial period of initial development of complex societies. These text-based

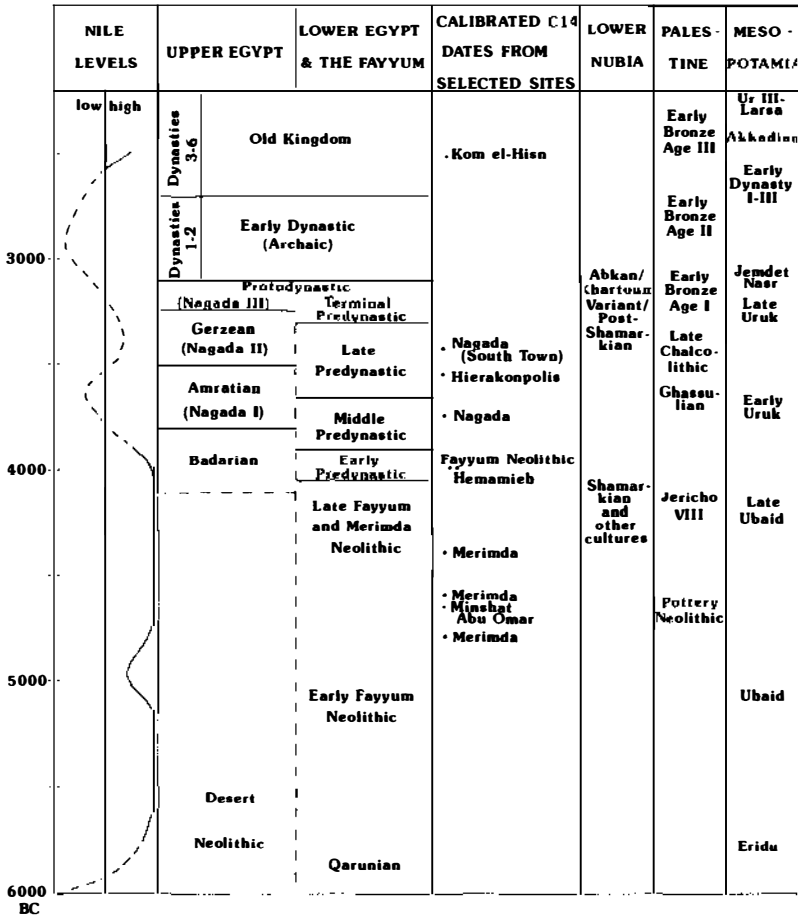


Figure 2 A cultural chronology of Early Egyptian complexity

chronologies have won great acceptance but must be considered tentative. Dreyer (39), for example, has catalogued some of the ambiguities of king names on Early Dynastic seal impressions, and K. Baer (personal communication)—whose unpublished Old Kingdom chronology has become a standard reference—acknowledged the possibility of an error of at least 120 years.

Hassan & Robinson (79; also see 35, 37) have found a general correspondence between the overall pattern of hundreds of Egyptian radiocarbon dates

and both relative artifact seriations and chronologies based on epigraphic evidence; their analysis supports the notion that Egyptian developments were somewhat later than corresponding developments in Southwest Asia (e.g. the development of writing). The styles of Palestinian and Mesopotamian artifacts found in Egyptian sites (98, 145) also seem to support the period correlations between Egypt and Southwest Asia as presented in Figure 2. Haas et al (65), however, recently found that 64 samples of carbonized organic materials taken from many Old Kingdom pyramids, temples, and tombs averaged (both conventional and AMS dates) about 374 years older than the text-based traditional chronology suggests. It seems unlikely that these results accurately date the construction of these Old Kingdom monuments, but no simple explanation of this discrepancy has been found. Conflicts have also been found between radiocarbon dates and the Predynastic artifact style-based chronology, in deposits at Hierakonpolis (M. Hoffman, personal communication). Haas et al are currently testing samples of reeds, trees, and other living flora to determine if these commonly radiocarbon date older than they are. If many common Egyptian plants have this characteristic, the entire radiocarbon chronology will have to be reexamined. Other physio-chemical dating methods have been applied to the Egyptian archaeological record (e.g. 31) but not systematically or intensively enough to help resolve these chronological problems. Brewer (23) has constructed a series of annual ring formation in fish vertebrae that may eventually provide relative seriations for short periods within small areas of the Nile floodplain.

THE ECOLOGICAL CONTEXT OF EARLY EGYPTIAN COMPLEX SOCIETIES

Because of site destruction and burial in the Nile Valley and Delta, those sites that have been found and excavated may have been marginal in both a cultural and geographic sense. Trigger suggests (136:10) "most of the richest and culturally most advanced settlements were built on now-buried levees along the banks of the river and hence have never been discovered by archaeologists."

Nile flood levels, which are reconstructed in Figure 2 based on Hassan's (75, 76; also see 16, 25, 26) research, were, of course, powerful determinants of Egypt's culture history; but the Nile offered the same approximate natural resources for the whole period of evolving Egyptian social complexity. Thus in a sense the most interesting patterns of cultural changes are those that cannot be explained simply in terms of Nile flood variations. In general the narrowness (average of c. 2 km in many areas) of the Nile's floodplain

probably accounts to some extent for the small size of early Egyptian settlements, relative to their Mesopotamian counterparts: Agricultural intensification in the Nile's long, narrow floodplain would have had geometric limits not encountered in Mesopotamia, for example, where areas within a radius of at least 5 km could be exploited. These effects on settlement size and patterns were probably amplified by the extreme redundancy of the Nile environment, which offered early complex societies few rewards for voluminous interregional trade in basic food stuffs and raw materials.

