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FROM FARMERS TO PHARAOHS

Mortuary Evidence for the Rise of
Complex Society in Egypt

by

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Chapter I

Introduction

Origins of Egyptian Civilization and State Formation in Egypt

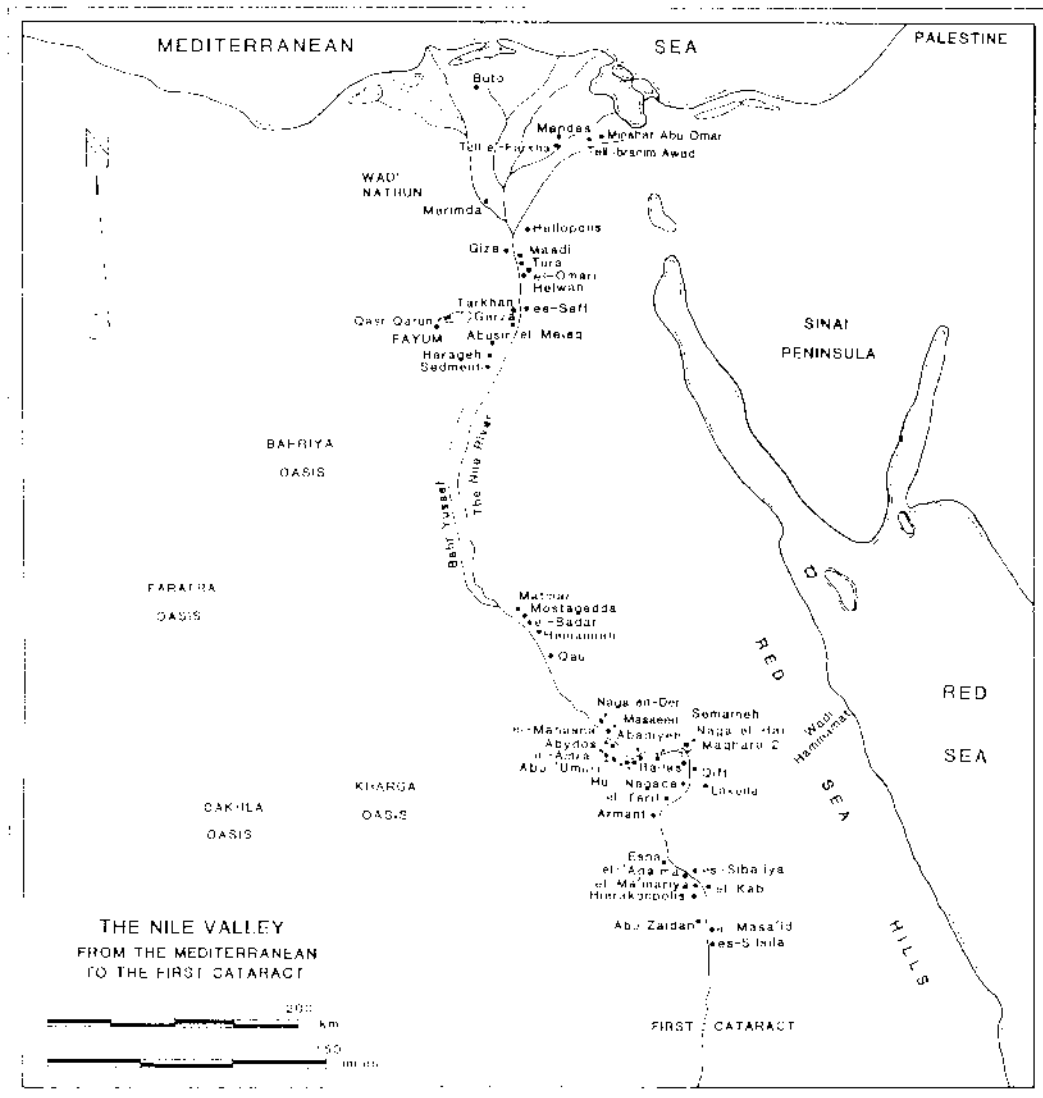
Humans subsisted before the Holocene as hunters and gatherers in small social units conventionally called bands. With the development of sedentary agricultural communities, social organization became increasingly complex and, by 3000 BC, the earliest known states had evolved in the ancient Near East, in Egypt and in southern Mesopotamia.

While social evolution in southern Mesopotamia seems to be functionally linked with the process of urbanization, in Egypt there are no corresponding data to suggest the evolution of cities. Predynastic cemeteries have been excavated, mainly in Upper Egypt, but no well-preserved, large prehistoric settlements have been discovered. The one-sided view of the Predynastic period is not limited to prehistory in Egypt: archaeological evidence in the Early Dynastic period and in the Old and Middle Kingdoms is also mainly from mortuary sources. Although the evidence is scant, in the estimated 1000 years of Predynastic development (Needler 1984: 42-43) society became increasingly complex, a development that culminated in the unification of Egypt and the beginning of centralized rule under the 1st Dynasty. This suggests rapid political evolution, from small farming villages with *no* permanent architecture, c. 4000 BC, to a large territorial state by 3000 BC.

How the early Egyptian state was formed is problematic, and various theories have been put forward. A dynastic race of invaders from the east has been proposed by Petrie (1920: 49; 1939: 77) and later by Emery (1967: 38). Murray (1956: 94) states that the superior weapons of the Gerzean peoples suggest a conquest of the earlier Amratians. More recently, Needler (1984: 30-31) has argued that the conquest of the north by the south, which resulted in the unification of Egypt under a strong centralized government, was caused by power politics, trade conflicts and/or population pressure.

According to Baumgartel (1947: 50), Nagada II (Gerzean) peoples were Asiatics who invaded the Nile valley via the Wadi Hammamat, whereupon they provided the impetus for the emergent civilization. Kantor (1965: 7-10) cites archaeological evidence for greatly increased foreign relations in the Gerzean period, particularly with Mesopotamia, but not any mass migration of foreigners into Egypt. Whereas Kantor (1965: 11-14) favors a direct sea-route connection between Mesopotamia and Upper Egypt via the Wadi Hammamat, Helck (1962: 5-6) suggests a more indirect route: across northern

Fig. 1 The Nile Valley from the Mediterranean to the First Cataract



Mesopotamia and Syria–Palestine to the Nile Delta, and then upstream to southern Egypt. Evidence from recent excavations in the northern Delta at Tell el-Fara'in (Buto) (von der Way 1987: 256-57; 1988: 248-49) would seem to favor the overland connection, through Syria–Palestine (?), and it has even been suggested that a commercial enclave of the Uruk culture was established in the Delta in the 4th millennium BC (Steinkeller 1992: 724).

Kaiser's research suggests that the origins of the Early Dynastic state are indigenous in the Predynastic Nagada culture of Upper Egypt. Interpreting the distribution of Nagada culture sites, Kaiser sees a northern expansion of this culture into the Fayum region and somewhat later into the Delta, and a southern 'colonial' expansion into Lower Nubia, eventually as far south as the Second Cataract (Kaiser 1957: 69, 74; 1964: 105-13). Kaiser (1964: 117-18) also suggests that the unification of Egypt occurred much earlier than the end of the Predynastic period. Williams (1986: 177), however, interprets the material from Nubia as evidence for a Nubian dynasty that eventually extended its power to the north and unified Egypt.

A mythological interpretation of the emergence of the Early Dynastic state has been suggested. From the Horus–Seth myth Sethe (1930: 70-78) posits two (prehistoric) kingdoms in Upper and Lower Egypt, as symbolized in the mythological struggle between Horus, the falcon-god of a west Delta kingdom in Behdet (Lower Egypt) and Seth, the god of Ombos (Nagada, Upper Egypt). The unification of Egypt is symbolized by the subsequent dominion of Osiris (Sethe 1930: 78-82), the god whom each dead king became and whose cult center was originally at Busiris in the eastern Delta. Breasted (1931: 724) also argues for two Predynastic kingdoms of Upper and Lower Egypt and a united kingdom of Egypt before the 1st Dynasty; his argument is based on the list of kings in the top register of the Palermo Stone and the related fragment in the Cairo Museum. Although Sethe's explanation is an appealing one, given the association of the Early Dynastic kings' names with Horus, and the existence of the 1st Dynasty royal cemetery at Abydos, the cult center of Osiris in dynastic times, the reality of Predynastic kingdoms in Upper and Lower Egypt has not been demonstrated.

Childe's model for the rise of pharaonic civilization is based on agricultural surpluses produced by Gerzean farmers, with a concomitant increase in wealth and an inequality in the distribution of surpluses. This was not a process of peaceful expansion, but one that involved warfare for the acquisition of cattle, booty or land. According to Childe, a group of Upper Egyptian nomes conquered Lower Egyptian clans, as depicted on the macehead of (king) Scorpion (Childe 1969: 81). Using the Egyptian data to demonstrate his theory of multilineal evolution, Steward posits the emergence of regionally distinctive cultures in the Predynastic period, followed by 'cyclical conquests' in the Early Dynastic period (Steward 1955: 193-98).

More recently, Kemp (1989: 34, 45) has proposed a model of state formation in Egypt beginning with three proto-states in Upper Egypt (at Abydos/This, Nagada and Hierakonpolis), with a unified kingdom achieved by

military expansion northward of an Upper Egyptian state centered at Hierakonpolis. The geographic symbolism of the cults, which represented the duality of kingship (Horus and Seth, and the deities Wadjet and Nekhbet) is thought by Kemp to be significant for the interpretation of processes of Egyptian unification (Kemp 1989: 41-43).

Another theory in which internal conflict plays an important role in state formation is Carneiro's (1970) circumscription theory. Carneiro (1981: 50) posits that the nome structure of dynastic times had its roots in Predynastic chiefdoms. As population pressure was felt within a region of circumscribed agricultural land in later Predynastic times, conflicts arose between chiefdoms where resources were especially concentrated, and these conflicts eventually led to the formation of the Egyptian state (Bard and Carneiro 1989: 22).

According to Service, population growth within the Nile valley was a major factor in the transition to civilization. As population increased, authoritative controls 'of the more impersonal kind' were required (Service 1975: 236). Hoffman (1979: 310) states that Predynastic archaeological evidence suggests a steady population growth, with a 'sudden concentration' of population in centers in Upper Egypt preceding the founding of the 1st Dynasty. Using Renfrew's (1972: 37) concept of the 'multiplier effect', Hoffman (1979: 305) proposes that changes occurred in several cultural subsystems (population, environment, technology, subsistence base, exchange, social stratification, burial, religion and conflict), resulting in a major transformation of the social system and the rise of the Early Dynastic state.

Wittfogel's (1957) model of 'oriental despotism' ascribes incipient state political organization in Egypt to leaders who provided management for large-scale irrigation agriculture. Butzer (1976: 43) states, however, that the technology for large-scale perennial irrigation was not developed in Egypt until the 19th century AD, and irrigation in Dynastic times was regulated locally. Butzer (1976: 111) sees regional polities ('primeval nomes'), rooted in the ecological framework of the riverine oasis, as the institutions that provided the political organization for military conflicts leading to the eventual unification of Egypt.

Endesfelder (1984: 96) also suggests that unique environmental conditions in Upper Egypt were influential in the formation of a ruling class and the state. Nile ecology made agriculture less labor-intensive than in most other early agricultural societies, leaving time for the development of specialized crafts (Endesfelder 1984: 97). Environmental conditions in Upper Egypt that naturally preserved human remains in burial pits may also have led to a belief requiring material goods to provide for an afterlife. Endesfelder's explanation, however, does not make clear how these different environmental factors combined causally as complex society emerged in Upper Egypt.

Trigger (1983: 68-69) cites two factors as important in the development of complex society in Egypt. First, the Nile floodplain in Egypt provided the potential for greater agricultural productivity, which supported a dramatic increase in population. Secondly, the exploitation of mineral resources in the

Eastern Desert of Upper Egypt supported the power base of emergent political elites, and eventual competition over trade may have led to power struggles within Upper Egypt and to the conquest of the north by Upper Egypt.

Hassan's (1988: 165) model of state formation suggests that the socio-ecology of agricultural production was a significant factor. Chiefdoms emerged as village resources were pooled to lessen the risks of fluctuating crop yields. Funerary offerings and status goods became important to political elites, a circumstance that stimulated trade. As Nile discharge dropped dramatically after 3300 BC, Hierakonpolis and Nagada merged, and this polity later expanded northward to control the granaries of Lower Egypt (Hassan 1988: 165).

The Early State in Egypt

Whatever theory best explains the rise of complex society in Egypt, a large state had emerged by the beginning of the 1st Dynasty. Archaeological evidence for the Early Dynastic state is mostly funerary and is, therefore, one-sided. Centralized rule in urban centers and a three- or more tiered settlement hierarchy can be extrapolated from the size and types of cemeteries (see below), but little is known about settlement patterns in the Early Dynastic period. For that matter, settlement patterns in later Dynastic times are not much better defined: 'the center of control shifted from one religious capital to another...yet there was apparently little need for hierarchically interrelated urban centers for the differentiation of a rural from an urban population' (Crumley 1976: 67).

Urban centers probably existed near the 1st Dynasty cemeteries at Saqqara and Abydos, where monumental architecture is present in the form of elite and royal tombs. Although Emery (1954: 1-4) thought that the large mud-brick tombs he excavated at North Saqqara were the royal tombs of the 1st Dynasty, recent investigations at the Umm el-Qa'ab at Abydos show a sequence of royal tombs from the 1st Dynasty and the period immediately preceding it (Kaiser and Dreyer 1982: 245-51). Structures surrounded by huge mud-brick enclosure walls have also been excavated at Abydos (O'Connor 1989: 81) and these have been interpreted as royal 'funerary palaces' (Kemp 1966: 21). But monumental architecture in the form of major ceremonial centers within urban communities is nonexistent in Early Dynastic Egypt, and there is only evidence of small, local cults at Medamud (Robichon and Varille 1940: 1-2), Elephantine (Dreyer 1986: 18), Hierakonpolis (Quibell and Green 1902, 13-14), Abydos (Petrie 1903: 7-8; Kemp 1989: 77-79) and Coptos (Petrie 1896: 5-9).

Full-time craft specialization, supported by complex forms of social organization, is also seen in Early Dynastic funerary goods, even though there is no archaeological evidence of royal or temple workshops. The great quantities of carved stone vessels in the large mud-brick tombs of the 1st

Dynasty probably represent workshops supported by an elite class, most likely the crown and its high officials. Elaborate craft goods with complex symbolism and iconography, such as the Narmer palette (Dyn. 0) were created to convey the message of a newly unified state: the supremacy of the legitimized monarchy over all contenders. Trigger (1974: 101) points out that sophisticated and coherent art styles, such as those seen in the early 1st Dynasty, are characteristic of a state, as are several specific traits in this art: the relative size and positioning of figures, elaborateness of costumes and depiction of defeated enemies.

Large-scale foreign trade, probably representative of state organization, is also demonstrated in the funerary remains of the 1st Dynasty. Discussing the evolution of chiefdoms into states, Flannery (1972: 134) states that 'foreign trade, formerly *ad hoc* and erratic, became a massive flow of goods, so continuous that certain nodes in the network could support bureaucracies merely on their "overhead" from through-flow'. The presence of foreign pottery (the decorated 'Abydos wares' from Palestine) in Egyptian tombs of the 1st Dynasty and the huge imported timbers of cedar (on a scale of use not seen earlier) in tombs at Abydos and Saqqara, attest to heightened levels of foreign trade.

A stratified class society is indicated in the burials and officials' titles of the Early Dynastic period. The kings of the 1st Dynasty were buried at Abydos (Kemp 1966: 21), while high officials built large palace-façade tombs in the Early Dynastic cemetery at North Saqqara. At Helwan there are tombs of lower officials of the period (Saad 1947), and small Early Dynastic tombs are also found in Upper Egypt, such as at el-Amra (Randall-MacIver and Mace 1902: 3) and Ballas (Reisner 1936: 55-56). Cemeteries of lower-class burials, consisting of simple pits and a few grave goods, are found throughout Egypt: specific sites include Abu Roash (Montet 1938), Gurob (Brunton and Engelbach 1927: 6), Kafr Ghattati (Engles 1990), Naga ed-Der Cemetery 1500 (Reisner 1908: 18-22) and Saqqara (Macramallah 1940). Differential access to resources is demonstrated by the very unequal distribution of grave goods.

That some kind of succession of kingship was institutionalized in the 1st Dynasty can be seen in the sequence of royal tombs at Abydos and from later king lists. Although political consolidation of the newly centralized state must have occurred during the Early Dynastic period, royal control of some form reached from the Delta to Aswan, with probable spheres of influence extending to Nubia and southern Palestine. Egyptian seal impressions of the 1st Dynasty are found at a number of sites in southern Palestine and the excavators of 'En Basor in Israel believe the settlement represents a permanent Egyptian 'staging post' (Gophna 1976: 9).

Some form of royal redistributive system, perhaps taxation, was operative in the 1st Dynasty as well. The large number of *serekhs* (royal names) on sealings and jars from the major cemeteries of this period, and inscribed on tags in royal burials at Abydos, are indicative of a centralized power with the authority to marshal goods. A phonetic writing system had developed by the 1st Dynasty (Baines 1988: 194-97), in part because of the economic necessity of identifying goods belonging to the state.

That a state with a stratified society centrally ruled by a political authority had emerged in Egypt by the beginning of the 1st Dynasty is unequivocal. But the process of state formation in the late Predynastic is less clear, as the multitude of theories suggests, and there is no archaeological evidence in Egypt to determine points when simple states might have emerged. Unfortunately, archaeological evidence that could indicate state organization, such as monumental architecture and nucleated cities with a hierarchy of settlements, is at present lacking for the Predynastic.

State Formation in Egypt: Predynastic Archaeological Evidence

By the beginning of the 1st Dynasty hieroglyphs of royal names appear on various artifacts. When correlated with the chronology of recorded king lists, these *serekhs* have been extremely useful for dating artifacts and tomb assemblages to specific reigns. With the exception of a few signs known from the late Predynastic (Nagada IIIa2 phase) (Kaiser 1990: 288), the Predynastic—the last prehistoric period in Egypt—lacked writing; as a consequence, the dating of Predynastic sites is not as precise as it is for those of subsequent periods. Grave goods from Predynastic sites excavated earlier this century have usually been dated using a seriation system devised by Petrie (1901a), which he called sequence dating (SD). Petrie's seriation system is divided into three sequential periods of the Predynastic: Amratian, Gerzean and Semainean; these were followed by the 1st Dynasty (Petrie 1939: 9). More recently, grave goods as well as settlement pottery have been dated in three relative periods, Nagada I, II and III, using a modification of Petrie's system devised by Kaiser (1956; 1957). The different systems used for relative dating of Predynastic artifacts will be discussed in greater detail in Chapter 3.

Although Predynastic sites are found in most areas of the Egyptian Nile valley, the greatest number of known Predynastic sites is in Upper Egypt in three major areas on the west bank: Hierakonpolis, Nagada and Ballas, and Abydos. In Middle Egypt, Predynastic sites are located on the east bank in the Badari district and in the Fayum. In Lower Egypt sites exist in the Cairo area. Within the past decade there have been increasing archaeological investigations of early sites in the Delta and later Predynastic settlements are being discovered there. In Lower Nubia, numerous A-Group sites have been excavated which contain many Predynastic craft goods probably obtained through trade, but the nature of Egyptian Predynastic/A-Group relations is beyond the scope of this study.

Upper Egypt

One of the earliest archaeological surveys in southern Egypt was conducted by Henri de Morgan for the Brooklyn Museum in 1906–07 and 1907–08. While surveying between Gebel es-Silsila (65 km north of Aswan) and Esna, de Morgan excavated seven sites with Predynastic and Early Dynastic remains. Settlements as well as cemeteries were excavated and 14 additional sites of the Nagada culture in this region were reported by de Morgan (Needler 1984: 49).

No detailed report of the excavations was ever published by de Morgan and although his notebooks from the excavations exist, major shortcomings are present: in the cemetery sequences 'unimportant' graves were not listed, burial objects were not numbered and no maps were made of the cemeteries.

Finds from de Morgan's principal sites now in the Brooklyn Museum have been published recently by Needler (1984). While existing records of de Morgan's excavations are inadequate for detailed analyses, Needler's study is useful for an understanding of Predynastic site distribution:

The early cemetery at el Ma'mariya, which reaches back to Naqada I times, as also probably the cemetery and settlement at el 'Adaima, supports the view that the nuclear region of the Naqada culture extended further south than was formerly supposed, to the region of Hierakonpolis; at least, the results of de Morgan's activity in the region may help to dispel a belief that Hierakonpolis was a 'marginal settlement' during Naqada times, too far south to have had more than religious or frontier importance (Needler 1984: 68).

Pottery from de Morgan's burials also exhibit Nubian (Classic A-Group) contact with southern Egypt, dating to the Nagada III period (Needler 1984: 224).

From Needler's catalog of de Morgan's finds, a picture of extensive Predynastic occupation in southern Egypt emerges. De Morgan's excavations included two large Predynastic settlements at el-'Adaima, about 6 km south of Esna, and opposite the 'Fort' wadi at Hierakonpolis (Needler 1984: 74, 110). Lansing (1935: 44) also reports a vast Predynastic town site at Hierakonpolis south of the Fort. Although de Morgan's fieldwork discovered towns, he was more concerned with excavating Predynastic and Early Dynastic burials.

Predynastic cemeteries excavated by de Morgan include 232 burials at el-Ma'mariya of Nagada I and II date, 102 burials at Abu Zaidan of Nagada III date, 91 burials at el-Masa'id of Nagada III date and a large Early Dynastic cemetery at es-Siba'iyā with some possibly earlier (Nagada III) burials (Needler 1984: 90-91, 124, 138, 146). De Morgan also investigated a badly plundered cemetery next to the settlement at el-'Adaima, with artifacts dating mainly to Nagada II (Needler 1984: 74-75). The cemetery with c. 100 burials at el-Qara was of Early Dynastic date, and southwest of this cemetery de Morgan also found traces of a settlement (Needler 1984: 122). A few graves of Nagada III and late Nagada II date were excavated northeast of the Hierakonpolis Fort (Needler 1984: 110). The 13 other Predynastic sites located by de Morgan in his concession were not extensively excavated.

Of the seven sites excavated by de Morgan in southern Egypt, Hierakonpolis is the largest. Preceding de Morgan there were Quibell and Green in 1897-98 and 1898-99, and Garstang in 1905-06. Quibell and Green's excavations concentrated on the walled town on the Kom el-Ahmar, with its walled temple precinct in the southern corner of the town (Quibell and Green 1902: pl. 73). Within the temple area Quibell found what he termed the 'Main Deposit', which included the maceheads of (king) Scorpion and Narmer (Quibell and Green 1902: 40-41). The Narmer palette was found south of the deposit, near a limestone block.

A large, elaborately niched mud-brick structure southwest of the Kom el-Ahmar, possibly built in the 2nd Dynasty during the reign of Khasekhemwy, was also surveyed by Somers Clarke. Within and beneath the walls of the Fort, Garstang excavated numerous Predynastic graves (Garstang 1907: 136-37), which Kemp dates mainly to Nagada III, though there were also some Nagada II burials (Kemp 1963: 28; see also Adams and Hoffman 1987: 180-86). Working with Garstang's notebooks, Adams has published a detailed record of 166 graves of some 188 Predynastic burials excavated by Garstang (Adams 1987: 1). A map locating most of these graves has been published by Kemp (1963: pl. 4). De Morgan also excavated more Predynastic graves in the cemetery northeast of the Fort. According to Needler (1984: 110), these graves were 'at the southeastern end of the large cemetery that extends from the Fort Wadi northwestward for about 450 meters and back in time, probably from Nagada III to late Nagada II'.

The other major Predynastic cemetery at Hierakonpolis is in the area of the Decorated Tomb, excavated by Green (Quibell and Green 1902: 20-21). Consisting of a mud-brick-lined pit with painted plaster walls, the Hierakonpolis Decorated Tomb dates to the Nagada II period (Case and Payne 1962: 10; Payne 1973: 31). Green's papers at the University of Cambridge indicate that this tomb was in a small Predynastic cemetery containing about 150 graves (Payne 1973: 31). Sequence dates of pottery from this cemetery are distributed throughout the Nagada II period, and Kaiser has suggested that the graves surrounding the Decorated Tomb formed a royal cemetery (Kaiser 1958: 189-91).

More recently, Hierakonpolis has been the site of extensive archaeological investigations by Fairservis and Hoffman. With over 50 sites of Predynastic occupation, industry and burial (Hoffman 1982: 123-27), Hierakonpolis and its environs comprised a major Predynastic center. Nine more cemetery areas dating to Nagada I through Nagada III have been located in the Hierakonpolis region, and Hoffman estimates there were several thousand Predynastic graves in the region (Adams and Hoffman 1987: 196, 198). One cemetery area located 2.5 km up the Great Wadi (Locality 6) contained more than 200 Nagada I burials and large 'Protodynastic' tombs, up to 22.75 m² in floor area (Adams and Hoffman 1987: 196, 202). One of these tombs, Tomb 11, though looted, retained fragments of beads in carnelian, garnet, turquoise, faience, gold and silver; carved lapis lazuli and ivory; obsidian and crystal blades; 'Protodynastic' pottery; and a wooden bed with carved bulls' feet (Adams and Hoffman 1987: 178). Evidence of post-holes demonstrates that wooden structures once covered some of the large tombs in Locality 6 and these tombs were surrounded by fences (Hoffman 1983: 49). Burials of elephant, hippopotamus, crocodile, baboon, cattle, sheep, goat and dogs have been excavated around a stone-cut tomb in the western part of this cemetery (Hoffman 1983: 50). Evidence from the large tombs in Locality 6 suggests that there was a new location for the highest-status burials at Hierakonpolis in the Nagada III period (Protodynastic = Nagada III; Adams and Hoffman 1987: 195), replacing the earlier elite cemetery where the Decorated Tomb (Nagada II) was located. Hoffman (1983: 49) states that the Locality 6 tombs belonged to the

'Protodynastic' rulers of Hierakonpolis and possibly the largest tomb there was that of the king known as Scorpion.

According to Hoffman's model (Hoffman *et al.* 1986: 178-85) Predynastic occupation at Hierakonpolis was early—beginning in the Badarian and Nagada Ia–b periods, c. 4000–3800/3700 BC, with small scattered farming villages. The Nagada Ic and II(a), c. 3800/3700–3500/3400 BC, was a period of regional expansion. Rectangular houses were found in agglomerated settlements and Hierakonpolis was becoming a center of pottery production. In later Nagada II (b–d) times, c. 3500/3400–3200 BC, there was a settlement shift from the desert to the edge of areas under cultivation. Basin irrigation may have begun at this time, and a large oval courtyard may be the earliest evidence for a temple complex. The Nagada III period, c. 3200–3100 BC, was a time of political unification, when floods were low and most desert sites were abandoned. The city of Nekhen continued to grow, with 'large palace and temple complexes' (Hoffman *et al.* 1986: 184).

The well-preserved evidence at Hierakonpolis is remarkable for Upper Egypt. Both circular and rectangular houses have been excavated, some with fences and outbuildings (Hoffman 1982: 137). A rectangular, semi-subterranean house was excavated at Locality 29 with post-holes that originally supported a roof (Hoffman 1980: 130). Elsewhere, beneath the Early Dynastic levels at Nekhen, about 4 m of stratified Predynastic settlement deposits have been found by coring and augering (Hoffman 1989: 320). Stratified cultural deposits have also been found via coring under the modern floodplain.

Evidence of specialized production, including the production of basalt vases and microlithic drill bits for bead-making, is also seen at Hierakonpolis (Hoffman 1982: 130). Pottery kilns have been excavated in the low desert where utilitarian (straw-tempered) wares and 'Plum Red Ware' (Black-topped Red class and Polished Red class) were fired (Hoffman *et al.* 1986: 183). Vats from two sites at Hierakonpolis suggest the brewing of a wheat-based beer (Geller 1989: 52).

Across the river from Hierakonpolis, on the east bank, is the site of el-Kab, where a cemetery with 'New Race' (Predynastic) graves was excavated in 1897 by Quibell, along with cemeteries of pharaonic date. Quibell (1898: 12, pl. 27) gives a list of 25 'Libyan' tombs, which he cites as being earlier than the Old Kingdom. Also found in graves were pottery, palettes and lithics that are 'distinctly of the *later* type of Ballas' (Quibell 1898: 13). The few pre-pharaonic graves excavated at el-Kab by Quibell are poorly described and grave goods are listed only very generally. Quibell seems to have been mainly interested in the later cemeteries in the el-Kab region and his information on Predynastic graves there is minimal.

More recently, some 100 Predynastic graves have been excavated by Hendrickx within the Great Enclosure at el-Kab. Only 25 of these burials were undisturbed and grave goods from these can be dated typologically to the Nagada III period (Hendrickx 1984: 225). Two types of graves are found in this cemetery: most were simple pits, but some were lined with slabs of unworked sandstone and niches for grave goods were separated from the human remains by a sandstone slab (Hendrickx 1984: 226). The graves with sandstone slabs

were those of old adult males, with the exception of the richest burial in the cemetery, of a young adult male (Hendrickx 1984: 228).

Downriver from el-Kab and Hierakonpolis, on the west bank, 9 km southwest of Luxor, is the Predynastic site of Armant, more fully described in Chapter 4. Myers excavated a Predynastic village in Area 1000 (Mond and Myers 1937: 163), 2 km from Cemetery 1400–1500. A Predynastic settlement closer to this cemetery was recently excavated by Ginter, Kozłowski and Pawlikowski (1987: 52–66). Predynastic cemeteries at Armant consist of Cemetery 1400–1500, which is well mapped, and a few scattered Predynastic graves and tombs in Areas 1200 and 1300 (Mond and Myers 1937: 6). The Predynastic burials at Armant are the best documented such group in Upper Egypt.

An archaeological survey conducted by the Polish team between western Thebes and Armant disclosed dense Predynastic occupation in this region: 11 'Nagadian' sites were located. These sites were deflated and consisted mainly of lithics and ceramics and occasionally hearths. Lithics show parallels with those from Armant published by Mond and Myers (1937: 201–32), and with those from el-Khattara sites in the Nagada region. Ceramics are of Predynastic types (excluding any decorated classes), but show a paucity of forms compared to those found in Predynastic graves (Ginter *et al.* 1985: 30–40).

While Thebes/Karnak was a major center during Dynastic times, prehistoric sites there are less well known. The site of el-Tarif, located on gravel deposits at the foot of the Theban gebel, has yielded Epi-paleolithic stone tools in association with ceramics: the excavators describe the site as similar to Paleolithic camps (Ginter and Kozłowski 1984: 257). Also at el-Tarif are later 'Nagadian' levels, with Predynastic ceramics, lithics (particularly sickle blades) and traces of stone structures (Ginter and Kozłowski 1984: 257). A radiocarbon date (3105 ± 60 BC [Gd-689]) is known from the Nagadian level, and above this level was an 'Archaic' (Early Dynastic?) level dated to 2665 ± 55 BC (Gd-1127; Ginter and Kozłowski 1984: 255).

Located 28 km northwest of Luxor, on the west bank, the three Predynastic cemeteries at Nagada ('Great New Race Cemetery' and Cemeteries B and T) were excavated by Petrie in 1894–95 (Petrie and Quibell 1896: 18, pl. 86). Two Predynastic settlements, 'North Town' and 'South Town', were also investigated in this region (the settlements and cemeteries are described more fully in Chapter 5). With over 2200 graves, these three cemeteries, along with the estimated 1000 burials excavated by Quibell at Ballas, just north of Nagada, form the largest mortuary site in Predynastic Egypt. Although a detailed map of the Nagada cemeteries was published, Petrie's publication of the Nagada data was incomplete. More recently, Baumgartel (1970) has published a register of Nagada graves taken from Petrie's field notes and revisions of this list have been published by Payne (1987).

While Petrie's investigations at Nagada were extensive, Hassan has located and excavated a number of smaller Predynastic sites in the Nagada region near the village of el-Khattara. Full excavation reports are forthcoming, but evidence of sites with several mounds of midden deposits has been published (Hays 1976: 552). Faunal evidence of domesticated sheep/goats, cattle and pigs is

present, and emmer wheat and barley were cultivated (Hassan *et al.* 1980). On the basis of lithics and ceramics assemblages, Hays attributes the el-Khattara sites to the Badarian period (Hays 1984: 72). Hassan and Matson's (1989: 314) multidimensional scaling of ceramics from Predynastic settlements in the Nagada region, however, indicates an early Nagada group at the el-Khattara sites, and a later Nagada II group at South Town and North Town.

Test excavations conducted at South Town by the Oriental Institute of Naples, 1979–83, revealed Predynastic, Early Dynastic and Dynastic occupation based on a ceramic chronology. Features consisting of post-holes, notches and grooves cut in the sediment, piles of mud-brick from collapsed walls and a rounded ditch to the north of the site have been uncovered (Barocas *et al.* 1989: 300–301).

About 10 km south of Qena on the west bank, a Predynastic settlement called Maghara 2 has recently been excavated by Leuven University. The site is situated on the low desert, about 500 m from the river. Features consisted of post-holes (which could not be reconstructed into arrangements as houses), storage pits and more than 20 hearths. No remains of grain were found in the storage pits and only one grindstone was found. As the floodplain is very narrow here, 'agriculture must be excluded' (Hendrickx 1988: 10). The fauna consisted mainly of fish remains, mostly Nile perch and catfish (Hendrickx 1988: 9), suggesting that the site was a fishing camp. Pottery consisted mainly of the straw-tempered class, but the Black-topped Red class and a ripple-face class, associated with the earliest known Predynastic sites ('Badarian') in Middle Egypt, were also found. One ceramic lip-stud excavated at Maghara 2 is also of a Badarian style, and a calibrated date of 4130–3665 BC (Lv-1312) suggests an early occupation here around 4000 BC (Hendrickx 1988: 9).

A major center in Predynastic times was at Hu, known as Diospolis Parva in Graeco-Roman times, located about 45 km northwest of Nagada, below the Qena bend in the Nile. In 1898–99 Petrie excavated six 'prehistoric' cemeteries (U, R, B, C, A, H) in the Hu region, and he noted the remains of prehistoric villages east of the Dynastic cemetery N and in the area he called F (Petrie 1901a: 31–32). Some of the cemeteries had already been destroyed by antiquities dealers and only the unusual or important graves are listed in Petrie's publication. Still, at least 1167 Predynastic burials can be counted from his descriptions of the cemeteries and there were probably more. With regard to Cemetery B, for example, Petrie (1901a: 34) writes of 'up to 570' burials. Unfortunately, there are no plans for the Predynastic cemeteries.

The most significant contribution of Petrie's publication of the Hu cemeteries is the seriation system he worked out for the grave goods in accordance with his finds from other Predynastic cemeteries. (For a more detailed description of Petrie's sequence dating, see Chapter 3.) Very little attention was given to Predynastic settlements in the Hu region. During a reconnaissance survey in 1989 Bard (1989b: 476) rediscovered a Predynastic settlement (HG) near the modern village of Abadiyeh with Predynastic sherds, but no visible architecture, scattered over an area of c. 3 ha. Petrie (1901a: 32) had recorded this site as 'entirely plundered'.

Another smaller settlement (SH) was located by Bard next to the late

Predynastic cemetery at Semaineh. SH had thin cultural deposits and no visible architecture except a mud-brick feature, which probably dates to the Old Kingdom. Excavations at SH in 1991 revealed a site with a great mixture of ceramics, predominantly from the Old Kingdom, but combined with a few Predynastic and New Kingdom sherds. One radiocarbon date was obtained from charcoal in a test pit, with a calibrated date of 3780–3530 BC (OxA-2184) (Bard 1991: 130). This test pit was near an early (Nagada I–IIa?) cemetery area excavated by Petrie in the southwest of the site. Indicative of an early Predynastic date, a White Cross-lined decorated sherd was excavated in a test pit in this cemetery in 1989 and a fragment of a ceramic anthropomorphic figurine was found in a grave pit in 1991. Another cemetery area (H) was also excavated by Petrie on a small spur east of the village and this area is probably where the mainly Nagada III grave goods were found.

Site HG was also excavated in 1991. Much of this settlement had been disturbed by cultivation in the 1950s and 1960s and there was no evidence of permanent architecture or even post-holes from more perishable architecture. Ceramics consisted mainly of the straw-tempered class, intermixed with smaller quantities of Polished-red and Black-topped Red classes. The straw-tempered class represents large and smaller storage jars, cooking vessels and bowls, while the polished classes represent a better-quality material. Sherds of Predynastic bread molds were also identified. The ceramics date predominantly to Nagada II, but a few sherds, such as that from a white Cross-lined class bowl, could be dated to Nagada Ic. Lithic tools included sickle blades, some with polish, and numerous grinding-stone fragments of red and grey granites from Aswan, and igneous and metamorphic rocks from the Wadi Hammamat. A stone-tool workshop was excavated on a small spur to the east of the main village. Artifacts from the workshop included lithic debris from all stages of manufacture, a small palette of hard sandstone and an end fragment of a large rhomboid palette made of slate. Durum wheat (*Triticum durum*) was recovered at HG by flotation, along with the remains of emmer wheat and barley (Bard 1992a: 13). Calibrated dates obtained on charcoal from test pits excavated at HG in 1989 suggest occupation during the Nagada I and II: 3500–3100 BC (OxA-2182) and 3700–3370 BC (OxA-2183) (Bard 1991: 130).

Also in the Hu region, about 5 km southwest of Nag Hammadi, is a Predynastic cemetery of unknown size at Abu 'Umuri, excavated in 1936 by M. Hamza. Grave goods from this cemetery are now in Room 53 of the Egyptian Museum, Cairo, but the Egyptian Antiquities Organization has no records of these excavations.

The Predynastic cemetery at Naga ed-Der, on the east bank opposite Girga, was excavated by Lythgoe in 1903–04, when Reisner held a concession to work in this region. In 1910, excavations were resumed in the region by the Boston–Harvard Expedition. Unpublished investigations from this fieldwork include a cemetery at Mesaced (south of Naga ed-Der) excavated by Reisner and Fisher, and later by L.C. West, with approximately 700 graves ranging in date from Nagada I through the 1st Dynasty, but mainly of Nagada II date (Ehrlich n.d.: 1–2; Friedman 1981). At Naga el-Hai, south of Qena, another Predynastic cemetery with c. 1450 graves was excavated in 1913 by West; Freed (n.d.: 41)

states that only 172 of these graves were datable (mainly Nagada III and Nagada IIc–d) because the cemetery had been heavily plundered.

