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The sequence and chronology of the Protodynastic and Dynasty I rulers

Abstract

Investigations into the earliest rulers of Egypt can be traced to the turn of the nineteenth century. However, the process of state formation goes back at least 400 years prior to the establishment of Dynasty I. Examination of radiocarbon age measurements on wood, reed, and linen from the tombs dating to the reign of the kings of Dynasty I reveals discrepancies between older dates and more acceptable younger dates for the same king attributed to the recycling of older wood and settlement debris. Statistical analysis and calibration of the pooled mean of multiple age measurements that are statistically the same provide age estimates of 2995-2927, 2922-2886, 2906-2887, and 2819-2748 cal BC for Aha, Djet, Den and Qa'a - first, third, fourth and seventh (last) kings of Dynasty I, who succeeded King Narmer.

A Remembrance

Lech Krzyżaniak has been an inspiration to generations of scholars and his initiation of the Dymaczewo Conferences at Poznań in Poland have generated a myriad of research into prehistoric Northeast Africa. His presence and insights into the study of early civilization in the Nile Valley will be sorely missed, but the legacy he leaves behind is a monument to not only his achievements but those that created the first civilizations in Northeast Africa.

Introduction

The conceptualisation of ancient Egyptian rulers in terms of a linear sequence of dynasties, as done by Manetho (Wadell 1946) is unknown from the ancient Egyptian sources (Jiménez Fernández & Jiménez Serrano forthcoming), although it does bear a close resemblance to the groupings of kings on such King

Lists as the Turin Royal Canon. However, the dynastic system has become the framework of Egyptian chronology. Working in this dynastic tradition of Manetho, Petrie (1900; 1901b: viii; 1902: 5) developed a scheme of the succession of the kings of the First Dynasty and some earlier rulers: Ka, Ro[4], Zeser, Narmer and Sma (see Tab. 1). For the last king, Sma, Petrie (1902: 5, pl. IV, nos. 1-2) mistook the reading of the signs , which were translated by Griffith - in Petrie (1901b: 48) - "consort of the Double Domination" (*sm'.(t) nb.ty*). Odgon (1988: 73-74) and Ellis (1922: 77) concurred with this interpretation, contra the interpretation of Kaplony (1963, 1: 612-614), among others, who interpreted the signs to read *ZmA-nbwj*.

Table 1. The list of First Dynasty rulers from earliest to latest (Top to bottom) according to Manetho, King Lists and Petrie.

Manetho	King-Lists	Petrie
Menes	Meni	Narmer[5]
Athothis	Teti	Aha
Kenkenes	Iti	Zer (Djer)
Uenephes	Ita	Zet (Uadji, Djet)
----------	----------	Den-Merneith
Usaphais	Zemti	Den (Udimu)
Miebis	Merbiape	Azab (Anedjib)
Semempses	Semsem	Mersekha (Sermerkhet)
Bieneches	Kebh	Qa (Qa'a)

The succession of the first rulers of Egypt has been the subject of debate ever since. One of the greatest sources of confusion being that archaeological discoveries, primarily at Abydos, brought to light the Horus names of the Dynasty I rulers, whereas Manetho and the king-lists used the names associated with the titles 'He of the Two Ladies' (*nbty*) or 'He of the Sedge and Bee' (*nsw-bity*). Confusion has also arisen concerning the use of the terms "Dynasty 0" (kings ruling parts of Egypt during Naqada IIIB)[6] and "Dynasty 00" (kings ruling parts of Egypt during Naqada IIIA). The term Dynasty 0 was first used by Quibell and Petrie in (Quibell 1900: 5*ff*) and Petrie in (Petrie 1901a) to categorise the names of the rulers at Hierakonpolis and Abydos prior to the Dynasty I kings. Edwin van den Brink (1992: vi, n. 1) introduced the term Dynasty 00 to refer to the rulers buried in Cemetery U at Abydos, whom he states were 'possibly the

predecessors of the Dynasty 0 Kings'. Rulers from various family lines, possibly ruling separate regions of Egypt concurrently, are now being included in these two proto-dynasties, they have become something of a dumping ground for ephemeral Protodynastic rulers.[7]

As more work is conducted in Egypt, particularly at Abydos, Hierakonpolis, Helwan, Saqqara, and in the Nile Delta, more names of rulers will emerge and the political and cultural nature of the period will become clearer. The original terms Dynasty 00 and Dynasty 0 correspond to Hendrickx's (1996; 1999) Naqada IIIA1 & IIIA2 and Naqada IIIB respectively. The terms Dynasty 0 and Dynasty 00 are too specific and uncertain. A more appropriate term for the period as a whole is the Protodynastic, as used by Adams & Ciałowicz (1997: *passim*). Therefore, all these rulers before Dynasty I are here referred to as Protodynastic rulers, because it avoids the idea of a unique line of succession at that period in Egyptian history.