Similarly, the prime navigability of the Nile, and the location of almost every settlement within a few kilometers of this transport network, probably explains much of the political and religious unity of Egypt, compared to the ethnic and social diversity of Greater Mesopotamia.

By the time Egypt was a predominantly agricultural society (c. 4500 BC) variations in rainfall were probably of minor importance, although Hoffman et al (90) consider the increased summer rainfall of the early Predynastic period to have been an important element in the growth of Hierakonpolis into a regional center. At present the location of the Mediterranean coastline and the size and placement of Nile Delta channels between the Neolithic and Old Kingdom eras have not been securely established. Some recent evidence (147:246) suggests that during the late fourth millennium BC the sea level may have been as much as 6 m below its present level in relation to the Delta (but see 59). Research (45, 47, 164) indicates that the location of Nile Delta branches varied considerably during the last four millennia BC.

In general there is little evidence that Egypt's ecological resources were ever strained by population pressure until quite late in the historic era (11, 25, 26).

AGRICULTURAL ORIGINS (c. 9000–4500 BC)

Hassan (77:166) suggests that the "emergence of social differentiation and ultimately a state society is to be found in the socioecology of an agricultural mode of production." If so, then the *timing* of the appearance of complex societies in Egypt can be partially explained by the fact that the full conversion of Egypt to an agrarian society seems to have happened only after domesticated sheep, goats, wheat, and barley were introduced from outside, probably from Southwest Asia.

But recent research (36, 153, 158) has also revealed that many aspects of North Africa's agricultural transition are much more complicated than previously thought (also see 34, 63, 110). Henry (84) has recently rejected the idea that a "broad-spectrum revolution"—in the sense of a late Pleistocene shift by many groups to broader-based economies that included increasingly intense exploitation of wild cereals—was an important part of agricultural

origins in Southwest Asia. What little is known of Egyptian groups of this period does not allow a full evaluation of the nature of late Pleistocene subsistence changes in North Africa, although in recent research Wendorf et al (153) found no evidence to support their earlier hypothesis (152) that late Pleistocene peoples in the Wadi Kubbaniya and Kom Ombo regions of Upper Egypt were significantly dependent on cultivated or collected cereals. But they have argued on the basis of evidence from Bir Kiseiba and Nabta in southwest Egypt (Figure 1) that both “cattle and pottery seem to have been known in the Sahara as early as anywhere else in the world” (153:428). Moreover, they observe that for the Early Neolithic of el-Nabta Type (c. 8200–7900 BP) there are settlement remains that seem to indicate long-term recurrent settlement in the form of “medium-sized villages, composed of perhaps as many as 14 family units . . . where there was at least sufficient social control to determine the arrangement of the community” (153:425).

Yet the full transition to an agrarian way of life in Egypt seems to have occurred only after about 5550 BC. Hassan (74) and others (153) have suggested that increased aridity during some periods of the early Holocene forced people out of the desert oases and into the Nile Valley, where perhaps they established Neolithic economies, combining their own domesticates (e.g. cattle) and technologies with cultigens from Southwest Asia or North Africa (60).

The earliest extensive evidence of early Egyptian “agriculture” comes from the Fayyum region (63, 76, 149, 157), where Caton-Thompson (30) found silos containing domesticated wheat, barley, and sickles, as well as pottery, grinding stones, and many other indications of an economy based in part on cultivated cereals and domesticated animals. Numerous later investigations (23, 63, 149, 157) of the Fayyum indicate (a) that changes in artifact technologies and styles in the Fayyum are consistent with a Neolithic recolonization of the Oasis shortly before 5000 BC by a people unrelated to those of the preceding Qarunian era (although this remains undemonstrated); (b) that the Fayyum Neolithic’s stylistic similarities with western desert traditions (108) may suggest that native North Africans integrated these introduced cultigens into existing economies; but (c) that the Fayyum remains mainly reflect a peripheral, atypical group of former desert foragers, in an environment that appears to have been too unpredictable or not sufficiently productive to support a complete transition to a sedentary village form of settlement based on an agricultural economy. No remains of structures or even extensive patterns of post holes were found at the largest and best preserved Fayyum Neolithic sites, and the settlement pattern appears to have been one of shifting small-scale cereal cultivation by people still heavily reliant on fish and other lake resources (157).