The Predynastic cemetery at Naga ed-Der was published by Dunham using Lythgoe's field notes (Lythgoe and Dunham 1965: ix), but no reference is made of a settlement near it. Graves in the Predynastic cemetery were numbered from 7001 to 7635, so presumably Lythgoe excavated over 600 burials. While Lythgoe recorded detailed descriptions of body position, orientation and condition, grave goods are listed only in general terms, such as 'RW dish' (Rough ware) and not by their Petrie corpus numbers, which would help to date this cemetery. Fortunately, there is a map locating the numbered graves in the cemetery, which measured approximately 90 × 80 m (Lythgoe and Dunham 1965). Castillos's analysis of this cemetery suggests that it was of 'less prosperity' than other Predynastic cemeteries in his study (Castillos 1979: 36). At least one high-status burial—Grave 7304—is from the cemetery, however. This large grave was originally roofed and, though disturbed, contained 42 objects, including five stone vessels, eight pots, beads of turquoise and lapis lazuli, and a seal with a Jemdet Nasr-style design (Kantor 1952: 240, 246).

Abydos, a major center of Predynastic culture in Upper Egypt, is better known for its Early Dynastic evidence, excavated by Petrie early in this century, and more recently investigated by Kaiser and Dreyer, and O'Connor. A study of settlements in the Abydos region from the Predynastic through the Old Kingdom was conducted by Patch (1984: 17), who located seven new Predynastic sites on an archaeological survey in 1983.

Predynastic cemeteries recorded in the Abydos region are in three areas: near the Osiris temple and the villages of el-Amra and el-Mahasna. Cemetery E, 300 m north of the Osiris temple, contained Predynastic graves along with Dynastic shaft tombs (Neville 1914: 1). Excavated in 1909–10 by Neville and Peet, Cemetery E was not well published. Only 39 burials with grave goods are listed in the text (Neville 1914: 15–17) and a register of some differently numbered Predynastic graves is given later. No map of this cemetery is shown in Neville's Part I, but a small area of Cemetery E is recorded in Part II, along with a list of 17 Predynastic graves (not listed in Part I) with grave goods (Peet 1914: 17–19). Grave numbers in Cemetery E run up to 4580, but it is not known how many of these were Predynastic.

About 8.9 km southeast of the 1st Dynasty royal cemetery at Abydos are two other Predynastic cemeteries, located in the vicinity of the village of el-Amra, from which the term Amratian (Nagada I) is derived. Prior to excavation by Randall-MacIver and Mace in 1901, Cemeteries A and B were both considerably plundered. Cemetery A, with 223 known graves and an estimated 200 more, shows ranges of sequence dates throughout all Predynastic periods. Cemetery B seems to have more later Predynastic graves than Cemetery A, as well as some from the 1st Dynasty. About 400 graves were recorded in Cemetery B, with possibly 100 more (Randall-MacIver and Mace 1902: 50).

Two other Predynastic cemeteries at Abydos were also noted by the excavators: Cemetery O with 85 graves, dated SD 30–50 (early and middle Predynastic) and Cemetery X with 88 graves, dated SD 60–80 (late Predynastic;

Randall-MacIver and Mace 1902: 53-55). Of the 1000-plus Predynastic and Early Dynastic burials in the Abydos region that Randall-MacIver and Mace either excavated or estimated, none was plotted on a published map. Only 108 graves are listed with grave goods, which are numbered according to Petrie's typology. The el-Amra excavations yielded a so-far unique clay model of a rectangular Predynastic house (Randall-MacIver and Mace 1902: 42).

Also in the Abydos region is the Predynastic cemetery at el-Mahasna, 1.3 km north of Abydos, with an estimated 600 graves, many of which had been disturbed. The cemetery runs in date from early to late Predynastic and there are some brick-lined tombs of early 1st Dynasty date (Ayrton and Loat 1911: 8). Ayrton and Loat list 106 graves by their sequence dates, with detailed descriptions of grave goods, grave type and body position. Twenty-seven other graves are listed, but could not be given sequence dates because they were plundered. No map of the cemetery is given, but the excavation report describes in detail the types of graves, ranging from rough oval and circular graves in the early sequence dates, to the later more rectangular graves, some of which were roofed or lined with wood or mud-brick (Ayrton and Loat 1911: 10-25).

In addition to cemetery data, eight Predynastic kilns, which the excavators thought were for parching grain, were excavated in the Cemetery D area of the Osiris temple (Peet and Loat 1913: 1-7). The kilns consisted of two parallel rows of large jars of straw-tempered pottery sunk into the ground and containing carbonized organic matter; Geller (1989: 47) has evidence from Hierakonpolis that such facilities were for brewing. The report contains no mention of a settlement in the area of the kilns. Predynastic sherds were also found in the Osiris temple by Petrie (1902: pl. 50).

The Umm el-Qa'ab at Abydos is where the kings of the 1st Dynasty built their tombs and 'funerary palaces', walled constructions located along the edge of cultivation. East of the identified 1st Dynasty royal tombs are smaller and less-elaborate tombs (B group) excavated by Petrie (Petrie 1901b: 3-5) which have recently been investigated by Kaiser and Dreyer. Several of these tombs have been linked with kings immediately preceding and at the beginning of the 1st Dynasty (Iri-Hor, Ka, Narmer, Aha; Kaiser and Dreyer 1982: 241-42). A tomb (U-j) dating to Nagada IIIa2 has also been excavated in the Umm el-Qa'ab and revealed over 200 pots that are not Upper Egyptian (possibly of 'eastern' origin; Kaiser 1990: 288). Many bone labels with the earliest-known hieroglyphs, probably connected with the delivery of goods, were also found in Tomb U-j (Kaiser 1990: 298-99). At Abydos, then, there is evidence of a royal cemetery at the end of the Predynastic (Nagada IIIb), possibly of kings whose descendants reigned in the 1st Dynasty.

Lastly in Upper Egypt, mention should be made of Predynastic evidence in the Qift (Coptos) region, across the river from Nagada. A Predynastic village and graves were located by Debono near Lakeita, 33 km southeast of Qift, on a survey along the Wadi Hammamat (Debono 1951: 88). Debono also found some Early Dynastic villages in this region, but his report is not very detailed.

Predynastic evidence is also known from Petrie's excavations of the temple of Isis and Min at Qift. Fragments of coarse ceramic figurines of humans and

animals were found in a deposit 1.2 m deep beneath the temple pavement, but these are probably Old Kingdom (Adams 1986: 9). Also in this deposit were Predynastic potsherds: 'red polished with black tops and the red polished with white lines' (Petrie 1896: 5). The three large stone figures of the deity Min, which Petrie also excavated there, are no later than the early 1st Dynasty (Kemp 1989: 79-82) or from the reign of Narmer (end of Dyn. 0, immediately preceding the beginning of the 1st Dynasty; Williams 1988: 36-37), but there clearly was an earlier feature (late Nagada I–early Nagada II) at Qift.

Middle Egypt

In Middle Egypt Predynastic sites are found in the Badari district, on the east bank of the Nile opposite and to the south of Assiut. The earliest class of pottery ('Badarian', a black-topped brown class with a rippled surface from pebble burnishing) from prehistoric settlements and cemeteries in this region is thought to be earlier than Petrie's Predynastic classes from Upper Egypt, a chronology demonstrated by Caton Thompson's excavation of the stratified midden at Hemamieh (Brunton and Caton Thompson 1928: 73-75). Brunton also thought that the graves he excavated at Deir Tasa, yielding stone celts and black incised pottery, represent an early phase of the Badarian (Brunton 1937: 32).

At el-Badari, the remains of Predynastic settlements were located on spurs 2-12, with cemeteries on spurs 14-19. The small settlement on the north spur at Hemamieh was only 37 × 46 m, with some hut (and/or storage) circles and a midden 2 m deep. Maps were made of several small Predynastic cemeteries (Qau 100; Badari 3700, 3800, 5100, 5300-5400, 5700, 5800), and grave goods are listed in a register of 306 mapped Predynastic graves, as well as from other sites (Brunton and Caton Thompson 1928: pl. 5-8).

Several rectangular brick-lined tombs and Early Dynastic staircase tombs were also excavated in the Badari district. Brunton (1927: 10) termed these tombs 'Protodynastic', a period he dated to the 1st and 2nd Dynasties, based on pottery types given in Petrie's Tarkhan I corpus for Protodynastic pottery. Cemetery 1500-1800 at Hemamieh is listed in a register of 61 Protodynastic graves with itemized grave goods, and a map is also given of this cemetery (Brunton 1927: pl. 6, 10). Another 96 graves listed as SD 77-82, including a small cemetery next to the village of Ezbet Uad el-Hagg Ahmed, are also in this register (Brunton 1927: pl. 11, 5). Cemetery 6000, thought to date to the 1st Dynasty, was heavily plundered (Brunton 1927: 10).

At Mostagedda, Brunton excavated several small Predynastic villages consisting of hut circles and middens. Cemeteries at Mostagedda range in date from Badarian and Predynastic to Dynastic and Pan grave (Second Intermediate Period, following the Middle Kingdom). A register of 204 Predynastic and 13 Protodynastic graves containing grave goods is given, but there is no published map for these burials (Brunton 1937: pl. 29-31). North of Mostagedda at Matmar, Brunton lists some 200-plus Predynastic graves, but only one map, of Cemetery 2600-2700, is presented and it shows 123 Predynastic graves (Brunton 1948: pl. 8-10, 19). Another 74 graves are listed

for Matmar with sequence dates of 74-81, but these are scattered in different areas (Brunton 1948: pl. 20).

A recent archaeological survey in the Badari district by Holmes and Friedman has discovered two Predynastic sites (BD-1 and BD-2) and noted another at Minshat el-Kom el-Ahmar; the last cemetery was excavated but not published by the Egyptian Antiquities Organization. The investigators report that very few surveyed Predynastic localities had any finds dating exclusively to the Amratian period (Nagada I), and the pottery from the later Predynastic settlements is Gerzean (Nagada II; Holmes and Friedman 1989: 17). This suggests that in the Badari district, the 'Badarian' is not a cultural period that preceded the Amratian but perhaps one which chronologically overlaps the Amratian known farther south (Holmes and Friedman 1989: 18).

Archaeological evidence in the Badari district is mainly of small settlements, scattered along spurs from Matmar in the north to Qau el-Kebir in the south. None of these sites represents Predynastic culture on the scale found at several major sites in Upper Egypt.

The Fayum

In the expanse of the Nile valley north of the Badari district, no Predynastic sites are known until the Fayum region, over 300 km downriver. Middle Egypt is the least archaeologically surveyed area in the Egyptian Nile valley, which may in part account for a lack of evidence there. Early sites are possibly less well preserved there, too. Although the major Predynastic sites are found in Upper Egypt, it would be surprising if Predynastic settlement suddenly stopped at el-Badari. While the Fayum is better known for Neolithic sites on the shores of earlier lake levels, Caton Thompson and Gardner (1934: 69-71) excavated a Predynastic site near Qasr Qarun in the southwestern Fayum. More recently, this site was investigated by Wenke, who located two other Predynastic sites to the east. The three sites appear to be 'only temporary, seasonally occupied encampments' (Wenke *et al.* 1983: 39). Although the ceramics were badly eroded, sherds from one of these sites (FS-3) 'are similar to unpolished Red-ware ceramics found at Maadi and nearby sites' (Wenke and Brewer 1992: 175).

The best-known Predynastic site in the Fayum region is the cemetery at Gerza, from which the term Gerzean (Nagada II) is derived. The site is located on the west bank, about 7 km northeast of Meydum. Petrie excavated 288 Predynastic burials at Gerza, a high percentage of which were intact (Petrie *et al.* 1912: 5). Of the intact burials, 198 were of adults and 51 were of infants or children (Petrie *et al.* 1912: 5). No mention is made by Petrie of a Predynastic settlement at Gerza. As was the custom of the time, only a selection of graves was published with grave goods, but a map of the cemetery, giving grave numbers is provided. The pottery types listed are typical of the Nagada II period and include the Wavy-handled and Decorated classes. Beads, stone vases, zoomorphic slate palettes, flint knives and other Nagada II artifacts were also found in these graves. Although drawings of two graves suggest an orientation with head to the south and face to the west (the most frequent orientation of Predynastic graves in Upper Egypt), the map of the cemetery

suggests considerable variation in orientation (Petrie *et al.* 1912: pl. 13). Compared to the major cemeteries in Upper Egypt, however, Gerza is small in size.

At Abusir el-Meleq, about 10 km west of the present Nile, several hundred Predynastic burials were excavated by Möller (Scharff 1926). No map of the cemetery has been published and grave goods are listed only generally by material and pottery class, not by Petrie corpus numbers. Artifact types published in the plates suggest a range from Nagada II to III and early 1st Dynasty. Abusir el-Meleq seems to have been one of the larger Predynastic cemeteries in the north and it is unfortunate that it is not better documented.

Harageh, southeast of the village of Lahun, was excavated in 1913–14 by Engelbach and consists of two Predynastic cemeteries, G and H. With a low number of burials, Harageh was probably only a small Predynastic community. Engelbach places the date for both cemeteries between SD 50 and 60, based on the pottery and stone tools in burials (Engelbach 1923: 7). A plan is given of Cemetery G, with 20 graves, but none is given for Cemetery H, part of which lay under an 18th Dynasty village (Engelbach 1923: 2). Many of the graves were robbed and only the more unusual ones are listed with grave goods. Whereas the Decorated class pottery was found in both cemeteries, there were no slate palettes and very few beads, unlike the cemetery at Gerza to the north. Wavy-handled class pottery was found only in Cemetery G, and a 'corrugated black-polished' class was found only in Cemetery H (Engelbach 1923: 7).

Southwest of Harageh is the site of Sedment. In two areas (Cemetery J, and between Cemetery K and the floodplain) circular pits that were excavated contained pottery on rare occasions but no burials (Petrie and Brunton 1924: 9). Though different in form from cemetery pottery and possibly similar to the settlement pottery from Hassan's KH sites, small Black-topped Red class jars were found in Cemetery J. Most of the pottery found in the circular pits, however, was of wares from Lower Egyptian Predynastic sites (el-Omari, Maadi; Williams 1982: 219). Williams (1982: 221) interprets these pits and their contents as storage caches for the nearby (deflated) settlement of Lower Egyptian culture before the northern expansion of Upper Egyptian (Nagada) culture into the Fayum region in Nagada II times.

Some pottery from Harageh Cemetery H, which Engelbach thought was much later (Pan graves?), resembles Lower Egyptian Predynastic wares found at Sedment (Kaiser 1987: 121–22; Williams 1982: 220). The presence of wares of Lower Egyptian origin at a site in this region is also attested at the cemetery of es-Saff, on the east bank opposite Gerza (Habachi and Kaiser 1985: 46). From this evidence it seems likely that the Fayum region was where the two Predynastic cultures of Upper and Lower Egypt first came into contact.

The Cairo Region

South of Cairo, on the east bank, Predynastic evidence of a material culture different from that of Upper Egypt has been found at the two major sites of el-Omari and Maadi. Elsewhere, at Tarkhan, south of Helwan, Nagada III/1st Dynasty graves (SD 77–82) were excavated, including a very large palace-façade tomb, but no earlier burials were found (Petrie *et al.* 1913: 1–31). A

Predynastic cemetery was excavated at Heliopolis in northern Cairo and some isolated finds from this period are known from Giza.

At Heliopolis a Predynastic cemetery excavated earlier in this century has recently been published (Debono and Mortensen 1988). There were 73 burials, dating to Nagada I and early Nagada II, consisting of oval pits, oriented with the heads to the south and faces to the east (Debono and Mortensen 1988: 10-22), unlike burial orientation in Upper Egypt, where the heads usually face west. Pots were the most common grave goods and wares 'are typical for the north in the Maadian Period', but also show 'traits from the Palestinian tradition' (Debono and Mortensen 1988: 33). A few grave goods, such as the carved stone vases in basalt and limestone, are of types found in Upper Egyptian burials, but the flat flint palettes are unlike Upper Egyptian ones (Debono and Mortensen 1988: 34-35). Also unusual at Heliopolis were dog burials, and goat burials with many pots (Debono and Mortensen 1988: 39-40).

Debono also excavated the el-Omari settlements (3 km northeast of Helwan), which he dates from early Nagada I to the beginning of Nagada II. One radiocarbon date from the oldest site at el-Omari has been corrected to 4110 ± 260 BC (Hassan 1985b: 98). On the west was a village where the dead were interred in houses and there was a second village with a separate cemetery, where each grave was covered with a mound of stone (Debono 1956: 330-31). The western village (Omari A) extended over a large area and included oval structures of post-holes and round semi-subterranean structures (Debono 1948: 562-63). Pottery at el-Omari is unlike that of the Predynastic Nagada culture, but is related to that of Maadi. Almost all of the pottery (99 percent) was made of local clay, which was *not* a Nile clay, and the ceramic technology 'could have been brought from Palestine' (Debono and Mortensen 1990: 36, 40).

Maadi, the other major prehistoric site in the Cairo region, is located on a Pleistocene terrace between the mouths of two wadis south of modern Cairo. From 1930 to 1953, Cairo University archaeologists excavated four sites: a large settlement (over 40,000 m²) on the terrace, a cemetery and a settlement at the foot of the terrace, and another Predynastic cemetery 1 km south in the Wadi Digla (Rizkana and Secher 1984: 237). The initial reports are very cursory, but a more comprehensive interpretation of the early fieldwork at Maadi is found in Hayes (1965: 122-33). Final reports of the Cairo University excavations at Maadi have been published in four volumes by the German Institute of Archaeology at Cairo (1987, 1988, 1989, 1990). More recently, excavations at Maadi have been conducted in the eastern part of the settlement, which was not excavated earlier (Caneva *et al.* 1989: 287).

The economy at Maadi was based on farming (emmer wheat and barley) and herding (cattle, sheep, goat, pig), and there is considerably less evidence for hunting and fishing. Domesticated dogs and asses were also kept. The presence of many large grinding stones, some weighing more than 50 kg, and hundreds of storage pits and storage jars strongly suggests a permanent settlement subsisting mainly by farming (Rizkana and Secher 1989: 75).

Settlement debris at Maadi was found over an area 1300×100 -130 m, but

how much of this site was occupied at different periods is not known. Evidence from the recent Maadi excavations suggests shifting occupation within the settlement (Caneva *et al.* 1989: 287), with earlier occupation in the eastern part and later occupation to the west (Caneva *et al.* 1987: 113). There is no evidence of a planned settlement, nor are there any known areas of specialized activity. Houses consisted mainly of wattle and matting, sometimes covered with mud. Some rectangular buildings were noted and four subterranean structures were found in the northeastern part of the site (Rizkana and Secher 1989: 75). Interpretations of the excavated settlement data are hampered by earlier digging for *sebakb* (organic material used for fertilizer) and by problems with understanding the earlier excavations (Rizkana and Secher 1989: 74).

Pottery from Maadi has datable parallels in Upper Egypt from the Nagada I and II periods, and Rizkana and Secher (1987: 78) propose an end to occupation at Maadi by late Nagada II times (the end of Nagada IIc). Four radiocarbon dates from the recent excavations at Maadi are 'grouped around 3650 BC (MASCA calibrated)' (Caneva *et al.* 1987: 106).

Over 80 percent of the pottery excavated at Maadi is of a local ware not found in Upper Egypt, which 'clearly underlines the difference between Lower and Upper Egypt in Predynastic times' (Rizkana and Secher 1987: 78). This ware is tempered with grit (sand and sometimes crushed stone) and organic matter, and is mainly in black or reddish-brown (the latter is slightly burnished) (Rizkana and Secher 1987: 23-26). Much less frequent are painted designs on this ware, or imitations of the Upper Egyptian Black-topped Red class (Rizkana and Secher 1987: 26-28). According to Caneva, Frangipane and Palmieri (1987: 107), the red jars 'show such a uniformity of shape, size and colour, that they seem to document the first standardized, non-domestic production'.

Two other local wares are also found at Maadi: a red-burnished ware with less organic temper and a yellowish washed ware with no organic temper. Twelve sherds of the imported Black-topped Red class were also excavated at Maadi. Imported from Palestine, a coarse-tempered ware with ledge-handles or lug-handles accounted for less than 3 percent of the settlement pottery (Rizkana and Secher 1987: 31-32).

Among the artifacts from Maadi are a few goods that most likely were imports from Upper Egypt, where they are much more numerous: rhomboid slate palettes, six disk-shaped maceheads and wide-brimmed jars of diorite (Rizkana and Secher 1989: 77). Much more frequent, however, are palettes of limestone in different sizes and shapes, probably made locally (Rizkana and Secher 1984: 244). The numerous black basalt vases at Maadi in shapes similar to locally produced pottery suggest a Lower Egyptian source (Rizkana and Secher 1989: 77). Some typical Nagada II artifacts, such as zoomorphic palettes, pear-shaped maceheads and Decorated class pottery, are lacking at Maadi, and the material culture shows 'a strong and self-subsistent local tradition' (Rizkana and Secher 1984: 251).

Maadi has been regarded as a center of copper production, as Hayes (1965: 128) suggests:

The site has yielded copious evidence that copper ore was imported and worked in some bulk and that locally a knowledge of smelting, casting and other metallurgical processes had advanced sufficiently for the production of a variety of metal implements...

Rizkana and Seeher (1984: 239), however, think that this is an exaggerated view, given the actual finds: two copper axes and a few small objects (pins, chisels, wires and fish hooks). Three large pieces of copper that may have been ingots were also found at Maadi, but a site of copper smelting has only been tentatively identified (Rizkana and Seeher 1984: 239).

Only one of the 76 graves in the cemetery next to the Maadi settlement yielded an artifact, a flint flake (Rizkana and Seeher 1985: 249). In the cemetery at the mouth of the Wadi Digla ('Maadi South') 468 burials and 14 animal burials were excavated (Rizkana and Seeher 1987: 19). These graves were simple oval pits, with a few pots or without grave goods (Rizkana and Seeher 1989: 74). Infants were buried in the settlement and other children were buried in groups in the two Maadi cemeteries, but the number of infant and child burials is small compared to the rest of the burial population (Rizkana and Seeher 1990: 99).

At Tura, 2 km south of Maadi, 12 pots thought to come from Predynastic graves were found during construction of a road (Junker 1912: fig. 1). These are of wares known from Maadi (Rizkana and Seeher 1987: 60). A large Nagada III-Early Dynastic (?) cemetery was excavated by Junker at Tura, and Kaiser (1964: 117) suggests that the southern and earliest section of the cemetery dates to a period of 100–150 years before the reign of Ka (Dyn. 0), just before the beginning of the 1st Dynasty.

Lastly, in the Cairo region at Giza, on the west bank, four jars of Predynastic types known from Heliopolis and Maadi were found at the foot of the Great Pyramid. Mortensen interprets these and some other isolated Predynastic finds at Giza as evidence for a settlement of the Maadi period that was destroyed when the 4th Dynasty pyramids were built (Mortensen 1985: 147).

Although archaeological evidence at Maadi and Maadi-related sites is mainly from settlements, unlike most of the surviving evidence for Predynastic culture in Upper Egypt, what is known about Maadi suggests a material culture very different from that in the south. The cemetery at Maadi, with its simple human burials, is also very different from Predynastic cemeteries in Upper Egypt. Some contact with southwest Asia is demonstrated by an imported coarse-tempered ware found at Maadi (3 percent of the assemblage), which may have been a Lower Egyptian center for trade with Palestine.

The Delta

On the western fringe of the Delta, about 60 km northwest of Cairo, is the large prehistoric site of Merimda. Junker dug here from 1929 to 1939, but most of the excavated material and the excavation notes were lost during the Second World War (Baumgartel 1965: 503). Junker thought that the c. 160,000 m² of living debris was occupied continuously, but Kemp (1968: 27) states that, given the almost complete absence of anything suggesting

communal organization, there probably was horizontal displacement of the settlement through time. Average age estimates of radiocarbon dates for Merimda are c. 4800 BC (early Neolithic) and >4400 BC (late Neolithic) (Hassan 1985b: 95), which are considerably earlier than the recent radiocarbon dates reported for Maadi.

Junker identified three phases of occupation at Merimda. More recent excavations conducted by Eiwanger, however, have identified five phases of occupation, with a discernible change in the lithics and ceramics between the first and subsequent phases (Eiwanger 1988: 51-54). Post-holes of small oval houses were found in all five phases (Eiwanger 1982: 67-68). Fish bones, along with numerous artifacts used in fishing, such as net weights, harpoons and fish hooks, suggest that fishing was an important subsistence activity (Eiwanger 1982: 80). Storage pits are known from Phases II-V, and emmer wheat and barley were the most abundant plant remains (Wetterstrom 1993: 212-13).

Given horizontal displacement of the Merimda settlement through time, Kemp (1968: 26) thinks it is questionable as to what extent the in-settlement burials and houses were contemporary. Unlike Predynastic burials, the Merimda ones were without grave goods and a high percentage of them were of children (Kemp 1968: 23, 26). A cemetery that dates to Phase I consists of contracted burials with no grave goods. The skeletons are oriented with the head to the east or southeast, facing north or northeast (Eiwanger 1982: 69).

The eastern Nile Delta has also been the focus of recent archaeological investigations. Surveys conducted since 1984 by van den Brink in the Sharqiya province of the northeastern Delta have yielded evidence of sites predating the Old Kingdom (van den Brink 1987: 17). Italian archaeologists who conducted a survey in this region in 1987 recorded more than 30 sites, dating between the 4th and 3rd millennia BC (Chlodnicki *et al.* 1991: 6). Excavations by the Italians at Tell el-Farkha have demonstrated a clear break between the Predynastic and Protodynastic (Nagada III/Dyn. 0-1) phases, with a change in pottery fabrics, and an acolian bed representing settlement abandonment between the Predynastic and Protodynastic occupations (Chlodnicki *et al.* 1991: 23).

At Tell Ibrahim Awad the stratigraphy shows an uninterrupted sequence from the late Predynastic, with no mud-brick architecture, to the Early Dynastic, with substantial mud-brick architecture (van den Brink 1988: 76-77; 1989: 57). Initial excavations reveal the 'occurrence of certain ceramics clearly differing from contemporary sites in the Nile valley and therefore possibly reflecting an original Delta culture' (van den Brink 1988: 77). Phase-A pottery at Tell Ibrahim Awad is comparable to the straw-tempered ware from Tell el-Fara'in (Buto), farther west in the Delta, but this Phase-A pottery disappears and is replaced by 'different ware groups' known from Nagada III and Early Dynastic sites in the Delta and the Nile valley (van den Brink 1989: 70-71). Grave goods in several burials can be dated to the early 1st Dynasty, and a number of copper artifacts in one burial suggests intensive contact with Early Bronze Age II copper-mining settlements in the Sinai (van den Brink 1988: 78).

At Tell el-Rub'a (Mendes), in the northern Delta, recent fieldwork by Brewer

and Wenke has revealed early occupation from the late Predynastic and 1st Dynasty. In one area (B) excavations exposed levels with Nagada III ceramics and earlier local Lower Egyptian ceramics, as analyzed by Friedman. Also in Area B was a mud-brick structure with three superimposed hearths (Brewer and Wenke 1992: 195-96).

About 150 km northeast of Cairo, at Minshat Abu Omar, a cemetery with Predynastic/Early Dynastic graves has been excavated by Kroeper and Wildung, and archaeological evidence for these periods can be attested at other sites in the northeast Delta: Tell el-Ginn, el-Beidha and Bubastis (Kroeper and Wildung 1985: 97; Krzyzaniak 1989). Aside from the 370 early burials at Minshat Abu Omar, no other graves are found at this cemetery until the Graeco-Roman period (Kroeper 1988: 11). With the exception of the Black-topped Red and White Cross-lined classes dating to the early (Nagada I) Predynastic of Upper Egypt, all other southern Predynastic classes of pottery are present, particularly the Rough and Polished-red classes, but also the Decorated and Way-handled classes. These classes of pottery span the Nagada II and Nagada III periods into the 1st Dynasty (Wildung 1984: 267).

Three groups of graves have been distinguished in the early cemetery at Minshat Abu Omar. The earliest group is in the south, with burials in shallow pits containing a few pots of Nagada II classes. The next group is located to the north of the earlier graves, where there are deeper graves with many more burial goods comprising Nagada III pottery and copper objects. The third group of graves is in the northern part of the cemetery and 'includes graves of the protodynastic period' (Wildung 1984: 268-69). The latest graves were roofed and built of mud-bricks which partitioned two or three rooms (Kroeper 1988: 16-17). Future excavations are planned for the settlement at Minshat Abu Omar and should help to explain the presence in the northeastern Delta of graves and burial goods typical of the Predynastic of Upper Egypt (Nagada II-III).

Finally in the northern Delta, remarkable archaeological evidence has been excavated below the water table at Tell el-Fara'in (Buto) by von der Way. Below levels dating to the 3rd millennium BC was a settlement of 'Lower Egyptian culture' of the second half of the 4th millennium BC (von der Way 1988: 247). Most of the wares at Tell el-Fara'in were also found at Maadi, and black basalt jars of the same type were found at both sites. Pottery of Upper Egyptian classes was only found in 'one small place' at Tell el-Fara'in, which von der Way (1988: 248) thinks may be a kind of trade depot. Pottery of the 'Amuq F period from northern Syria was also imported to the site. Two types of mosaic clay cones or nails, used for temple decoration, and a clay cylinder for strengthening temple steps, an object known from Uruk culture sites, have also been excavated in the earliest levels at Tell el-Fara'in (von der Way 1988: 248-49). This architectural evidence, which is only known in Egypt at Tell el-Fara'in, points to an overseas trading connection with Palestine and Uruk-related sites in northern Syria (von der Way 1987: 257).

Predynastic Cultural Development: An Overview

Despite the problem of poorer settlement preservation in Upper Egypt, the emerging picture of Egypt in the 4th millennium BC is of two different material cultures with different belief systems: the Predynastic Nagada culture of Upper Egypt and the Maadi culture of Lower Egypt. Archaeological evidence in Lower Egypt consists mainly of settlements, with simple burials in cemeteries, and suggests a culture very different from that of Upper Egypt, where cemeteries with elaborate burials are found. While the rich grave goods in several major cemeteries in Upper Egypt represent the acquired wealth of higher social strata, the economic sources of this wealth cannot be satisfactorily determined because so much settlement evidence is missing. This is not the case in Lower Egypt, where settlement data permit a broader reconstruction of the prehistoric economy. But forces for greater social and economic differentiation, as symbolized in cemeteries, do not seem to be present in Lower Egypt.

Evidence of the earliest settlements in Egypt where agriculture was practiced is in the north (Fayum A and Merimda). The domesticates are thought to have been introduced from southwest Asia (Trigger 1983: 17) and the Fayum A may represent one of the oldest Neolithic economies in Egypt, and one that was partially based on cereal cultivation (Wenke *et al.* 1988: 48).

The spread of farming technology from north to south in the Nile valley may possibly explain the early Neolithic sites in the north, and Hassan (1986b: 134) states that c. 6500–6000 BP there were transmissions first from the Sinai westward and then southward. The spread of agriculture from north to south might be demonstrated by the Badarian settlements in Middle Egypt, agricultural communities predating those of the Nagada culture in Upper Egypt (Holmes 1989: 15). Evidence for farming communities in Middle and Upper Egypt, however, may be biased in that what is preserved and visible is on the edge of the floodplain, while more dense occupation at the river banks is covered by deep alluvium or modern villages, and is thus not excavatable.

There is also evidence, however, in southern Egypt, in the Nile valley and in the Western Desert, that suggests early experiments in domestication and agriculture (Wendorf and Schild 1980: 273–80). Hassan (1984b: 222; 1986a: 498–99) proposes that agriculture was introduced into the Nile valley from the neighboring desert regions, and some questionable evidence of barley and wheat at Wadi Kubbania (Stemler and Falk 1980: 397–98; Wendorf and Schild 1984) supports such a view. A more recent study of the plant remains from Wadi Kubbania, however, has dismissed the claim that domesticated crops were already under cultivation there during the Late Paleolithic (Hillman *et al.* 1989: 162–63). The mechanisms of how agriculture spread and was adapted by peoples living in the Nile valley cannot be specified from present evidence, however, and diffusion of agriculture is not a very satisfactory explanation. But in the late 5th millennium BC there must have been a need in Egypt to adopt agriculture as part of the subsistence base, perhaps due to increasing populations of hunter-gatherers in the Nile valley and greater competition for resources in an environment that was changing to more arid conditions.

In northern Egypt the Predynastic Maadi culture seems to have evolved from indigenous Neolithic cultures. According to Rizkana and Seeher (1987: 78) the Maadi culture

represents a continuation of the Lower Egyptian cultural tradition, which since neolithic times at the latest bore a strong character of its own, only distantly related to the cultures of Upper Egypt.

'Certain traits' seem to be common between Maadi and the earlier Fayum A and Merimda, whereas el-Omari is a 'direct predecessor' of Maadi (Rizkana and Seeher 1987: 63-64). Pottery, small finds and settlement structures excavated at Tell el-Fara'in (Buto) in the northern Delta in 1985 show 'clear affinities' to Maadi sites, suggesting a distribution of Maadi culture sites from the Mediterranean to south of Cairo, and as far south as Sedment in the Fayum region (Rizkana and Seeher 1987: 63). Distribution of Maadi culture sites and the time frame for this phenomenon, however, have yet to be established.

Maadi culture sites were probably sedentary farming villages, though the evidence for domestic architecture is of lighter, more perishable structures than mud-brick. The subsistence economy was based on cultivation of domesticated wheat and barley, and herding. Continuing contact with southwest Asia is demonstrated by an imported coarse-tempered ware found at Maadi, which seems to have been a Lower Egyptian center for trade with Palestine. How the site of Tell el-Fara'in in the northern Delta relates to the Uruk culture of southwest Asia has yet to be demonstrated by data from the ongoing excavations.

In Upper Egypt the origins of the Predynastic Nagada culture are probably to be found in indigenous peoples living along the Nile who were engaged in hunting, gathering and fishing. As arid conditions prevailed in the Eastern and Western Deserts c. 6000-5000 BC, cattle pastoralists (or hunter-gatherers) were increasingly forced into the Nile valley, where they eventually 'merged' with indigenous groups (Hassan 1985a: 327). At the site of el-Tarif in western Thebes, in an earlier stratum than the Nagada culture settlement, were artifacts that have been identified as belonging to the Tarifian (Ginter and Kozłowski 1984: 257, 259), a very different culture, with distinctive ceramics. According to the excavators, the Tarifian level at el-Tarif suggests a settlement more like Paleolithic camps (Ginter and Kozłowski 1984: 257) than one of incipient agriculturalists. Perhaps el-Tarif yields evidence of a transitional Epi-paleolithic/Neolithic culture in Upper Egypt, which evolved into the more complex Nagada culture as the economy became increasingly dependant on farming.

With the rise of the Nagada culture in Upper Egypt in the early 4th millennium BC, simple farming communities rapidly evolved into more complex societies. Archaeological evidence, mainly from cemeteries, suggests a core area of Nagada culture from Abydos in the north to Hierakonpolis in the south. The cemetery evidence suggests that major centers developed at Abydos, Nagada, Hierakonpolis and possibly at Hu. Although much settlement evidence is lacking, these places were probably centers of craft production, and centers for trade and exchange of finished goods and luxury materials from the Eastern and Western Deserts and Nubia.

There is also evidence of extensive contact between Upper Egypt and Lower Nubia in later Predynastic times. Numerous Nagada culture trade goods have been found at most A-Group sites in Nubia between Kubbaniya in the north and Saras in the south. These goods include jars that may have contained beer or wine, and Wavy-handled class jars. Other Nagada pottery classes are found at A-group sites, as are Nagada craft goods: copper tools, stone vessels and palettes, linen, and beads of stone and faience (Nordström 1972: 24).

A-Group burials are very similar to graves of the Nagada culture, but in spite of similar burials and grave goods Trigger (1976: 33) thinks the A-Group developed from an indigenous population which was in contact with Upper Egypt and much influenced by Nagada culture. A-Group wares are distinctive, and few A-Group artifacts have been found in Upper Egyptian graves, suggesting that the A-Group acted as middlemen in a trading network with Upper Egypt (Trigger 1976: 39). Luxury materials, such as ivory, ebony, incense and exotic animal skins, all greatly desired in Dynastic times as well, came from farther south and passed through Nubia. Kaiser (1957: fig. 26), however, interprets the A-Group evidence as a 'colonial' penetration of the Nagada culture into Lower Nubia to exploit trade and raw materials (Needler 1984: 29).

In his analysis of the Classic A-Group (Nagada III) 'royal' Cemetery I at Qustal, Williams (1986: 177) proposes another theory: that this cemetery represents Nubian rulers who were responsible for unifying Egypt and founding the early Egyptian state. The A-Group in Nubia, though, appears to have been a separate culture from that of Predynastic Upper Egypt, and the model that may best explain the archaeological evidence is of accelerated contact between the two regions in later Predynastic times. That the material culture of the Nagada culture was later found in northern Egypt (with no Nubian elements) would seem to argue against William's theory of a Nubian origin for the Early Dynastic state in Egypt.

The unification of Egypt took place in late Predynastic times, but the processes involved in this major transition to the Dynastic state are poorly understood. Present evidence suggests that the state which emerged by the 1st Dynasty had its roots in the Nagada culture of Upper Egypt, where grave types, pottery and artifacts demonstrate an evolution of form from the Predynastic to the 1st Dynasty. This cannot be demonstrated for the material culture of Lower Egypt, which was eventually displaced by that which originated in Upper Egypt. How this transformation was accomplished and the amount of time involved are points of disagreement, though many scholars suspect that warfare played a role in this process (Wenke 1991: 301).

Based on an analysis of archaeological evidence, the earliest writing in Egypt, and later king lists, Kaiser (1964: 105-114, 118) proposes that the Nagada culture expanded north in Nagada IIc-d times to the Fayum region (such as the cemetery at Gerza) and then later to the Cairo area and the Delta. The unification, therefore, was much earlier than the period immediately preceding the beginning of the 1st Dynasty (Kaiser 1964: 114; 1985: 61-62; 1990: 288-89). Trigger (1987: 61), however, states that if the unification occurred at an early date, there would be archaeological evidence from Nagada

III burials of a court-centered high culture. Instead, he proposes that the northward expansion of the Nagada culture during Nagada II–III was the result of refugees from the developing states in the south, or Nagada traders involved in the commerce with southwest Asia. While the unification may have been achieved through conquest in the north, an earlier unification of southern polities (Nagada, Hierakonpolis and Abydos) may have been achieved by a series of alliances (Trigger 1987: 61).

Based on evidence from his excavations at Minshat Abu Omar, Wildung (1984: 269) states that there is no indication of conflict in this region of the Delta. The site was occupied c. 3300–2900 BC, which Wildung interprets as showing continuous cultural evolution in Egypt from south to north. He suggests that there never was a military conquest of the Delta by kings from Upper Egypt, such as may be represented on the Narmer palette (Wildung 1984: 269). Likewise at other recently investigated sites in the Delta (Tell Ibrahim Awad, Tell el-Fara'in and Tell el-'Iswid), there is no evidence of destruction layers (van den Brink 1989: 80).