The Quest for Menes

Menes was recognised by the ancient Egyptians as their first king in the Abydos King List and Turin Canon, and other king lists (Redford 1986). Herodotus attributes to Mina/Menes the draining of the plains of Memphis by means of a mud embankment, the foundation of the White Walls of Memphis and the building of a Temple of Ptah to the south of these walls (II, 99) and Manetho credits him with the Unification of the Two Lands. The question as to who was Menes has been the subject of much debate over the years, with Narmer and Aha emerging as the two most popular candidates (Gardiner 1961: 400-415).[8]

Earliest Rulers

Egyptian tradition on such monuments as the Turin Canon and Annals holds that before Dynasty I there was a series of mythical demi-gods – *Šmsw-Hr* (Followers of Horus).[9] On the present limited evidence, several scholars have proposed various reconstructions of the sequence of the earliest rulers. Kaiser (1964: 95) identified the sequence of the kings during the transitional period from the end of the Protodynastic to Dynasty I as Ka (Sekhen), Narmer, and Aha, but almost thirty years later he placed Scorpion II between Ka and Narmer, changing the sequence to: Ka, Scorpion II, Narmer, and Aha. Needler (1984: 43) ordered the names of the kings in the following sequence: Scorpion (II), Iry-Hor, Ka, and Narmer.

Andelkovic (1995: 20) places the rulers of the Protodynastic in the following sequence: two unidentified rulers, Pe Hor, Scorpion I, Double Falcon, Ni Hor, Hat Hor, Iry Hor, Horus Ka, Hor Crocodile, Hor Scorpion II and Hor Narmer. Dreyer (1998: 178-180) using artistic and archaeological evidence,

reconstructs the succession of Abydene kings from the motifs that appear on Protodynastic monuments as: Standard of an Oryx (?), Mollusc, Fish (?), Elephant, Bull (=Bull head standard?), Stork, Canine, Bull Head Standard, Scorpion I, Falcon I, Standard of god Min plus a part of a plant, an unknown king?, an unknown king?, Falcon II, Lion, Double Falcon, Iry Hor, Ka, Scorpion II and Narmer.

Jiménez Serrano (2003a) considers that the royal sequence was as follows: Iry-Hor, Scorpion II, Ka, Narmer, and Aha (also see Trigger et. al. 1983: 50). Jiménez-Serrano's reconstruction is based on an inscription that Petrie (1903: 26, pl. VIII, no. 181) found on the back of a large tile in the temple area of Abydos. This inscription has four signs: the most important is the typical plant of Upper Egypt 7. Beside it, there is a row of signs in which Petrie recognised the sign M, which he interpreted as Ro (Iry Hor). Petrie interpreted the last two signs as one - a falcon, but in the photograph it is possible to detect an animal with three legs and a raised tail (which Petrie considered as the head). Jiménez Serrano (2003a: 97) concluded that it represents a scorpion observed from a lateral point of view. Petrie did not take into account the last sign that is clearly visible as a Ka sign T. Thus, the sequence is completed: Iry Hor, Scorpion II and Ka. Although no *serekh* has definitely been identified as belonging to Scorpion II (Wilkinson 1999: 56-7), Smith (1992: 244) regards the rosette or palmette motif above the figure of a scorpion on the Scorpion Macehead as reading "servant of the king" and sees it as signifying Scorpion II as a king.[10] Scorpion II is also depicted as wearing other royal regalia, including the *Hedjet* (white crown) and bull's tail.

Raffaele (2002a; 2002b; 2003a; 2003b) has developed a tentative list of the regional rulers of late Naqada II and early Naqada III from inscriptions on the ivory and bone labels, and potmarks on ceramic vessels from Cemetery U and B at Abydos, combined with inscriptions on Naqada IID-IIIB seals, graffiti on the Koptos Colossi and symbols on the Tehenu Palette. This incomplete list includes for Dynasty 00: Oryx, Shell, Fish, Elephant, Bull, Stork, Canid (?), Cattle-head standard, Scorpion I, Falcon I, Min standard + plant, ?, Falcon II (?), Lion, and Double Falcon. The Dynasty 0 rulers he lists as: Nb (or R ?), Hedjw(-Hor), Pe + Elephant, Ny-Hor, Hat-Hor, Crocodile (the Subduer), Falcon + Mer (also read as 'Mer Djehwty'), Iry-Hor, Ka, Ny-Neith (Lower Egyptian king), Scorpion II, Narmer and from Qustul L2 Pe-Hor.