Thus, the site of Merimda Beni Salama (42–44, 80) might be more representative of northern early agricultural communities than those in the unique lacustrine environment of the Fayyum. Merimda Beni Salama extends over about 20 ha of a low terrace overlooking the western edge of the Delta. Hassan (77) estimates the site was occupied for between 400 and 1000 years, in the interval between 5000–4100 BC. He notes that the early and middle periods of occupation seem little different from contemporary occupations of the Fayyum, suggesting a small community of people living in pole-thatch constructions and subsisting on hunting, fishing, herding, and some cultivation of emmer wheat. But in “the uppermost levels at Merimda, the appearance of more substantial subterranean dwellings and the integration of granaries within the village suggest that community organization associated with both a differentiation of households and a ‘formal’ organization of village life was achieved by 4100 BC at the latest and probably already by 4300 BC” (77, p. 152). Hassan estimates Merimda’s largest population, toward the end of its occupation, as about 1300–2000, which, given the grinding stones, granaries, and other evidence, implies substantial reliance on agriculture, even though relatively few remains of cereals have been found. The burials at Merimda were in house floors and adjacent to living areas—a common pattern in early agricultural groups in North Africa and the Middle East—and with no convincing signs of social ranking (99).

Occupations only slightly younger than those at Merimda and the later Fayyum Neolithic occur in the region of Badari, in Middle Egypt, most notably at Hemamieh, Deir Tasa, Matmar, and Mostagedda (reviewed in 15, 77, 136), most of which were probably occupied by about 4000 BC (77). These various “Badarian” (24) communities were mainly insubstantial clusters of pole-thatch constructions associated with hearths and grain silos of plastered straw and basketry. In only a few cases did these occupations leave substantial stratified remains, and Hassan (77) interprets this as reflective of a shifting pattern of short-term occupations, which he attributes to the narrowness of the flood-plain here. He notes that thick layers of sheep/goat droppings imply penning of these animals. Wheat and barley were cultivated, augmented by lentils, other plants, and considerable hunting and fishing.

Krzyżaniak (106) recently reported possible Neolithic remains retrieved by augering deep below the eastern Delta alluvium at Minshat Abu Omar. An uncorrected radiocarbon date of 5800 BP from sediments above the sherd-bearing strata suggests at least a late Neolithic date; thus it remains possible that settlements reflecting the spread of domesticates from Palestine and Southwest Asia into the Delta and then into the Nile Valley are preserved at many places in the Delta. Some domesticates and other cultural influences may also have come from the Sudan, but the evidence concerning this is uncertain (110).

In general, developed village-based agrarian economies not only appeared later in Egypt than in Palestine and Southwest Asia, they appeared in a different sequence and form: in Palestine and Southwest Asia large substantial sedentary communities were established *before* agriculture and domestication, but in Egypt the first substantial communities seem to appear only *after* primary domestication and agriculture; and most known early Egyptian agricultural communities were simple compounds of circular huts—resembling some of the earliest agricultural communities in Palestine and Southwest Asia, but quite different from the villages of interconnected rectangular mudbrick houses that quickly became the Mesopotamian village pattern. Flannery (54) attributes considerable significance to the shift from compounds of huts to the rectangular mudbrick village pattern and suggests that it may mark the transition from communal undifferentiated economies to those in which the nuclear family has become the unit of production—with all that entails for the intensification of production and subsequent wealth differences and social ranking. This transition seems to have been under way in Egypt shortly after 4000 BC (77), but it seems to have been much later, slower, and less pervasive than it was in Mesopotamia.

INITIAL CULTURAL COMPLEXITY IN THE PRE-DYNASTIC PERIOD (c. 4500–3000 BC)

By convention the Predynastic is divided into the Badarian, Amratian, and Gerzean periods (Figure 2), but this chronology (81, 82, 115, 116, 119) has been much modified and is relatively inexact, particularly with regard to the Lower Egyptian and Delta sites. Radiocarbon estimates for some of the major sites are presented in Figure 2.

Predynastic cemeteries and settlements have been recorded at many locations in Upper Egypt (reviewed in 15, 77, 136), particularly around Hierakonpolis, Nagada, Abydos, and el-Badari (Figure 1). The apparent density of Predynastic remains declines sharply north of Badari, but whether this is a result of incomplete surveys, the physical characteristics of the floodplain in this area, or abandonment of this region in the Predynastic is not clear. Predynastic cemeteries and occupations in the Fayyum region and the Valley near the Fayyum, at Gerza, Harageh, el-Meleq, and Abusir, resemble those to the south, although most are smaller. Only tiny scatters of Predynastic remains have been found around the Fayyum Lake (30, 63, 121, 157), in contrast to the dense late Neolithic occupations there. Except for a few sites, the early Predynastic of Lower Egypt and the Delta is still largely *terra incognita*, although as indicated below important research is now under way in these areas.