Wildung's explanation, however, fails to account for the abandonment of Maadi culture sites at approximately the same time, during Nagada IIc (Rizkana and Seeher 1987: 78). A motivating factor for Nagada culture expansion into northern Egypt would have been the desire to control directly the lucrative trade with other regions in the eastern Mediterranean. The eventual replacement of Maadi materials in the north by a material culture originating in the south may represent military exploits, while colonization by southerners may have occurred in northern regions where there were less well-developed local polities, such as at Gerza or Minshat Abu Omar. Possibly there was first a more or less peaceful movement of the Nagada culture from south to north which may have been formalized by a later, or concurrent, military presence. Archaeological evidence suggests processes much too complex for this expansion to be explained by military conquest alone.

Given the quality of earlier excavations and publications, and the poor preservation of much settlement data, we cannot specify how a centralized state emerged in Egypt by 3000 BC, and explanations for the origin of the early Egyptian state remain hypothetical. The roots of the major transition from autonomous villages to early state in Egypt in the 4th millennium BC, however, from simple to complex society, are to be found in Upper Egypt at large centers such as Nagada, where Predynastic cemeteries form the main evidence for this culture.

Chapter 2

Social Evolution and the Predynastic Cemeteries of Upper Egypt

Although the recognition of the archaeological importance of Predynastic settlement studies has grown over the past 25 years, much of the evidence for this period of major social and political change is from cemeteries. Beginning with Petrie's (1901a) sequence-dating system, Predynastic burials and their grave goods have been studied for seriation, but more detailed analyses of mortuary patterns have been lacking. How, then, can Predynastic mortuary data be analyzed for an insight into sociocultural processes?

Mortuary Analyses

Ethnographic studies of mortuary practices have shown the wide range of behavior and symbolism associated with burial. Huntington and Metcalf's study (1979) of the anthropology of mortuary ritual documents associated beliefs and symbolism in a number of ethnographic societies. Ucko's (1969) survey of ethnographic accounts of burials discusses the anomalies of burial practices and cautions against generalized archaeological interpretations. According to Ucko's study, the ethnographic evidence indicates that various functional considerations determine burial patterns, as well as different beliefs. These findings demonstrate that ceremonialism associated with burial and related practices may not always be visible in the archaeological record (Ucko 1969: 275).

Interviews with living subjects show that burial goods are not necessarily signs of belief in the afterworld. Among the Lugbara of Uganda, tomb goods were 'simply the visible expression of a part of a person's social personality'—objects representing social status might have been buried with the individual (Ucko 1969: 265). In simple societies burial practices may be as expedient as those recorded for the Kelabits of North Borneo. Monuments of stone were erected as memorials or tombs, usually for a single man, by inviting neighbors to a great feast in return for their services and labor (Renfrew 1973: 138). The location of a grave in West Africa might have been simply a matter of convenience rather than kinship descent or status considerations. Among the LoDagaa

husbands and wives and members of other lineages living in the same house are all buried in the neighborhood cemetery, the location of

which is determined partly by dislike of transporting a rotten corpse for any great distance and partly by the need for sufficient depth of soil in which to dig (Goody 1962: 142).

In more complex societies, such as the kingdoms of West Africa, burial practices were more reflective of social differences.

For in the whole sequence of funeral ceremonies differences in the form of burial are perhaps the most precise summation of the social personality of the deceased. In this more than in any other aspect of the ceremony, the controlling factor is a social one, particularly since the mode of burial varies not only with status distinctions of a relatively permanent kind, but also with the manner in which an individual has conducted himself in a given role. For example, in many societies royalty is accorded a different form of burial from commoners, and these special procedures may be linked, as among the Ashanti, to the sacredness of kings and to their 'divinity' after death (Goody 1962: 142).

Binford's study of mortuary practices among hunter-gatherers, shifting agriculturalists, settled agriculturalists and pastoralists suggests that 'the form and structure which characterize the mortuary practices of any society are conditioned by the form and complexity of the organizational characteristics of the society itself' (Binford 1972: 235). The sample of 40 societies in his study was chosen from the Human Relations Area Files, primarily because of information available on mortuary practices. The differences in dimensional distinctions in mortuary practices (conditions of death, location of death, sex, age, social position and social affiliation) between settled agriculturalists, with a more complex form of social organization, and hunter-gatherers, of minimal social complexity, were striking. Binford concludes that 'there should be a direct correlation between the structural complexity of mortuary ritual and status systems within sociocultural systems' (Binford 1972: 230).

As Hodder (1982: 201) has pointed out, however, Binford's study does not provide a direct link between burial practices and social organization, but between burial practices and means of subsistence. Although the hypotheses of Binford's analysis have been questioned more recently, he seems to establish that mortuary differentiation does not vary independently of the organization of the society that produced it (O'Shea 1984: 8). Hodder (1982: 201) states that simple correlations between social organization and burial cannot be expected because of associated beliefs, but he nonetheless suggests that 'while burial behaviour may distort and invert, it does not totally hide' some aspect of social organization. What is more, O'Shea's research in both ethnographic and archaeological contexts shows that the complexity of the system of mortuary differentiation will increase with the complexity of the society (O'Shea 1984: 21).

In a review of ethnographic and archaeological analyses of mortuary practice, Bartel concludes that 'the archaeologist can make the operational assumption that explanation and postdiction about social dimensions can be

made solely from corpse disposal' (Bartel 1982: 55). That mortuary evidence can be used to interpret levels of social organization, and is better suited for this than any other archaeological data, has been stated by Tainter (1977: 329).

To the extent to which a mortuary population contains individuals who held membership in the various structural components of a system, one can expect the mortuary population to reflect the structure of the extinct society.

Tainter proposes two cross-cultural criteria for evaluating the dimensions of a social system, as represented in mortuary practices:

1. the spatial distributions of mortuary remains, a variable that contains information relating to corporate group differentiation; and
2. energy expenditure, an indication of rank grading (Tainter 1978: 136).

A variation of Tainter's first proposition had been demonstrated previously by Saxe. A hypothesis that Saxe's analysis seemed to validate states that:

to the degree that corporate group rights to use and/or control crucial but restricted resources are attained and/or legitimized by means of lineal descent from the dead (i.e., lineal ties to the ancestors) such groups will maintain formal disposal areas for the exclusive disposal of their dead (Saxe 1970: 119).

Tainter's energy-expenditure proposition, that greater amounts of energy will be expended on mortuary ritual for higher social rank, was tested on 103 ethnographic cases, and it was not contradicted once. From this Tainter concluded that some cultural universals in mortuary practices seem tenable (Tainter 1982: 68).

Two criticisms can be made against Tainter's propositions. First, not all energy expenditure on mortuary ritual is archaeologically visible, particularly if there were elaborate funerary ceremonies. This can be a problem when equating energy expenditure with social ranking (Pader 1982: 60). An Ashanti king was placed in a mausoleum after a year of elaborate rituals (Rattray 1969: 104-21), which would not have been demonstrated in the final burial form. Therefore, some mortuary behavior with potentially great energy expenditure, such as funeral ceremonies, may leave no material remains that relate to rank grading or social differentiation. Secondly, ideology modifies mortuary forms in cultures: 4th Dynasty kings in Egypt were buried in huge pyramids that still stand after 4000 years, whereas the Saudi king today is buried in a simple unmarked grave in accord with Muslim beliefs.

Unequivocally, there are specific cultural beliefs surrounding death and its observance that affect variables of mortuary patterning. Ideology and attitudes toward death come between social organization and what appears in burials. Burial may represent a social ideal, not what actually happens in social and economic life (Hodder 1982: 198-99). In Nuba cemeteries in the southern Sudan, the matrilineal group was reassembled in cemeteries, whereas in life

the woman would often move to the community of her husband (Hodder 1982: 199). In the Merina state of northern Madagascar, elaborate tombs were associated with family groups. The tombs were symbols of the association of their builders with the local village, though this might have represented a social ideal which denied the actual fluidity of Merina society (Bloch 1971: 114).

In an analysis of two Anglo-Saxon cemeteries in Suffolk, Pader (1982: 172) refuses to interpret cemetery forms in social terms of egalitarian or hierarchical, ascribed or achieved rank. She states that a seemingly richer or poorer array of grave goods might have related as much to subgroup symbolism, and the manner of portraying a group-related role, as to wealth or power (Pader 1982: 131). Each society operates according to its own principles, and the symbolism of grave goods does not have one universal explanation. Disagreeing with Tainter, Pader concludes that the representation of social organization is not as straightforward as many mortuary studies suggest (Pader 1982: 199).

Pader's position on what cannot be interpreted from mortuary analysis is somewhat extreme, and a number of archaeological studies of mortuary data have attempted to establish criteria for determining rank and social status. Although prehistoric North American cultures did not evolve into states, hierarchically ranked societies are known. The existence of prehistoric social ranking, as inferred from symbolism and clustering of grave goods, has been proposed by Brown (1971) and Peebles (1971) using data from two North American mound groups (Spiro and Moundville) of the Mississippian culture.

Binford's study (1972) of mortuary practices has been particularly influential in the interpretation of North American mortuary analyses pertaining to rank. Binford predicts that among agriculturalists, 'social position, as varying independently of age and sex as well as subgroup affiliation, should more commonly serve as the basis for differential mortuary treatment' (Binford 1972: 230). Crucial for this prediction are the assumptions that the *social persona* of the deceased in life will be symbolically recognized at death, and that burial will reflect the composition and size of the social unit recognizing status responsibilities to the deceased. Among the ethnographic cases that Binford tested, differentiation in mortuary treatment related to social position or status was by form and quantity of grave goods, and the location of burial. Status was frequently symbolized by 'badges' of office and by quantities of grave goods contributed (Binford 1972: 235).

Elaborating on Binford's analysis, Tainter (1977) suggests that both the vertical and the horizontal dimensions of a society's structural differentiation will be reflected in the mortuary population. The vertical dimensions are those of ranked grading in a society, while the horizontal dimensions are on identical hierarchical levels, with no major differences in rank such as sodalities, descent units of segmentary descent systems, task groups, etc. (Tainter 1977: 331). Differentiating these two dimensions is important in mortuary studies because of Tainter's assumption that 'structural differentiation along the vertical dimension can serve as an index of the total structural complexity of past social systems' (Tainter 1978: 132).

There are problems with equating vertical dimensions of the social structure of a living community with mortuary evidence, however. Burials can represent several decades or even hundreds of years of cemetery use, and these are then combined to represent social differentiation of a single functioning system. Population size of the living community is also a factor, and the number of rank levels detected will vary directly with the burial population size. But burial populations contain a much greater number of individuals above the median age range than do living populations, and the ratio of adults of high status or position to those of lower status will be exaggerated in the burial population (Braun 1981).

Peebles and Kus (1977: 431) state that in graves of a rank society, there will be a superordinate dimension and a subordinate dimension:

1. The superordinate dimension must be a partial ordering which is based on symbols, energy expenditure and other variables of mortuary ritual, which is *not* simultaneously ordered on the basis of age and sex.
2. The subordinate dimension will be a partial order based on symbols, energy expenditure and other variables.

In the superordinate dimension some infants and children will have greater energy expenditure in graves than some adults, and some women will be ranked higher than some men. In contrast to this, variables in the subordinate dimension will reflect achievements through life history of individuals. The older an individual, usually the higher is his rank in the subordinate dimension, but symbols of rank and office will not be found in this dimension (Peebles and Kus 1977: 431).

Brown (1981: 36) proposes the creation of a culture-specific model that translates the mortuary physical remains into patterned human behavior. The three basic arguments proposed by Brown to translate mortuary evidence in terms of rank are the effort-expenditure principle, the symbol-of-authority argument, and the age/sex-distribution argument. In societies that are evolving in complexity, Brown (1981: 28) states:

Since survival is the central concern of small societies, the effort expended on any burial will not be disproportionate... As the sphere of authority widens and power gravitates towards individuals, leadership will supersede other statuses and dominate the mortuary symbolism. The widening of authority beyond the lineage entails an increase in the field of allegiance that leads to greater effort and wealth being applied to the funeral and the burial. The existence of a spatial base in the control of critical resources means that power will be symbolized through exclusive access to specific burial locations. It is at this juncture that children can become the object of elaborate treatment that is archaeologically visible.

From these considerations, six expectations for mortuary ritual are listed by Brown (1981: 29):

1. as long as hierarchical aspects of society are minimal, distinctions chosen for symbolic treatment will be based on age, sex, personal ability, personality, circumstances of death and social deviance;
2. societies exhibiting minimal hierarchy will record symbolic distinctions with a minimum of wealth, the average depending upon availability;
3. as the hierarchical aspects of society increase, burials will record gradation in treatments among otherwise equivalent statuses;
4. as the hierarchical aspects increase, children will be accorded relatively more elaborate attention in proportion to the decline in the opportunity for replacement of the following generation;
5. as authority increases the amount of wealth and effort expended on the burial will increase;
6. as power increases the attachment of the powerful exclusively to locations indicative of their power base will emerge.

Although it has been proposed that the analysis of mortuary data in terms of the social dimensions of a society is possible, a study of the burial structures and societal ranking in Vava'u, western Tonga, suggests caution in interpretation. Kirch (1980: 306) found that the size and complexity of burial structures reflected *relative sociopolitical status* and not necessarily social rank. Whereas societal rank was strictly based on genealogy, with a traditional ranked hierarchy of chiefs, sociopolitical status was the result of several factors, such as rank, prowess in warfare, managerial abilities, economic control, etc. (Kirch 1980: 306).

A further cautionary statement regarding interpretation of mortuary evidence is given by Braun (1981: 412):

Archaeologists conducting analyses of burial practices must do so with the awareness that they are studying the end result of not one, but several interrelated processes—demographic, social, ritual and symbolic-communicative, as well as geological, excavatory and, importantly, statistical-analytical.

Mortuary Theory and the Analysis of Predynastic Cemeteries

Although grave robbing and the effects of cultivation have resulted in the destruction of some mortuary data, the study of Predynastic cemeteries remains important because they reflect the population size and the spatial distribution of the communities buried in them (O'Connor 1972: 80). Both the ethnographic record and mortuary theory relating to archaeological evidence suggest that differentiation occurs in burials of more complex societies, but whether those variables that govern differentiation are universal or culture-specific is debatable. Beliefs that structure mortuary practices differ in all cultures, but ethnographic evidence demonstrates certain differences in types of burial between simple and complex societies. Particularly in Egypt, where

rank is clearly symbolized in patterns of burial that had evolved by the Old Kingdom, one would expect to find the roots of this differentiation when complex social systems first emerged, during the Predynastic period. In Old Kingdom Egypt 'the hierarchic scaling of tomb size symbolized and reinforced the existing patterns of leadership' (Kemp 1983: 86), which is also seen in Early Dynastic burials, and this can probably be predicted for later Predynastic burials.

Binford's criteria for differentiation of form and quantity of grave furnishings and specificity of location are perhaps applicable for analyzing the Predynastic mortuary evidence. Artifacts that are badges of office (Binford 1972: 235) or symbols of authority (Brown 1981: 29-30) might also be present in Predynastic burials. Some Predynastic burials obviously represent more expenditure of energy than others, and variables for energy expenditure may be significant in establishing the vertical dimensions of the society from mortuary evidence (Tainter 1978: 136). As Predynastic society was increasing in complexity some elaborate child burials may be found, along with an increase in the amount of wealth and effort on some burials (Brown 1981: 29). Proximity to settlements may have been important for the location of many Predynastic cemeteries, as was a factor in the location of LoDagaa cemeteries. But some cemeteries may be more indicative of the location of the power base than simple expediency in burial (Brown 1981: 29).

Unfortunately, age/sex data cannot be used as variables for analysis for most Predynastic cemeteries because these were not generally recorded, or because such data are erratic and unreliable. Although one might expect superordinate and subordinate dimensions of a rank society (Peebles and Kus 1977: 431) to be symbolized in some Predynastic cemeteries, they may not be directly demonstrable because of poorly recorded age/sex data.

As there are usually gradations in levels of social complexity in societies, the mortuary evidence for structurally different societies may not be obvious until there are overwhelming junctures of change, such as the beginning of the 1st Dynasty in Egypt. Where societies are evolving or devolving in complexity, the mortuary evidence for such change will probably be more finely graded. Binford states, however, that 'evolutionary processes affecting the internal structure of the sociocultural system may result in more diverse internal differentiations, which are accommodated behaviorally by the participants in the system' (Binford 1972: 237). Changes to greater complexity in social organization, as a state emerges, may be demonstrable by more diverse internal differentiations, and the most likely evidence for this in Egypt would be mortuary.

The emergence of the early state, like the transition from egalitarian to rank societies, is probably a gradual process, and may be difficult to pinpoint in most archaeological data. 'Most anthropologists are aware that societies on the border between stages often have traits of both the higher and lower stages' (Cordy 1981: 28). Until the newly structured society is more firmly established, there will not necessarily be unequivocally different evidence in the material culture as a whole. But some of the causal factors for a society that is evolving

in complexity from a rank society into a state can probably be interpreted from the archaeological data.

Given that a state is a stratified society, societies that are evolving into states should show evidence of hierarchies, which perhaps increase in complexity through time. Here the fine line that exists in terms of archaeological data, between highly complex (nonstate) societies and simple states, is probably not distinguishable, except that both societies will demonstrate much hierarchical differentiation. Whether a state evolved is evident *post factum*, as in the 1st Dynasty in Egypt. Social stratification, as a factor in state evolution, though, can possibly be demonstrated in the mortuary evidence *ante factum*.

Central rule, which also characterizes a state form of social organization, is perhaps easier to demonstrate *post factum*, after the new political authority and its institutions have gained some measure of acceptance. Therefore, while social stratification may be evident in the archaeological record of evolving states, particularly in hierarchies of graves, evidence for the central ruling authority, such as distinctly different tombs of kings, will probably not be apparent until this authority is consolidated—i.e., not at the initial point of state emergence.

Archaeological evidence for social hierarchies, therefore, needs to be examined for the Egyptian Predynastic. Previous studies of Predynastic culture have tended to be descriptive or hypothetical, whereas a more detailed analysis of these data may demonstrate relative differences indicative of social change.

Increased social differentiation, as one factor of social change in an increasingly complex society, is perhaps the only social trait in an evolving state that can be demonstrated by the Predynastic mortuary evidence, but broader social implications will also be reflected in the hierarchy of burial types. In complex societies such as the state, cemeteries should demonstrate inequalities in the form of differential access to basic resources, and an asymmetrical redistribution of the producer's surplus. Exotic materials and labor-intensive craft goods will be unevenly distributed in burials in which increasing status display and rivalry are seen. Consumption standards of burial goods will be lopsided, as will be the construction of grave facilities.

To state the hypothesis of this study, the appearance of highly differentiated graves in the Predynastic, possibly representative of social stratification, is one archaeological indication of the development of more complex society, which in Egypt eventually resulted in state formation. Criteria for Predynastic grave differentiation, though, must be culture-specific, and take into account factors of grave disturbance, always rampant in Egypt, and poor documentation of earlier cemetery excavations. To demonstrate the emergence of the state, the mortuary evidence should also indicate a concentration of wealth and symbolized power of a ruling elite on a scale not seen earlier, but in robbed graves this will probably be more difficult to prove.

As a database for the analyses, two Predynastic cemeteries will be examined, Armant and Nagada. A major consideration in the choice of these cemeteries for analysis is that they were published with detailed maps. Armant is the best-documented Predynastic cemetery in Egypt; its value for this study is further enhanced by Kaiser's re-evaluation of the pottery sequence of this cemetery.

Nagada, though excavated in the late 19th century by Petrie and not well published, was chosen for this analysis because it is the largest known Predynastic place of burial in Egypt, where one would expect the greatest degree of social differentiation to be demonstrable. In her supplement to Petrie's Nagada excavation, Baumgartel (1970: 5) writes that Nagada 'is probably the capital of the earliest state established in Egypt'. Although there are many problems with the Nagada data, 'later excavations have so far failed to find a Predynastic site to equal Nagada in size or importance' (Baumgartel 1970: 9). In addition, enough graves were published in Baumgartel's Nagada supplement to provide an adequate sample for analysis, and this register of grave goods is detailed enough typologically for graves to be dated by relative periods of time. An analysis concerned with investigating the origins of the state in Egypt, then, cannot ignore the evidence from Nagada. Using the two databases of Armant and Nagada, it is proposed that analyses will help to demonstrate some of the operative social mechanisms as the earliest state emerged in Egypt over 5000 years ago.

Chapter 3

The Chronological Dimensions

Absolute Dating and Petrie's Sequence Dating

The initial step in ordering the data from the Armant and Nagada cemeteries was to assess the chronology of the graves. This was particularly important because one goal of the analyses was to demonstrate changes in the cemeteries through time, as Egyptian Predynastic society evolved from simple farming communities into the unified state of the 1st Dynasty.

Although the Predynastic cemeteries at Armant and Nagada were excavated long before the advent of radiocarbon dating, Hassan (1984a) has reported such dates from his excavations at Nagada. He used clusters of associated wares from his excavations to assign the radiocarbon samples to two Predynastic periods—Nagada I or Nagada II—as revised by Kaiser (1957) and Kemp (1982) from Petrie's original analysis. Dates of charcoal samples from Nagada, as corrected by dendrochronology using the tables of Damon, Ferguson, Long and Wallick (1974), were published by Hassan (1984a: 682) and are reproduced here as Table 1.

Table 1. *Nagada Radiocarbon Dates*
(Calibrated BC, from Hassan 1984a: 682)

<i>Early Nagada</i>		
KH3, Area B		
5–10 cm	Beta-1356	3834±130
10–20 cm	SMU-496	3814±126
15–20 cm	Beta-1370	3810±133
35 cm	Beta-1371	3823±136
Average		3830±75
KH1		
50–55 cm	SMU-351	3742±114
85–90 cm	SMU-360	3857±145
Average		3795±75
KH6		
5–15 cm	SMU-330	3830±126
15–30 cm	SMU-355	3608±120
Average		3715±90

Average of KH3, KH1, KH6		3760±40
<i>Late Nagada</i>		
South Town, Test Pit A		
10–15 cm	W-4347	3355±120
35–40 cm	W-4349	3507±114
65–70 cm	W-4350	3447±110
Average		3440±70

Samples were taken from centimeter levels below the present surface. Average radiocarbon dates were calculated by Hassan using the F-test of Long and Rippeteau (1974: 210).

Hassan (1984a: 683) concludes:

The new determinations of the age of three early Nagada sites provide a midpoint estimate of 3760±40 BC with a range of 3840–3680 BC, at a 95% confidence interval. Dates of the Nagada II zone in South Town [the main Predynastic occupation site at Nagada] provide a midpoint estimate of 3440±70 BC with a range of 3600–3300 BC, at a 95% confidence interval.

Thus, recent radiocarbon dating has the Predynastic periods of Nagada I and II dating roughly from 3800 to 3300 BC at the site of Nagada. It is assumed that these dates also apply to Armant, which has the same material culture as Nagada (though on a smaller scale) and is relatively close (about 52 km upriver).

Recent comparison of radiocarbon dates for the beginning of the 1st Dynasty (reign of Aha) with dates from three contemporary cultures (Terminal A-Group of Nubia, EB1c in Palestine, and Jemdet Nasr/EDI of southern Mesopotamia) estimates the beginning of the 1st Dynasty c. 3050–2950 BC as very likely (Hassan and Robinson 1987: 125). This would place the Nagada III period either from 3300 to 3050 BC or from 3300 to 2950 BC, in the range of a calibrated radiocarbon date from a Nagada III tomb at Hierakonpolis 3025±80 (WIS-1180) (Hoffman 1982: 42).

Although only a small number of absolute dates for the Egyptian Predynastic has been reported, a relative sequence (for all Nagada/Upper Egyptian Predynastic sites) was devised by Petrie, which he published in *Diospolis Parva* (1901a). In a numbered system Petrie termed sequence dating (SD), the earliest Predynastic pottery was placed at SD 30, and the latest at SD 80. Petrie left SD 1–29 unassigned, for any earlier cultures that might be excavated, and anything after SD 80 was from the 'Dynasty of Thinis' (Petrie 1901a: 4-17, 28-30).

The Predynastic 'classes' of pottery that Petrie used in his sequence-dating system are not really wares as understood by archaeologists today, but are a mixture of different characteristics (see Adams 1988: 20-30). Petrie's classes of pottery fall into two basic categories of surface treatment: decorated and undecorated. Decorated classes include C-class (White Cross-lined class) and

D-class (Decorated class). Undecorated wares include B-class (Black-topped Red class), P-class (Polished Red class), R-class (Rough class, a straw-tempered ware), W-class (Wavy-handled class), L-class (Late class) and F-class (Fancy class). N-class (Nubian class), a distinctly different ware from other Predynastic wares, was much less common in Predynastic graves. Consisting of bowl- or jar-shaped forms, frequently with incised or impressed decoration, N-class was either imported from Nubia or made by potters working in the Nubian tradition. Unlike Predynastic pottery, N-class was tempered with animal dung or a sandy-ash mixture, and then poorly fired, so that the finished product is softer and lighter than Egyptian wares (Needler 1984: 224).

Undecorated classes were much more common in Predynastic graves than decorated classes, and are made from two different clays: first, a fine, red Nile alluvium mixed with sand and organic matter; and secondly, a fine, buff-colored calcareous clay found at the mouths of certain wadis entering the Nile valley (Needler 1984: 179, 196). Tempered with sand, the calcareous clay is almost free of organic matter. Because of the hardness of the calcareous clay pottery, it can be inferred that wares of this clay were fired at a high temperature, perhaps in a closed kiln. The pottery of red alluvial clay was probably not fired in a closed kiln (Needler 1984: 196).

Undecorated classes made from the red alluvial clay include B-, P-, F- and R-classes. B- and P-classes have the same polished red surface, sometimes with a wash of red ocher applied before the polishing (Needler 1984: 179). In the B-class, the blackened interior and rim area were probably produced by placing the vessel upside down, while hot, in carbonizing organic matter (Needler 1984: 171). F-class is a more exotic P-class, with zoomorphic, double and spouted forms.

R-class is a coarse, straw-tempered ware with an unpolished surface (Needler 1984: 189). In a recent seriation of collections of potsherds from Predynastic settlements in the Nagada region using multidimensional scaling, Hassan and Matson (1989: 313) found that, for R-class, flat-topped rims fall into an earlier group and everted rims belong in a later group.

Also undecorated, but made from the buff-coloured calcareous clay, are L- and W-classes. The earliest W-class was probably contemporary with ledge-handled jars found in the north at Maadi, but of a different ware, presumably imported from Palestine, where they have a known history of earlier development (Needler 1984: 212). Through time the wavy-handles in W-class degenerated into handleless cylindrical jars. L-class is distinguished from W-class in that it is without handles. L-class, however, is an unacceptable category in that it links pottery of various fabrics and surface treatments which are found at the end of the Predynastic sequence (Adams 1988: 23).

The two decorated pottery classes found in Predynastic graves, C-class and D-class, are made from different clays. C-class, made from the same red alluvial clay as B- and P-classes, was painted with linear designs in a white calcareous slip before firing (Needler 1984: 183). D-class, made from the hard buff-colored calcareous clay, displays designs painted in red ocher; included are both geometric and linear designs, and representational scenes, such as boats with anthropomorphic figures (Needler 1984: 202).

According to Petrie's revised system, the earliest Predynastic culture, the 'Badarian', is from SD 21–29 (Petrie 1939: 4). The following 'Amratian' period is divided into two phases: SD 30–34, with mainly C-class, and SD 34–37, with B-class and P-class. Next is the 'Gerzean' period, which Petrie divided into early (SD 38–44) and late (SD 45–60). Petrie's last Predynastic period, called 'Semainean' (SD 61–78), is followed by the 1st Dynasty (SD 78–82) (Petrie 1939: 9). The names for Petrie's Predynastic periods were derived from the village names near excavated sites. More recently, scholars have substituted the terms Nagada I and Nagada II for the Amratian and Gerzean periods, as the cemeteries at Nagada represent the major cultural sequence of these two periods (Baumgartel 1947: 24, 38).

The principle that underlies Petrie's sequence dating is sound: pottery is a good indication of date, as forms and surface treatment change through time, and new wares are introduced and die out. When pottery is found in sealed archaeological deposits, the changes through time can be plotted exactly and proportionately. Pottery from cemeteries, while usually from sealed contexts as well, presents specific problems. Changes in form and decoration, and the introduction of new wares, could be a function of change through time, but could also be the result of status differentiation and associated beliefs.

A simple and logical seriation of pottery is a more complex problem than tracing the linear evolution of forms, decoration and wares through time suggests. Different wares may change at different rates, and some particularly valued specimens (such as decorated or imported wares) may have a longer use than more common wares. The quantity of imported ware depends on factors external to the culture in which they were used: examples would be the availability of a supply for export and the type of trade relations, both of which can be sporadic. The rates of change of wares may be different at different sites. Other variables may be operative as well, particularly when a number of different wares and sites are involved.

Whereas the sequence-dating system was revised by Petrie himself (1939) and later by Federn (see Needler 1984: 69), Kaiser (1957) and Kemp (1982), it is to Petrie's credit that the revisions are only modifications of his very original concept. The first excavator to recognize that changes in pottery were chronological markers, Petrie devised a system of relative dating in which graves from other Predynastic sites could be placed. At a time when other excavators in Egypt were simply unearthing artifacts on a large scale, Petrie's concern for chronology and his careful structuring of a logical system are even more remarkable.

Federn's revisions of Petrie's system involve a typological reclassification of ceramic wares, mainly based on Predynastic material excavated in southern Egypt by Henri de Morgan in 1906–07 and 1907–08 and now in the Brooklyn Museum collection (Needler 1984: 69). His ceramic typology is a revision of Petrie's ceramic classes. Kaiser's revision of Petrie's sequence dating is more complex and will be discussed below.

Kemp's (1982) multidimensional scaling of the pottery from Cemetery B at el-Amra and the cemetery at el-Mahasna, both Predynastic, was done using a

computer program developed at the University of Cambridge. His admittedly preliminary results complement Petrie's sequence-dating system.

The most obviously encouraging aspect of the seriations is that Petrie's class of 'Late' pottery is mostly grouped at one end, whilst the occurrences of 'White Cross-Line' pottery occur at the opposite end. Within Groups I and II, certain distinctive types are confined within Group II, namely all of Petrie's 'Decorated' and 'Wavy-handled' types (Kemp 1982: 10).

B-class occurs from the beginning of Group I, along with C-class, and goes well into Group II in Kemp's scaling. Kemp concludes that 'the difference between computer seriation and the Petrie results is the element of Petrie's stylistic judgement' and 'the degree of harmony between the two systems is encouraging' (Kemp 1982: 10).

Kaiser's Seriation of the Armant Burials

Cemetery 1400–1500 at Armant was chosen for the present study because it is the best recorded Predynastic cemetery and its relative dating sequence was very carefully evaluated by Kaiser (1957). Although the excavator (Myers) gives ranges of sequence dates to graves that contained groups of pottery, Kaiser's sequence is a much more finely graded seriation upon which a new relative chronology for the Predynastic has been based.

As the Armant Predynastic settlements were not excavated with careful stratigraphic controls, it is impossible to place the sequence of pottery from graves into a vertical stratigraphic sequence. Some general points, however, are worth mentioning. Although Myers could not discern any stratigraphy in Settlement 1000, he did note that a ware with point-burnished decoration on the inside, similar to but coarser than that on Badarian pottery, was 'distributed throughout the whole period' (Mond and Myers 1937: 2-3). In a recent excavation of an occupation site missed by Petrie at Nagada, the field director noticed that the forms of B-class were completely different (globular in shape with long necks) from anything in Petrie's corpus of the same class from Predynastic graves (David Batcho personal communication). From these hints, it is suggested that some differences in pottery are to be expected between Predynastic cemeteries on the one hand and settlements on the other.

Kaiser's analysis of the sequence of pottery and grave goods in Cemetery 1400–1500 at Armant discerns three main groups of graves (Kaiser 1957: fig. 15):

1. a southern group with predominantly B-class;
2. a middle group with predominantly R-class;
3. a small northern group with predominantly L-class.

This analysis is based not only on location in the cemetery and distribution of pottery, but also on clusters of certain types of grave goods, shape and size of graves, and treatment of the corpse.

Through the distribution of the remaining ceramic types, particularly D-class and W-class, and the evolution of vessel forms, Kaiser has distinguished finer gradations within the groups of graves and grave goods (Table 2).

Table 2. *Seriation of Predynastic Wares by Kaiser*
(1956: 107; 1957: 84-87; tables 15, 16)

N Ia	}	B-class above 70% of all pottery in graves of this period	
N Ib		P-class at 25%	
N Ic		C-class less than 5%	
N IIa	}	C-class disappears	} B-class drops from 60% to 10%
		R-class first appears	
		N-class (Nubian class) seen mainly in this phase	
N IIb		D-class and L-class first appear	R-class increases from 25% to 55%
N IIc	}	W-class first appears	
N IId1		B-class drops to 5%	
N IId2		R-class at 50%	
		B-class ends in IId2	
N IIIa1	}	Great increase in L-class to 70%	
N IIIa2		Decrease in R-class to less than 20%	
N IIIb		Predominantly L-class, W-class degenerates into cylindrical jars	

Vessel forms also evolve through Kaiser's sequence. In Nagada I, pots are mostly open beakers and bowls. Forms are more closed in Nagada II: there are jars and a few bottles, and the wavy-handle first appears at this time. In Nagada III, large storage jars, predominantly of Petrie's L-class, are seen and the final degeneration of the wavy-handled jar into a cylindrical form occurs.

Kaiser's sequence was further examined in the pottery from graves at Nagada and Ballas, el-Mahasna, Diospolis Parva, Qau el-Kebir, Matmar, Harageh, Abusir el-Meleq, Gerza and A-Group cemeteries in Nubia (Kaiser 1957: 73-74). What Kaiser seems to demonstrate is that Petrie misplaced the sequence of W-class at a number of sites, making it earlier in the sequence than it should be (Kaiser 1956: 92-95); this significantly affected the middle range of Petrie's sequence dates (SD 38-63). Where Kaiser's seriation system differs from Petrie's, then, is in his Nagada II period. *Contra* Petrie, L-class appears before W-class in Kaiser's sequence. Kaiser also excludes Petrie's F-class in his seriation system; F-class does not evolve in a logical sequence, but appears sporadically in Predynastic graves. Kaiser's modifications of Petrie's sequence dates are:

Nagada I	=	SD 30-38
Nagada IIa, b	=	SD 38/40-45
Nagada IIc, d	=	SD 40/45-63
Nagada III	=	SD 63-80

It is important to note that at Hemamieh, which was excavated by Caton Thompson, B- and P-classes were found in all levels (0-180 cm below the surface), while W-class was found only in levels 45-90 cm below the surface (Brunton and Caton Thompson 1928: 79; Kaiser 1956: 107)—i.e., in three of the middle to upper levels, but not in the seven lower levels or in the upper two. This seems to indicate a later range for W-class, *contra* Petrie, but in accordance with Kaiser.

Although there are problems with seriating pottery from cemeteries, Kaiser's system seems to be the best available for seriating the Armant and Nagada pottery. Kaiser's groupings are therefore used here for relative chronological divisions of graves from Cemetery 1400-1500 at Armant. With the exception of 19 burials in this cemetery that could not be placed in Kaiser's periods, the graves are listed by period in the Appendix.

While seriation systems do not yield absolute dates, Kaiser's seems to be sufficient for formulating relative periods in a sequence through which society became increasingly complex. It is unfortunate that so few radiocarbon dates are available for the Predynastic, and at present the evolutionary scheme of development for Armant remains relative, lacking definite chronometric anchors other than the Nagada radiocarbon dates.

Several anomalous graves at Armant remain outside of Kaiser's dating sequence for Cemetery 1400-1500. Grave 1209A, which is listed as 'Badarian?', is of a woman with fetal bones in her pelvis (Mond and Myers 1937: 26). In this grave were sherds of a smooth brown ware, unlike anything found in graves from Cemetery 1400-1500. A Badarian Ripple class pot was found in a pit *near* this burial, but not actually in it (Mond and Myers 1937: 6). The period of this burial is questionable and it cannot be attributed with any certainty to the Badarian.

Seven graves in Areas 1200 and 1300 have been listed by the excavator as 'Protodynastic': 1207, 1208, 1210, 1312, 1317, 1350 and 1353 (Mond and Myers 1937: 32). This dating is based on the types of pottery (and palettes) found in these graves, which correspond to those in Petrie's corpus of Protodynastic pottery (Petrie *et al.* 1913: pl. 46-59). Petrie's corpus from the 'early dynasties' was first devised for the pottery from a cemetery at Tarkhan, just south of the Predynastic settlement at Gerza in the Fayum region. Petrie worked out the sequence for the pottery at Tarkhan at the same time that the 1st Dynasty royal cemetery at Abydos was being excavated. He therefore had precise periods from specific reigns with which to date his pottery types. The series of Petrie's was numbered 1-99, and he purposely overlapped the beginning of his Protodynastic corpus with the end of his Predynastic corpus. Petrie states that it was useless to distinguish pottery of single reigns, but there were four clearly distinct groups of pottery from the reigns of:

1. Narmer, Aha, Djer;
2. End Djer, Djet;
3. Merneith, Den, Anedjib;
4. Smerket, Qa'a (Petrie *et al.* 1913: 2).

Pottery from Graves 1207, 1208, 1210 and 1312 at Armant are all of types

found in Petrie's corpus of Protodynastic pottery, corresponding to SD 78–81. Graves 1317 and 1353 are pot burials of children, which are not found in the Predynastic. Grave 1350 was without pottery, and therefore it cannot be assigned to any period.

What does Myers mean by 'Protodynastic' at Armant? From the cemetery at Tarkhan is an alabaster cylindrical jar with Narmer's *serekh* (Petrie 1914: pl. 26). There is a rope-cord design carved around the jar below the lip. Cylindrical jars in alabaster with rope-cord decoration were common at Tarkhan, and they were also found in the Early Dynastic graves (listed as 'M') near the Osiris temple at Abydos (Petrie 1902: 14, pl. 42-47). Tomb 1208 at Armant also had one. The Narmer *serekh* on this type of jar is the key to its dating: Dyn. 0. This is the period that immediately preceded the 1st Dynasty, which begins with the reign of Aha. Three royal tombs at Abydos, belonging to Narmer, Ka and Iry-Hor, and that of (king) Scorpion at Hierakonpolis date to Dyn. 0 (Williams 1987: 17-18). Cylindrical jars, the final degeneration of W-class, with a rope-cord design near the lip, are placed by Kaiser in Nagada IIIb. Petrie gives a sequence date of 79–81 to this type of alabaster jar, the same range as the pottery types from the 'Protodynastic' graves at Armant. Therefore, Dyn. 0 equals SD 79–81 and Kaiser's Nagada IIIb. Flat-bottomed bowls in alabaster and slate were also found in the graves at Tarkhan, at Abydos in M19, and at Armant in 1207 and 1208. Another type of artifact from this period is a rectangular slate palette with engraved straight lines around the borders; it is common in the graves at Tarkhan and one example is known from Armant (in Grave 1312).