As Jiménez Serrano (2003a: 96-7) points out there are many problems with these sequences of rulers - they have not taken into consideration the possibilities that: 1) The many names of kings found in the different parts of the Nile Valley from Lower Nubia to the Delta probably represent kings from some of the other proto-states and polities other than Abydos/Thinis; 2) There is insufficient artistic/iconographic evidence for some of the kings (e.g. Lion) when compared

to others (e.g. Scorpion I); 3) That some of the symbols represent religious concepts related to kingship and interpret them as individuals (e.g. Double falcon).

Tomb U-j, the largest tomb in Abydos Cemetery U has been assigned to Scorpion I. However, the size and wealth of Tomb U-j cannot be taken as an indicator of the general wealth of the occupants in Cemetery U and should be seen as the individual agency of 'Scorpion I' and the position of importance reached by this regional ruler before the tombs returned to more typical size and wealth (see Castillos 2004 for the gradual increase in wealth at Cemetery U). Therefore, many of the tombs in Cemetery U dating to Naqada IIIA, although being smaller and less well endowed with grave goods, are actually chronologically later than Tomb U-j according to both the radiocarbon dates and the ceramic assemblages (Dreyer *et. al.* 2004). Another reason for this decrease in tomb size could be the separation of the tomb and the mortuary shrine (enclosure), with the early shrines being surrounded by a simple, easily destroyed palisade made of wattle and daub, rather than mud-brick as with the Dynasty I mortuary shrines (Hendrickx 2001). Between Scorpion I and Aha was a difference of 300+ years, a period of time in which Kaiser & Dreyer (1982: 268) suggest 10 or 12 generations ruled before Narmer. The elite tombs at Abydos for this period consist of: U-127, U-p, U-k, U-j (possibly Scorpion I), U-i (Falcon?), U-s, U-t, U-u, U-v, U-w, U-y, B40, B50, B0/1/2 (Iry Hor), B7/9 (Ka), and B17/18 (Narmer). Elite tombs of possible rulers at Hierakonpolis for the same period are: T100, T16, T22, T11, T2, T10, and T1 (possibly Scorpion II) (Adams 1995; 2000; 2001; 2002; Gundlach 1998; van Wetering: in prep.). That some of the rulers named above came from Hierakonpolis is a strong possibility, although assigning tombs to them is not at present possible. Until Loc. 33 is re-examined or/and names of rulers are found in the tombs currently being excavated at Loc. 6 the names of the rulers of Nekhen will remain the subject of much debate. The recent finding by Adams and Friedman of an elephant buried in T24, a tomb associated with the tomb complex of T23 may signify that this Naqada IIA-B ruler was to be identified with elephants or that this ruler had the name elephant or was identified by the elephant symbol (Friedman in press).

Fig. 1. Ka serekh (KHD4010) from Kafr Hassan Dawood (Wadi Tumilat, East Delta), found in Grave 1008 on vessel KHD0070 (drawn by B. Calcoen).

All the kings of the Early Dynastic (and later periods) had a Horus name and had the symbol of this god surmounting their *serekhs*, except Peribsen who

had the Seth animal and Khasekhemwy who had both Seth and Horus (see Fig. 1). Although many potential regional rulers have been identified, some have a Horus name, whereas others do not. Jiménez-Serrano (2003a) makes the distinction that only those with the three elements – Horus, hieroglyphs (name) and palace niche-façade – should be regarded as a classic *serekh*. The first examples of the classical *serekh* are those of Ka and Crocodile who ruled different regions of Egypt just before Dynasty I at the end of the Naqada IIIB period (Jiménez-Serrano 2003a: 113). Jiménez-Serrano (2003a) suggests that the different elements of the *serekh*, which developed in various areas of Egypt and Nubia, were first brought together in the Memphite region. The finding of one or two of these elements together seems to represent expressions of regional administration and political sovereignty. The significance of the classic *serekh* prior to Dynasty I may indicate a fusion of ideas and an extension of the field of influence of a polity – the Thinite polity into the East Delta region with vassal rulers or sub-kings still nominally controlling areas. These sub-kings may in that case use the classic *serekh* to either show their alliance with or independence from the high-king.