Many Upper and Middle Egyptian sites were poorly excavated early in this century and are incompletely published. As a result, what we know about the Predynastic comes mainly from the larger sites that have been excavated more recently. The most important of these is Hierakonpolis, which contains the complete Badarian-Amratian-Gerzean sequence. Excavations at Hierakonpolis, which are now in their second century, have greatly accelerated in recent years under the direction of Hoffman (86, 88–90), and Fairservis (50, 51; see also, 1, 2, 58, 62, 69, 91). Predynastic Hierakonpolis extended over part of the present alluvium, up a large wadi, and onto the adjacent desert fringe. Most of the known Predynastic occupations are on the desert fringe, but substantial occupations of this period have recently been excavated from under the alluvium, below the water table. Hoffman concludes that Hierakonpolis was initially settled about 4000 BC by colonists from more northern parts of Upper Egypt. He attributes the rapid growth of the community to the ecological diversity of its location and to the exceptional agricultural potential of the region. Hoffman suggests that there was a “population explosion” at Hierakonpolis between 3800 and 3400 BC, reaching a regional population of 5,000–10,000 people in the central area of the site. He concludes that this community was already functionally differentiated, in that Hierakonpolis at this time seems to have been a major pottery producer for Upper Egypt in general, and also produced vases, maceheads, palettes, and other commodities in fine stone. This economy was based on productive cereal agriculture and intense exploitation of domesticated cattle, sheep, goats, and pigs. And because of the impressive size and rich contents of some tombs of this era, Hoffman suggests that this differentiated economy operated in the context of significant social ranking. Between 3400 and 3200 BC the people of Hierakonpolis built a large cobblestone foundation that Hoffman et al suspect supported a “fortified palace, temple, or administrative center” (90: 184) as well as a thick mudbrick wall around part of the settlement, and some large mudbrick tombs. This and other evidence has led Hoffman et al to conclude that at about 3200 BC Hierakonpolis became the capital of a southern Egyptian state. They argue that one of the important implications of their research is that “the development of Egyptian civilization was an essentially internal and uninterrupted process,” in the sense that the importance of contacts with Mesopotamia was minimal (90: 183). Fairservis, too, has argued (50, 51; also see 5) on the basis of pot marks, ceramic designs, palettes, and other evidence from Hierakonpolis that the evolution of written Egyptian may have been partially a result of contacts with Mesopotamia but was in most ways essentially a native Egyptian development (also see 71, 72). Moreover, Hoffman has argued that Wilson’s (160) view of Egypt as a “civilization without cities” was not accurate, at least with regard to Predynastic Hierakonpolis.

Hoffman et al (90) have traced the history of Hierakonpolis into the late Predynastic and Early Dynastic periods, an era in which the settlement became a center of a complex society. The Narmer Palette, the macehead of King Scorpion, and other epigraphic finds at Hierakonpolis suggest a centralized and stratified society, as do the temples and tombs of this period.

Another important concentration of Upper Egyptian Predynastic sites is the region around Nagada. Hassan (77, 78; also see 52, 53, 72, 73) has found numerous small settlements in this area that date to about 3750 BC, most of them apparently the remains of simple communities made up of 50–250 people who lived in compounds of pole-thatch huts.

Trigger (136) suggests that the flood basins from Abydos southward were smaller and more easily controllable than those of the north and Delta, which may explain the concentration of the largest and earliest known Predynastic communities in that part of the Valley. But already by the Middle Predynastic Period there were substantial communities in Lower Egypt. One of the most important of these is Maadi, located just south of modern Cairo, and radiocarbon-dated to about 3650 BC. This site comprised scores of semi-subterranean pit houses covered by thatch roofs supported by poles. Most of the site was excavated in the 1930s (111), and the remaining known areas of the site have been excavated since the late 1970s (20, 27, 29, 67, 124, 125).

Maadi is significant because (a) it shows (98, 124, 125) through pottery styles connections to Syro-Palestine, and probably to the evolving Late Uruk-Jemdet Nasr states of Greater Mesopotamia; (b) its burials seem to have sufficient diversity in contents to reflect status differences consonant with emerging social ranking; and (c) in its site plan, distribution of objects, and other evidence we see suggestions of considerable organization of commodity production and exchange; there is substantial evidence of copper smelting and working at the site, and Casini (29) and others (27, 125) have argued that the site functioned as a specialized producer of stone implements.

Other Predynastic sites from the Cairo area, such as Heliopolis, Tarkhan, el-Omari, and Helwan, are only partially published (e.g. 38, 126) but seem similar to Maadi. Most appear to have been compounds of huts and semi-subterranean dwellings occupied by people dependent on domesticated cereals and animals, supplemented with significant hunted and gathered resources. The remains of domesticated equids have been found at Maadi (20), and these animals may have been used in overland trade with Palestine. The Maadi ceramics include some black-topped wares—made locally—that resemble Upper Egyptian Predynastic wares, but the overall distinctiveness of the assemblage implies only low-level economic and social relationships between these regions (124).

Because one of the major trends in Predynastic Egypt was a shift in developmental focus from south to north, one must assume that the Delta

would be a critical region in the later Predynastic (95): The Delta would have been a main conduit of foreign influences into Egypt, although some contacts probably occurred through the Wadi Hammamat and other overland routes linking the Nile Valley to the Red Sea.