Four graves at Armant, then, are of Kaiser's Nagada IIIb, corresponding to Petrie's sequence dates of 78–81: 1207, 1208, 1210 and 1312. Graves 1317, 1350 and 1353, which the excavator assigns to this period, are less certainly in SD 78–81. Because of the Narmer *serekh* on an alabaster jar with rope-cord decoration from Tarkhan, the four Armant graves can be dated to Nagada IIIb. The Predynastic sequence at Armant ends, then, with the large and well-furnished tombs of 1207 and 1208, and a significant break in material culture is represented by these tombs.

Dating the Nagada Burials

When Petrie excavated the Predynastic cemeteries at Nagada and Ballas in 1894–95, he talked of a 'New Race' since the graves differed from any known to him from Dynastic Egypt (Petrie and Quibell 1896: 18). Initially he placed these graves between the Old and Middle Kingdoms. Petrie had already begun to devise his sequence-dating system on the Nagada pottery, and refined it when he excavated the Predynastic cemeteries at Diospolis Parva in 1898–99. Eventually recognizing the 'New Race' cemeteries as prehistoric, Petrie listed some of the graves at Diospolis Parva with their sequence dates (Petrie 1901a: 32-36). Some of the Nagada graves were later published with sequence dates (Petrie 1920: pl. 51), but most were not.

That Petrie was already thinking in terms of pottery seriation when he excavated at Nagada is evident.

In the earlier age there is an abundance of the rich, polished red and black-topped pottery, while the fancy forms, the white-lined patterns, the black incised bowls and the decorated vases, all give variety and interest to the groups. In the later age all this has disappeared, as poverty and ugliness of the form are spread overall, and occasional links to the Egyptian pottery of the Old Kingdom and of the Middle Kingdom are traceable (Petrie and Quibell 1896: 41).

Certain forms of the 'later age' are traceable to the Old Kingdom; Petrie recognized some continuity of pottery from the late Predynastic into the Dynastic period.

The assignment of relative dates to the graves in the three Predynastic cemeteries at Nagada was done with the seriation system devised by Kaiser for Cemetery 1400-1500 at Armant, with its three main periods termed Nagada I, II and III. 'Y-class' from Nagada is the term used in the analysis for pottery that could definitely be assigned to Nagada IIIb, Y50 being a cylindrical jar. Of the 1417 graves with grave goods listed in Baumgartel (1970), relative dates corresponding to those of Kaiser's periods could be assigned to 75 percent of the graves, or 47.1 percent of the 2256 graves that Petrie excavated at Nagada (as drawn on his map). When pottery from a grave could be in two consecutive periods, the later period was chosen.

If no Kaiser period is given for a Nagada grave, one of the following holds:

1. there was no pottery listed for the grave in Baumgartel (1970);
2. the pottery listed could be assigned to any period;
3. the description of pottery was insufficient to do any kind of dating;
4. the class numbers listed do not fall within those given by Kaiser for specific periods.

The most general periods assigned to graves were Nagada I-II or II-III, which means that the range of pottery listed falls within Kaiser's Nagada I and II periods, or Nagada II and III periods. For example, a date of I-II could indicate that B-class, which is found in both Nagada I and II periods, was listed for a grave, while a II-III date might indicate that W-class, which is found in Nagada II and III periods, was in a grave. Any grave that had a mixture of definitely early types with a later class was given the later date, to allow for the possibility of grave robbing or the retention of earlier vessels into a later period.

The most commonly assigned periods for the Nagada graves were simply Nagada I, II or III based on three basic principles:

1. a cluster of goods in a grave fell within the general range of the Nagada I, II or III period;
2. the numbers of class types fell within the broad range of class numbers for the Nagada I, II or III period;
3. the numbers of specific class types, though not listed in Kaiser

(1957) were approximately within the range of class types for the Nagada I, II or III period.

The Nagada II period was the most commonly assigned to the dated graves at Nagada. In addition to the above dating methods, other criteria were used to assign graves to this period:

1. the combination of B-class found in a grave with later classes (L-, W-, D- and R-classes);
2. predominantly R-class in a grave;
3. forms listed as 'bottle' in Baumgartel (1970) placed by Kaiser in the Nagada II period;
4. in general, a wide range of D-class designs, except the very latest degenerated designs that are found in Kaiser's Nagada III period.

Graves with C-class listed were assigned to Kaiser's Ic, when most of this class occurs. Graves with N-class were assigned to IIa.

In some cases graves were assigned to periods on the basis of types of palettes, according to types recorded in Petrie's corpus (1921: pl. 52-59). Graves with rhomb-shaped palettes were assigned to Nagada I-II, as this type of palette was found mainly in Nagada I but continued into the Nagada II period. Graves with fish and zoomorphic palettes were assigned to Nagada II, while graves with rectangular palettes were assigned to Nagada III.

The distribution of periods by cemeteries is given in Table 3.

Table 3. *Number of Dated Nagada Graves by Cemetery and Period*

<i>Period</i>	<i>Cemetery</i>			<i>Total</i>
	<i>N</i>	<i>B</i>	<i>T</i>	
N I	107	5	0	112
N I-II	116	22	3	141
N II	452	30	15	497
N II-III	125	12	9	146
N III	105	3	10	118

Based on the number of graves at Nagada that could be dated by Kaiser's periods, the greatest number of graves in all cemeteries falls within the Nagada II period. Cemeteries N and B span all three periods, but Cemetery T has no graves that can definitely be assigned to the Nagada I period. These conclusions should be considered, however, in reference to Table 4.

Table 4. *Number of Dated Nagada Graves by Cemetery*

	<i>Cemetery</i>		
	<i>N</i>	<i>B</i>	<i>T</i>
Total graves on Petrie's map	2043	144	69
Graves with grave goods listed in Baumgartel	1251	92	49
Dated graves	905	72	37

The figures in Table 4 for the total number of excavated graves in each cemetery are inaccurate since the exact numbers are unknown. The figures from Baumgartel (1970) represent the last number in her list of graves, as taken from Petrie's notebooks. The figures for Cemetery N are particularly inaccurate, since whole blocks of several hundred numbers are missing.

Much specific information from Nagada is missing because of problems in recording and Petrie's incomplete publishing of the data, but it can be demonstrated that the majority of datable graves at Nagada falls in Kaiser's Nagada II period (see Appendix). There is also a range of graves from Nagada I to III. Exact dating of graves at Nagada by specific Kaiser subperiods could not always be done, but they divide into three relative periods, a classification that is useful for demonstrating broad changes through time.

Chapter 4

An Early Farming Village: Predynastic Burials at Armant

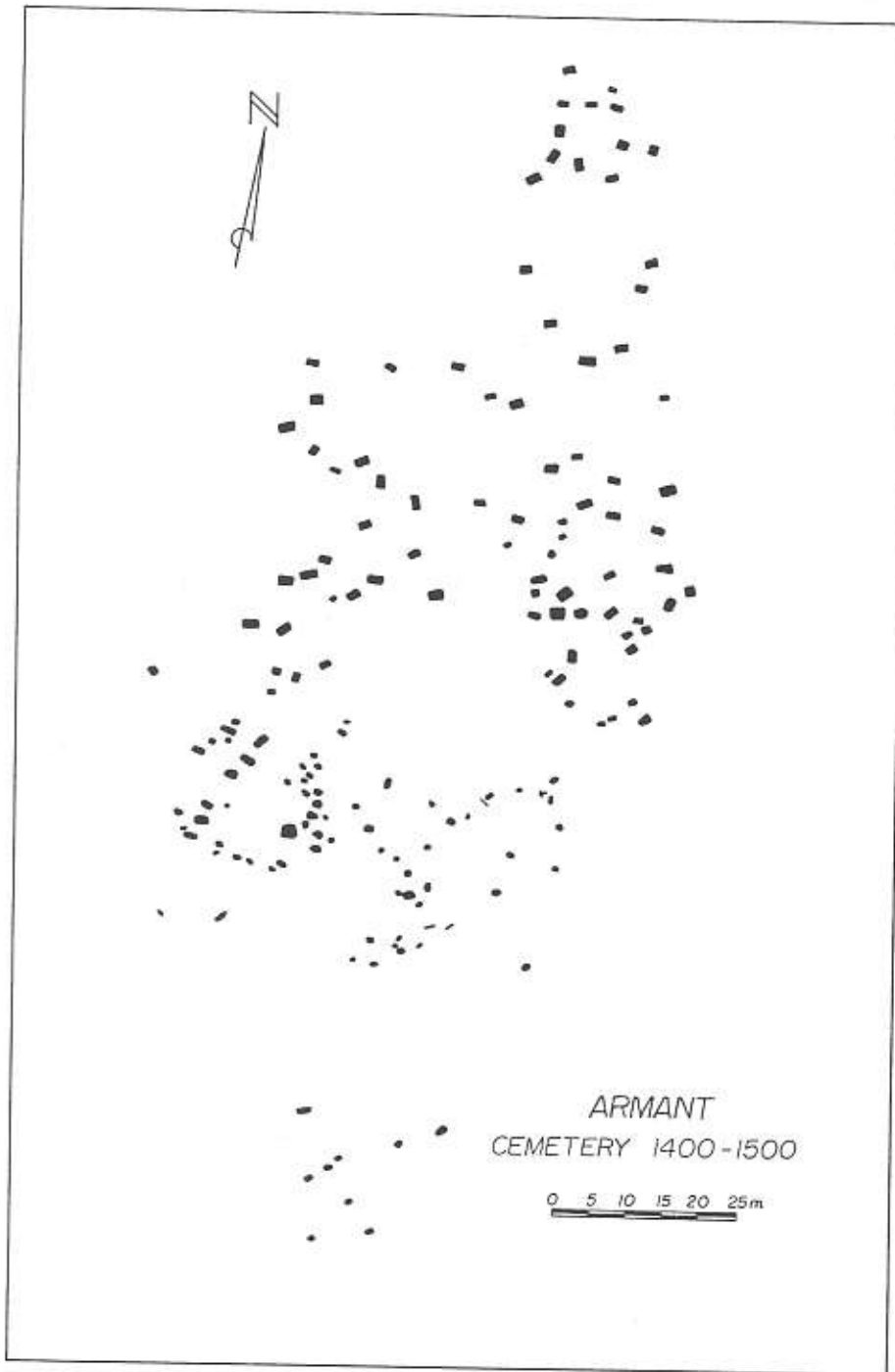
General Description

The Predynastic cemeteries of Armant are located on the west bank of the Nile, about 9 km southwest of Luxor. The Armant graves were chosen for analyses for two reasons. First, they are the best documented of the numerous Predynastic cemeteries excavated in Upper Egypt in the first half of this century. Secondly, Kaiser has developed a seriation system for Predynastic pottery based on the sequence of graves at Armant. The goals of the analyses were to develop generalizations concerning patterns in cemetery evolution which could then be applied to the Predynastic cemeteries at Nagada, and serve as a contrast to the findings at Nagada.

The cemeteries of Armant were excavated by Myers in the late 1920s and early 1930s. He believed that the graves dated from the early Predynastic through the Old and Middle Kingdoms, with a few Coptic burials (Mond and Myers 1937: 1-3, 6). The main Predynastic cemetery was in Area 1400-1500 (Fig. 2), but some Predynastic graves were also located in Area 1300 and around the two Middle Kingdom tombs 1213 and 1214.

The cemeteries lie on the low desert fringe beyond the present-day edge of cultivation, but Myers suggests that the climate was wetter in Predynastic times than today (Mond and Myers 1937: 7-8). He found remains of large trees (acacia and *Ficus sycomorus*) throughout the site, and sometimes roots had been cut out for Predynastic burials. It was therefore assumed that these trees were of Predynastic date; it followed that that period must have enjoyed either some rainfall or a higher Nile flood level. According to Butzer (1976: 13), there were two major episodes of higher Nile floods and accelerated alluviation: 'high c. 5000-3700 BC, then temporarily lower, with another major episode of high floods and accelerated alluviation culminating about 3000 BC'. Trees in Cemetery 1400-1500 probably date to the second and later episode of high Nile floods.

Fig. 2
Armant Cemetery 1400-1500



A Predynastic settlement slightly below Cemetery 1400–1500, southeast by south, was not excavated. Myers did, however, excavate a Predynastic settlement in Area 1000, 2 km from Cemetery 1400–1500, at the edge of cultivation. Although the cemetery next to this settlement was destroyed by later graves, pottery in Area 1000 suggests that it was earlier in date than Cemetery 1400–1500. Distributed throughout all levels in this settlement were sherds with 'point-burnished' decoration on the inside, 'similar to, but coarser than, that found on the Badarian' (Mond and Myers 1937: 2-3).

In 1984 the settlement next to Cemetery 1400–1500 was investigated by Ginter, Kozłowski and Pawlikowski. The recent excavations at this site, called MA 21/83, uncovered various features: post-holes for a rectangular structure, a series of pits (for ovens, storage and unknown purposes), hearths, and circular structures built of large limestone slabs (Ginter *et al.* 1987: 59-61). Most of the ceramics at this site were of a chaff-tempered ware (R-class), but a red-polished class and grey and brown classes were also found (Ginter *et al.* 1987: 61, 65).

The main Predynastic cemetery excavated at Armant, then, is Cemetery 1400–1500. The register of graves in this cemetery is numbered 1401 to 1599, so there were presumably about 200 graves. However, a number of grave pits were found which were completely empty. Although these were given numbers, they were otherwise unrecorded in the published register of 169 graves. This circumstance probably accounts for the 30 missing graves in the register for Cemetery 1400–1500. In addition, seven Predynastic graves in Cemetery 1400–1500 contained more than one individual, and these were listed after the numbered grave as (B) and (C). Graves 1211 and 1212, so numbered, were located somewhere in Cemetery 1400–1500 (Mond and Myers 1937: 6)

Several general observations about Predynastic Cemetery 1400–1500 were made by the excavator. The earlier graves were rough ovals (commonly less than 1 m² in area), while the later ones were rectangular (1–3 m² in area). The earlier part of the cemetery was lower down the elevated spur of low desert, closer to the edge of cultivation. The Predynastic graves may have been oriented to the river: burials were aligned north-south where the river is straight, but were erratic in orientation where it bends. Most of the Predynastic burials were facing west or south. There was a recognizable decline in the use of matting for body treatment after (Petric's) SD 56 (Mond and Myers 1937: 11).

Although much specific information about the graves in Cemetery 1400–1500 is listed in Mond and Myer's publication, there are omissions. Grave dimensions are sometimes absent; since the soil is described as 'crumbling' and some graves were only roughly shaped, it was difficult to take accurate measurements (Mond and Myers 1937: 9). Only 48 percent of the listed graves have had the age/sex determined, and of these the only categories given are for child, male or female, without more precise calculations of age at the time of death. In addition, 53.9 percent of all listed graves were 'quite disturbed'. Only 13 percent of all listed graves were undisturbed, while 20 percent were partially disturbed, and for 13 percent no information concerning disturbance is given. The geological setting of Cemetery 1400–1500 is not discussed in any detail.

Much less information is given for the 27 graves in Area 1300. Four of these are listed as 'Protodynastic' (Mond and Myers 1937: 32). Only six of these graves were completely undisturbed, and age/sex data are given for nine. The grave dimensions are listed for only three burials in Area 1300.

Of the six early graves in Area 1200, three are listed as 'Protodynastic'—i.e., Nagada IIIb—and one is thought to be Badarian(?) (Mond and Myers 1937: 26, 32). This leaves only two graves, 1202 and 1205, both highly disturbed, in Area 1200 corresponding to sequence dates in Cemetery 1400–1500. Although badly disturbed, the two Nagada IIIb tombs (1207, 1208) are quite unlike any other Predynastic finds at Armant; they are brick-lined tombs with areas of 24 m² and 30.45 m² divided into several chambers (Mond and Myers 1937: pl. 5). No information is given concerning the human remains in Tombs 1207 and 1208, and they could have been built for one individual or several. Aside from these two tombs, the Predynastic of Area 1200 is very poorly documented.

Cemetery Size and Spatial Patterns

Armant was not a major Predynastic center like Nagada and Ballas, where an estimated 3000 graves were excavated. Even if one were to assume that there were unlisted graves in the Armant numbering system and some Predynastic graves in Areas 1200, 1300 and 1400–1500 were missed by the excavator, the total number of Predynastic burials in these cemeteries would not have been more than 250. Perhaps this number could be doubled if the missing cemetery for Area 1000 is included. A total of 500 Predynastic burials for Armant is a generous estimate, but still small in comparison to the Nagada and Ballas cemeteries. The main Predynastic cemetery at Nagada had over 2200 known graves and was 870 × 200 m in area, whereas Armant Cemetery 1400–1500 numbered around 200 graves and was 170 × 75 m in area.

Because of the very patchy nature of the information given about Predynastic burials in Areas 1200 and 1300, Cemetery 1400–1500 is the only one at Armant that can provide an overview. The number of individual burials that can be assigned to Kaiser's sequenced groups (1956) is listed in Table 5.

Table 5. *Number of Dated Burials by Period in Armant Cemetery 1400–1500*

N Ic:	28
N IIa:	28
N IIb:	28
N IIc:	30
N IId1:	13
N IId2:	12
N IIIa1:	4
N IIIa2:	8
Total:	151

No dating was possible for 29 burials, because they lacked grave goods.

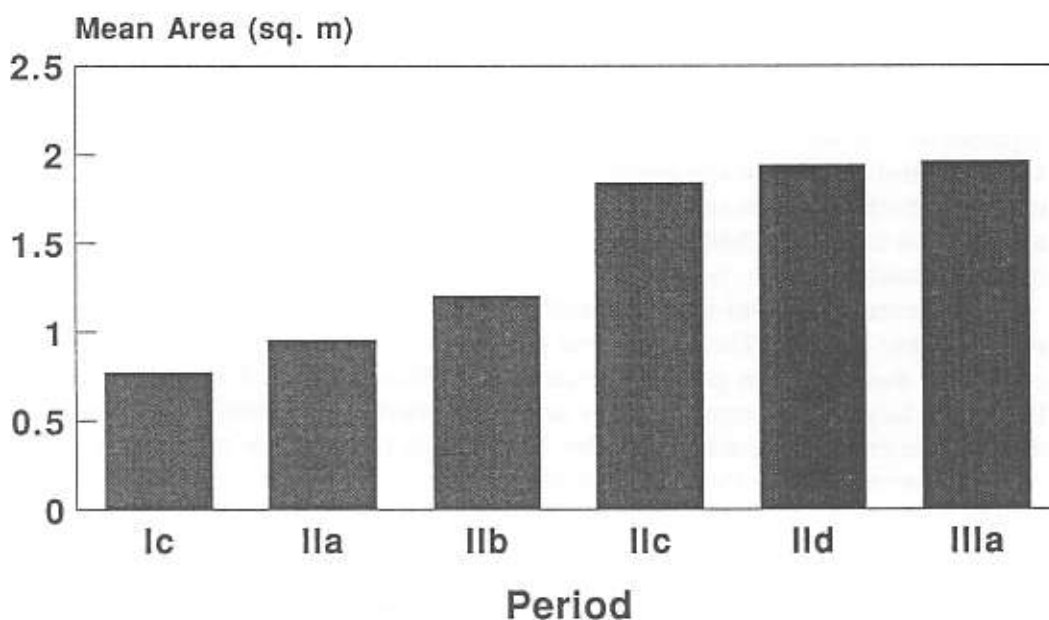
The 27 burials in Area 1300 are located 760 m southeast of Cemetery 1400–1500. The larger burials in Area 1300 are all Dynastic, with the Predynastic graves located closer to the edge of cultivation. As four of the graves in Area 1300 are listed as 'Protodynastic', perhaps this area began to be used for burial at the end of the Predynastic and into the 1st Dynasty, as Cemetery 1400–1500 and its Predynastic village were abandoned.

Area 1200 is about 9 km from Cemetery 1400–1500. As there are only two definitely Predynastic burials in Area 1200, it is unlikely that this pair represents any kind of group affiliation with the relatively distant Cemetery 1400–1500. In terms of the present study, what is significant about Area 1200 is the presence there of two large Nagada IIIb tombs. These are unlike anything in Cemetery 1400–1500, in scale, energy expenditure and quantities of grave goods.

In its internal spatial arrangement, Cemetery 1400–1500 seems to have a recognizable pattern. The small, oval graves of Nagada Ic and IIa are clustered closely in the southern part of the cemetery. This pattern changes in Nagada IIb, when larger, rectangular graves are distributed farther to the north, in less dense concentrations, while smaller Nagada IIb oval graves tend to be more closely spaced among those of Nagada Ic and IIa. With a shift to larger grave size in Nagada IIc, there is a northward movement in the cemetery, and graves are widely spaced. In Nagada IId1 and IId2 the graves are farther north still, and very widely scattered. Finally, in Nagada IIIa1 and IIIa2, graves are clustered in the far north of the cemetery.

Burials in Cemetery 1400–1500 may also exhibit spatial patterning that shifts through time. In Nagada Ic and IIa graves are distributed throughout the southern part of the cemetery in a somewhat crowded pattern. But beginning in Nagada IIb and continuing through Nagada IId, the graves are located farther north in two separate groups. These two groups do not exhibit an organized spatial arrangement, such as rows of graves or tight circular clusters, but there seems to be some kind of loose spatial division between east and west groups after Nagada IIa.

Fig. 3
Armant Cemetery 1400–1500
Mean Grave Size of Dated Graves



Description of Burials

Predynastic burials were usually single inhumations in pits c. 1 m deep. Mummification was not practiced until Dynastic times and skeletons were always in a flexed position, usually resting on the left side. Pots were the most frequent grave goods.

Although there are several instances of multiple interments in single graves in Cemetery 1400–1500 at Armant, no intrusive burials are suggested in the recorded evidence. Perhaps the burials were once marked on the surface, for the horizontal spread of graves through time seems to be deliberate. Cemetery 1400–1500 probably served a village located outside the cemetery. What is more, the absence of secular structures indicates that the cemetery was accorded some measure of respect throughout Predynastic times. No other disturbances than grave robbing are evident, perhaps because occupation of the village near this cemetery ceased in Dynastic times and later grave pits were excavated elsewhere.

The 'earlier tombs lower down the spur' are described as 'rough ovals, generally' (Mond and Myers 1937: 9). For Fig. 3, grave size was calculated as length times width. For the earlier graves (Kaiser's Nagada Ic–IIa), which were assumed to be mostly ovals, 10 percent was subtracted from the grave size to account for the slightly smaller area of ovals than rectangles. Several graves in

Areas 1200 and 1300 are simply described as 'holes' (Mond and Myers 1937: 26, 32). Volume of grave pits has not been calculated since the depth of the pits beneath the ancient surface could not be reliably assessed.

Most of the graves in Cemetery 1400–1500 were simple pits for flexed burials. Information on grave linings is given for only 31 percent of the graves, and it must be assumed that the rest had no trace of linings. Matting was sometimes found over and/or under the skeleton, or lining the sides of the grave pits. In a few instances corpses were covered with linen instead of matting. Several graves had traces of wood, either as a grave lining or a coffin, and two graves (1466, 1511) contained a wooden bed. Five graves had loculi cut next to the burial pit, presumably for additional grave goods (Mond and Myers 1937: 30–31).

Few dimensions are given for the Predynastic graves in Areas 1200 and 1300, nor is there much information about grave linings. In Area 1200 one early Predynastic burial (1209) was lined with matting. Two pot burials (1317, 1353) of children were found in Area 1300, but pot burials were not found in Cemetery 1400–1500. Grave 1312 (Nagada IIIb) of a woman is somewhat unusual in that it had two loculi, one to the north and one to the south of the grave pit (Mond and Myers 1937: 26, 32).

The most unusual early grave structures at Armant are the two brick-lined tombs in Area 1200. Tomb 1207 covers 24 m² in area, in a pit 2.5 m deep. The pit was lined with mud-brick, then filled with 1.5 m of soft earth. Other features of Tomb 1207 include mud-brick wall divisions jutting out from the side walls, a ledge against one wall and two trenches in the floor. Tomb 1208 is even larger (30.45 m², 3.15 m deep) and contained internal mud-brick walls that subdivided the tomb into one large central compartment, with six smaller compartments around the side walls (Mond and Myers 1937: pl. 5).

Only 41 percent of the corpse positions are given for the burials of Cemetery 1400–1500 at Armant, and many of these incompletely. Body attitudes were coded by Myers using the system Brunton outlined in his *Qau and Badari I* (1927: 49–52). All Predynastic burials at Armant in which the attitudes are listed were flexed.

Unfortunately, no human remains are noted for the large brick-lined tombs in Area 1200, as presumably none was found. The excavator was careful in recording orientations of the burials, in terms of azimuths, and 82 percent of the burials in Cemetery 1400–1500 have listed orientations. Of the 147 burials with given orientations, 62.8 percent had the head to the southwest (180°–270° from due north), 23.1 percent were oriented to the northwest, 11.5 percent to the southeast and the remaining 2.4 percent were oriented to the northeast. Body orientation with the head south to southwest was by far the most common.

Description of Grave Goods

Pottery was the most common type of grave goods found in the Predynastic burials at Armant. The pottery typology from the Predynastic cemeteries has

already been discussed in Chapter 3. Even the poorest burials which contained no other grave goods usually included one or two pots. Presumably these once contained foodstuffs or other organic material, but no remnants of these were noted. At Nagada an R-class bowl from a grave excavated by Bard and Ho in 1978 contained barley seeds and soil, and Needler suggests that B-class beakers were probably originally used in the household for serving drink and perhaps food (Needler 1984: 171). Vessels with small mouths were probably for food storage in burials, and some jars may have been for water or beer.

Slate palettes were found in graves from all of Kaiser's periods (Mond and Myers 1937: 26-32, pl. 18-19). The earliest palettes at Armant of Nagada Ic are shaped as rhombs, sometimes with two amorphous animal heads or horns at the top. Fish- and turtle-shaped varieties appear in Kaiser's Nagada II period, and circular and rectangular examples were found in a Nagada IIIb grave (1312) at Armant. Palettes were more common at Armant in the earlier graves (Nagada Ic and IIa), but this could be because the earlier graves were much less disturbed than the later ones.

Small grinding pebbles were sometimes found along with the palettes in the Predynastic graves at Armant. Pigments to be ground on the palettes for cosmetics, such as galena, malachite and red ocher, were placed in some of the graves (Mond and Myers 1937: 27-32).

Chipped stone tools, such as points, flakes and blades, and cores from tool manufacture were found in some of the graves. Fishtail projectile points were found in two graves, 1457 and 1523 (Mond and Myers 1937: 27, 29), dating to Nagada Ic and IIc. A ripple-flaked knife was in Grave 1573 (Mond and Myers 1937: 31) of Nagada II d2 date. Other stone artifacts in graves included polishing and grinding stones and a hammer-stone (Mond and Myers 1937: 27-31).

A few stone vessels were excavated in the cemeteries at Armant, but these were not found in great quantities until Nagada IIIb. A footed lug-handled vessel was in Grave 1466, dated by Kaiser to Nagada IIa, while a more squat, lug-handled jar with a flat bottom was in a grave of Nagada IIc date, 1550 (Mond and Myers 1937: pl. 17). Fifty-nine stone vessels or fragments were found in Tomb 1207 and 37 in Tomb 1208 (Mond and Myers 1937: 32, 44). These stone vessels were mostly shallow bowls, but there were three stone cylindrical jars in Tomb 1208 (Mond and Myers 1937: pl. 17-18).

Next to pottery, beads were the most common grave goods. Materials for beads varied from the single bead of lapis lazuli in Grave 1567 to simple beads of fired clay. Steatite beads were found most often, but carnelian also featured frequently. Stones from the Eastern and Western Deserts, such as chalcedony, quartz and garnet, were used for beads, as were faience and imported materials, such as malachite, amber, bitumen, resin and Red Sea coral (Mond and Myers 1937: 101-108). Ostrich-egg shell was also used for beads. Other jewelry included bracelets or armbands in shell and an ivory finger ring in Grave 1554. Whole shells, both riverine and marine (Red Sea), were found in a number of burials (Mond and Myers 1937: 26-31, 101-108).

A number of other craft goods were found in the Predynastic burials at Armant, including combs, tag-like objects, points and a vessel carved in ivory

(Mond and Myers 1937: 26-31). A carved ivory 'gaming set' with two stone balls was found in Grave 1572 (Mond and Myers 1937: 27, 30). Two carved stone hippopotami were in Grave 1451 and three clay 'hands' were found in Grave 1542. Baskets were preserved in several graves and sheets of linen were found in five, over or under the skeleton (Mond and Myers 1937: 28-31).

Stone vessels in the two brick-lined tombs (1207, 1208) were made of alabaster, diorite, limestone, marble, porcelainite, rose quartz, slate and steatite (Mond and Myers 1937: 32). Copper was rare at Armant: four axes of the metal were found in Tomb 1207 and two bracelets in Grave 1547 (Mond and Myers 1937: 30, 32).

Various organic remains were also recorded. Animal bones of several species, including gazelle and jerboa, are listed, and animal skins were sometimes found over the human remains. Feathers were found in one grave (1492), and resin or gum was sometimes noted (Mond and Myers 1937: 28-31).

Compared to the Predynastic burials at Nagada, those at Armant were relatively poor in craft goods, aside from pottery and beads. Whether this paucity of craft goods is a result of grave robbing is impossible to determine now.

Analyses of the Predynastic Burials at Armant

Mortuary differentiation by age and sex should be discernible in the symbolic treatment of burials of both simple and complex societies. Unfortunately, because of insufficient data, a discriminant analysis of differences in grave goods according to the age/sex of dated Predynastic burials at Armant did not demonstrate any clear pattern. Therefore, a sociocultural model for grave types based on age/sex was not possible.

Although a high percentage of burials at Armant had been disturbed, very few were completely devoid of grave goods. Binford's criteria for mortuary differentiation by form and quantity of grave furnishings and specificity of location, and changes in these through time, could perhaps be demonstrated in the data for Armant. Although the horizontal and vertical dimensions of the Predynastic society at Armant might not be evident in such an analysis because of missing age/sex data, some burials might exhibit more energy expenditure than others. In any event, pottery was the most common type of grave goods and figures prominently in the analysis of grave differentiation through time.

Instead of using Kaiser's more finely divided chronology, four periods were created. These correspond to Kaiser's Nagada Ic; Nagada IIa and b; Nagada IIc, II d1 and II d2; and Nagada IIIa1 and IIIa2. The creation of these four periods is based on Kaiser's seriation of Predynastic graves and is aimed at distinguishing broader changes through time. Nagada Ic is the last period in which C-class, the decorated class of the Nagada I period, is found. C-class disappears in Nagada IIa, and Nagada IIb is when D-class, the decorated class of the Nagada II period, first appears. The other significant point for Kaiser's seriation system occurs in Nagada IIc, with the first appearance of W-class. In the Nagada III period the predominant pottery is L-class, with W-class degenerating into cylindrical jars. Figs. 4 and 5 summarize the pottery analyses.

Fig. 4
 Armant Cemetery 1400-1500
 Mean Number of Pots in Dated Graves

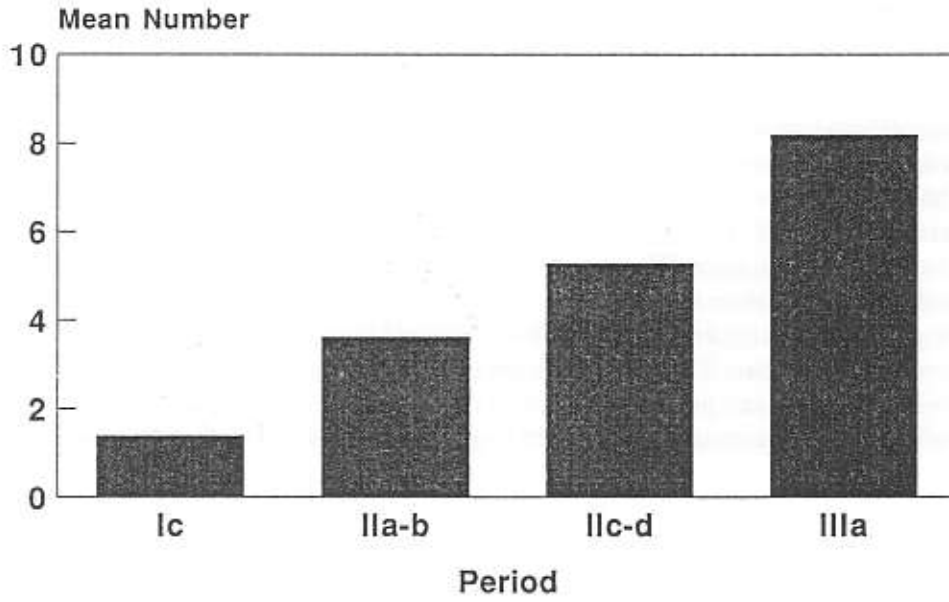
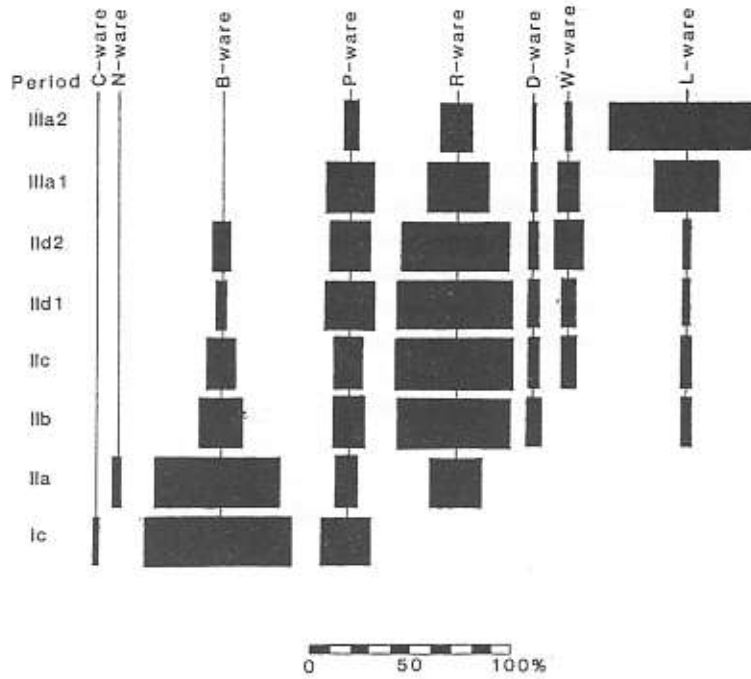


Fig. 5
 Armant Cemetery 1400-1500
 Percentages of Pottery Classes for Dated Graves



The major pottery trend in the Armant Predynastic burials throughout Kaiser's Nagada periods is toward an increasing number of pots per grave. The major change in pottery classes throughout the Predynastic sequence is from predominantly B-class in Nagada Ic to L-class as the most common type in Nagada IIIa.

In addition to the increasing number of pots per grave, another measure of differentiation is in other grave goods. If all burials were undisturbed, the number of goods and values of those goods (in rare to common materials) could be analyzed. The presence or absence of rare materials in graves might be a valid basis for differentiation.

The analysis of grave goods began with an examination of quantities of materials in individual graves, but this approach was not successful since graves at Armant were often disturbed. The graves were then analyzed in terms of characterization of types of materials present, because grave robbers probably were rarely successful in clearing graves of all goods. Frequencies were calculated for 65 different materials present in all Predynastic graves (both dated and undated) at Armant, and five groups (here called 'NewMaterial') were established. Table 6 lists the frequencies at Armant.

Table 6. *Frequencies of Grave-Goods Materials by NewMaterial Group in Armant Cemetery 1400-1500*

Group 1	Materials occurring 1-2 times: amber, black resin, breccia, brecciated marble, chalcedony, galena, lapis lazuli, <i>Mutela dubia</i> (Nilotic shell), porcelainite, quartz, quartzite, red ocher, rose quartz, sard (dark carnelian), <i>Spatha rubens</i> (Nilotic shell).
Group 2	occurring 3-5 times: basalt, calcite, <i>Clanculus pharaonis</i> (Red Sea shell), crystal quartz, diorite, gesso, <i>Natica mamilla</i> (Red Sea shell), ostrich-egg shell, resin, veined marble, volcanic ash, wood opal.
Group 3	occurring 6-10 times: agate, beetle femora (<i>Sterapis squamosa</i>), bitumen, copper, fluorspar, garnet, gypsum, ivory, linen, malachite, <i>Nerita polita</i> (Red Sea shell).
Group 4	occurring 11-20 times: flint, limestone, <i>Pythina</i> (Red Sea shell), serpentine, slate, steatite.
Group 5	occurring 21+ times: alabaster, carnelian, coral (<i>Tubipora musica</i>), faience, fossil shell, shell.

In establishing the list of NewMaterials, the 15 remaining materials from Armant burials were given a value of 0, as these either were too indefinitely labelled by the excavators (such as 'skin', 'tooth'), or were common local materials (fired clay, capra/ovis bones).

Cross-tabulations were then calculated on the NewMaterial groups by grave number. The results showed that most of the graves with NewMaterial 1 also contained grave goods of several other NewMaterial groups. The distribution of rare materials (NewMaterials 1 and 2) in all Predynastic graves was sporadic, however, and did not necessarily correspond with what could be considered the richest graves. This phenomenon can best be explained by the seemingly random and certainly widespread occurrence of grave robbing at Armant.

Percentages of dated graves with NewMaterials 1-5 by period were also calculated (Table 7).

Table 7. *Percentage of Dated Graves with New Materials from Armant Cemetery 1400-1500*

<i>Period</i>	<i>Number of graves</i>	<i>NM1</i>	<i>NM2</i>	<i>NM3</i>	<i>NM4</i>	<i>NM5</i>
N Ic	28	10.71	14.28	10.71	21.42	35.71
N IIa-b	56	10.71	14.28	8.93	14.29	10.71
N IIc-d	53	9.62	7.69	11.54	9.62	23.08
N IIIa	12	8.33	8.33	8.33	8.33	8.33

If anything, Table 7 demonstrates higher percentages for some NewMaterials in Nagada Ic, and not a trend to richer graves in the later periods. Again, these percentages might be affected by grave robbing, since the excavator recorded a proportionately higher number of undisturbed burials among the earliest graves. Means of NewMaterials in dated graves were also calculated, but these seemed distorted as well.

As neither an analysis of pots per grave nor NewMaterial percentages clearly determined patterns of grave differentiation in the dated graves at Armant, the data were submitted to cluster analysis. Peebles (1972: 3) has demonstrated the effectiveness of monothetic-divisive analysis in determining status-dependent data from the Moundville (Alabama) burial data, and thus indirectly an interpretation of social organization from the burial attribute structure. Tainter (1977: 2-3) suggests that the structure of a past social system can be seen through the classification of mortuary attributes identifying similar sets of burials. In an analysis of mortuary data from Middle Woodland burials in mound groups in the Lower Illinois River valley, Tainter (1977: 14) found the monothetic-division procedure, utilizing the information statistic, to be the most suitable technique for classifying mortuary data in order to make inferences about social structure. Such clustering procedures were therefore thought relevant in determining patterns in the Predynastic burial data from Armant in terms of grave differentiation, which might have bearing on an interpretation of social structure.

Cluster analyses fall into two broad categories. Agglomerative methods begin by forming individual cases into clusters and then adding the most closely related groups or cases until all cases under consideration form one large cluster. Divisive methods, on the other hand, begin with all cases in one large cluster and subsequently divide the cases into smaller and smaller clusters. The latter method could be run a number of times until the best number of clusters was reached (with characteristically different groupings, but not infinitely large or small divisions). Specifically the BMDP K-means clustering technique appeared to offer a means of testing the hypothesis that there was grave differentiation at Armant, and that its patterns changed through time.

The BMDP K-means cluster analysis with Euclidian distance (Dixon 1983) was chosen for several reasons. Unlike most cluster analyses, the BMDP K-means can be used on cases with missing values in the variables, a circumstance that is present for the Armant graves, although they are fairly well recorded. The BMDP K-means cluster analysis can also be used on up to 450 cases, a greater number than other programs. With special commands, this program can be extended to cluster an even larger number of cases, as found in the Nagada cemeteries. Finally, the divisive clustering method seemed a better method for clustering the Armant graves than the agglomerative one.

Divisive methods are free from the following difficulty that may often arise with agglomerative methods: in the latter the combining process is begun with the smallest units (the quadrants themselves) and these are the ones in which chance anomalies are most likely to obscure the true affinities. The result is that bad combinations may be made at an early stage in the agglomerative process and they will affect all subsequent combinations (Pielou 1977: 316).

Selection of variables for the cluster analysis was an important consideration, as too many variables or the wrong ones could affect the type of cluster formation. Those chosen were:

1. total number of undecorated pots (B-, P-, R- and L-classes);
2. total number of decorated pots (C- and D-classes);
3. total number of W-class;
4. grave size;
5. NewMaterials (for Nagada Ic only).

NewMaterials were recalculated for those appearing only in Nagada Ic, where the Armant graves were the least disturbed and rare materials of grave goods would be found. For graves of all other periods, which were highly disturbed, NewMaterials were not included in the cluster analysis. NewMaterials for the Nagada Ic graves are listed in Table 8.

Table 8. *NewMaterials for Nagada Ic Graves in
Armant Cemetery 1400–1500*

Group 1	Materials occurring 1–2 times: agate, amber, carnelian, crystal quartz, faience, ivory, ostrich-egg shell, sard
Group 2	occurring 3 times: malachite, steatite
Group 3	occurring 7 times: slate

Since both the means of pots and the means of grave size increased through time, these changes were thought to be significant variables for grave differentiation. Pots were also chosen for variables in the cluster analysis because they were grave goods that had not been robbed. For the cluster analysis, pots were divided into three categories: decorated pots (rarer, and therefore probably more valued); undecorated pots; and W-class (originally imported, and likely to have been considered a high-status pot). A more specific itemization of pottery classes, in terms of the different classes and proportions of these, was not used in the cluster analysis because these variables had already been used to form the groups of relative time periods. Palettes were not chosen as a variable because the mean number of palettes drops significantly through time (0.38 in Nagada Ic, to 0.06 in Nagada IIIa), a circumstance suggesting that palettes were robbed along with other valued goods in the highly disturbed later graves. Palettes as a variable in graves of Nagada Ic, which were least disturbed, are included as a NewMaterial (3) variable.

Cluster analysis was done using the time periods from the previous analyses: Nagada Ic, Nagada IIa–b, Nagada IIc–d and Nagada IIIa. This division of periods was based on changes in pottery classes through time (see above) and using the cluster analysis on four period groups offered an opportunity to view changes in grave differentiation through time.

Data for the BMDP K-means cluster analysis on the Arment graves underwent Log_{10} transformation prior to analysis. This transformation gave less weight to actual numbers and emphasized differences in the relationship among goods between graves. Without the Log_{10} transformation, the data would be swamped by wide ranges of values, giving a large weight to cases with the highest numbers. The Log_{10} transformation maintains relative distances between the values, but reduces the values to a scale of comparable ranges.

For each time period two and four clusters were allotted to the data. With the exception of Nagada IIc–d, four clusters proved to be too many, as some clusters formed with only one grave. For Nagada Ic, Nagada IIa–b and Nagada IIIa, cluster formation showed that two was the appropriate allotment for the data. For Nagada IIc–d, where the data are more complex, four was the appropriate allotment.

Clusters formed for the dated Arment graves are given with the variable means in Figs. 6, 7, 8 and 9, and Table 9.

Fig. 6
 Armant Cemetery 1400–1500, Clusters
 Means of Grave Size (m^2)

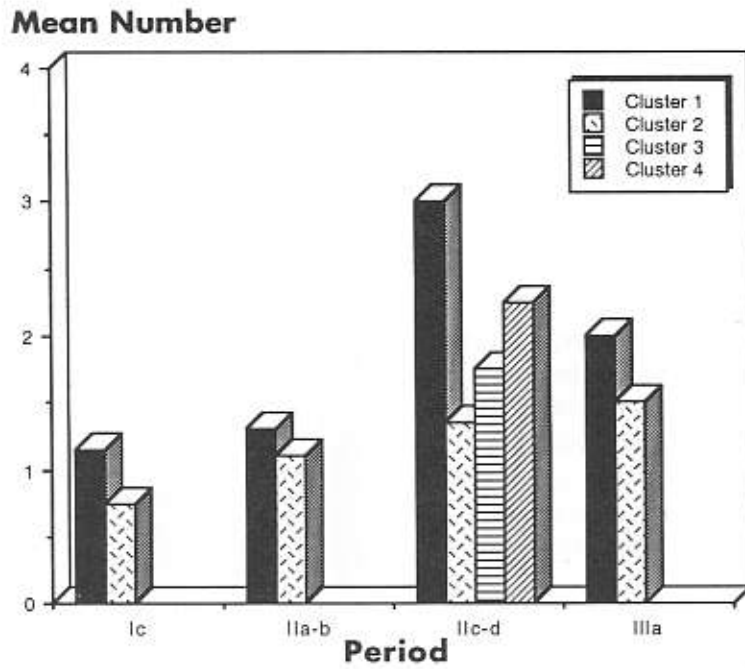


Fig. 7
 Armant Cemetery 1400–1500, Clusters
 Means of Undecorated Pottery Classes

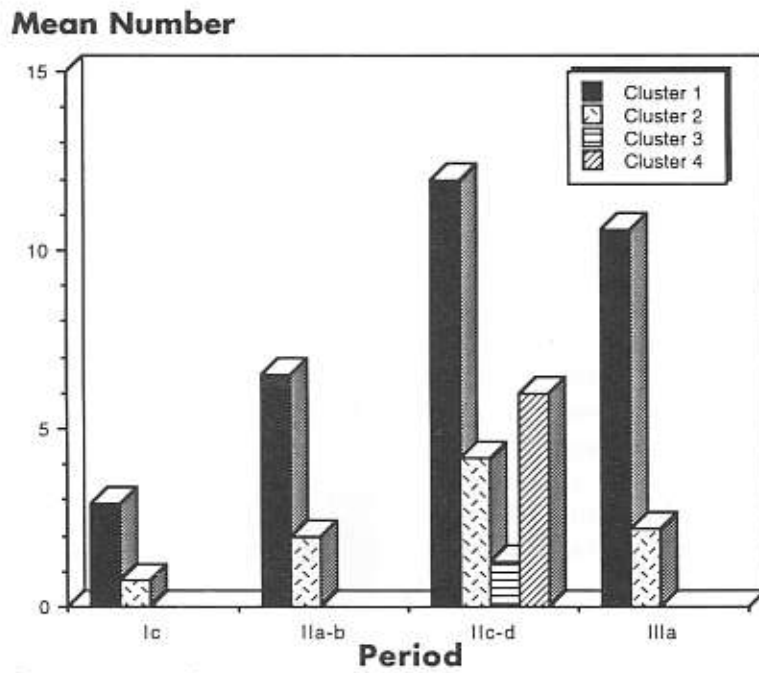


Fig. 8
Armant Cemetery 1400–1500, Clusters
Means of Decorated Pottery Classes

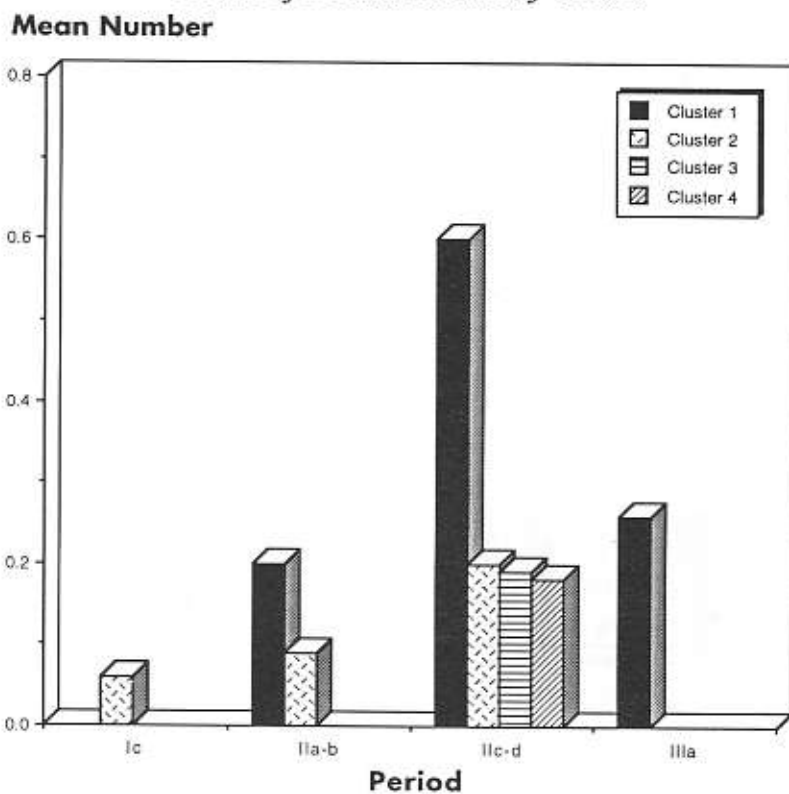


Fig. 9
Armant Cemetery 1400–1500, Clusters
Means of W-class Pots

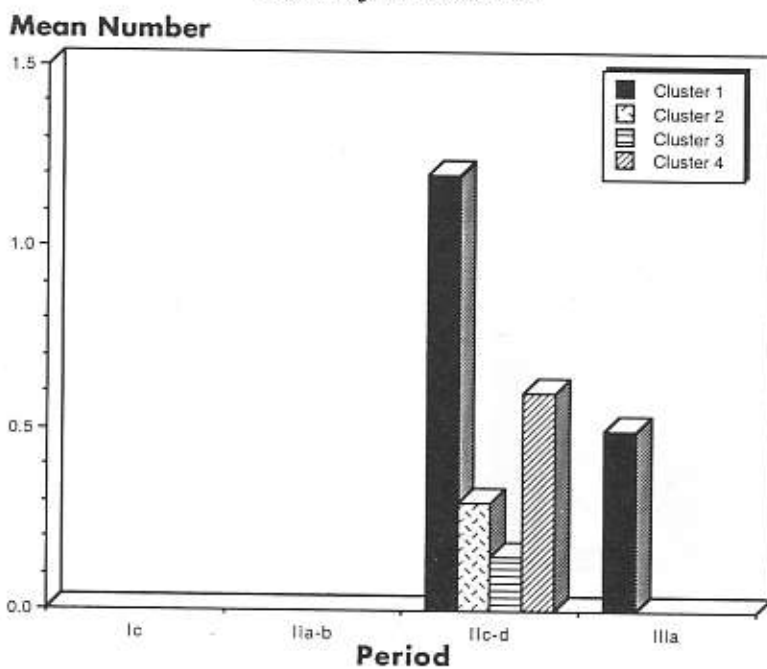


Table 9. Means of NewMaterials 1-3 for Clusters of Nagada Ic at Armant Cemetery 1400-1500

CL	Number of graves	NM1	NM2	NM3
1	8	0.50	0.25	0.25
SD		(1.32)	(0.66)	(0.43)
2	19	0.40	0.20	0.30
SD		(1.11)	(0.51)	(0.46)

In Nagada Ic and IIa-b there is a clear division in the clusters between a smaller number of graves with larger pits and higher means of undecorated class pots, and a larger number of graves with lower means of these variables. The variation in means of grave size is slight, however, with the means being close to 1 m². The nearly identical size of grave pits is probably due to the relatively small number of grave goods found in early graves and the fact that 1 m² in an oval dimension is close to the minimum size for a flexed burial of an adult. Means of undecorated class pots are higher in Cluster 1 of both Nagada Ic and IIa-b, with an increase in the mean number of undecorated class pots (6.25) in Cluster 1 for Nagada IIa-b. W-class is not found in these two periods and C-class (the decorated class for Nagada Ic) is only found in very low proportions (in Cluster 2). In Nagada IIa-b, when D-class is introduced, Cluster 1 has a higher mean number of decorated class pots than Cluster 2. In terms of higher means (grave size, undecorated class pots), Clusters 1 for Nagada Ic and IIa-b, with smaller numbers of graves than in Clusters 2, are dimensionally richer.

Means of NewMaterials 1-2 in the mostly undisturbed graves of Nagada Ic are also slightly higher for Cluster 1. Cluster means of NewMaterial 3 (slate—i.e., palettes) are close, but demonstrate that graves in Cluster 2 have a few more palettes than graves in Cluster 1.

In the Nagada IIc-d period grave size becomes proportionately larger and the clustering of graves is more complex. One cluster was formed with five graves that have higher means of undecorated class pots (12) and W-class (1.2), and a somewhat higher mean for decorated class pots, as well as the largest mean grave size (2.93 m²). The other three clusters, each of which has more graves (15, 16, 17), have lower means of all pottery classes. Cluster 4, with the second-highest means of undecorated class pots and W-class, also has the second-largest mean grave size (2.27 m²). The Nagada IIc-d graves, then, contain four clusters that themselves comprise three groups: first, a small number of graves with large pits, a high mean number of undecorated class pots, and the highest mean for W-class; secondly, graves with smaller pits and gradually decreasing means of all pottery classes (Clusters 2 and 3); and thirdly, an intermediate group (Cluster 4) between these two.

Like the earlier interments, graves of Nagada IIIa date formed two clusters. Cluster 1 has higher means of grave size and undecorated class pots, and the only occurrences of D-class and W-class. Unlike the earlier groups, a larger number of graves (eight) is in the richer Cluster 1 rather than in Cluster 2

(four graves). The occurrence of more richer than poorer graves, in terms of grave size and numbers of grave goods, could be due to the small size of the sample (12). Possibly the small number of late graves in Cemetery 1400–1500 suggests that by the Nagada III period poorer graves were located elsewhere, during the final episodes of use of this cemetery. Perhaps late burials continued in the nearby Area 1300, where one grave dating to Nagada IIIb was excavated close to the present-day edge of cultivation.

To summarize, analyses of the Predynastic graves at Armant show a trend toward greater numbers of pots and larger pits through time. Larger graves are probably a function of larger numbers of grave goods (mainly pots) and, indirectly, greater energy expenditure on burial. With the possible exception of graves from Nagada IIc–d, cluster analysis of grave goods does not show a great deal of differentiation except into two basic hierarchies (of poorer and richer graves, based on numbers of pots and relative grave size). Graves of Nagada IIc–d date are differentiated into a greater hierarchy of clusters, and five graves in Cluster 1 (the smallest) stand out with higher means of undecorated class pots, decorated class pots, and W-class, and a large grave size. But with the possible exception of Cluster 1 in Nagada IIc–d, there seems to be a lack of any significantly increased differentiation of burials, which was also demonstrated by Seidlmayer (1988: 27–29), *contra* Atzler (1981: 223–27).

The possibility that graves in Cemetery 1400–1500 at Armant do not represent a very hierarchically structured society will be discussed in the next section. While cluster analysis is basically a descriptive technique that can only demonstrate general patterns, factors other than types and quantities of grave goods may also be operating in terms of criteria for hierarchies, and these factors may have changed through time. The incomplete nature of the database, a problem with any archaeological sample, no doubt affected the results, but the predominant implication of these analyses is the seeming lack of any overall, complex hierarchy of grave differentiation in the Armant Predynastic burials.

Social Dimensions of the Armant Burials

Although all of the Armant graves dating to Nagada IIc, II d and IIIa were partially or heavily robbed, thereby making variables for analyses incomplete, mortuary evidence beginning with the earliest graves suggests an incipiently ranked society in which a hierarchical social structure was only beginning to appear. There were, however, insufficient data to discern patterns of mortuary differentiation by age and sex, which should be symbolized in burials of both simple and complex societies. But even though many graves were robbed and others were poorly recorded by excavators, there still may be sufficient patterning present, especially spatial, for social interpretations (Chapman 1981: 409).

The spatial distribution of the graves in Cemetery 1400–1500 shows that the later graves are in the northern part of the cemetery and the earliest graves in the south, closer to the edge of cultivation. In a study based on ethnographic

evidence, Tainter (1978: 123) found that 'the presence of formal disposal areas will strongly indicate that the archaeologist has isolated individual corporate groups' practicing lineal descent. It is highly likely that Cemetery 1400-1500 was used for the burial of village members who lived in the nearby settlement, noted by Myers but not excavated until 1984 (Ginter *et al.* 1987: 52-66). Not only would it have been expedient to bury villagers near their place of habitation, but burial in a discrete cemetery probably afforded some form of legitimacy or continuing right to farm and inhabit the surrounding land by those descended from the buried ancestors (Saxe 1970: 119).

Data from the habitation site near Cemetery 1400-1500 do not exist to compare the burial population with the living population, based on settlement size and number of household units. But 200 burials in a village cemetery over a span of 800 to 1000 years (Nagada Ic-IIIa), as represented in the range of grave goods, is a very small burial population. Some members of the village society must have been buried or disposed of elsewhere, but who those persons were and what their affiliations were cannot be determined. In Nagada Ic, when more age/sex data from undisturbed burials are available, there are burials of males (six), females (three) and children (five) that could be dated. Wright states (after Binford 1972) that when adults, children and infants are buried in the same cemetery, this might indicate some type of ranking and subgroup affiliation and inherited status (Wright 1978: 213). Perhaps the presence of children in Cemetery 1400-1500 indicates identification and membership in village subgroups.

Beginning in Nagada IIb, when a loose spatial division between east and west groups in Cemetery 1400-1500 can be discerned, we may be witnessing the emergence of two descent groups in the nearby village. Although this general division between east and west groups continued through Nagada II times, strict descent group affiliation was not manifested in distinct rows or clusters. Graves may have been marked somehow on the surface to prevent disturbance of earlier burials, and descent group members may simply have buried their dead nearest the most recent burial on one side of the cemetery area or the other, depending on kin affiliation. Such spatial differentiation is also seen in the Neolithic Chinese cemetery at Yuanjunmiao, where the cemetery was divided into two sections, possibly one for each clan, whereas the entire cemetery was the burial ground of one tribe (Zhang Zhong-Pei 1985: 21).

Brown's (1981: 29) criterion that 'as power increases, the attachment of the powerful exclusively to locations indicative of their power base will emerge' in the mortuary ritual, however, is not seen in the spatial distribution of graves at Armant. This is probably because Cemetery 1400-1500 was that of a small farming village without much (or any) vertical ranking, and a power base for an elite simply did not exist.

One expectation of Brown's (1981: 29) seen to a certain extent in the Armant burials is that 'as authority increases the amount of wealth and effort expended on burial will increase'. In Neolithic cemeteries in China from 5000 to 2000 BC mean numbers of burial goods increased (Pearson 1981: 1078). Not only do the mean number of pots per grave and the mean grave size

(effort expended on burial) increase through time at Armant, but differences in these variables within each time period become more pronounced. Burials of Nagada Ic contained between no (five burials) and four pots (Grave 1402), whereas burials of Nagada IIc–d contained between one (six burials) and 20 pots (Grave 1511), demonstrating greater differentiation of goods accompanying the burial. Grave size in Nagada IIc–d varies from 0.66 m² (Grave 1469) to 3.54 m² (Grave 1466), whereas grave size variation in Nagada Ic has a much smaller range (Grave 1452, 0.48 m²; Grave 1461, 2.09 m²). With greater effort expended on some of the later burials at Armant, as evidenced in the pottery and grave size, the inference, according to Brown, is that there was a corresponding increase in the presence of authority figures in the Predynastic society at Armant. Although the authority of some members of the village society probably increased through time, actual political power did not develop within the small-scale social unit of the village.

Another potential indication of burial differentiation at Armant is the frequency of 'NewMaterials' in graves. NewMaterials 1–5 are variables that represent groups of materials of grave goods ranging from the rarest (NewMaterial 1) to the most frequent (NewMaterial 5). Cross-tabulations of NewMaterials in graves by periods demonstrate at best a patchy distribution of these throughout the cemetery. Concentration of NewMaterials in a burial did not necessarily correlate with other criteria for grave differentiation, such as large numbers of pots and large grave size. This unpatterned distribution of NewMaterials throughout the cemetery can probably best be explained as a result of substantial grave robbing. The higher frequencies of NewMaterials in the earliest period (Nagada Ic) can be attributed to the lower occurrence of grave robbing in these graves. All later graves (Nagada IIc, II d and IIIa) were disturbed, whereas 35.71 percent of the graves of Nagada Ic date and 12.5 percent of the graves of Nagada IIa and II b date were undisturbed. There seems to be a correlation between undisturbed graves and higher NewMaterial means in periods. Means of NewMaterials 1, 3, 4 and 5 are higher in Nagada Ic and IIa–b graves than in Nagada III graves, where 66.67 percent of the graves were heavily disturbed. Means of NewMaterials 1, 2 and 4 are also higher in Nagada Ic and IIa–b graves than in Nagada IIc–d graves, where 86.79 percent of the graves were heavily disturbed. If any pattern to the grave robbing can be discerned, it seems to have occurred more frequently among the later (and larger) graves, farther north in Cemetery 1400–1500.

Cluster analysis of the dated burials at Armant was thought to be a good method for differentiating the burials in terms of hierarchies of grave goods. The clusters clearly contain two groups of richer and poorer graves in the earlier (Nagada Ic and IIa–b) and latest (Nagada III) periods. In Nagada IIc–d, there is a greater complexity of clustering of grave types, but the sample is restricted to a small number of graves (Cluster 1) with large grave pits and high means of undecorated and W-class pots, and graves (Clusters 2, 3 and 4) with smaller grave pits and decreasing means of all classes of pots. This distribution seems to indicate two different types of burial which do not change appreciably through time. Whether what is symbolized in burials represents two hierarchical levels in the society is conjectural, but there

probably are not enough data from Armant (particularly for age/sex) to distinguish between any vertical and horizontal dimensions in the burials.

Binford's (1972: 235) criteria for differentiation in mortuary treatment by form and quantity of grave goods is definitely seen in the Armant burials, which are differentiated into two basic types based on numbers of pots and grave size. But location of burial, another criterion of differentiation for Binford (1972: 235) only loosely distinguishes the east and west burial groups.

Possibly there was greater burial differentiation at Armant through time, as seen in the five graves of Cluster 1 of Nagada IIc-d. All five graves were highly disturbed, and sex is given for only one (Grave 1566, female). When the spatial distribution of these five graves by Kaiser subperiods is plotted, an interesting pattern emerges. The two graves (1541, 1566) in Cluster 1 of Nagada IIc are in the west group. In Nagada IIId1 the richer graves of Cluster 1 are in the west (Grave 1580) and east (Grave 1539). In Nagada IIId2 the Cluster 1 grave (1542) is in the east group, and the only graves of Nagada IIIa are also located to the east, in the far north of the cemetery. Possibly the richer burials of Nagada IIc-d represent higher-status individuals in the village society with greater obligations owed to them at death by members of their descent groups. A shift is seen through time from the west group to the east group in terms of location of the few richer burials, which may represent the later ascendancy in authority of the east descent group over the west. Burial in the cemetery ends with graves of only the east subgroup.

Other data from individual graves are also important in discerning patterns of differentiation at Armant. Grave 1461, the largest (2.09 m²) dating to Nagada Ic, is that of a child. Though highly disturbed, this grave is five times the size of the smallest grave (1459, 0.40 m²) of this period, that of an undisturbed interment of an (adult) female. In accord with its status, Grave 1461 also contained five artifacts in NewMaterial groups 1, 2 and 4. This child's grave is also larger than the largest grave for an adult male (1435A, 1.2 m²) and only Grave 1421 (male) of this period has more artifacts in NewMaterial groups. While many age/sex data are missing, a child's grave with greater energy expenditure in terms of size and associated artifacts suggests some form of incipient ranking. According to Brown (1981: 29), 'as the hierarchical aspects of society increase, children will be accorded relatively more elaborate attention in proportion to the decline in the opportunity for replacement of the following generation'. Brown cautions, however, that grave wealth in child burials must be interpreted with reservations, since inherited prestige of ranked lineages can be symbolized by this means as much as inherited authority of more ranked societies.

Two inscribed ivory tags, more commonly found at Nagada but in no other graves at Armant, also occurred in Grave 1461, perhaps as badges of status or affiliation. Evidence, then, from Nagada Ic suggests status not achieved through life, a characteristic of a nonegalitarian society. The wealthy child burial and the differential distribution of grave goods possibly represent some degree of ranking within the village society, but the burial evidence and mortuary population probably do not represent ranking of a very hierarchical

society. The type of social structure symbolized by the Armant burials may also be inferred from two unusual male burials.

Cemetery 1400–1500 had only two instances (both males) of corpses interred on beds, possible symbols of village authority. Bed burials are not known for the Nubian A-Group (Firth 1912; Nordström 1972), contemporary with the Egyptian Predynastic, but a possible parallel for the high status of the Armant bed burials is found at Kerma. Three mud-brick tumuli, contemporary with the Egyptian 17th Dynasty, contained the burials of Nubian kings on beds, surrounded by personal effects and pottery (Reisner 1923: 66).

Undoubtedly, the highest-status Predynastic burial at Armant was Grave 1466, a partially disturbed burial of a male on a wooden bed, with nine pots, and some sumptuary grave goods: a slate palette, a gypsum vessel, a gazelle skull and three painted gesso objects not found elsewhere at Armant. Grave 1466 also contained 19 artifacts in NewMaterials 1, 2, 3 and 5, and was one of the largest graves of Nagada IIa–b. The term 'sumptuary', as defined by Levy (1979: 51), refers here to social rules that limit access to specialized artifacts to certain members within a society. According to Levy (1979: 51) 'sumptuary goods are those special objects which denote differences of rank, authority and/or occupation'. This unusual burial on a bed, with a range of sumptuary goods, may be symbolic of the social persona within the village society of the deceased male, whose wealth and authority was greater than those of others buried in the cemetery.

The other bed burial at Armant, also of a male and dating to Nagada IId, was less elaborate in terms of burial goods. Grave 1511, only partially disturbed, measured 1.8 m² in floor area, slightly below the mean grave size for this period. Perhaps these two bed burials symbolized the authority of a village headman within the structure of the two descent groups. It may be significant that the earlier bed burial (Grave 1466, IIa) is in the western part of the cemetery, while the later bed burial (Grave 1511, IId2) is in the eastern part. Possibly each descent group's authority is represented. The existence of only two headmen over the 300 or more years of Nagada II, however, leaves major gaps in the burial symbolism of this posited rank.

A possibly analogous cemetery in terms of social organization is the Fletcher site in Michigan, a Native American cemetery of the mid-18th century AD, exhibiting only incipient ranking (Mainfort 1985: 555). Burials in rows are interpreted as belonging to separate clans or lineages, with the wealthiest burials concentrated at the north and south ends of their respective rows (Mainfort 1985: 567, 571). Mainfort interprets the social organization of this cemetery by a quote from Shennan, which also seems to be appropriate for the Armant evidence.

We should perhaps be thinking in terms of a headman who focussed and coordinated community activities and whose position was achieved. Although wealth and status would not be ascribed, any sons of such a man who died young might receive a more elaborate burial than other boys because the big man wished to display his position at the occasion of their burial, because they had a certain position by

virtue of their relationship to him, or simply because he had more resources available. The system would then be of a type well documented ethnographically in which rank and wealth were achieved competitively by males, but some males had a greater chance of achieving than others by virtue of their descent and differential opportunity from birth (Shennan 1982: 30).

According to Peebles and Kus, graves of a rank society will show a superordinate dimension and a subordinate dimension. In the superordinate dimension there 'must be a partial ordering which is based on symbols, energy expenditure and other variables of mortuary ritual, which is *not* simultaneously ordered on the basis of age and sex' (Peebles and Kus 1977: 431). In the subordinate dimension 'the number of individuals in each scale category...should reflect the age and sex pyramid of the population through time' (Peebles and Kus 1977: 431). Unfortunately, there are only limited data on age/sex from Armant and the few adult skeletons that have been sexed are not given age ranges. Therefore, *contra* an earlier view (Bard 1988), the vertical and horizontal dimensions of the society cannot be determined according to the model of Peebles and Kus, but the data that have been analyzed do not suggest a highly ranked society. Greater energy expenditure is seen in some burials at Armant, but these may only indicate incipient rank grading, according to Tainter's (1978) model. Corporate group differentiation by spatial differentiation (Tainter 1978: 136) may possibly be seen at Armant in the Nagada II period as the graves separate between east and west groups.

Social differentiation, as interpreted from the burial evidence, does not deviate through time at Armant because the society represented by Cemetery 1400–1500 was probably no more than a small farming village lacking an increasing number of internal hierarchies. Rather, there seems to be a continuum of relatively richer and poorer burial types, in terms of numbers of grave goods and grave size, throughout all Predynastic periods at Armant. Complex social hierarchies, as demonstrated in burials, are not evident at Armant. Burial goods indicate the limited resource base of a small farming village. Exotic imported materials and elaborate craft goods are not much in evidence at Armant, possibly because there was no highly differentiated elite, in an increasingly stratified society, requiring high-status goods.

It is unlikely that Armant was a major center of exchange of exotic goods and materials in Predynastic Egypt. Compared to Nagada, the cemetery is small. Forces of centralization and accompanying social stratification would not be expected at Armant. An elite class of society would have emerged at large centers such as Nagada (see Chapter 5), not in small farming villages such as Armant. Possible symbolic 'badges' of status are few at Armant (two bed burials and a child burial with tag-like objects). Perhaps these symbols are representative of the authority of local headmen, and not an authority that extended beyond the immediate village.

The biggest change at Armant in terms of the whole complex of variables for social differentiation is seen in the two large brick-lined tombs (1207, 1208)—i.e., the introduction of an unusual grave form. Both of these tombs contained

large numbers of stone vessels of NewMaterials and date to Nagada IIIb/Dyn. 0 (Petric's SD 79–81). It is significant, too, that Tombs 1207 and 1208 are set spatially apart from Cemetery 1400–1500. As there is nothing in the development of grave types in Cemetery 1400–1500 that anticipates Tombs 1207 and 1208, a reasonable hypothesis is that these tomb types developed elsewhere and were introduced by forces outside the existing social order at Armant. Possibly this period was relatively short, given that so few graves date to it at Armant compared to those of Nagada I and II.

Another possibility is that Cemetery 1400–1500 was being abandoned, and Nagada III graves at Armant were located elsewhere and are now destroyed. Hassan indicates a settlement shift in Nagada III times at Nagada from the low desert to the floodplain, coinciding with the onset of a new period of desiccation and lower Nile floods, and he speculates that Nagada III graves were also located on the floodplain, closer to the new settlements (Fekri Hassan personal communication).

Although Tombs 1207 and 1208 at Armant are smaller than de Morgan's 'royal' tomb at Nagada or Tomb 3471 at Saqqara (Emery 1967: 48, 64), and are without elaborately niched superstructures, they are nonetheless very different from other graves at Armant. Emery (1967: 53) identifies the Nagada 'royal' tomb as that of Neithotep, the mother of Aha, the first king of the 1st Dynasty; Tomb 3471 is dated to the reign of Djer, who succeeded Aha. Thus, Tombs 1207 and 1208 at Armant probably reflect the imposition of royal order by the administrative hierarchy of the kings who unified Egypt at the end of the Predynastic period, and not the development of any local ruling hierarchy.

The development of an administrative elite representative of the centralized rule of the newly formed state of the 1st Dynasty cannot be seen as evolving locally at Armant, but rather it was imposed by an outside authority whose hierarchies developed elsewhere. Social stratification in terms of mortuary ritual cannot be seen either at Armant, although the two burial types may represent an incipient form of ranking. Mortuary ritual does show increasing energy expenditure in some burials through time (larger graves, more grave goods), but vertical dimensions in the burial evidence cannot be clearly discerned. The Predynastic society at Armant did not become stratified, nor would one expect this phenomenon to have occurred within the small village society that Cemetery 1400–1500 represents. There were probably figures of authority at Armant, as symbolized in the bed burials, but no elite of a highly hierarchical society seems to have evolved.

Through time, the Predynastic society at Armant most likely experienced the development of differentials in individual status, as reflected in the richer and higher-status burials of Cluster 1 of Nagada IIc–d, with large graves and high means of undecorated pottery and W-class. Beginning in Nagada IIb, group affiliation possibly became stronger, as expressed in burials between east and west groups. But the ideology of burial in a discrete cemetery remained important to members of the corporate group(s) living in the nearby village throughout all the Predynastic periods. Perhaps roles in the village society were strengthened by burial symbols, such as the two male bed burials. Through time an ideology evolved in which it became desirable to be buried in

larger graves with greater quantities of grave goods, and a shift is seen in the grave types of Nagada III as the cemetery was being abandoned. A major change in mortuary patterns is seen with the introduction of a new tomb type in Nagada IIIb, represented by Tombs 1207 and 1208, which possibly signal the introduction of a new form of authority.

The appearance of social stratification, as symbolized in hierarchically differentiated clusters of graves in the Egyptian Predynastic, however, cannot be seen in the mortuary evidence from Armant. State origins in Egypt, then, must be looked for elsewhere, using the criteria for differentiation which have been generated from the Armant data. For this we turn to the largest known group of Predynastic burials at Nagada.

Chapter 5

Petrie's Great New Race Cemeteries at Nagada, Ancient Nubt, 'The City of Gold'

General Description

The Predynastic cemeteries at Nagada are located about 28 km northwest of Luxor, and, like those at Armant, are on the west bank of the Nile. With over 2200 graves, the cemeteries at Nagada form the largest known place of burial in Predynastic Egypt. Case and Payne (1962: 15) suggest that Cemetery T at Nagada was the burial place of chiefs, and Kemp (1973: 42) states that this cemetery should be recognized as the burial place of Predynastic kings. Although Davis (1983: 28) disagrees with Kemp's assertion, he does think that those buried there 'formed [in life] something of a definite class and were accordingly afforded a special cemetery'. For Baumgartel (1970: 5) the cemeteries are evidence that Nagada was probably the capital of the earliest state in Egypt. Because of Nagada's hypothesized sociopolitical importance, analysis of its cemeteries was directed at examining the rise of complex society and possibly the emergence of the early Egyptian state.

The Predynastic cemeteries at Nagada lie along the desert edge between the modern villages of Nagada and Ballas, mainly in the gravel shoals of wadis (Petrie and Quibell 1896: 18). Two Predynastic settlements were also located by Petrie, North Town and South Town, which are situated much farther west and away from the river than the present-day villages. This suggests an eastward shift in the Nile in the past 5000 years, which Butzer (1976: 35) discusses.

Petrie writes that in the northern part of South Town he found the remains of a thick mud-brick wall which appeared to be 'a fortification with divisions within it' (Petrie and Quibell 1896: 54). 'New Race' pottery was found in this area. North Town is not located on Petrie's map of the Nagada sites, but he does mention that the layer of occupation there was 'extremely thin' (Petrie and Quibell 1896: 2). Some flexed burials of children with two or three Predynastic pots were found in North Town (Petrie and Quibell 1896: 2), which suggests that the entire Predynastic population of the Nagada region was not buried in the cemeteries. There were few town burials, however, and perhaps they represent a different mortuary treatment for some children and infants.

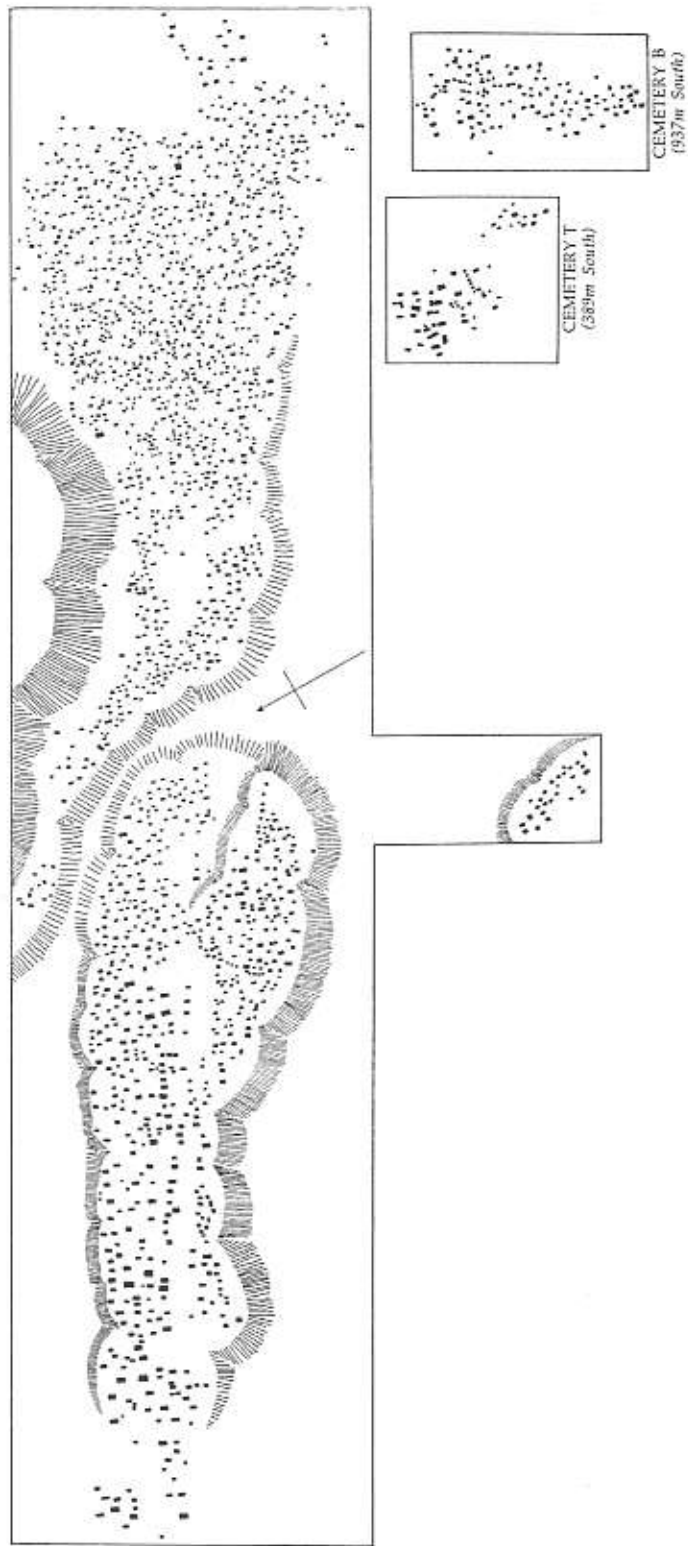


Fig. 10 Petrie's Plan of the Naqada Cemeteries

The largest cemetery excavated at Nagada is the 'Great New Race Cemetery', so called because initially Petrie thought the burials in this cemetery represented a different culture from that of pharaonic Egypt (Petrie and Quibell 1896: vii). There are 2043 graves drawn on Petrie's 1896 map of this cemetery, which for convenience here shall be termed 'Cemetery N' (for Nagada). Cemetery N can be separated into two geographically distinct areas separated by a wadi:

1. a western cemetery, 'N West';
2. an eastern cemetery, 'N East'.