Recent discoveries have confirmed the emerging importance of the Delta in the Late Predynastic. Buto—the legendary capital of Predynastic Lower Egypt—has been shown (145–147), for example, to contain deposits dating to at least the late fourth millennium BC. These early levels are beneath the water table and excavations have revealed only about 118 m² of occupations. But in this area the excavators found clay cones, pottery, and other artifacts that indisputably reflect contacts with Southwest Asian states, specifically the Amuq F period settlements in northern Syria, and probably by way of trade connections through that area to settlements in the Tigris, Balikh, Khabur, and Upper Euphrates regions (147: 247–49). The clay cones—though of local manufacture (R. Stadelmann, personal communication)—are virtually identical to those used at Uruk-Warka and other Mesopotamian sites to decorate temple buildings (they were usually painted and embedded in mosaics on mudbrick building walls). One clay nail, or “Grubenkopfnagel,” closely resembles those found at Susa, in Khuzestan, Iran. Von der Way concludes that

Der Grund, dass Buto und nicht Maadi diese Kontakte zu 'Amuq-F wie der Uruk-Kultur aufweist, ist sicherlich ganz einfach durch die Lage der Fundstätten erklärt: Maadi war eine Binnenstation, über Land hauptsächlich mit dem südlichen Palästina verbunden. Buto hingewegen war ein—wenn nicht der—Hafen im westlichen Delta, von dem aus Schiffsverbindungen nicht nur nach Palästina, sondern offenbar auch in Richtung 'Amuq-F und dort weiter zur Uruk-Kultur verliefen (145, p. 257).

Another important late fourth and early third millennium BC Delta site is Minshat Abu Omar, which comprises a sand dune rising several meters above the surrounding agricultural fields. This dune has so far yielded (102, 103) more than 1700 graves, 370 of which belong to the Terminal Predynastic and Early Dynastic periods. Evidence (in the form of sherds) of Neolithic and Predynastic occupations have been found (106) by augering several meters below the surface of agricultural fields around the sand dune. These occupations, which are below the water table, have not yet been excavated.

Kroeper (102, 103) has divided the Predynastic graves at Minshat into four groups, based on contents, construction techniques, and location. These groups may be from somewhat different periods and/or reflect different social groupings. These graves contain, variously, pottery, stone vessels, flint knives, stone palettes, copper artifacts, jewelry of carnelian, amethyst, and—rarely—gold, and other objects. Despite Minshat's proximity to Palestine, only one pot of Palestinian style has been found. This is somewhat surprising

given the plethora of Syro-Palestinian pottery found in deposits of roughly equal age at Buto and at an earlier time at Maadi.

Bodies at Minshat were poorly preserved, but there is no evidence at this point of juveniles having been buried with extraordinary amounts of grave goods. Considerable variation in grave richness is evident, however, and some social ranking may be evident in grave construction and contents.

Several other Delta sites have recently been shown to have later fourth millennium BC remains (reviewed in 144). Excavations at Tell Ibrahim Awad, in the northeast Delta, revealed nearly four meters of deposits, of which van den Brink (143:77) says "Phase I (the most recent) dates back to the first half of the First Dynasty (about 2950 B.C.), Phase V (earliest) dates from the late Predynastic period." He also notes that although the occupation seems almost continuous, a

"distinction . . . between the earlier and later strata is clear: Whereas the former are characterized by the absence of mudbrick architecture, the presence of hearths and the occurrence of certain ceramics clearly differing from contemporary sites in the Nile Valley and therefore possibly reflecting an original Delta culture, the latter are characterized by the appearance of substantial mudbrick architecture . . . and the presence of a ceramic repertoire well known from contemporary sites in both the Delta and the Nile Valley" (143:77).

A grave at Tell Ibrahim Awad contained pottery and stone vessels, an imported rim-handled jug of the Syro-Palestinian Early Bronze II, animal bones (19) suggestive of meat offerings, copper tools and vessels, flint tools, bone or ivory game pieces, and a pear-shaped stone macehead. Van den Brink noted similarities between these objects and those at Minshat, Abu Roash, Saqqara, and Abydos, and concluded (143:78) that "the deceased must have had a high social status and obviously had access to the royal workshops. The inclusion, moreover, of so many copper vessels in a single grave clearly demonstrates the intensive contacts at the time with Early Bronze II copper mining colonies in the Sinai."

Many other Predynastic sites can be expected to be found in the Delta when systematic surveys are done, and if these communities resemble those at Buto, Minshat, and Tell Ibrahim Awad, some traditional conceptions of Predynastic Egypt may have to be reexamined. Nonetheless, based on present evidence, the following generalizations about Egypt between about 4000 and 3000 BC seem valid: (a) The developmental focus shifted from south to north by the late Predynastic, perhaps because of the greater agricultural potential of Lower Egypt but also probably because of the growing importance of trade routes linking Egypt to overseas ports and land routes to Syro-Palestine. (b) For most of the fourth millennium BC, the majority of Egyptians lived in small communities of oval huts, with a transition to communities of interlocking mudbrick rectangular buildings coming only quite late. (c) Subsistence in

most areas became progressively more dependent on cultivated crops and herded animals, but hunting remained important longer in the north; large-scale artificial irrigation seems not to have been important until long after the Predynastic period. (d) Stylistic differences in artifacts imply only low-level integration of Upper and Lower Egypt until late in the fourth millennium BC. (e) Increasingly pronounced differences in grave goods in cemeteries in Upper Egypt indicate emergent social ranking, which culminates toward the end of the fourth millennium in a true class-based society; Atzler (7–9) has analyzed the contents of a large corpus of Predynastic graves (most of them disturbed and excavated early in this century) and on that basis discerned significant social ranking. (f) Functional differentiation among and within communities remained minor in most communities until quite late in the fourth millennium, although the specialized production of some commodities at Maadi and other sites, and the evidence of trading entrepôts at Buto and other sites, may suggest a more differentiated economy than previously assumed—Eiwanger (42–44) has explained some of these transitions in the Predynastic in terms of external trade, copper production, and other activities (also see 49, 52, 53).