The northeastern corner of N East is only 150 m from the southwestern edge of South Town, the oldest part of the settlement, according to Hassan and Matson's (1989: 314) pottery seriation. The earliest cemetery, then, was closest to the earliest occupation at South Town, and through time the cemetery expanded west, as the town expanded north and east. The other two Predynastic cemeteries excavated by Petrie at Nagada are Cemetery T, with 69 graves, located 389 m south of Cemetery N, and Cemetery B, with 144 graves, almost 1 km south of Cemetery N. A total of 2256 Predynastic graves (including the 2043 graves in Cemetery N) can be counted on Petrie's 1896 map of Nagada, but if the Predynastic graves excavated by Quibell to the north of Nagada at Ballas are included, around 3000 graves were excavated in 1894-95 (Petrie and Quibell 1896: 9).

Petrie and Quibell made several general observations about the Predynastic burials at Nagada and Ballas. The 'New Race' burials usually had the head to the south, facing west, with the flexed body lying on its left side (Petrie and Quibell 1896: 30). Even among intact burials there were many 'imperfect' skeletons, with parts missing or displaced (Petrie and Quibell 1896: 9). Such burials may indicate a secondary burial after some form of body processing, or possibly disturbance by scavengers.

In terms of differentiated graves, Quibell states of Ballas that:

Graves of the same class were generally found together. At another [place] a shoal of light and easily worked gravel had been seized on for a group of poor burials ill shaped, and with only 3-4 pots. Good tombs were found far up on the desert, and on the edges of the cemetery and were not crowded together like the poor ones (Petrie and Quibell 1896: 10).

The large graves were almost always robbed, but these still contained more sumptuary goods than the poor ones, such as small beads of gold or lapis lazuli (Petrie and Quibell 1896: 10).

Problems with Petrie's Nagada material are manifold, especially in terms of missing or unpublished data. Age/sex data are scanty and unreliable, and these criteria could not be used as variables for grave differentiation in the analyses. Petrie's notes from the Nagada excavations were later published by Baumgartel (1970) with grave goods listed for 1417 graves. An appendix correcting listings of grave goods from the Nagada cemeteries was also compiled by Payne

(1987). The supplement and appendix are a better record of the Nagada burials than Petrie's, but still with significant lacunae in the data.

Baumgartel (1970: 6) states that there was confusion in the notes between the two cemeteries at Nagada and Ballas for grave numbers 1-900. Fortunately, original records of Petrie's excavations were found at University College, London in 1982, clearing up the confusion in grave listings (Payne 1987: 181). Graves 1-875 listed in Baumgartel (1970) come, in fact, from the Nagada cemetery, and not from the Ballas cemetery.

Only half of the graves on Petrie's map are numbered. Quibell writes that there was much evidence of plundering of the Ballas graves but the Nagada graves were much less disturbed (Petrie and Quibell 1896: 9). Petrie, however, left no record of which Nagada graves were disturbed or undisturbed. Petrie's sequence-dating system for the Predynastic periods was not worked out until he excavated at Hu (Diospolis Parva) in 1898-99. Although he later published sequence dates for 486 Nagada graves (Petrie 1920: pl. 51), the grave goods are not specified so the dates cannot be revised according to Kaiser's system.

A further problem is that before Petrie worked at Nagada, Jacques de Morgan excavated two 'royal' tombs there and a necropolis for 'common people' with 'very abundant' tombs of the first Egyptians (de Morgan 1897: 159, my translation). Dating to the beginning of the 1st Dynasty, mud-sealings with Aha's *serekh* were found in the one well-preserved royal tomb (de Morgan 1897: 164-68). Nothing more is known about the necropolis of 'common people'. According to Hassan's survey of the Nagada region, the two royal tombs and the necropolis are located about 6.8 km south of Cemetery N (Fekri Hassan personal communication).

Although there are many problems with Petrie's material, Nagada is such an important Predynastic site that its cemeteries cannot be ignored. The possibility of finding patterns in the data available in Petrie, Baumgartel and Payne is more important than ignoring the evidence because it does not conform to present standards of archaeological recovery and recording.

Cemetery Size and Spatial Patterns

As stated above, three Predynastic cemeteries were excavated by Petrie at Nagada: Cemeteries B, T and N. Cemetery N, with 2005 graves as counted on Petrie's map, is by far the largest, measuring 870 × 200 m. Thirty-eight more graves were excavated in two areas slightly south of Cemetery N and are included here for analysis of this cemetery, making a total of 2043 graves. The earliest graves clustered in the northeast corner of Cemetery N—i.e., closest to the oldest (southwest) part of South Town.

Cemetery B is 104 × 57 m in area. A total of 144 graves appear on Petrie's map of Cemetery B. This cemetery is on a knoll west of the floodplain and not near any known Predynastic settlement.

Cemetery T, consisting of 69 graves on Petrie's map, is the smallest of the

three Predynastic cemeteries at Nagada: 76 m². A group of large graves, some with more than one pit, is clustered in the northwest corner of Cemetery T. Also in Cemetery T was a pit containing the bones from about 20 dogs (Petrie and Quibell 1896: 26).

As only 41.9 percent of the graves on Petrie's map of the three Predynastic cemeteries at Nagada could be dated by the methods explained in Chapter 3 (following Payne's corrections, 1987), direction of cemetery growth through time cannot be certain, but patterns do seem to emerge. Cemetery N East has the greatest number of early graves, and was probably the main place of burial at Nagada in Nagada I times. In the Nagada II period, N East continued to have the largest number of graves, expanding west along the wadi. By Nagada III times, graves were densely concentrated throughout the wadi, and late graves are found mainly along the periphery of the wadi. Use of Cemetery N East, then, begins in Nagada I, with a great increase in burials in Nagada II, and the lowest number of burials in Nagada III.

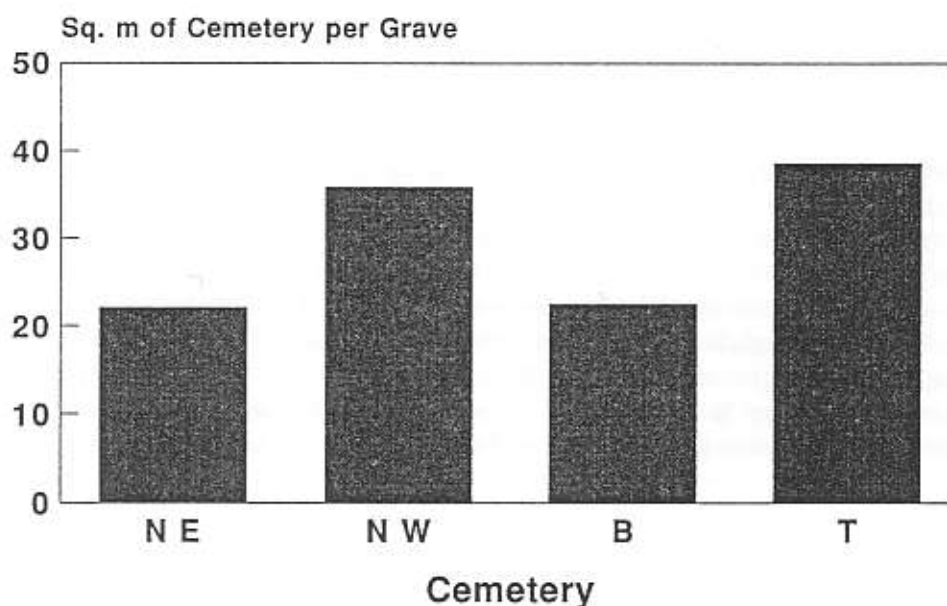
Use of Cemetery N West seems to be in reverse order to that of N East. There are few Nagada I graves, but more of Nagada III. As in N East, Nagada II graves in N West far outnumber graves of the other two periods. In terms of cemetery growth through time, the few Nagada I graves seem to be concentrated midway on the east-west axis of N West. Nagada II and III graves are distributed randomly throughout the rest of N West, with the largest and most widely spaced graves on the west side. Large graves located in the western half of N West seem to be ordered loosely in rows, which may represent some kind of centralized control for cemetery planning.

Cemetery B dates mainly to Nagada II, with very few graves attributable to the earliest and latest periods. Graves seem to be scattered in the north and south of Cemetery B, but this could be the result of missing data for graves in the central part of this cemetery.

Cemetery T has no graves clearly dating to Nagada I, a conclusion also reached by Davis (1983: 21-24). Graves of Nagada II and III are concentrated in the northeast sector of this cemetery. Unfortunately, data for the graves in the southeast sector are completely missing.

Because spacing of graves seems to vary by cemetery, the average density of graves in each cemetery was figured using Petrie's map. This was done by calculating the area of each cemetery in m² (adding numbers of gridded squares), and then dividing that by the number of graves. The results are given in Fig. 11.

Fig. 11
Nagada Cemetery Densities



Cemeteries N East and B are closely comparable in grave density, which is much higher (and therefore much more crowded) than Cemeteries N West and T. Cemetery T has the lowest density, which, when combined with its separate location and small number of burials, seems to indicate a certain amount of exclusivity. This begins in the Nagada II period. According to Quibell, 'good tombs...were not crowded together like the poor ones' (Petrie and Quibell 1896: 10).

Population estimates based on burials by period cannot be done at Nagada with any accuracy because of unrecorded data and the inability to give dates to so many graves. If the estimated 1000 years of Predynastic development (Needler 1984: 42-43) are represented by the Nagada cemeteries, which have burials dating to Nagada I, II and III, the cemeteries could not represent the entire population of the Nagada community. Known Dynastic cemeteries do not reflect the size of the living population, and it is unlikely that the Nagada ones do. With 2256 Nagada graves on Petrie's map and around 1000 graves excavated by Quibell at Ballas, the average number of burials per century would be 200-300, too small for the entire Nagada community if it was a major center. Morris (1987: 74) states that death rates of around 30 per 1000 per annum are the norm in agricultural societies. At this rate, based on the number of known burials, Nagada and Ballas would have formed a community of around 100 persons, too small to be realistic. It follows that some of the inhabitants of Nagada were excluded from burial in the main cemetery (N) and

were disposed of elsewhere or by other means, of which there is no evidence today.

The period of greatest use, in number of graves, for the Nagada cemeteries seems to have been Nagada II. This could mean either that the population was larger then than in Nagada I or III, or that Nagada II covered a longer period of time. Another factor is that many more Nagada III graves were excavated by de Morgan around the two 'royal' tombs, and the data from these graves were not published. With a shift in occupation on to the floodplain in Nagada III times, as suggested by Fekri Hassan (personal communication), a shift in cemetery location is also likely, and therefore many Nagada III graves may have been destroyed by later cultivation.

Description of Burials

In Petrie's Nagada publication, only 24 graves are drawn and described, another 115 graves are discussed as 'notable' and 44 burials are described in terms of body treatment (Petrie and Quibell 1896: 18-33). Petrie states that the typical 'New Race' graves were vertical pits, with flexed corpses laid in the bottom. None of the bodies was embalmed, and the skeletons were usually 'more or less cut up and destroyed' (Petrie and Quibell 1896: 18), which probably indicates disturbed burials.

Petrie gives little information about intrusive burials. Although his map of the cemeteries shows no overlapping pits, Baumgartel (1970) lists grave goods from seven graves as from the 'Upper' or 'Lower' grave (6, 45, 93, 108, B50, T4), or 'First' or 'Second' grave (583), as recorded in Petrie's notebook. These comments probably refer to intrusive burials, although there is no specific mention of such at Nagada.

Though infrequent, multiple interments also occurred at Nagada. Castillos, who copied data from Petrie's Nagada notebook in 1978, recorded 33 multiple burials in Cemetery N and six in Cemetery B, mainly of two bodies per grave (Juan José Castillos personal communication). The remaining multiple burials recorded by Castillos from Petrie's notebook were in Cemetery T (Table 10), which has a relatively high frequency of multiple burials (8 percent).

Table 10. *List of Multiple Interments in Nagada Cemetery T*

<i>Grave</i>	<i>Number of interments</i>
T4	6
T5	6
T10	3
T15	4
T20	3
T22	3
T23	7

Data from Petrie's Nagada notebook, as recorded by Castillos, were also used here for an analysis of grave shape, grave size and orientation. All of the graves drawn in Petrie's publication except one (Grave 177) are rectangular. Recorded grave shapes for each cemetery are listed in Table 11.

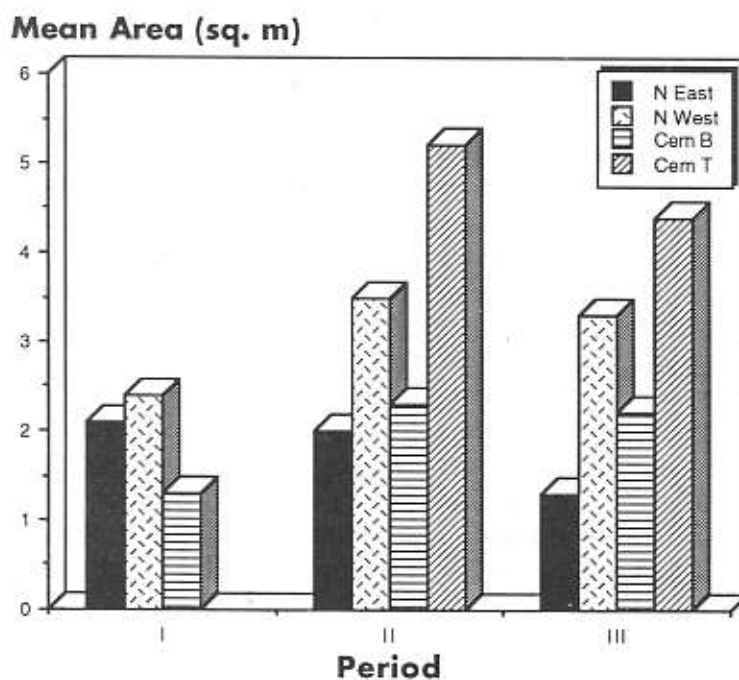
Table 11. *Grave Shapes Recorded for Nagada Cemeteries*

<i>Cemetery</i>	<i>Oval</i>	<i>Round</i>	<i>Rectangular</i>
N West	22	0	127
N East	23	7	92
B	12	4	76
T	1	0	46

Most of the grave shapes recorded at Nagada were rectangular. If oval graves are earlier than rectangular ones, as has frequently been suggested, then the early burials were more common in Cemeteries N and B. With only one recorded exception (Grave T8), oval burials were not found in Cemetery T.

Mean grave size (m^2 of floor area) of dated burials at Nagada also differs according to cemetery and period (Fig. 12). Some of these figures are slightly different from those given in Bard (1989a), since the Nagada graves database was updated using the corrections of Payne (1987).

Fig. 12
*Mean Grave Size (m^2) at Nagada
By Cemetery and Period*



Graves in Cemetery N West and Cemetery B increase in size from Nagada I to Nagada II, while graves in Cemetery N East decrease. Graves of Nagada III date are smaller than those of Nagada II in all four cemeteries. Cemetery T has considerably larger mean grave sizes for Nagada II and III graves than the other cemeteries do, which may in part be a function of the greater number of multiple burials in this cemetery.

Of the 200 body orientations recorded in Petrie's notebook (after Castillos), all but six (3 percent) are with the head to the south, lying on the left side, with the head facing west. Although the sample is small, body orientations in burials at Nagada seem highly standardized.

All burials that Petrie excavated in the Nagada cemeteries were flexed. Skeletons with incomplete bones mentioned by Petrie might represent secondary burial after some kind of body processing. One undisturbed grave, T5, contained bones that, according to Petrie had been cut at the ends and the marrow scooped out (Petrie and Quibell 1896: 32). Petrie's proposal that this is evidence for cannibalism is questionable, however, since missing and damaged bones may represent disturbance by scavengers such as hyenas, jackals and rodents. Hoffman (1979: 116) suggests that those buried in Grave T5 were ritually sacrificed, but the evidence is unpersuasive.

Petrie states that the typical graves at Nagada were vertical pits with the body on the floor, whereas 'the pit in all wealthy graves was roofed over with beams and brushwood'. A few unusual graves, such as B14 and T4, had wooden coffins, and Grave N17 was lined with mud-brick (Petrie and Quibell 1896: 18, 20, 23). Some graves are also listed by Petrie as having had the corpse wrapped in matting, skin or cloth (Petrie and Quibell 1896: 18-29). Aside from these few descriptions, nothing more is known from Petrie's publication about grave construction or linings at Nagada.

More recently, Kemp (1973: 40) has reconstructed on paper three brick-lined tombs in Cemetery T (T15, T29 and T23) from Petrie's notebooks. Similar in construction and scale to the Decorated Tomb (100) at Hierakonpolis, with its well-known wall paintings, the three brick-lined tombs at Nagada were perhaps large enough to merit some kind of small protective superstructure over a vaulted or flat-beamed roof. Kemp (1973: 42-43) suggests that the brick-lined tombs of Nagada II were antecedent to the large royal single-chambered tombs on the Umm el-Qa'ab at Abydos, from the early 1st Dynasty, and Kaiser and Dreyer (1982: pl. 12) clearly demonstrate the evolution of the earliest royal tombs at Abydos from Nagada Cemetery T.

Description of Grave Goods

As at Armant, pottery was the most common type of grave goods found in the Predynastic burials at Nagada. According to Quibell, no 'New Race' pottery was wheel-made (Petrie and Quibell 1896: 11). Pottery at Nagada is of the same classes as those described for the Armant Predynastic burials in Chapter 4, with some modifications according to the new chronology of Decorated class pots from Nagada of Payne's (1990). Unlike at Armant, organic remains were found

in pots from Nagada burials. Quibell reports that R-class shaped into conical pots and small flasks usually contained ashes, and some had dorsal spines of fish. W-class was often filled with 'aromatic fat' and/or mud. Very few B-class pots were found with any contents (Petrie and Quibell 1896: 11-12).

Some general observations about pots in the Nagada and Ballas graves were noted in Petrie and Quibell's publication. W-class was never found in the poorer graves, which contained only two or three B-class pots. B-class was found in larger quantities and greater variety of form than any other class of pottery. Except for late Predynastic (Semainean) graves, which had L-class, B-class was found in graves of all other periods. Often the B-class pots were worn at the bottom, presumably from use prior to burial. P-class was the next most common ware after B-class. Pots were usually placed at the north or south end of the grave (Petrie and Quibell 1896: 12-13).

It is significant that the classes of pottery found in Predynastic burials were also found at South Town. Petrie (1896: 50) writes that 'in the houses of South Town I found pieces of almost every variety of pottery that we know from the New Race graves'. These include B-class, P-class, C-class and D-class.

Slate palettes were found in the Nagada and Ballas burials, placed before the skeleton's face. Quibell states that, unlike Armant, palettes were found in all but the poorest graves (Petrie and Quibell 1896: 10). The same types of palettes as at Armant were found at Nagada and Ballas.

Next to pottery, beads were 'extremely characteristic' of burials at Nagada and Ballas (Petrie and Quibell 1896: 10), as was true at Armant Cemetery 1400-1500. Many carved stone vases were found at Ballas, but Quibell states that it was rare to find two stone vases in a grave, and many 'good' tombs contained no stone vases at all (Petrie and Quibell 1896: 10).

A greater variety of tools was found in the Nagada burials than in those at Armant. These included needles, spoons, spindle whorls, fish hooks, chisels, awls, harpoons, adzes, bead grinders, a crucible, weights and plummets. The materials were chipped stone, carved bone, and copper and other substitutes. Ceramic boats were found in a few Nagada graves (Petrie and Quibell 1896: pl. 36), as were two Mesopotamian-style cylinder seals (Baumgartel 1970: 8). Such objects were not found at Armant. One of the cylinder seals, in limestone with irregular wavy lines, comes from Grave 1863 in N East (Petrie 1920: 40). The other cylinder seal, made of lapis lazuli, has been clearly identified through Payne's (1987: 182) research as coming from Grave T29. Those grave goods described earlier for Armant, however, are also seen in Petrie's Nagada burials. Stone maceheads were included in a number of burials at Nagada but were absent at Armant.

In terms of rare materials, only two ivory bracelets were found in burials at Nagada (Baumgartel 1970: X, XXXI). Judging from their diameter, these bracelets would have been made from elephant (not hippopotamus) ivory, which was probably imported from outside the region. Other ivory artifacts, which occurred frequently in Nagada graves, were small objects that could probably have been carved from local hippopotamus canines.

Gold and silver objects, mostly beads, were found at Nagada, but not at Armant. In addition, a greater variety of exotic materials for grave goods is seen

at Nagada than at Armant, including obsidian, turquoise, ironstone, felspar, granite and porphyry (Baumgartel 1970). Copper objects were rare at Nagada, but did occur (Petrie and Quibell 1896: 14).

On the whole, the Nagada burials demonstrate the same material culture as at Armant, but one with more wealth—i.e., greater quantities of grave goods in some graves, and more grave goods of rare materials. The greater variety of craft goods and materials in the Nagada burials is probably due in part to the much larger number of burials there, and therefore its greater sample size. The cemeteries at Nagada and Ballas are the largest known group in Predynastic Egypt, and even though many burials had been robbed in antiquity, these cemeteries represent a concentration of grave-goods wealth not found elsewhere.

Analyses of the Predynastic Burials at Nagada

Twelve variables were chosen for the graves (grave number, location, length, width, shape, sex, number of burials, age, orientation, Kaiser date, cemetery, comments). Seven variables were chosen for grave goods (grave number, goods number, name, type, material, quantity, comments). There were many gaps in the data because of the deficiencies of recording and publishing.

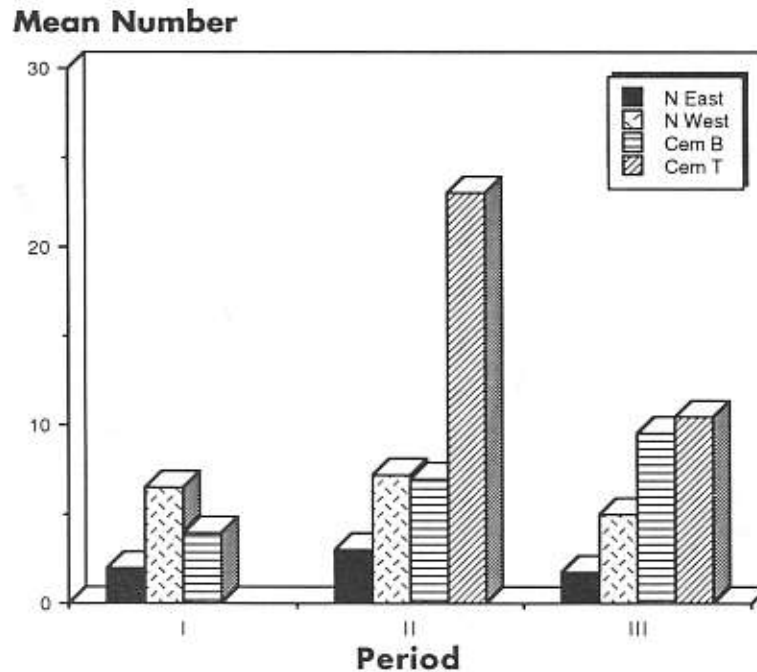
The large number of burials at Nagada demanded analysis of graves by cemetery. Such analysis was also done because classes of graves seemed to be differentiated by cemetery. As the graves in Cemetery N were excavated and numbered more or less sequentially, the graves could be divided between N West (56–499 and 1200–1299) and N East (500–1195 and 1301–1953) for purposes of the analysis.

The working hypothesis, based on a review of the types and quantities of grave goods, and the size, spacing and location of graves, was that N West was a richer and more exclusive cemetery than N East, with Cemetery T the richest and most exclusive cemetery at Nagada. Cemetery B was thought to be similar to N East but on a smaller scale.

Analysis began with pottery, the most common type of grave goods. Three relative time periods, based on Kaiser's seriation system (1957), were used in the analysis. Unlike the pottery at Armant, that from Nagada was not well enough recorded to be assigned to finer subperiods of the Predynastic sequence.

Pottery means by cemetery location, which were recalculated after Payne's correction (1987) are given in Fig. 13.

Fig 13
*Mean Number of Pots in Dated Nagada
 Graves by Cemetery and Period*



For three cemeteries (N East, N West, Cemetery T), the highest mean number of pots per grave occurred in the Nagada II period. N West has more pots per grave than N East for every period, and also has the highest total number of pots in a single grave (86 pots in Grave 1206 of Nagada II) (Petrie and Quibell 1896: 27). The highest mean number of pots per grave is in Cemetery T. Graves that could only be placed in a span of two periods (Nagada I–II or Nagada II–III) were not included in this analysis because they would not be useful as indicators of changing variables through time.

Percentages of pottery classes by period at Nagada were also not calculated. Unlike the records for Armant Cemetery 1400–1500, where pottery class numbers are given, Petrie's notebooks for Nagada left many details unrecorded. The earlier graves at Armant have high percentages of B-class, while there is a shift to mainly L-class in the latest graves. Although this cannot be demonstrated at Nagada because of poor recording, the same kind of shift in percentages of classes of pottery at Nagada is also suggested by Petrie (1896: 36–42) in his descriptions of the Nagada pottery.

Quibell states that although large graves were almost always robbed, they still contained more 'objects of interest' than the poorer ones (Petrie and Quibell 1896: 10). The presence or absence of rare materials in Nagada graves, as in Armant Cemetery 1400–1500, might be a valid basis for burial differentiation. Therefore, in the Nagada analysis frequencies were run on the 101 different materials present in graves (as listed in Baumgartel 1970 and

Payne 1987), and six different groups (called NewMaterial) based on these frequencies were established. Table 12 lists the results of these frequencies at Nagada.

Table 12. *Frequencies of Materials of Nagada Grave Goods by NewMaterial Group*

Group 1	Materials occurring 1-3 times: black steatite, calcite, chalcedony, Cleopatra shell, crocodile tooth, diorite, emery, felspar, fossil shell, lead, lion's claw, micaschist, olivine, pitchstone, quartz, quartzite, sea urchin, volcanic ash
Group 2	occurring 4-10 times: coral (<i>Tubipora</i>), gold, granite, ironstone (specular iron), marble (veined), obsidian, papyrus, quartz (crystal, rock crystal), serpentine, silver, tortoise shell, turquoise
Group 3	occurring 11-20 times: agate, galena, garnet, glazed steatite, lapis lazuli, linen, marble, ostrich-egg shell, red ocher/hematite, resin, steatite, syenite
Group 4	occurring 21-100 times: alabaster, amber, basalt, breccia, carnelian, copper, faience, limestone, malachite, porphyry, wood
Group 5	occurring 101-999 times: flint, ivory, slate
Group 6	occurring 1000+ times: fired clay

There are 44 materials from Nagada not listed here that were given a value of zero, as these were either too indefinitely labelled ('skin', 'bran'), or were common local (organic) materials ('lamb bones', 'mud') and not craft goods. The 'amethyst bead' reported at Nagada by Petrie was not included in these NewMaterial groups since Lucas states that it was too soft to be that gemstone (Lucas and Harris 1962: 388).

Cross-tabulations were then calculated on the NewMaterial groups by grave number. When pottery was included as a sixth NewMaterial group, the cross-tabulations showed that most graves at Nagada contained pots, while significantly fewer graves had grave goods in the NewMaterials 1-5 groups. The percentage of graves with NewMaterials 1-6 was calculated by cemetery (Table 13).

Table 13. *Percentage of Nagada Graves with NewMaterials*

Cemetery	Number of graves	NM1	NM2	NM3	NM4	NM5	NM6
N East	772	2.3	4.3	15.7	37.8	73.2	2.31 pots
N West	445	2.2	5.6	14.6	52.3	100.0	4.88 pots
B	92	0.0	2.0	8.7	21.7	28.3	5.99 pots
T	49	2.0	6.1	38.8	59.2	61.2	13.00 pots

In terms of rare materials in graves by cemetery, there is not as much differentiation of percentages as might have been expected. Cemetery B has the lowest percentages of NewMaterials of the four cemeteries at Nagada, and there is not much difference in NewMaterials 1-3 in graves of N East and N West. Significant differences between N East and N West, however, are seen in NewMaterials 4 and 5, and in the number of pots per grave.

If Cemetery T was the burial place of a (political) elite, it would probably have had different classes of burials than the other Nagada cemeteries, such as larger graves, with larger quantities of grave goods, and more sumptuary grave goods. The wealth of Cemetery T, however, is not seen in the percentages of NewMaterials, except in NewMaterials 3 and 4, and the much greater number of pots per grave. That there is not that much differentiation in NewMaterials 1 and 2 (rarest materials of grave goods) by cemeteries at Nagada is probably the result of grave robbing. Other factors, such as discrepancies in samples of each cemetery and recording methods of the excavator, could also account for the differences in percentages.

As for Armant Cemetery 1400-1500, analyses of pottery and NewMaterial groups did not clearly determine patterns of grave differentiation within cemeteries at Nagada, and the data were submitted to cluster analysis, using the BMDP K-means clustering method. Variables chosen for the cluster analysis were the following:

1. total number of undecorated pots (B-, P-, R- and L-classes);
2. total number of decorated pots (C- and D-classes);
3. total number of W-class pots;
4. vessels of hard stone (agate, basalt, diorite, granite, porphyry, slate, syenite), abbreviated SV1;
5. vessels of soft stone (alabaster, breccia, limestone, marble, serpentine, steatite, volcanic ash), abbreviated SV2.

Variables 1-3 are the same as those used in the Armant cluster analysis. Grave size was not used as a variable in the main Nagada cluster analysis because so few grave dimensions were recorded in Petrie's notebooks. Cluster analysis for Nagada graves with recorded grave sizes was done separately, but the clusters conformed to the same groups when size was not used as a variable. As for Armant, the distribution of NewMaterials in Nagada graves was patchy, so these were not used as variables in the cluster analysis. Palettes were not used as a

variable in the cluster analysis, either. Although Quibell mentions that most graves contained palettes (Petrie and Quibell 1896: 10), relatively few were recorded in Petrie's notebooks, suggesting that there are data missing from his records, or that Quibell was only referring to the burials at Ballas. The last variables chosen, carved vessels in hard and soft stones, were thought to be important for grave differentiation at Nagada, where they are much more frequent than at Armant. Vessels of hard stone were differentiated from those of soft stone because of the greater skill and time required to carve the forms.

The BMDP K-means cluster analysis with Euclidean distance was first done on the Nagada graves by time period: Nagada I, II and III. A finer division of periods could not be used, as for Armant Cemetery 1400–1500, because many of the Nagada graves could only be dated within the three general periods. As with the Armant cluster analysis, data underwent Log_{10} transformation prior to analysis.

Cluster analyses by period, using graves of all four Nagada cemeteries, did not cluster by cemetery. A lack of spatial patterning in the clusters occurred because the four cemeteries represent the same material culture with the same types of grave goods, but with ranges of richer to poorer burial types, in terms of numbers of pots and stone vessels. These cluster analyses indicated, however, that Cemeteries T and N West have higher numbers of graves in the richest clusters of the different periods than Cemeteries B and N East, and proportionately fewer graves in the middle-range and poorest clusters (with few grave goods).

As these cluster analyses did not clearly demonstrate how grave types are differentiated *within* each cemetery, the K-means cluster analysis was run again on each cemetery by period. Clusters formed for the dated Nagada graves by cemetery and period are given with means of variables in Figs. 14, 15, 16, 17, 18 and 19. The data in Figs. 14, 15, 16, 17, 18 and 19 are slightly different from those published earlier (Bard 1989a) because the Nagada database has been revised according to Payne's (1987) list.

Use of the K-means cluster analysis was iterative. Cluster analyses were run several times with two to eight clusters allotted, depending on the number of graves per cemetery and period. The best number of clusters allotted was decided in one of two ways. First, if a cluster formed only with one grave, the number of clusters allotted was considered too high. The dated Cemetery T graves of Nagada II formed two clusters, of one and 14 graves. The one grave was T23, the largest recorded in Cemetery T and one lined with mud-brick, but with only one R-class pot, 'some' W-class and one stone vase (Baumgartel 1970: LXVIII): therefore, it was probably robbed. Secondly, clusters that were differentiated simply by one and two undecorated pots were also considered too small (such as the four clusters that formed for N East of Nagada II), and a smaller number of clusters was allotted.

Fig. 14
Means of Pottery Classes
Nagada Clusters, Nagada I Period

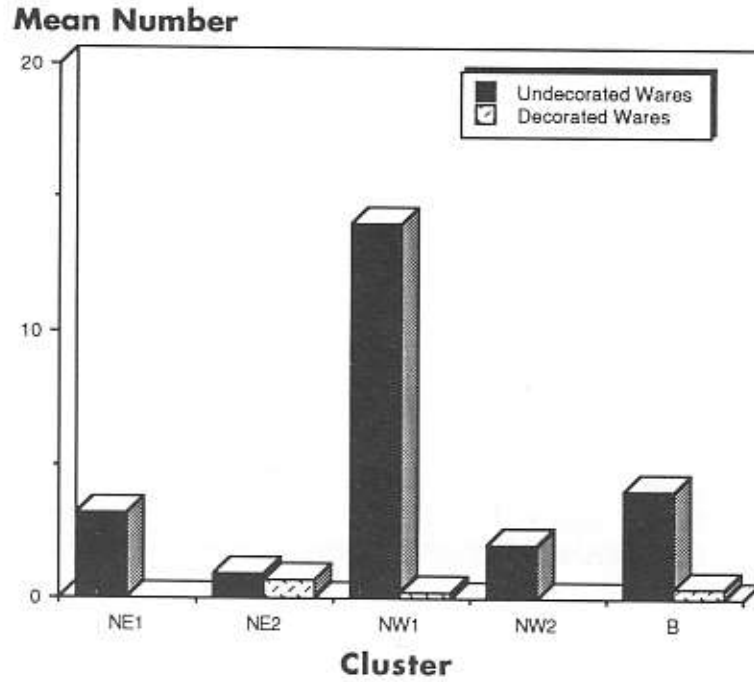


Fig. 15
Means of Stone Vessels
Nagada Clusters, Nagada I Period

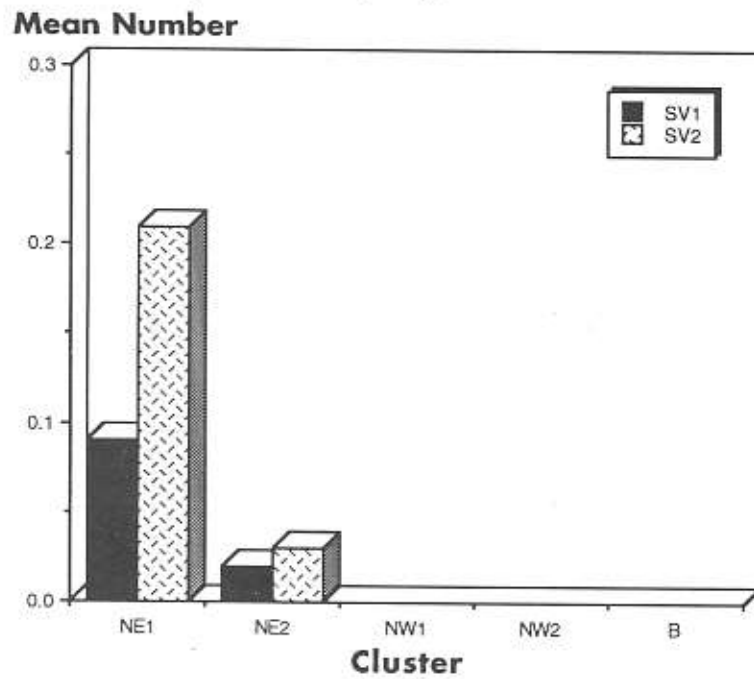


Fig. 16
Means of Pottery Classes
Nagada Clusters, Nagada II Period

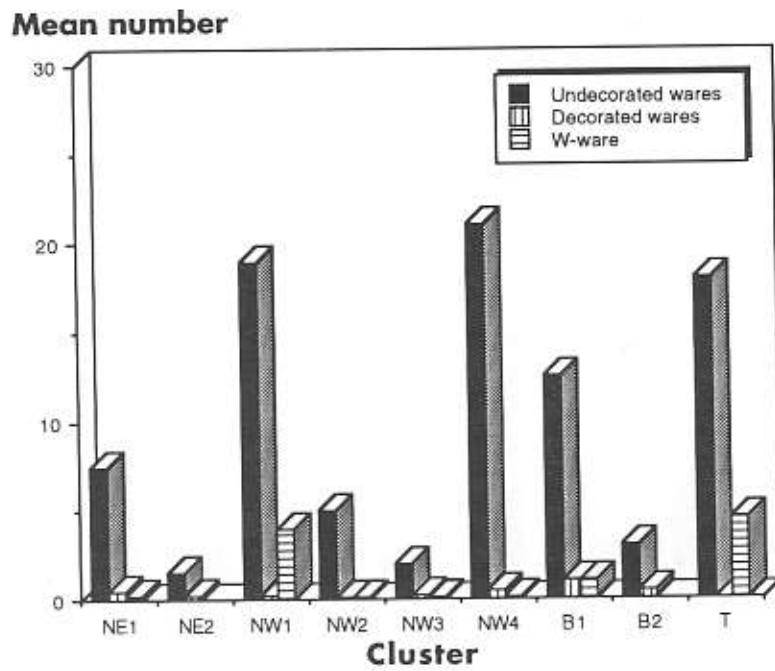


Fig. 17
Means of Stone Vessels
Nagada Clusters, Nagada II Period

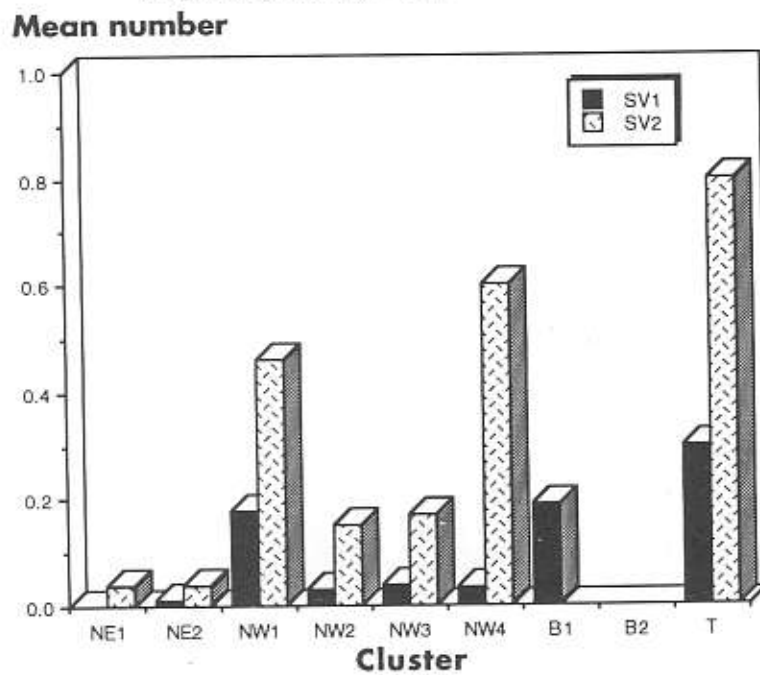


Fig. 18
Means of Pottery Classes
Nagada Clusters, Nagada III Period

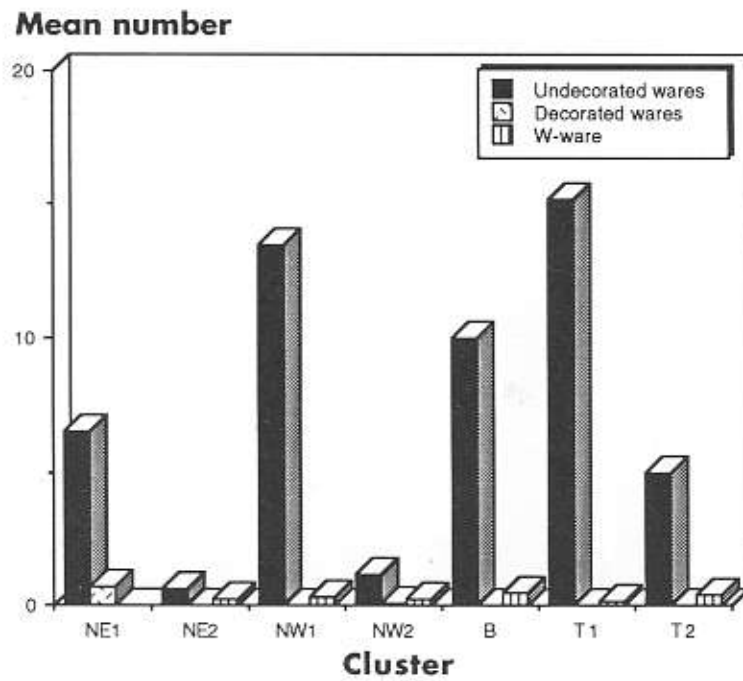
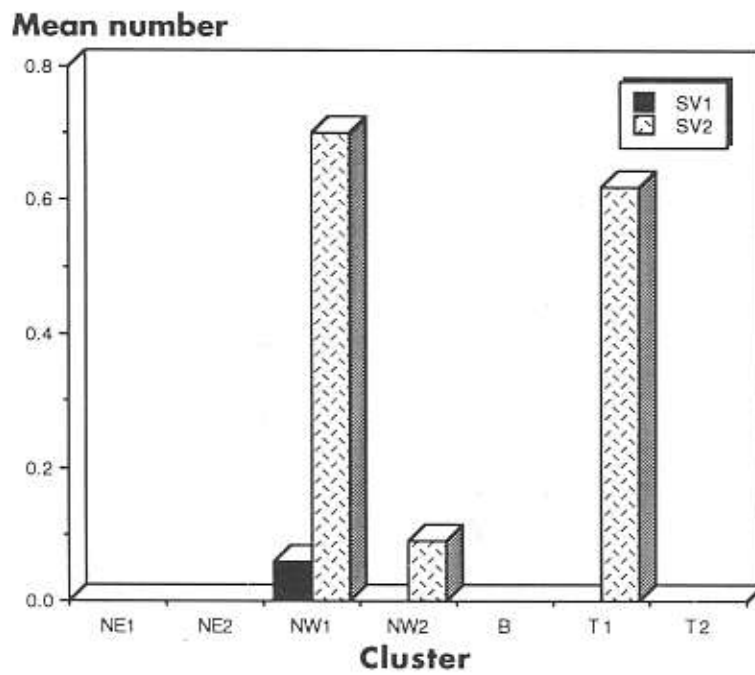


Fig. 19
Means of Stone Vessels
Nagada Clusters, Nagada III Period



Certain patterns that emerged in the Nagada clusters seem significant. In Nagada I, graves are differentiated into two clusters: those with higher and lower means of undecorated class pots. The four graves of Cemetery B dated to Nagada I were too few to attempt cluster analysis. With only 11 graves in N West dating to Nagada I, the sample is also small, but there is a clear division between a small number of graves with a high mean number of undecorated class pots (13.75) and a larger number of graves with a much lower mean number of undecorated class pots (1.7). In N East, the same two-cluster hierarchy is seen as in N West, but for a much larger sample (92 graves) with considerably lower means of undecorated class pots for the two clusters (3.21 and 0.86, respectively). Means of decorated class pots vary by cemetery, but do not seem to be a significant variable for differentiation. Means of stone vessels are low in the N East clusters, and nonexistent (0.00) for N West and Cemetery B. Even with only a small number of Nagada I graves, N West is richer than N East in terms of numbers of undecorated pots per burial, which proved to be a criterion for differentiation in the Armant graves of Nagada Ic date. In the clusters of Nagada I date at Nagada, there are a few richer graves in N West (Cluster 1) along with a greater number of poorer ones, and poorer graves of two levels in N East.