Kemp (100) suggests that late Predynastic Egypt may have had a “primate” settlement distribution with relatively large populations at Hierakonpolis, Nagada, Maadi, and a few other places, and many smaller communities; but Hassan notes that except for Hierakonpolis the population of these and other communities seems to have been fewer than about 900.

Generally, even late into the Pharaonic era most Egyptian communities seem to have been small and undifferentiated economically, compared to their Mesopotamian contemporaries; and the different flood basins along the Nile may have bounded collections of communities that were in many ways self-sustaining, even as late as the Ptolemaic period (25, 26).

Regarding the evidence for the foreign origins of Egyptian civilization, the primary data in support of this possibility are the evidence of pottery and cylinder seals that may have been direct imports, the adoption of certain Mesopotamian artifact designs, and some forms of niched brick architecture. But no substantial evidence of contact is easily discerned in the written language, and there is little substantial evidence of Egyptian artifacts in Southwest Asia at this time (136).

Hassan (77), Trigger (139), Hoffman (87), and others have argued that the most important changes in Predynastic Egypt may have been the evolution of ritual systems and expanded lines of political authority—transformations that may not necessarily have had direct reflection in that part of the archaeological record that survived. As indicated above, systematic application of these and similar social theories to the archaeological record involves many unresolved problems.

THE EARLY DYNASTIC AND OLD KINGDOM PERIODS (c. 3100–2200 BC)

There is little evidence with which to evaluate the traditional conclusion that a unified Egyptian state was formed as a result of military conquest by southern rulers. The Narmer Palette has for many years been considered a commemoration of this event. Schulman (127) has challenged this interpretation of the Palette, arguing that Egypt was unified much earlier; Wildung (159), too, suggests that the Narmer Palette and similar artifacts commemorate a unification process that occurred late in the Predynastic period. In any case, the great Early Dynastic tombs (48) at Abydos, Saqqara, and elsewhere leave little doubt that by 3100 BC Egypt had evolved complex hierarchical social and political institutions, supported by a powerful economy, and was already a major player in international commerce and politics.

Some of the most important recent evidence (144) about the Early Dynastic–Archaic period comes from the Delta, where surveys in the central eastern Delta have revealed numerous small sites of this period. Excavations at Esbet el-Tell and other sites (most of them poorly preserved) by Bakr (13) revealed scores of graves, most of them dating to about the First Dynasty. Some of these were two-room mudbrick tombs that contained a ceramic coffin enclosing a body, and in a smaller annex, stone and pottery vessels, palettes, jewelry, and other objects. Bakr (13: 50–51) reports finding Narmer's name written on two different pots.

At about 2700 BC Egypt entered the great "Pyramid Age" of the Old Kingdom, and by that time the written language had evolved to the point that we know a great deal about many aspects of Egyptian society. Old Kingdom Egypt is a potentially illuminating example of early civilization because although it paralleled other early civilizations in fundamental ways, it also had distinctive, almost contradictory cultural characteristics: Egypt was one of the most centralized of early political systems, yet it also seems to have been the least urban; its bureaucratic complexity was extraordinary, yet the vast majority of people seem to have lived in largely self-sufficient villages and towns; and although its agricultural productivity was closely related to a single environmental factor (Nile flood levels), within these environmental limits Egypt's sociopolitical evolution was a complex interweaving of factors, personalities, and events.

As noted above (65), a large sample of radiocarbon dates from Old Kingdom monuments average about 374 years earlier than would be expected on the basis of the historical chronology. One might reject this on the grounds that Mesopotamian-style ceramics found at Buto and Maadi strongly suggest that these late Predynastic sites correspond to the late Uruk Period in Mesopotamia (i.e. c. 3400–3200 BC), but doubts about the Southwest Asian radiocar-

bon chronology and the unknown life spans of Mesopotamian styles on the periphery of their distribution make these artifact correlations suspect. Additional research now in progress (H. Haas, personal communication) should clarify these issues considerably.

Wright (162) specifically excluded Egypt from his comparative review of early civilizations because of a lack of information about its regional settlement patterns. Because of the preservation problems noted above, it is unlikely we shall ever have Egyptian data comparable to that of, for example, Southwest Asia. But recent research has provided a wealth of new data. Egypt appears to demonstrate that great urbanization is not an indispensable element in the form of cultural complexity defined in terms of functional differentiation and integration on a national scale (100). Yet urban communities proved such efficient methods for preindustrial societies to accomplish all the functions necessary to sustain cultural complexity that in Mesopotamia, China, and Indus Valley, and other early states the long-term trend was toward rapidly increasing urbanism. Egypt's non-urban character has generally been explained in terms of the Nile Valley's ecological uniformity and the transport potential of the Nile.

With the comprehensive transfer of governmental institutions and power to Lower Egypt in the early third millennium BC, Memphis—located near the juncture of the Nile Valley and Delta—became perhaps the most important settlement in the country. Memphis is currently being mapped and excavated (132), but its Old Kingdom occupations are deeply buried beneath later deposits and are under the water table in most areas. Old Kingdom pottery, however, has been found in many disturbed and excavated areas of the site (M. Jones, personal communication), and at this point there is no basis on which to challenge the notion that Memphis was the capital city of Old Kingdom Egypt. Based on the distribution of Old Kingdom pottery and the overall size of Memphis, it remains possible that Old Kingdom Egypt had a strongly “primate” settlement size distribution, with Memphis dominating the entire country—much as Cairo does today.

The Old Kingdom settlement pattern cannot be interpreted solely in terms of economic rationality. Various scholars have noted (10, 122), that the pharaohs personally directed the settlement of Egypt, and they did so for a variety of secular motives, including the consolidation of royal power, stimulation of economic development, and the defense of the frontiers.

Recent studies of provincial communities in the Delta (142–144, 155, 158), at Buhen (118), Hierakonpolis (90), Dakhla (112), Elephantine (96), and elsewhere reveal these communities to have been small by Mesopotamian standards, and relatively simply organized. One might expect that with the international character of Old Kingdom Egypt and the restricted potential of the Nile Valley for agricultural intensification, the Delta would have become

the developmental focus of Egypt during the Old Kingdom, and there is some evidence of this. The largest Old Kingdom Delta settlement may have been at Mendes (68); but here, too, later occupations obscure the extent of Old Kingdom deposits. Excavations at Tell Basta have revealed Old Kingdom tombs, sculpture, artifacts, and other materials suggesting a major occupation; but the extent of Old Kingdom settlement is not known, and overall preservation of the site is bad. Elsewhere in the Delta, Old Kingdom settlements have been found almost everywhere intensive surveys have been made. Most of these sites are above the water table and many are unobscured by later occupations. At Kom el-Hisn, an Old Kingdom provincial capital in the west Delta, we (155, 158) have exposed large areas of mudbrick architecture and analyzed room contents to try to determine the social and economic relationships of this community to the central government at Memphis. Plant and animal remains, epigraphic evidence, and other materials suggest that Kom el-Hisn may have functioned primarily as a supplier of cattle to the cult centers at the capital (113, 155, 158). According to epigraphic evidence, large estates were frequently created in the Delta as "pious donations"—the establishment by an individual of a fund, supported by the donation of property or other income-producing assets, and used to ensure the maintenance of cult centers. Pious foundations recorded on monuments in the Giza-Saqqara area (reviewed in 113, 120) committed large estates in the Delta to the support of cult centers, and it is possible that Kom el-Hisn was founded and functioned as such an estate. As an incentive to settling in the Delta, the government granted exemption from taxes and corvée labor requirements (10:105), often for the purpose of specialized economic production, such as cattle-raising (83, 113).

Old Kingdom settlement patterns probably changed considerably over time, paralleling national sociopolitical changes (97). Baer's classic study of rank and title in the Old Kingdom began as an attempt to document the "disintegration of central authority and the rise of semiautonomous families in the provinces" (12:1), and though the epigraphic evidence to do this was lacking, his study illustrated the great complexity and change in Old Kingdom bureaucratic hierarchies. Kemp (101:108) suggests that in Upper Egypt the control of local affairs by the pharaoh's overseer was gradually diluted during the late Old Kingdom, culminating in the appearance of provincial governors, or *nomarchs*. Trigger (138) raises the possibility that a slow but continuous expansion and elaboration of society and economy in the Old Kingdom may have been accompanied by growing complexity and power of provincial administrative institutions (also see 97:69–77). The apparent emergence of powerful nomarchs in the 6th Dynasty may reflect a reduction of pharaonic power, but the pharaohs of this period were still able to send expeditions to Nubia and Palestine and exert considerable internal control as well.

The widespread assumption that Old Kingdom Egypt was extremely centralized and culturally interconnected (e.g. 92) seems borne out by evidence of great uniformity in artifact styles. Several recent studies (Pascale Ballet, personal communication; 118, 144) have demonstrated the great similarity of Old Kingdom pottery styles all over Egypt, from the Nubian border to the Dakhla Oasis to the northern Delta, even though most of these ceramics were manufactured locally, not imported from government centers. This impressive suppression of regional styles probably indicates continuous interaction between peoples over these great distances.

Another important reflection of Old Kingdom Egyptian administrative organization is in commodity production and distribution. Tomb contents reflect scores of industries in materials whose volumes and standardized forms indicate considerable centralized control (100, 101, 128). Yet most scholars suggest that well into the Pharaonic era rural Egyptian settlements were self-sufficient in most foods and crafts, and that to the limited extent that they produced commodities for export it was on a part-time basis and in a regional exchange system based on barter (26, 137–140).

In international trade Old Kingdom Egypt was a major consumer of lumber from Palestine; but the location of the coastline in early Pharaonic times is uncertain, and excavations at possible trading entrepôts, such as Old Kingdom Buto (114), are in their preliminary stages. Many forms of commodity exchange between Egyptian society, on the one hand, and Minoan, Libyan, and Syro-Palestinian societies on the other may have involved oils, wine, lumber, and other items that would not have preserved well. Epigraphic evidence (122) about Old Kingdom Egypt's relationship to Western Asia indicates that Egyptians viewed Western Asia as belonging to the pharaoh, but none of the vocabulary of colonial administration and empire building that typifies some later periods is evident. Redford (122) argues that Old Kingdom dynasts exploited Western Asia for goods and labor through trade and conquest, but also through intimidation.