Nagada II is the period of greatest complexity of grave types at Nagada. In this period Cemetery T was first used and W-class pottery was introduced. At Armant, a high mean number of W-class was an important variable for differentiation in Nagada Iic-d. At Nagada, W-class also seems to be an important variable for differentiation: Cemetery T, thought to be the richest at Nagada, also has the highest means of W-class in its clusters for both the Nagada II and III periods.

In Nagada II, there is a greater hierarchy (clusters) of grave types in N West from richer to poorer, the richest graves having high mean numbers of pots. Four clusters were formed: two of richer graves, and two of poorer graves. Cluster 1 ($n = 11$) and Cluster 4 ($n = 25$) have relatively few members, and the highest mean number of undecorated class pots (19.09 and 21.24, respectively). Both clusters have relatively high mean numbers of soft stone vessels, but what probably differentiates the graves of Cluster 1 from those of Cluster 4 is the high mean number of W-class (3.55) in the former. Petrie and Quibell (1896: 12) state that the 'poorer graves...never contained any of these wavy-handled patterns', and Cluster 1, with more W-class than the other clusters, seems to represent the high-status burial type for Nagada II. The poorer graves of Nagada II date in N West (Clusters 2 and 3) have low mean numbers of undecorated class pots and other grave goods. Cluster 3, the largest, represents the most common group of graves in N West of Nagada II date ($n = 89$), and has only one or two undecorated pots per grave.

Only two grave types (clusters) are found in the largest cemetery of this period, N East, the most common containing only one or two undecorated pots. Cluster 1 has fewer graves (59) and a higher mean number of undecorated class pots (6.6) than Cluster 2 ($n = 223$), with only one or two undecorated pots per grave. Means of all other variables for both clusters of N East are low.

Cemetery B in the Nagada II period also separated into two clusters. The more common grave type in Cemetery B (Cluster 2, $n = 17$) has two or three undecorated pots per grave. Cluster 1 has the highest mean number of decorated class pots in the Nagada II period of all cemeteries.

Cemetery T, the richest cemetery in the Nagada II period in terms of pottery (including W-class) and stone vessels (both SV1 and SV2) did not group well ($n = 15$) into clusters with distinct characteristics. That Cemetery T was to some degree an exclusive place of burial (in terms of grave goods and location) first used in Nagada II is suggested by high mean numbers of grave goods.

In the Nagada II period, then, there is a hierarchy of graves in Cemetery N West from richer to poorer, the richest having high mean numbers of undecorated pots and W-class. Only two grave types are found in the largest cemetery of this period, N East, the most common containing only one or two undecorated pots. Cemetery B is similar in grave types to N East, but somewhat richer. Cemetery T is the richest Nagada II cemetery in terms of undecorated and W-class pots, and hard and soft stone vessels.

In the Nagada III period there is an unexpected drop in means of pots and stone vessels in three cemeteries. Cluster 1 of Cemetery T has the highest mean number of undecorated and W-class pots for all clusters of Nagada III date (15.2 and 1.4, respectively). The poorer grave type in Cemetery T of Nagada III date (Cluster 2) is still richer than the poorer graves in N East and N West of this period. The reason for the high mean number of pots for the only four graves that could be dated in Cemetery B (with a very high SD of 14.25) is that one (Grave B25) has 31 undecorated pots and two W-class pots, while the three other graves are of the poorer type, with only two undecorated pots per grave and no other grave goods. In any event, Cemetery B, with only four dated graves for the Nagada III period, is too small a sample for comparison.

Graves of N West clustered into two groups. The smaller Cluster 1 ($n = 16$) has a high mean number of undecorated class pots (13.25), whereas Cluster 2 graves ($n = 37$) contained only one undecorated pot per grave. Graves of the two clusters for N East in Nagada III are poorer than those of N West, and Cluster 2 of N East has the lowest mean number of undecorated class pots (0.58) for clusters of all periods.

Analyses for the Predynastic graves at Nagada indicate much greater differentiation than for those for Armant, even though there is much more information missing from Nagada. Differentiation of graves at Nagada was not only by quantity and form of grave goods, but also by location. Nagada II was the period of the richest graves (in form and quantity of grave goods), while Nagada III shows a decline in the number of grave goods in all cemeteries. Cluster analysis suggests that the period of greatest differentiation of grave types was also in Nagada II.

In terms of form and quantity of grave goods, Cemetery N West has consistently richer clusters than N East. The Cemetery B clusters suggest some kind of middle-status burial place, with neither very rich nor very poor burials. The consistently rich graves of Cemetery T in the Nagada II and III periods (Cluster 1) suggest some measure of exclusivity by burial location.

This spatial and temporal differentiation of grave types at Nagada seems to

indicate an increasing social complexity through time, from Nagada I to Nagada II, followed by a decline of differentiation in Nagada III. Cluster analysis suggests that the society at Nagada was much more complex than that at Armant, with more hierarchical levels of grave types, probably reflective of social status differences, particularly during Nagada II. Although the database for the Nagada cemeteries was lacking in certain variables (especially evaluations of age and sex), certain patterns with social evolutionary implications seem to emerge.

The Emergence of Elites at Nagada

The Nagada and Ballas cemeteries numbered over 3000 graves, with a still larger number of individuals given the occurrence of multiple burials. The Nagada burials form the largest known group of Predynastic cemeteries in Egypt and probably represent a society that by Nagada II times had become largely sedentary, living in the permanent mud-brick settlement of South Town, with outlying farming villages that had their own, smaller, burial areas. In Predynastic Egypt cemeteries seem to have been located near their settlements, and therefore the very large Cemetery N must represent a large nucleated center (South Town) and not a burial cult center for the region with the deceased of many different settlements being interred there. Cemetery B and Hassan's el-Khattara burials to the south of Cemetery N would thus be those of local villagers. While population increase in Predynastic times cannot be inferred from the Nagada data because there is no control for absolute time, nucleation of society is perhaps indicated by the high concentration of burials there.

Because of the size of the Predynastic cemeteries at Nagada, interpretation of the analyses is more complex than that for Armant. The latter was chosen for analysis in part because of its contrast to Nagada. That the burials at Nagada are greatly differentiated, unlike those at Armant, is not in question. Variables for mortuary differentiation at Nagada, however, are problematic because of the incomplete nature of Petrie's Nagada data and the certainty that many graves were disturbed. Other problems need to be addressed: first, the paucity and unreliability of age/sex data; secondly, possible changes in the variables for differentiation through time; and thirdly, how these variables can be interpreted in terms of social organization. Despite such problems, this study proposes that changes in mortuary patterning occurred over the course of a millennium in what was a (and possibly *the*) major Predynastic center in Upper Egypt.

As at Armant, while the Nagada cemeteries cannot contain the entire population, the principles by which burial exclusion was practiced probably cannot be specified now. Possibly there were other areas of lower-status burials on the floodplain close to the settlement, where graves would have been easy to dig, and these burial areas were destroyed by later cultivation; such was the fate of part of South Town. Quibell describes a child's burial in the Ballas cemetery (Grave 32) as 'one of a rare class, for very few children's

graves were found' (Petrie and Quibell 1896: 15). Since some child burials were found at North Town (Petrie and Quibell 1896: 2), graves of some adults were possibly located within settlements, and not in formal cemeteries. Whether there were social reasons for burial exclusion from the main Nagada cemetery (N) cannot be determined.

Unequivocally, the Nagada cemeteries exhibit much greater differentiation than Armant Cemetery 1400–1500. The Nagada cemeteries contained more than 10 times the number of Predynastic burials than Armant. Grave goods at Nagada represent a much greater diversity of types and materials than at Armant, and exist in much greater quantities in some burials. Elaborate grave facilities, such as the three brick-lined tombs in Cemetery T and other large graves which were roofed, are not found in Armant Cemetery 1400–1500, nor is there a spatial separation for what appears to be the elite Cemetery T. How the Nagada mortuary data differ from what was recorded at Armant is suggested by Morris's (1987: 110) statement concerning mortuary variability:

Where individuals of a wider range of rank positions take part in funerals as the deceased, the range of possible social personae adopted by both sides in the interaction, and therefore differentiation in funerary practices, will be much greater.

Criteria for grave differentiation at Nagada were first recognized by Petrie and Quibell. The 'common' size grave at Nagada was $1.5 \times 1 \times 1$ m, while others were smaller. Some graves had up to 80 pots and were $3 \times 2.5 \times 1.8$ – 2.5 m or larger (Petrie and Quibell 1896: 9). 'Graves of the same class were generally found together' with 'good tombs' far up on the desert and on the cemetery edges, 'not crowded together like the poor ones' (Petrie and Quibell 1896: 10). Large graves were almost always robbed, but still contained more 'objects of interest' than the poor ones, and the pit in all 'wealthy' graves was roofed over with beams and brushwood (Petrie and Quibell 1896: 10, 18). Poor burials were sometimes in loose and easily dug gravel.

Petrie and Quibell also recognized patterns in the distribution of grave goods. The most common beads were of carnelian, steatite, serpentine and clay. While there were many stone vases, many 'good tombs' contained none, and it was very rare for two stone vases to be in one grave. Poorer graves contained only two or three B-class pots, and never any W-class. Copper objects were rare (Petrie and Quibell 1896: 14).

Although the largest graves in N West, as drawn on Petrie's map, are in the 1200 listings, on the far west side of this cemetery where graves are widely spaced, only one grave there has published dimensions (Petrie and Quibell 1896: 27): 7.23 m² in floor area. This is also the grave with the most pots at Nagada (86), and dates to the Nagada II period. No human remains were found in this grave, but if it was for one individual, or even a family, it would certainly have been a high-status burial for this cemetery, based on size and number of grave goods. Unfortunately, other graves in this area of N West were probably robbed, as they are not found in the richer clusters of Nagada II.

One of the largest graves at Nagada, T5, contained what appeared to be a number of undisturbed grave goods, such as jars that were stacked or standing

upright (Petrie and Quibell 1896: 19). Although this contained multiple, possible secondary, burials, the grave goods in Grave T5 should probably be considered as representative of a high-status burial. Along with c. 42 pots in a very large grave pit (11.34 m²) were six stone vessels, a palette and beads in gold foil, lapis lazuli, carnelian, garnet and glazed steatite (Baumgartel 1970: LXVII). Pottery included 12 W-class jars.

If Grave T5 was undisturbed by grave robbers, the human remains in it cannot be primary interments. Petrie's notebook records five individuals (four females and a male, Baumgartel 1970: LXVII), but six crania are listed by Petrie (1896: 32) in his Nagada publication, and the minimum number of individuals in this tomb would have been six. All of the crania were found disarticulated from the postcranial remains. Some human bones were scattered around the sides of the tomb, and a 'mass of bones' lay together in a heap about 61 cm in diameter in the center of the tomb (Petrie and Quibell 1896: 32). Petrie thought that the bones, some of which were broken at the ends and had gnaw marks, were evidence of cannibalism; a more likely explanation, as stated above, is disturbance of primary burials by scavengers. Whether this unusual tomb represents members of a family whose remains were processed over time as the individuals died and then were reburied in Grave T5, or female (companions?) who were sacrificed when one male was buried, cannot be determined from Petrie's description. That such an unusual multiple burial with a wealth of grave goods was found in Cemetery T is indicative of the special status of this cemetery. This would conform with Castillos's (1982: 31) comment on nearly 7000 Predynastic burials: during Nagada II times 'a small group of people occupied the largest tombs' which were richly endowed.

Criteria for high-status Predynastic burials at Nagada can also be determined *post facto* from the 'royal' tomb excavated there by Jacques de Morgan (1897). This was a large, niched mud-brick tomb, similar in architecture to the earliest tombs in the 1st Dynasty cemetery at North Saqqara. The Nagada 'royal' tomb contained a number of grave goods of Nagada III date—cylindrical jars, rectangular slate palettes, vase stands with triangular perforations (de Morgan 1897: 181-82, 187, 199). Other grave goods were similar to artifacts in the large palace-façade tombs at Saqqara—stone bowls in a variety of materials, ivory furniture legs shaped like a cow's leg, inscribed ivory tags. Grave goods included ebony fragments, an imported material not found in other Nagada graves. Criteria for the high status of this tomb, dating to the Nagada IIIb/early 1st Dynasty, must have evolved in late Predynastic times. These criteria include a number of variables: a large tomb in monumental style, great numbers of storage pots and many craft goods (particularly carved ivory objects and stone vessels).

That Grave T5 of Nagada II date is unquestionably a high-status burial would correlate with the sociocultural model for Armant Cemetery 1400-1500, where the highest status grave, 1466, had more pots, more sumptuary grave goods, and was larger in size than other graves of this period. This model would also agree with Binford's 40 ethnographic case studies, where graves of agriculturalist societies were differentiated not only by form and quantity of grave goods, but also by location (Binford 1972: 235).

Symbols of rank and office, which the two bed burials at Armant may represent, are more difficult to determine at Nagada. In his 1896 publication, Petrie records two coffin burials (T4, B14) and one burial (3) with a bed frame, but the symbolism of authority is not really clear in these burials.

A possible symbol of authority not found at Armant, but occurring at Nagada, is the macehead. In pharaonic times, the king was frequently depicted with a raised mace, smiting his enemy. According to Brown (1981: 28), leadership will dominate the mortuary symbolism when the sphere of authority widens and power gravitates toward individuals. Although distribution was unpatterned, the relatively few maceheads in burials at Nagada perhaps indicate a social persona, albeit an unclear one, that was not present at Armant. While trends for wealthy, high-status burials at Nagada correlate with the sociocultural model for Armant burials, symbols of authority are not as readily apparent at Nagada, perhaps due to the insufficiencies of the published data. Possibly some of the variables for high-status burials, or clusters of variables, are different at Nagada from those at Armant.

At issue are the implications of wealthy Predynastic burials at Nagada, with high numbers of pots and some sumptuary grave goods, but without specific material symbols of authority, for levels of social organization. In a study of barrow burials in Anglo-Saxon England, Shepard (179: 52) states that status and wealth are not commensurate. Whereas status has more to do with the social persona of the deceased, wealth of grave goods in burials is the intrinsic value of personal possessions (Shepard 1979: 52). Susan Shennan's (1975: 282) analyses of the Bronze Age cemetery at Branc, Czechoslovakia, however, suggest that grave goods really are a reflection of the deceased's status at death. Burials in this cemetery represent unequal access to wealth for both men and women, and wealth coincided with status, particularly among the female burials (Shennan 1975: 286).

Rathje (1973: 743) states that in nonmobile (stratified) systems, social identities are not easily interchanged, and the general status level of identities is consistent within social persona. Material symbols in nonmobile systems will be acquired and manipulated in clusters, as seen in the Classic Maya burials that Rathje (1973: 744) analyzed.

In fairness, Shepard, Rathje and Shennan are analyzing data from very different cultures at different levels of development, and their hypotheses may be correct for specific burial data, but less correct in a general sense. In pharaonic Egypt the king was of the highest social status, and he also had the richest burial, as symbolized by the pyramids of the Old Kingdom or the New Kingdom royal burials in the Valley of the Kings. This type of very costly burial was possible once there was a centralized state in Egypt with major economic institutions, such as foreign trade, court-sponsored craft production, and the *corvée*, controlled by the crown. But when society was evolving in complexity in Predynastic times, the equation of status with wealth in burials may be more doubtful.

Renfrew (1974) offers a model that may be analogous for what evolved in Predynastic Egypt. In the 3rd millennium BC, complex society arose in the Aegean in which salient ranking is seen in the marked disparity in personal

possessions. In this society there is no evidence of large communal activities, and social differentiation is most clearly seen in burials. Copper daggers and artifacts in gold and silver are found in some burials. This inferred interest in wealth was not seen in burials 500 years earlier, and there seems to be a clear relationship between wealth and prestige (Renfrew 1974: 79). Lacking any better criteria at Nagada, wealthy burials can probably be equated with prestige and higher social status also.

According to Brown (1981: 29), 'as authority increases the amount of wealth and effort expended on burial will increase', which is seen on a small scale in some Armant burials of Nagada IIc-d. At Nagada there is an increase in the mean number of pots per grave from Nagada I to II, but actually a *decrease* in Nagada III. A new factor for grave differentiation that may have been present only to a limited extent at Armant seems to be operating for grave goods in the Nagada burials: differentiation by location, which Binford (1972: 235) suggests is an important factor for differentiation of graves within rank societies. At Nagada, analyses of the data point to differentiation on a large scale by cemetery location, and changes in this through time. In terms of Brown's criteria, at Nagada there is an increase of wealth and effort expended on all burials in Cemetery T and on some in Cemetery N West, as authority increased in Nagada II, but at the expense of more numerous and poorer burials in N East and N West. This complex pattern of grave differentiation at Nagada is not seen in Nagada I.

Cemetery N East has the greatest numbers of early graves at Nagada, and given that the northeast corner of this cemetery is only 150 m from the edge of South Town, it was probably the main location of burial during the early Predynastic period. By Nagada II times, the society was increasing in complexity, as was burial differentiation. Binford (1972: 237) states that the evolutionary processes affecting internal structure of a sociocultural system may result in more diverse internal differentiation, which seems to occur in the Nagada II burials. Burials of the Nagada I period at Nagada may symbolize the territorial claim of a small, but increasingly sedentary farming society at South Town, whereas by Nagada II times internal forces for social differentiation were probably regulating burial by cemetery location, as well as by form and quantity of grave goods. As Cemetery N expanded enormously during Nagada II times (with some graves quite far from the settlement) it became symbolic of the power base at Nagada.

The evidence for differentiation at Nagada by cemetery, which probably relates to social differentiation within the Predynastic Nagada community, can be seen in the results of various analyses. Four main cemetery areas developed at Nagada: N East, N West, B and T. As N West and B date mainly to Nagada II and T was not used until then, differentiation by cemetery location seems to have begun in that period. Beginning with numbers of graves in each Nagada cemetery and spacing of graves, the four cemeteries are differentiated from each other. Cemetery T, where the smallest number of graves (69) is isolated in an exclusive location, has the most space per grave, and is therefore the least crowded cemetery. Cemetery B, although isolated in location and small in size (144 graves), is as crowded as Cemetery N East, which has the highest

density of graves among the four cemeteries (1369). Cemetery N West, with less than half the graves of Cemetery N East, is second in its low density of graves only to Cemetery T. In terms of small numbers of graves and low density, Cemetery T is the most exclusive, Cemetery N West is more exclusive than Cemetery N East, and Cemetery B is on a par with Cemetery N East. The social persona of those who had access to burial in each cemetery at Nagada probably cannot be specified, but some principles of exclusion by cemetery seem to have been operative.

Mean grave size, where it has been recorded, also reflects this hierarchy of cemeteries at Nagada. The largest means for grave size (in m²) are from Cemetery T, followed by Cemetery N West. Graves in Cemetery N East and Cemetery B are the smallest in size. This hierarchy of grave size by cemetery is consistent with other results of the analyses.

Mean numbers of pots per grave by cemetery at Nagada likewise fall into this hierarchical pattern (Binford's category of differentiation by quantity of grave goods) in the Nagada II and III periods. While Cemeteries B, N East and N West all have higher mean numbers of pots per grave in Nagada II than in Nagada I, Cemeteries T, N East and N West show a drop in pottery means in Nagada III. Cemetery T has a considerably higher mean number of pots per grave in Nagada II than any other cemetery, while Cemetery N West, with much lower means of pots per grave, has the greatest range of numbers of pots in graves of all four cemeteries (from one to 86). Cemetery N East has the smallest mean number of pots per grave in all periods, with slightly higher means for pottery in Cemetery B. That Cemetery T exhibits greater energy expenditure than the other Nagada cemeteries (in terms of large grave size and high number of pots per grave), followed by Cemetery N West, may indicate different levels of rank grading according to Tainter's (1978: 136) hypothesis.

So, by form (here stone vessels and W-class pots) and quantity (number of pots) of grave goods, and location, Cemetery T seems to be the most exclusive of the four Nagada cemeteries in the Nagada II period. According to Brown (1981: 29), 'as power increases, the attachment of the powerful exclusively to locations indicative of their power base will emerge' in the mortuary ritual. Tainter (1978: 136), too, states the importance of spatial distributions of burials, which relate to corporate group differentiation. As Cemetery T was first used in the Nagada II period, perhaps this cemetery represents the emergence in power and authority of one lineage in the nucleated center at Nagada, with differential access to more and rarer craft goods, and the labor force for constructing (sometimes unusual) grave facilities.

While N West represents a richer and more exclusive cemetery than N East by the Nagada II period, the types of burials there seem to have evolved from N East, spreading horizontally through time, rather than being categorically different, as is the case with Cemetery T. As Cemetery N West increased in wealth of burial goods and larger graves in Nagada II, this may have been at the expense of burials in Cemetery N East. Thus, there seems to be a gradual differentiation in time between a smaller, corporate group within South Town with some richer graves in N West, and a much larger group of villagers with poorer graves in N East. Cemetery B, which does not contain richer burial

types and is almost 1 km south of Cemeteries N East and N West, does not seem to represent an exclusive burial location of a special lineage, but is more likely to have been the burial site of another small farming village, such as Hassan's el-Khattara sites, or possibly even a semi-sedentary group without the resources for rich burials.

How the four Nagada cemeteries were differentiated internally by grave types is suggested by the Nagada cluster analysis. Not only are graves differentiated by cemetery, but different hierarchies of grave types appear *within* the cemeteries. Cluster analysis, though, is a technique that groups together cases with the most similar variables and it cannot account for missing data. The clusters are simply artificial groupings of (grave) variables that cannot be translated directly into social classes or hierarchies, but the clusters themselves provide information that may be relevant for the interpretation of social complexity.

General trends for differentiation of grave types can be discerned in the Nagada cluster analysis. In the Nagada I period, Nagada graves are differentiated between a few richer ones (with more undecorated pots) and poorer ones in Cemetery N West, and poorer graves of two levels in Cemetery N East. In the Nagada II period, though, a completely new type of wealthy burial emerged in Cemetery T. Nagada II graves in Cemetery T are characterized by large quantities of undecorated pots, high mean numbers of W-class pots, and hard and soft stone vessels. A similar type of burial is also found in one cluster for Cemetery N West of Nagada II date, but without the higher means of stone vessels, as in Cemetery T. Other graves in Cemeteries B, N East and especially N West show hierarchies of grave types from richer to poorer—i.e., members of the society emulating the criteria of wealth as the richest burials, but with differential access to these resources. At the lowest level were members of the society buried with only one or two pots; the greatest numbers of such burials occur in Cemetery N East. Hypothetically, other low-status burials also occurred in the soft and easily excavated soil of the floodplain, but are now lost.

By the Nagada III period, graves are less differentiated by type (clusters) in Cemetery N West, and a poorer grave type appeared in Cemetery T. Collectively, there is a drop in wealth of grave goods in all Nagada grave clusters, indicating an abrupt shift in cemetery development from what evolved from Nagada I to Nagada II. Differentiation of burials decreased in Nagada III times, indicating that the high-status burials had ceased or shifted elsewhere.

Interpretation of the cluster analysis supports Petrie and Quibell's (1896: 12) statement that the 'poorer' graves at Nagada never contained any W-class pots. In early Predynastic times, ledge-handled jars may have been imported to Nagada indirectly from Palestine, where the ware is more numerous at Chalcolithic sites (Kantor 1965: 7-8). According to Amiran and Glass (1979: 54):

There is by now hardly any doubt that the ledge-handle (= Wavy handle), a diagnostic feature that Petrie and Quibell (1896: 38-40) correctly recognized as being of foreign character, 'migrated' from

Canaan, its land of origin, to Egypt, where it continued to develop independently according to the ceramic conceptions of the Egyptian potters.

As a container of imported goods, the ledge-handled jar, with its associated higher status, was emulated and made locally, hence the evolution of W-class pots in Predynastic sites, and its placement in high-status burials at Nagada, especially Cemetery T. The presence of W-class pots in elite graves at Nagada, with their origins in Palestinian prototypes (ledge-handle jars), would suggest an elite interest at Nagada in high-status goods (either imported or emulated locally) beginning in the Nagada II period.

The cluster analysis also seems to show that the Nagada II period, when the greatest range of differentiated grave types (clusters) appears, represents a corresponding greater differentiation of members of the Predynastic society. If, according to Binford (1972: 234-35), differentiation in mortuary treatment does relate to social position, then increased differentiation through time at Nagada suggests increased social complexity in Nagada II. However, longer duration may make certain periods appear more complex than others. Comparison of the Nagada II period evidence at Nagada with that at Armant might clarify this problem. The Nagada burials of Nagada II date show much greater mortuary variability than those at Armant, and even if Nagada II lasted longer than Nagada I or III, greater complexity occurred then at some centers and not at others.

Contra Tainter (1982) and Tainter and Cordy (1977), the clusters of dated Nagada II graves, grouping together types/classes of burials, probably cannot be directly equated with social levels. Morris (1987: 139) concludes that the changes in variability in burials in Greece between 700 and 500 BC 'cannot be linked in any simple and direct way with the organisational complexity of Athenian society'. Although the Nagada clusters represent different levels of energy expenditure in burials, the variables for social organization as symbolized in the mortuary evidence are probably more complex in terms of hierarchies of control and subgroup affiliation, as well as changes in these through time. Elite competition, principles of burial exclusion, and the underlying belief system which stressed the importance of burial would also have affected the burial types at Nagada.

In a general sense, though, the greater complexity of clusters seen in the Nagada II period, and not in Nagada I, represents a society that had become much more complex. The hierarchical nature of the burial evidence at Nagada is clear. Although the hierarchical structure of the society probably cannot be specified, there is a definite range of graves with many grave goods and high-status goods in Cemetery N West, and many more burials with few grave goods in both Cemeteries N West and N East. Such patterning of grave goods is at a minimum definitely that of a rank society. As Chapman (1981: 405-06) suggests for the Copper Age cemetery at Los Millares, Spain (with up to 1980 individuals buried), a chiefdom with institutionalized leadership controlling denser populations, and part-time craft specialization, can be inferred from such patterning even though the data are not good enough to show a 'social

pyramid'. Compared to Armant Cemetery 1400–1500, the Nagada cemeteries exhibit more vertical dimensions of grave differentiation, in terms of energy expenditure on burials. By inference, the Nagada cemeteries also exhibit much more dimensional complexity in the society than there was at Armant.

Although the superordinate and subordinate dimensions of the Nagada society cannot be determined according to Peebles and Kus's (1977) model because most age/sex data were not recorded, possibly the different Nagada cemeteries symbolize different dimensions of social rank and political authority. Cemetery N (East and West) may represent different levels of social rank at Nagada, whereas Cemetery T may symbolize something very different—real political authority, which emerged in Nagada II times. I suggest that Cemetery T is evidence for the emergence of a political elite at Nagada in a vertical hierarchy of levels of control. Cemeteries N East and N West, then, would represent both the vertical and the horizontal dimensions of the society, with the richer and higher-status burials in Cemetery N West possibly representing ascribed positions and positions achieved through life.

By all indications, the mortuary evidence of Cemetery T at Nagada represents members of the highest-status descent group, but we cannot tell if we are seeing the imposition or emergence of a paramount hierarchy in the Predynastic society of Nagada II times. In studies of Early Bronze Age III burials in northwest Jutland, when an incipient state may have evolved, a few males were buried in ways quite different from the rest of the population (Randsborg 1974: 60). While the burials in Cemetery T may not yet be of the monumental nature that separates royal burials of pharaonic Egypt from all other burials, they are perhaps representative of an emerging group with power and authority over other groups at Nagada. Although the symbolic badges of rank and office are not as evident in Cemetery T as one would hope for a group with increasing power and authority in a rank society, maybe the special grave facilities *themselves* in Cemetery T symbolized authority, as is later seen in pharaonic royal cemeteries and those for high officials. Perhaps the Cemetery T grave pits were once the substructures of small monumental superstructures that had disappeared by 1894–95, when Petrie excavated the cemetery—similar to what he later found in the 1st Dynasty royal cemetery at Abydos (also without superstructures) but on a smaller scale.

Three large, brick-lined graves in Cemetery T (T15, T20, T23), as reconstructed by Kemp (1973: 40) from Petrie's notebooks, all contained multiple burials, as did the undisturbed Grave T5, with 60 grave goods in all NewMaterial 1–5 groups. Kemp (1973: 42–43) suggests that these three Cemetery T graves are the predecessors to the earliest tombs in the Umm el-Qa'ab at Abydos (B10, B15 and B19), and the more elaborate structures of the 1st Dynasty kings there. Kaiser and Dreyer (1982: pl. 12), likewise, demonstrate the evolution in tomb types from five tombs in Cemetery T and Hierakonpolis Tomb 100, to the earliest tombs in the Umm el-Qa'ab, to the 1st Dynasty royal tombs. There is a concentration of wealth and symbolized power of an elite, possibly a ruling one, in the burials of Cemetery T, that is not seen earlier.

Mortuary differentiation at Nagada was underlain by an ideology that

focused on the symbolic importance of burial, and not on temple or cult center, for which there is, in any event, no archaeological evidence at Nagada. Differentiation of graves occurred at Nagada to a much greater extent than at Armant, especially during the Nagada II period, when the cemeteries became a focus for status display and rivalry (Trigger 1987: 60). Such rivalry is also seen in burials of the Early Bronze Age and Early Iron Age in Denmark, where 'costly traded goods played an important role as a medium for display' (Randsborg 1982: 135).

The dimensions of the Nagada cemeteries are so large, and the grave types so diverse, that certainly more is symbolized in these burials than simply subgroup affiliation. Some of the burials in Cemeteries N West and T represent status display and rivalry on a large scale, probably relating to wealth and power in a hierarchically structured society, and Pader's (1982) cautionary statements about such interpretations probably are not applicable for the Nagada data. Although it is impossible now to determine if the Nagada burials represent a social ideal only slightly different from the real structure of the Predynastic society, as Hodder's (1982) ethnographic studies suggest, the hierarchical nature of the burials is clear, and, inferentially, the hierarchical relationships of those members of the living society who participated in such rites to a greater or lesser degree. Because all burials represent surplus material goods and energy expenditure beyond basic subsistence, the Nagada burials do not directly represent differential access to basic resources. They do, however, represent an asymmetrical redistribution of this surplus, exchanged for goods and materials going into burials and, perforce, out of circulation in the economy. Consumption of burial goods and energy expended on graves was lopsided, with some members of the society having much greater access to these than others.

Perhaps the increased status display and rivalry in burials at Nagada represent increasing control of resources, such as land and trade, by elites. 'The procurement of minerals from the eastern desert [where the Nile approaches nearest to the Red Sea Hills] and, in particular, the organization of gold mining seem to have provided an especially powerful stimulus to the development of local, or city, states, such as at Nagada and Hierakonpolis (Trigger 1983: 49). The Dynastic name of the settlement at Nagada was *Nbt* (Nubt), possibly translated as 'city of gold', and conceivably this name originated in Predynastic times. That Nagada developed in the middle Predynastic period as a central place which 'controlled access to much of the gold and other mineral wealth of the eastern desert' (Trigger 1983: 39) is perhaps an underlying explanation for why social differentiation and nucleation developed so greatly at Nagada and not at Armant, which did not have such direct access to these resources.

On the west bank of the Nile, Nagada lies only 12 km from the Coptos-Quseir desert track, via the Wadi Hammamat. Some of the less common stones for beads and carved vessels found in Nagada graves (chalcedony, marble, sard, steatite, volcanic ash) could have been obtained in the Eastern Desert via this route, and gold was found in the Wadi Hammamat (Lucas and Harris 1962: 224, 391-92, 414-15, 419-20). This route would also have been the

probable way that Red Sea coral and shells reached Nagada. Slate for carving palettes was present in the Wadi Hammamat, and copper was possibly obtained from sites in the Eastern Desert in Predynastic times as well, and not necessarily from the Sinai (Lucas and Harris 1962: 205, 419-20).

If raw materials were coming into Nagada for processing, it is likely that Nagada also became a center of craft production, and as such a node in a trading network with other major Predynastic centers in Egypt. Stone beads and vessels, and carved slate palettes could have been produced at Nagada. Copper implements were possibly made at Nagada, but could also have been imported. Ballas today is a major pottery-producing center, and seems to have been in pharaonic times as well. Ballas, along with Qena, slightly to the north, are two well-known sources of the light-colored calcareous clay from which D-, W- and (most) L-class pots were made. Nile valley clay always burns brown or red, but 'drab' ware is made from clays washed out of the bordering limestone cliffs and deposited in certain wadis (Lucas and Harris 1962: 383-84). That standardized forms of D-class vessels are found distributed throughout Upper Egypt in Nagada II times is perhaps indicative of large-scale production of these pots in a few centers (Trigger 1983: 33), Ballas-Nagada being a likely regional center for pottery production as well as other craft goods in stone.

Ivory carvings are common in the Nagada cemeteries as well. Elephant ivory would have had to have been imported from the Western Desert or trading centers in the south, but hippopotamus ivory would have been a plentiful local resource, for local consumption and, possibly, for export as well. Only two ivory bracelets, both mended with copper wire, were found at Nagada, while most bracelets were in shell, horn, slate or flint (Petrie and Quibell 1896: 14). The rarity of these two bracelets, which would probably have been carved from elephant ivory, stands in contrast to the many smaller carved ivory objects at Nagada, most likely made from locally available hippopotamus canines.

Craft production, the control and operation of mining in the Eastern Desert opposite Nagada, and the distribution of these goods in a trading network would have required considerable organization and leadership (Trigger 1987: 59). Archaeological evidence for more complex economic activity is reported by the Italian archaeologists working at Nagada's South Town, where clay seals that had been molded over pegs and other artifacts were excavated (Barocas *et al.* 1989: 301). Unfortunately, much of South Town was disturbed from Petrie's earlier excavations there, and more specific evidence for craft production and exchange is lacking.

Bradley (1980: 174) states that in Anglo-Saxon England the import of exotic artifacts, as found in some burials, could have been controlled by a powerful elite; such control might suggest why access to certain non-utilitarian items could have accompanied the growth of political power. At Nagada, the elite who controlled the trade of precious stones and minerals, and craft goods would have used these objects as symbolic badges of status, while lesser craft goods would have filtered down to other members of the society, possibly as an integrating factor. An interpretation of the materials of grave goods at Nagada, then, suggests that trade and regional exchange were in part intended to satisfy the needs of an elite in an increasingly stratified society, and not to

provide such basic resources as were lacking in the local environment.

As at Armant, the mortuary evidence at Nagada strongly suggests that something different was happening in Nagada III times. Compared with graves dating to Nagada II, there are relatively few Nagada III graves in Cemeteries N, B and T. By Nagada III times N East and N West were becoming filled with graves, and many Nagada III graves are located on the margins of these cemeteries. According to Hassan, there are few Nagada III graves on the low desert, where Cemeteries N, B and T are located, because the Nagada III settlements, along with their associated cemeteries, moved farther into the floodplain, and are now destroyed by more recent cultivation. This movement closer to the river was the result of a drop in flood levels at the beginning of a period of increasing desiccation (Fekri Hassan personal communication).

But unlike at Armant, the Nagada III graves at Nagada show a collective drop in wealth, in the mean number of pots per grave and other grave goods, particularly in Cemetery T. Perhaps by Nagada III times Cemetery T no longer represented the ruling elite at Nagada. The shift in location to a large cemetery 6.8 km south of Cemetery N, where de Morgan excavated the two 'royal' tombs, symbolizes a break in status for those buried in Cemetery N. This also occurred at Armant, where the two high-status mud-brick tombs are found in Area 1200, not in Cemetery 1400–1500. There was still space in Cemetery T for more burials at the beginning of the 1st Dynasty, and it is unknown why this cemetery was abandoned. However, the locational change of high-status burials from Cemetery T to an area more than 6 km south may suggest a major shift in power.

Symbolic of the new royal hierarchy of the 1st Dynasty and its power were not only great quantities of pots and grave goods in exotic materials, as in earlier graves in Cemetery T, but something new: the monumental architecture of a large niched superstructure. Kemp (1973: 43) adds that 'perhaps also it is not too fanciful to see in the burials in the large 1st Dynasty tombs at Nagada aristocratic descendants of the ousted prehistoric dynasty which had once originated and perhaps ruled from there'. The analyses here would support this hypothesis, for by all variables Cemetery T is dimensionally different from the other cemeteries at Nagada.

Archaeological evidence for major centers in the early 1st Dynasty clearly shows that the power bases had shifted elsewhere—to Abydos, Saqqara and Hierakonpolis, but *not* to Nagada. This major shift away from Nagada must have, according to the Nagada III mortuary evidence, occurred in Nagada III times. Descendants of those buried in Cemeteries N West and T no longer had access to great numbers of grave goods and sumptuary goods as did their forebears. As Bradley (1980: 174) suggests for Anglo-Saxon cemeteries, the diminishing richness of grave goods could reflect a shift in power, not a change of religion. Sometime before the Egyptian Early Dynastic state coalesced, the new authority asserted its control over Nagada, and such elite burials as were the work of the local Nagada II power base disappear from the archaeological record.

Representative of the newly unified state of the 1st Dynasty, the two Nagada royal tombs can be seen as a culmination of the increasing social complexity

and hierarchical stratification that developed in gradual increments throughout Nagada II times, as seen in Nagada's Predynastic cemeteries. Emery (1967: 49) identifies the 'royal' tomb at Nagada as that of Neithotep, mother of (King) Aha. Possibly this tomb symbolizes a postunification alliance between Nagada and the newly established powers in the north, where such elaborate palace-façade tombs of high officials are more common: then, the purpose of the tomb would have been to help cement control of the newly unified state. As Kaiser and Dreyer (1982: pl. 12) demonstrate, it is not, in architectural terms, a great leap from the late tombs in Cemetery T to the earliest royal tombs at Abydos. The leap, rather, is in the power and authority that are represented: from local rulers at Nagada to kings who controlled Egypt under one centralized rule, from the Delta to Aswan.

Summary of the Analysis

If differentiation in mortuary treatment does relate to social position, then increased mortuary differentiation, as seen in Nagada I-II times, suggests increased social differentiation and perhaps stratification, one of the major factors in state formation. Hierarchical society evolved through time. To draw more specific conclusions from the Nagada mortuary data would require better recorded and more complete data. It would be preferable to have other (settlement) data to corroborate the mortuary data from Nagada, but most of the main settlement at South Town was quickly excavated by Petrie in 1894-95, and these excavations were not well recorded. As an adjunct to other archaeological data, mortuary data can be useful in demonstrating changes and overall trends in evolving societies, but any fine-line changes would require better-recorded data than those which exist for the Nagada cemeteries. In a society such as that of ancient Egypt, however, where the most striking evidence for differentiation in pharaonic times is mortuary, analysis of Predynastic mortuary data suggests the evolutionary origins of such differentiation. Although the mortuary evidence at Nagada cannot determine if a simple state evolved there, it does represent the most complex form of mortuary symbolism in Predynastic Egypt, and therefore probably the most complex society that evolved in Nagada I-II times.

Chapter 6

Conclusions

Mortuary Evidence for the Rise of Complex Society in Predynastic Egypt

While there is general agreement that a state must have developed at Nagada in Predynastic times (Baumgartel 1970; Kemp 1989; Trigger 1983), there is no overwhelming archaeological evidence to support this belief. The Nagada cemetery analyses do not reveal a clear delineation of state emergence, but rather a continuum of social complexity. According to H. Wright (1986: 357), 'pre-state societies with two or three levels of control hierarchy persisted for centuries...but with little or no increase in sociopolitical complexity'. Wright's study of the evolution of civilizations in Mesopotamia, the Indus Valley, Mesoamerica and the central Andes suggests that state emergence is a 'relatively rapid...transformation following on a period of cyclical conflict and limited growth' (Wright 1986: 358). Corresponding to this interpretation is the abrupt change in the quality of Nagada III burials at Nagada, and the emergence of clear state symbolism in de Morgan's two royal tombs. Earle (1987: 281) posits a punctuated rather than a gradualist conception of cultural evolution, and the monumental mortuary evidence of the early 1st Dynasty state, following more protracted evolution of grave types in the Predynastic period, supports this interpretation.

The state is first a political institution which affects the social and economic relations of a society. But not until there are inscriptions of kings and officials on grave goods in the 1st Dynasty cemeteries can the existence of a state in Egypt be determined with certainty from cemetery evidence. In Dynastic cemeteries there is epigraphical evidence of political roles, which are also reflected in the elaboration of burial. As a political elite emerged in late Predynastic times, the elaborateness of burial—as seen at Nagada—was probably becoming increasingly reflective of political roles as well.

Much of the evidence for the Predynastic, the culture in which social evolution from simple village societies into the state of the 1st Dynasty occurred, is mortuary. While valuable for interpreting certain dimensions of prehistoric societies, mortuary evidence has its limitations. More detailed analysis of Predynastic settlement data now underway would help to determine when the earliest state(s) emerged in Egypt. This was very likely in late Predynastic times, as Kemp suggests for Nagada, Abydos/This and Hierakonpolis (Kemp 1989: 34). But the Nagada mortuary data do not help on this point: although the Nagada II data strongly suggest an increasingly hierarchical society, the evidence is inadequate to demonstrate the existence of a state.

State organization is not always evident until a powerful state, with all of its physical traits, has been in existence for some time—i.e., postdating by a possibly considerable period its emergence as a state.

What can be inferred from mortuary analyses of two Predynastic cemeteries about the rise of complex society in Egypt? Several processes are suggested from the analyses.

1. Increasing social differentiation occurred through time in some centers, such as Nagada.
2. Major cemeteries increasingly became the stage for status display and rivalry.
3. Elites emerged in Predynastic society with differential access to goods and materials.
4. During the Predynastic there was increasingly complex economic interaction.
5. An ideology that stressed the importance of participation in a mortuary cult emerged.
6. Institutions of control became symbolically associated with a mortuary cult, the origins of which were in the Nagada culture of Upper Egypt.

First, the Nagada II evidence at Nagada demonstrates greater differentiation of burials than in Nagada I, and therefore, probably greater social differentiation. Differentiation of graves is seen in form and quantity of grave goods, as well as in grave location. In the Nagada II period there was the emergence of an elite cemetery (T) and large graves with many grave goods are found in the western part of N West, while the majority of graves in N East, N West and B had only one or two pots. Although the vertical and horizontal dimensions of this society cannot be specified because of missing age/sex data, the presence of a hierarchically structured society seems to be an important inference that can be drawn from the mortuary analyses. An increase in the range of social personae from that seen in Nagada I is reflected in the Nagada II burials, and hence the greater variability in the Nagada II burials suggests an increase in the complexity of the social structure at Nagada. This is in contrast to the Nagada II evidence at Armant, which was much less differentiated, and probably represents only an incipiently ranked society.

Thus, a major change in Predynastic society occurred in Upper Egypt in the Nagada II period, c. 3600–3300 BC (Hassan 1984a: 683). This was the emergence of complex society, as seen in the highly differentiated Nagada II burials at Nagada. It was this significant sociopolitical development that laid the foundation for the emergence of the early state in Egypt by the end of the Predynastic period.

Secondly, major cemeteries in Upper Egypt, such as at Nagada, increasingly became the stage for status display and rivalry. At Nagada, where Grave 1206 had 86 pots and Grave T5 had 60 grave goods (some in rare materials, such as gold and lapis lazuli, plus six stone vessels and 12 W-class pots), status display is much more pronounced than at Armant. The purpose of such status display of many sumptuary goods in burials may have been to define social (and

political?) roles for living descendants, as well as being a form of payment by those socially obligated to the deceased. This was a society in which wealth in the form of various goods went into individual, or family, burials, and not into the construction and ritual of community cult centers. Hence, when the ruler emerged in pharaonic times as a god-king and head of a state religion, this was the role of a supreme individual, and not one who was simply an earthly representative of more powerful deities.

Thirdly, elites emerged in Upper Egypt with differential access to goods and materials, as found in elite burials. Certainly, Grave T5 and other graves in Cemetery T are those belonging to an elite. Other elites were buried in some of the graves in N West. The small number of burials and isolated location of Cemetery T, however, suggest a special status not symbolized in N West. Cemetery T possibly represents the burial place of figures of authority and their kin, whose power coalesced in Nagada II times. Case and Payne (1962: 11) succinctly state why Cemetery T stands out as unusual:

Cemetery T was rich but small; one would have expected it to be used for a short time, and then abandoned, with a consequent close grouping of sequence-dates. But the reverse is the case... This is surely suggestive of a cemetery for a ruling class or sect.

It is speculative to suggest that Cemetery T represents the emergence of a political elite at Nagada and rulers of an early state, but this cemetery certainly symbolizes an elite very different from anything elsewhere at Nagada.

Fourthly, throughout the Predynastic there was increasingly complex economic interaction. Evidence for this comes from Nagada II grave goods, among which great numbers of craft goods in many different materials are found, especially in the Nagada cemeteries. This suggests increasing craft specialization at Nagada, although archaeological evidence for craft production at South Town is lacking. Large-scale production and distribution of craft goods can possibly be inferred from the Nagada burials. At Hierakonpolis there is evidence of production of stone vessels, macchheads, palettes, baskets, linen and pottery. Various wares produced at Hierakonpolis were traded in a far-reaching network (Hoffman *et al.* 1986: 183), which would have required a more complex social and economic system for production, organization and distribution. Such an economic role may also be suggested for Nagada, where the consumption of great quantities of craft goods can be seen in burials.

King (1978: 244, 246) suggests that intensive economic interaction, requiring stable organizational systems often hierarchical in form, was a prime mover in structural change. This is seen in Denmark c. AD 800, when petty townships involved in trade and craft production were established that later became important economic institutions when the early Danish state emerged (Randsborg 1982: 137). Early centers of craft production in Egypt, such as Hierakonpolis and possibly Nagada, probably became increasingly important as centers of trade and exchange in later Predynastic times, when elite burials were marked by large quantities of craft goods.

Brumfiel and Earle (1987: 3) propose that 'political elites consciously and strategically employ specialization and exchange to create and maintain social

inequality, strengthen political coalitions and fund new institutions of control'. Although specific patterns of specialization and exchange in Predynastic grave goods have not been identified (analysis is hampered by missing settlement data), the range of materials and the variety of craft goods in the Nagada burials suggest complex patterns of material acquisition, production and exchange. Hassan sees craft specialization and trade of status goods linked to the rise of Predynastic chiefs (Hassan 1988: 170). Such goods would have enhanced the prestige of chiefs through display in funerals and as gifts to followers.

Fifthly, an ideology that stressed the importance of participation in a mortuary cult emerged in Predynastic Upper Egypt, and became an even more important ideology in pharaonic times (Bard 1992b). Hassan (1988: 171) suggests that the secular power of chiefs would have been legitimized by linking it with supernatural power, and this ideology stimulated a funerary industry. The most striking evidence for a Predynastic funerary industry comes from the 3000-plus burials in the Nagada and Ballas cemeteries. As Predynastic society became increasingly complex, the mortuary cult probably evolved into one which legitimized social and political roles, as symbolized in differentiated burials. This was a mortuary cult in which living individuals would eventually participate, and not one directed toward the construction of monumental temple complexes. Compared to many other early complex societies, the lack of temples, sacred precincts and cult centers in which members of the society collectively participated is a somewhat unusual development in Egypt.

The preparation of labor-consuming burials (excavated graves in the compacted Pleistocene silts of the low desert, containing grave goods that would go out of economic circulation), implies some principle(s) operating in Predynastic society which did not exist earlier, except in isolated examples. It would have been much simpler to dispose of a body in the soft Nile alluvium or in the river. Factors in the creation of cemeteries and the accompanying rituals are the following: definition of a corporate group's territory; the recognition of specific rites of passage; the honoring of social/political status; expression of grief by the living members of the society in a socially accepted manner; ritual protection of the living society from the dead; and the expression of ideological, religious or cult beliefs. Whichever of these principles (singly or in combination) were operative in the creation of Predynastic cemeteries cannot be determined now with certainty. But the physical manifestation of socially recognized principles relating to mortuary ritual, and exclusion, became more elaborated during the Predynastic in Upper Egypt, culminating in a great hierarchy of grave types in the 1st Dynasty, symbolic of the structured hierarchy of the Early Dynastic state.

Sixthly, this mortuary cult had its origins in the Nagada culture of Upper Egypt. Burials in Lower Egypt, at Maadi and Merimda, are much simpler than Nagada culture burials and represent a very different material culture. Cemeteries with Nagada culture grave goods are only found in northern Egypt later in the Predynastic sequence, in the Fayum at Gerza (Nagada II) and in the eastern Delta (Nagada III). This distribution suggests an expansion of the Nagada culture into Lower Egypt and the eventual disappearance of the Maadi

culture during Nagada II and III times, before the emergence of the Early Dynastic state.

Analysis of Predynastic cemeteries can be used to interpret the social dimensions of a prehistoric society, but not necessarily the political dimensions. While the prehistoric state at Kaminaljuyu, Guatemala, was evolving, social differentiation was represented in burials and residential architecture, but the presence of elaborate tombs with imported goods was not sufficient to demonstrate the existence of a state; all of these items also occur in complex, highly organized chiefdoms (Sanders 1974: 110). Mortuary analyses of Predynastic cemeteries in Egypt also lack vital information about other important factors in the rise of complex society in Egypt: demography; settlement size and patterns; the number of decision-making levels; and the structure and control of political power.

With over 3000 burials, Nagada and Ballas must have been an important center in Predynastic times. The existence on the one hand of a large cemetery area as represented by N West and N East, and on the other hand of the large mud-brick walls in South Town, may together indicate a sedentary society that was becoming increasingly nucleated. But urbanization of the type that had evolved in southern Mesopotamia by the Jemdet Nasr period was not the type of spatial and social organization that is seen as the early state emerged in Egypt. Even in the highly centralized state of the Old Kingdom, large urban centers on the Mesopotamian scale are unknown. Predynastic cemetery patterns suggest a two-tiered settlement hierarchy. There were larger centers, such as South Town, next to very large cemeteries, and smaller farming villages aligned in a linear fashion along the margin of the floodplain near their cemeteries. Better settlement data are needed to demonstrate the validity of this hypothetical pattern, but it should also be kept in mind that much early settlement evidence is probably buried beneath the alluvium and/or modern settlements. Therefore, complete settlement patterns probably cannot be reconstructed for Predynastic Egypt.

Warfare is another factor that has often been cited in the processes of state formation (e.g., Carneiro 1970). Although a set point at which the earliest state emerged in Egypt could not be determined from the Nagada mortuary data, the effects of processes that led to the emergence of the unified state of the 1st Dynasty are suggested by the impoverishment of the Nagada III grave goods at Nagada. Such impoverishment may reflect disrupted trade relationships and economic hardship as a result of warfare, as depicted on ceremonial slate palettes of this period, and has often been cited as the major force for change in the late Predynastic (most recently by Kemp 1989: 44).

Bruce Trigger (personal communication) suggests that the Nagada II/III contrast probably reflects the absorption of the Nagada statelet into a larger political system nearer the beginning of the 1st Dynasty. The result of this absorption was very few high-status burials at Nagada when the Early Dynastic state emerged, while the highest-status burials were to be found elsewhere (Abydos, Saqqara and possibly Hierakonpolis), as power shifted away from Nagada to other centers. Wenke (1989: 142) suggests that the developmental focus shifted from south to north by the late Predynastic, in part because of the

growing importance of Syro-Palestinian trade routes, and it is probably not coincidental that the eclipse of Nagada as a major place of burial occurred as the North Saqqara cemetery first came into use.

The analyses of the Nagada cemeteries point to limitations in the data. Because of missing data from settlements and poorly recorded data from cemeteries, some things will never be known about Predynastic Egypt. Petrie was, however, working to the highest archaeological standards of the time, and if he had not excavated and recorded the Nagada cemeteries, they would probably have been lost to the antiquities traffic.

Although more Predynastic settlements have been excavated in Egypt in recent years, many sites that may have existed a century ago are now gone because of modern development and the pressures exerted by a greatly expanding population. Ideally, it would be preferable to confirm inferences from the Nagada mortuary analyses with corresponding evidence from settlements, but this is not possible to any great extent at Nagada. In a society that evolved into a dynastic state where the most conspicuous and permanent symbols of rank and status were funerary monuments, the origins and evolution of hierarchical symbolism are seen in the Predynastic evidence from the Nagada cemeteries.

Toward an Explanation of State Formation in Egypt

Unlike Mesopotamia, where the rise of complex society is associated with urbanism, there is no archaeological evidence in Egypt of large Predynastic tells. Whereas southern Mesopotamia was lacking in a number of basic materials for subsistence activities, such as stone and wood, the Egyptian Nile valley had an abundance of many resources. Cities develop in specific cultures in part as a way of organizing economic and administrative activities. Given that redistribution of basic resources was not necessary on a local level in Egypt, complex society arose with a different form of spatial organization from that which was useful in the physical and social environment of southern Mesopotamia.

Centers of craft production and distribution, such as Hierakonpolis and perhaps Nagada, arose in Upper Egypt, and elites at such centers would probably have been motivated to control increasingly complex economies. Social and economic differentiation is seen earlier in southern Egypt than in the Maadi culture of northern Egypt, probably because of the greater potential in the south for the extraction of stones and minerals from the Red Sea Hills and the trade in sumptuary goods made from exotic materials. Control of agricultural surplus and possibly more direct control of the best floodplain land would have supported craft production, and the trade of craft goods would have made possible the accumulation of wealth, as seen in elite Predynastic burials. Possibly the elite in major centers in Upper Egypt formed the genesis of managers and eventually rulers in control of regional and then state politics.

A number of regional polities probably existed by Nagada II times, as

suggested by the standards that appear on boats on Decorated class pots, similar to the standards representing nomes in pharaonic times. Archaeological evidence in Upper Egypt suggests the emergence of two major centers during the Nagada II period: Nagada, with its large number of Predynastic burials, and Hierakonpolis, where there is a much broader range of evidence—settlements and industrial sites, as well as cemeteries. Forces for social and economic change evolved at such centers, and not at settlements such as Armant, which remained small and fairly undifferentiated. Another major Predynastic center was certainly Abydos, and by the Nagada III period, with the appearance of the first burials in the Umm el-Qa'ab (later the 1st Dynasty royal cemetery), Abydos was emerging as the most important burial center in Upper Egypt.

The geography of the Nile valley would have greatly facilitated regional trade and exchange of craft goods and materials by water, and eventually interregional communication and control. The boats painted on Decorated class jars, which are found much more frequently in burials than in settlements, may symbolize the funeral journey to the place of burial, and in a larger sense the journey in the afterlife, but one can also infer from these representations a more sophisticated boat-building technology than that necessary for small papyrus rafts. Such crafts could have been used as the major means of transport in regional exchange networks.

While facilitating trade and communication, the narrow geography of the Nile valley also made the development of large cities difficult. Cities are supported by an agricultural hinterland, but the valley is too narrow for much of a hinterland to sustain huge concentrations of population. Conflict inevitably arose in later Predynastic times as economic competition within the narrow valley increased, and the resolution of this conflict (by alliances, warfare and/or the establishment of new communities) was in the formation of larger polities, and eventually the unification of Egypt under one centralized government. In pharaonic times there were regional (nome) centers to facilitate administrative control, and with the institution of Egyptian kingship, which enforced royal monopolies and taxation, the whole country became a hinterland for the central government.

Trigger (1987: 61) sees a religious dimension in the political events of the emerging state in Upper Egypt. Although Abydos/This emerged as the center of a state, the chief royal deity was Horus of Hierakonpolis. Seth, the patron deity of Nagada, was a lesser god in the Dynastic pantheon, but was regarded as a sponsor of royal power (Trigger 1987: 61-62). Such shifts in power may be reflected in the earliest elite cemetery at Nagada (Cemetery T), with a later elite cemetery at Hierakonpolis (Locality 6), and finally the 1st Dynasty royal cemetery at Abydos (Umm el-Qa'ab).

Commercial expansion by the Nagada culture into Lower Egypt in later Predynastic times, and possibly the establishment of colonies there, can be inferred from the chronology of Nagada culture sites in the north. Evidence for the evolution of large, socially differentiated centers, such as at Nagada and Hierakonpolis, is not found in the north, suggesting an Upper Egyptian origin for this phenomenon. The eventual replacement of the Maadi culture with a material culture originating in Upper Egypt may have been accomplished in

part by warfare. Here again mythology may have been used to symbolize a union of different polities and cultures, as Kemp (1989: 43) suggests for the deities Wadjet and Nekhbet, which symbolized the duality of kingship over both the north and south.

At the base of the complex society that had evolved by late Predynastic times was (irrigation) agriculture, which supported the whole economic structure. Irrigation agriculture provided a surplus that could be stored as a form of insurance against agricultural failure, but it also supported corvée labor, full-time specialists, elites and a kingship. In these adaptations, Egypt is similar in its development to other early riverine civilizations. Where Egypt differs from other early civilizations is in the structure and form of its institutions of control, which proved to be particularly successful through three major Dynastic periods (the Old, Middle and New Kingdoms).

The Predynastic mortuary cult in Upper Egypt evolved into complex and elaborate forms of burial differentiation. In this cult, the greatest effort was expended on burials of elites, rulers and later kings, and not on the houses of gods (temples and cult centers). The ideology of this mortuary cult was very important in the specific cultural development in Egypt: the emergence of a strong kingship was justified by a belief in the god-king, who ruled Egypt during his life and was a god among the gods in his afterlife. Legitimacy of control was symbolized most strikingly in the mortuary monuments of Egypt's kings, and not in their palaces. And it was in Predynastic cemeteries in Upper Egypt, especially at Nagada, that such social differentiation and its ideological justification are first manifest.

Appendix

List of Armant Cemetery 1400–1500 Burials by (Kaiser's) Nagada Dates

Nagada Ic

1401, 1402, 1403, 1405, 1406, 1413, 1414, 1415, 1424, 1427, 1432, 1435A, 1435B, 1437, 1438, 1451, 1452, 1453, 1455, 1457, 1459, 1460, 1461, 1470, 1471, 1480, 1481, 1484

Nagada IIa–b

1407, 1408, 1411, 1412, 1416, 1417, 1418, 1419, 1420, 1421, 1423, 1425, 1426, 1428, 1429, 1430, 1431A, 1433, 1439, 1440, 1441, 1442, 1445, 1447, 1448, 1449, 1458, 1466, 1467, 1472, 1473, 1474, 1476, 1486, 1487, 1488, 1489, 1492, 1493, 1495, 1496, 1497, 1499A, 1501, 1502, 1510, 1520, 1526, 1532, 1544, 1545, 1579, 1582, 1596, 1598, 1599

Nagada IIc–d

1446, 1464, 1468, 1469, 1485, 1494, 1498, 1511, 1512, 1513, 1514, 1517, 1519, 1521, 1522, 1523, 1524, 1525, 1527, 1528, 1530, 1531, 1534, 1535, 1536, 1538, 1539, 1541, 1542, 1543, 1546, 1547, 1548, 1549, 1550, 1551, 1553, 1560, 1561, 1563, 1564, 1565, 1566, 1568, 1569, 1570, 1571, 1573, 1575, 1576, 1577, 1580, 1581

Nagada IIIa

1518, 1557, 1558, 1559, 1578, 1583, 1590, 1591, 1592, 1593, 1594, 1595

No Relative Dates Attributable (as above)

1417, 1431, 1435, 1443, 1462, 1475, 1478, 1482, 1483, 1499, 1503, 1529, 1537, 1540, 1554, 1567, 1572, 1574, 1597

List of Nagada Burials by (Kaiser's) Nagada Dates

Burials with Pottery Classes Assigned to Nagada I

176, 196, 223, 235, 267, 275, 301, 306, 338, 396, 431, 479, 663, 713, 727, 747, 1022, 1024, 1389, 1391, 1395, 1409, 1416, 1418, 1419, 1427, 1437, 1442, 1443, 1465, 1471, 1476, 1488, 1490, 1497, 1502, 1503, 1505, 1506, 1507, 1513, 1526, 1527, 1529, 1537, 1546, 1552, 1563, 1572, 1574, 1584, 1586, 1587, 1589, 1590, 1591, 1592, 1594, 1595, 1598, 1599, 1606, 1611, 1620, 1621, 1628, 1630, 1636, 1644, 1646, 1654, 1661, 1676, 1681, 1682, 1684, 1690, 1691, 1700, 1703, 1721, 1743, 1744, 1746, 1750, 1753, 1761, 1763,

1764, 1780, 1781, 1783, 1785, 1800, 1804, 1814, 1821, 1823, 1828, 1858, 1866, 1880, 1888, 1900

B55, B72, B83, B102

Burials with Pottery Classes Generally Falling within Nagada I-II

59, 111, 120, 129, 158, 163, 167, 175, 190, 195, 198, 201, 205, 208, 214, 226, 231, 236, 238, 240, 242, 243, 245, 249, 251, 253, 255, 256, 257, 264, 266, 269, 287, 288, 320, 339, 411, 415, 457, 470, 471, 488, 548, 664, 685, 696, 709, 720, 726, 735, 739, 748, 755, 757, 792, 805, 1218, 1251, 1317, 1332, 1335, 1373, 1379, 1380, 1381, 1417, 1422, 1447, 1449, 1450, 1463, 1468, 1473, 1474, 1478, 1485, 1489, 1499, 1525, 1532, 1534, 1539, 1540, 1550, 1556, 1560, 1575, 1583, 1586, 1610, 1622, 1640, 1656, 1677, 1707, 1722, 1760, 1768, 1784, 1794, 1803, 1810, 1816, 1820, 1845, 1887, 1889

B2, B28, B32, B36, B37, B44, B61, B68, B92, B104, B106, B112, B113, B114, B117, B118A, B119A, B119B, B122A, B124, B125, B132

T29, T42, T54

Burials with Palettes of Nagada I-II Types

16, 1515, 1573, 1641, 1664, 1694, 1696, 1774, 1822, 1860, 1875

Burials with Pottery Classes Assigned to Nagada II

4, 5, 8, 31, 39, 40, 43, 45B, 51, 57, 63, 66, 84, 85, 89, 95, 96, 100, 108A, 122, 128, 130, 132, 140, 147, 149, 153, 157, 160, 161, 164, 165, 169, 173, 174, 177, 187, 191, 192, 194, 202, 203, 206, 210, 212, 224, 233, 241, 244, 261, 262, 272, 274, 276, 277, 278, 279, 289, 295, 297, 298, 308, 311, 326, 327, 332, 343, 344, 355A, 357, 364, 370, 372, 378, 381, 382, 390, 391, 409, 417, 420, 421, 424, 427, 435, 436, 439, 449, 450, 451, 454, 456, 467, 469, 472, 483, 485, 487, 494, 495, 513, 514, 518, 519A, 533A, 538, 540, 546, 551, 565, 569, 582, 584, 587, 597, 598, 603, 604, 608, 610, 611, 616, 619, 620, 621, 624, 632, 636, 639, 642, 648, 651, 655, 658, 665, 675, 679, 680, 682, 683, 684, 688, 689, 693, 695, 702, 710, 712, 731, 734, 741, 744, 746, 804, 812, 815, 818, 820, 822, 823, 824, 827, 828, 831, 842, 843, 844, 845, 851, 862, 868, 875, 879, 880, 881, 887, 1002, 1010, 1018, 1020, 1021, 1033, 1038, 1083, 1094, 1112, 1201, 1203, 1204, 1205, 1206, 1208, 1211, 1219, 1236, 1237, 1238, 1241, 1250, 1253, 1260, 1263, 1272, 1273, 1274, 1288, 1298, 1302, 1305, 1309, 1311, 1312, 1318, 1320, 1324, 1329, 1336, 1345, 1347, 1348, 1356, 1358, 1359, 1364, 1366, 1367, 1369, 1374, 1377, 1388, 1392, 1394, 1396, 1400, 1401, 1404, 1405, 1407, 1413, 1414, 1415, 1426, 1428, 1433, 1434, 1435, 1436, 1457, 1461, 1464, 1470, 1475, 1477, 1481, 1483, 1484, 1486, 1498, 1501, 1509, 1528, 1547, 1551, 1553, 1554, 1562, 1564, 1566, 1577, 1625, 1629, 1638, 1652, 1653, 1657, 1658, 1667, 1670, 1672, 1680, 1683, 1688, 1693, 1695, 1697, 1706, 1709, 1713, 1717, 1724, 1725, 1726, 1727, 1747, 1748, 1751, 1758, 1759, 1770, 1772, 1786, 1787, 1796, 1797, 1805, 1818, 1825, 1826, 1832,

1840, 1849, 1851, 1852, 1853, 1857, 1865, 1868, 1870, 1873, 1876, 1878, 1893, 1906, 1913, 1914

B14, B19, B27, B35, B78, B86, B89, B91, B101, B116

T4B, T5, T9, T10, T16, T18, T23, T28, T32, T52

Burials with Pottery Classes Generally Falling within Nagada II

3, 10, 34, 38, 83, 138, 171, 228, 247, 252, 270, 273, 300, 302, 373, 414, 426, 501, 502, 503, 505, 506, 512, 521, 524, 525, 532, 552, 570, 571, 575, 599, 643, 669, 698, 707, 711, 716, 800, 829, 837, 839, 920, 1028, 1209, 1229, 1246, 1257, 1268, 1271, 1287, 1322, 1378, 1411, 1458, 1536, 1593, 1602, 1603, 1613, 1639, 1649, 1685, 1686, 1687, 1701, 1723, 1729, 1733, 1740, 1765, 1766, 1769, 1790, 1801, 1817, 1841, 1869, 1908

B21, B42, B50A, B93, B99, B105, B115, B123, B126, B127B, B130, B131, B133

T14, T21, T22, T25, T35

Burials with Bottle-form Pots (Nagada II)

188, 200, 211, 234, 260, 263, 538, 600, 750

B15

Burials with N-class Pots (Nagada IIa)

178, 185, 216, 259, 346, 529, 576, 650, 654, 1487, 1615, 1712, 1848, 1863, 1934

B20, B29

Burials with Palettes Assigned to Nagada II

215, 218, 246, 268, 271, 283, 816, 867, 1039, 1212, 1242, 1270, 1306, 1353, 1368, 1614, 1675, 1679, 1698, 1738, 1891, 1904

B84, B121

Burials with Pottery Classes Generally Falling within Nagada II-III

6A, 7, 9, 11, 33, 41, 42, 44, 54, 56, 58, 60, 74, 87, 94, 108B, 114, 115, 117, 119, 125, 135, 141, 143, 162, 193, 197, 207, 280, 285, 294, 304, 310, 312, 316, 331, 347, 367, 375, 377, 389, 425, 430, 437, 438, 453, 473, 499, 504, 510, 511, 516, 517, 520, 522, 523, 526, 527, 530, 534, 535, 557, 558, 559, 561, 562, 563, 564, 566, 567, 568, 572, 573, 589, 609, 614, 615, 627, 638, 644, 667, 677, 686, 687, 703, 714, 721, 722, 725, 743, 770, 773, 775, 780, 793, 807, 817, 826, 854, 864, 865, 1041, 1049, 1099, 1106, 1216, 1222, 1252, 1264, 1275, 1279, 1292, 1325, 1337, 1338, 1339, 1342, 1343, 1520, 1561, 1626, 1645, 1669, 1710, 1716, 1736, 1754, 1795, 1856

B22, B34, B63, B94, B95, B96, B98, B108, B110, B127A, B128, B129, B134

T7, T8, T17, T19, T20, T26, T37, T56, T57

G3

Burials with Palettes of Nagada II-III Types

182, 429, 433, 493, 613, 860, 1249, 1424

Burials with Pottery Classes Assigned to Nagada III

17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 35, 36, 37, 45A, 46, 48, 53, 69, 86, 88, 91, 92, 93A, 93B, 97, 98, 101, 102, 103, 104, 105, 106, 107, 112, 113, 123, 139, 142, 145, 184, 315, 317, 337, 358, 374, 376, 400, 401, 408, 428, 432, 445, 460, 481, 491, 507, 508, 519B, 541, 555, 625, 630, 631, 634, 647, 666, 730, 749, 752, 796, 814, 830, 941, 1001, 1220, 1221, 1233, 1248, 1256, 1269, 1281, 1290, 1291, 1294, 1340, 1341, 1579, 1755, 1756, 1850

B3, B25, B62A, B80

T4A, T33, T34, T36, T38, T39, T40, T53, T55

G1, G2, G5, G6

Burials with Palettes Assigned to Nagada III

118, 313, 363, 444, 778, 871, 1113, 1289, 1299, 1349, 1387, 1737, 1883, 1953

T11

Burials with No Relative Dates Attributable (as above)

1, 6B, 13, 14, 18, 32, 47, 49, 50, 52, 55, 61, 64, 65, 73, 76, 79, 80, 81, 90, 109, 110, 121, 124, 133, 144, 146, 148, 150, 155, 166, 168, 170, 172, 179, 180, 181, 182, 183, 186, 189, 199, 204, 209, 219, 220, 221, 222, 225, 227, 232, 237, 239, 248, 250, 254, 265, 281, 284, 286, 290, 293, 296, 307, 309, 322, 323, 324, 325, 328, 329, 330, 335, 341, 345, 350, 353, 355B, 356, 359, 362, 365, 369, 379, 383, 385, 386, 387, 388, 392, 393, 394, 397, 398, 404, 406, 416, 419, 434, 440, 441, 443, 447, 452, 455, 458, 461, 462, 464, 474, 476, 480, 482, 484, 486, 488, 489, 490, 492, 500, 509, 519B, 531, 533B, 536, 537, 539, 543, 544, 545, 549, 550, 554, 556, 560, 577, 578, 581, 583, 585, 586, 588, 590, 593, 594, 595, 601, 602, 607, 618, 626, 646, 649, 653, 656, 660, 661, 673, 676, 694, 697, 701, 704, 705, 706, 708, 719, 723, 724, 728, 729, 732, 733, 735, 736, 738, 740, 745, 751, 753, 754, 756, 759, 762, 767, 771, 777, 779, 799, 801, 809, 825, 834, 836, 846, 848, 855, 866, 869, 870, 874, 877, 878, 884, 886, 891, 906, 924, 934, 964, 973, 1000, 1007, 1014, 1025, 1034, 1037, 1040, 1048, 1069, 1101, 1103, 1104, 1108, 1162, 1187, 1195, 1207, 1215, 1217, 1223, 1224, 1225, 1230, 1231, 1234, 1235, 1236, 1239, 1245, 1247, 1255, 1258, 1259, 1262, 1267, 1277, 1282, 1286, 1293, 1295, 1303, 1304, 1310, 1316, 1327, 1330, 1333, 1334, 1351, 1352, 1360, 1361, 1370, 1372, 1376, 1384, 1385, 1386, 1410, 1412,

1425, 1429, 1430, 1432, 1440, 1460, 1466, 1467, 1479, 1480, 1482, 1491,
1493, 1495, 1496, 1504, 1516, 1517, 1542, 1543, 1545, 1565, 1567, 1568,
1569, 1570, 1578, 1585, 1588, 1600, 1619, 1633, 1637, 1643, 1647, 1660,
1662, 1663, 1666, 1671, 1678, 1689, 1692, 1705, 1708, 1720, 1728, 1732,
1734, 1742, 1752, 1757, 1773, 1782, 1788, 1789, 1791, 1802, 1805, 1808,
1812, 1815, 1827, 1830, 1838, 1839, 1842, 1843, 1846, 1854, 1861, 1862,
1871, 1877, 1884, 1885, 1886, 1898, 1899, 1903, 1905, 1907, 1909, 1911, 1918

B11, B18, B26, B33, B38, B41, B43, B45, B50B, B51, B60, B62B, B64, B65,
B81, B97, B100, B103, B107A, B109, B120

T2, T3, T6, T12, T15, T24, T27, T30, T31, T41, T51, T59

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Abbreviations

<i>ASAE</i>	<i>Annales du Service des Antiquités de l'Égypte</i>
<i>BIFAO</i>	<i>Bulletin de l'Institut français d'archéologie orientale, Le Caire</i>
<i>JARCE</i>	<i>Journal of the American Research Center in Egypt</i>
<i>JEA</i>	<i>Journal of Egyptian Archaeology</i>
<i>JNES</i>	<i>Journal of Near Eastern Studies</i>
<i>JSSEA</i>	<i>Journal of the Society for the Study of Egyptian Antiquities</i>
<i>MDAIK</i>	<i>Mitteilungen des Deutschen Archäologischen Instituts Abteilung Kairo</i>
<i>ZÄS</i>	<i>Zeitschrift für ägyptische Sprache und Altertumskunde</i>

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