Recent research on the great Old Kingdom mortuary cults (e.g. 104) has also been revealing with regard to Old Kingdom economic organization. Lehner's research at Giza (109; personal communication) has shown that the structures west of the Second (Cephren) Pyramid that have long been considered barracks for workmen almost certainly were not used for this purpose. The narrowness of these chambers and the absence of domestic debris, and other characteristics as well, strongly suggest a storage function for these constructions. Lehner's excavations southeast of the Mycerinus Pyramid, south of the modern cemetery of Nazlet Zaman, however, have revealed what was very probably a community occupied during the period in which the pyramids were constructed. These structures are made of irregular limestone chunks set in a clay mortar containing potsherds and other occupational

debris, with numerous pieces of granite, diorite, and other exotic stones incorporated in them. These remains appear to be of a large community of sizable rectangular rooms built of debris from the construction of the mortuary cult centers. M. Lehner (personal communication), in work currently in progress, has shown through augering that the occupational deposits over much of the site are about 60–100 cm deep and contain a wide range of domestic Old Kingdom wares, animal bones, plant remains, and other ordinary detritus of Old Kingdom communities (except grinding stones).

In general, Old Kingdom Egypt saw an intensification of the trends, already observed in the Predynastic and Early Dynastic, toward a concentration of national political and economic institutions in Lower Egypt and the Delta—probably reflecting the growing importance of Egypt's foreign relations and the vast agricultural potential of the Delta. But southern sites such as Abydos remained important mortuary centers, and Hierakonpolis and other southern towns were inhabited until at least the late Old Kingdom.

CONCLUSIONS

A full comparison of the Egyptian data with those of other early civilizations must await additional research. Priorities in Egyptian archaeology include the following: First, excavation of what on the basis of preliminary augering seems to be a Neolithic community in the eastern Delta, near Minshat Abu Omar, in order to evaluate the relationship between Egypt and Syro-Palestine at the time of agricultural origins. Second, intensified radiocarbon dating, including analyses of artifacts of presumed Middle Kingdom age, to take advantage of the relative precision the Middle Kingdom chronology has by virtue of historically recorded astronomical observations that allow precise dating of some sites; and, eventually, greatly expanded radiocarbon dating of Predynastic through Old Kingdom remains to calibrate the rapidity and sequence of cultural developments in these periods and to link them to Southwest Asian developments. Expanded radiocarbon dating of modern vegetation would also assist in determining if some plant species are unreliable for radiocarbon dating. If this is found to be the case, the entire Egyptian radiocarbon chronology must be reexamined. Third, continued and expanded excavations of Giza plateau sites, such as the community (currently being excavated by M. Lehner) south of the Mycerinus Pyramid, to assist in placing the astounding investments in monumental architecture of the Old Kingdom in the context of the society and economy of this era. Fourth, extensive exposures of provincial Early Dynastic and Old Kingdom communities, so that community structure can be used to analyze change in functional differentiation and integration of communities in this period. Fifth, renewed

excavations on Old Kingdom levels of Mendes and Memphis, to provide evidence about the “core” of a core-periphery comparison. Sixth, greatly expanded research on all pre-Middle Kingdom occupations in the Delta: In addition to the possible importance of this region in the agricultural transition, one of the most important Predynastic communities in Egypt (Buto) was located here, and the center-periphery power struggles and foreign invasions that so conditioned later Egyptian history manifested themselves most clearly in the Delta. Kroeper (102: 19) notes, for example, that although ancient texts mention about 100 settlements in the Delta, fewer than 40 have been found. The costs of excavating some of these sites will be high because they are beneath the water table, and the Delta is one of the world’s most densely occupied regions—with attendant site damage—but these sites may be our only direct resource for solving some of the most important problems of Egyptian antiquity.

Finally, Egypt shares with all other early civilizations a crucial need for more powerful forms of archaeological theory. Many additional years of productive archaeology can be done in the context of traditional epistemologies, but clearly these will not lead to the general synthetic levels of understanding to which many social scientists aspire. For example, with the rise of a royal dynasty and a state organization in the Early Dynastic, Egyptian culture history becomes less directly interpretable in simple ecological and economic terms. Most scholars consider the Egyptian archaeological record uninterpretable without recourse to the idea of “divine kingship”—the whole structure of state religious and political institutions that derived from the notion that the pharaoh’s authority (and thus the state’s) was divine in origin. Mesopotamia, by way of contrast, seems not to have developed divine kingship to anything like this degree of social expression (117). But is there any productive archaeological way in which we can measure and consider “divine kingship” an independent causal variable? Is it even useful to try to separate these causal relationships among cultural phenomena and compare them cross-culturally? Can we ever use the archaeological record to infer, confirm, and perhaps even formulate powerful social theories? Do evolutionary theories have any potential?

These are the central questions surrounding the analysis of early Egyptian cultural complexity, and of other ancient civilizations as well.

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