Regional Protodynastic rulers have been suggested through the finding of *serekhs*, although the name of the ruler in the upper compartment of some is as yet unreadable. On a ceramic vessel found in the East Delta a *serekh* surmounted by a falcon was identified with three *ḥḏ* mace signs in the upper compartment (Fischer 1963: 44, fig. 1, pl. VI a & c). This possible early ruler – *Hor*-Hedjw - is also recognised on vessels from Tura (Junker 1912: 46-47, fig. 57, nos. 1 & 2) where palace niche-façade signs with hieroglyphs have been found, although these are not surmounted by a falcon. Some authors have considered it the name of a late Protodynastic king (King A). The lack of the surmounted falcons on the *serekhs* from Tura and the use of maceheads as a generic sign of kingship or authority have led Wilkinson (1999: 56) to doubt their interpretation as a name of a king. Recently, Castel et. al. (1998: 71, photo 12 a-b) have proposed *Hor*-Hewt as a possible new ruler that lived during Naqada IIIB-C and who, according to these authors, could have ruled an area in the Eastern Desert. As the authors confess, this symbol, which was found on a vessel in the Wadi Um Balad in the Eastern Desert, is not a *serekh*, but a falcon on a horizontal line above the hieroglyphic symbol *hat*, which could make reference to the goddess Hathor, who was related to mountainous regions and copper mines; two other lines are also present giving the impression of the sign being in a rectangle. Another king was recognised by Wilkinson (1996), whom he designated as 'King B' (Wilkinson 1999: 56, fig. 2.3), as there are many difficulties to reading his name. This king is recognised in rock-cut inscriptions behind Armant depicting *serekhs* surmounted by falcons. Williams (1986: 149) read the name of *Hor*-Pe from a potmark found in tomb L2 at cemetery L of Qustul. Jiménez-Serrano (1999)

suggests that this supposed name may represent a schematic representation of a *serekh*. Dreyer (1999) considers *serekhs* surmounted with a double falcon, but no name in the internal compartments, as a name of a Protodynastic king, Double-Falcon. Although it may indeed be a name of a king, it could just as easily be related to a religious concept (i.e. Horus-Seth duality) or the representation of an alliance between northern polities. Kaiser & Dreyer (1982: 265-269) read the names of Hat-*Hor* and Ny-*Hor* on potmarks from different parts of Egypt (mainly, Lower Egypt). These could be regional rulers from Lower Egypt of the Naqada IIIB period, although as they have never appeared under the protection of the god Horus, they should not be called Hor(us), simply Hat and Ny (Jiménez Serrano 2000: 37). Another Lower Egyptian ruler is *Hor*-Ny-Neith, whose *serekh* with a falcon immediately to the left of it was discovered at Helwan in Tomb 257.H8 on a scalloped storage jar EM00-87 (Köhler & van den Brink 2002: 59-68, fig 2.1 & 2.2, pl. 2). Although the falcon does not surmount the palace niche-façade and hieroglyphs, it is clear that this ruler is associated with Horus. A recently discovered *serekh* surmounted by a falcon, is that of *Hor*-Aa, discovered at the rock art site of Darb Ain Amur near Kharga Oasis (Ikram & Rossi 2004); although the identification of the sign in the upper compartment is still speculative, it may represent a previously unknown ruler of the late Naqada IIIB period. A full catalogue of *serekhs* has been compiled by van den Brink (1996 and 2001a), while Jiménez Serrano (2001; 2003a), Hendrickx (2001) and van den Brink (2001b) debate the origin, types and significance of the *serekh*.

Unification and King-Lists

Throughout the Predynastic period there was a large degree of regionalism, with distinct cultures being identified in the different areas of Egypt, such as the Moerian in the Faiyum, Maadian with various characteristics in the Delta, and the Naqadian with differing characteristics in Upper Egypt (Hassan 1988; in press; Holmes 1989; Köhler 1995; in press; Midant-Reynes 2000; van Wetering & Tassie this volume). During this period, Upper, Middle and Lower Egypt had hierarchical societies characterised by social differentiation, consumption of prestige goods, interregional trade and craft specialisation (Castillos 1982; 1998; 1999; 2000; Hassan in press; Takamiya 2003). The rise of local elites is identified in the Naqada I phase by large well endowed graves at such Upper Egyptian cemeteries as: Abadiya, Naqada, Abydos and Hierakonpolis and in Middle Egypt at Wadi Digla (Castillos 1982, 1998; Köhler in press). Early symbols of kingship or religion, such as the red crown motif found on a Naqada ID-IIA pottery vessel from Grave 1610 at Naqada (Baumgartel 1970; Crowfoot Payne 1987; Petrie & Quibell 1896) also start to appear during this period. Hassan (1988) and Kemp (1989; 1995) trace the formation of state in Upper Egypt from Naqada I to Dynasty I, recognising the initial formation of minor polities, which then trans-

formed into larger polities. Although the local chieftains of the Badarian and Naqada I periods differentiated themselves with larger tombs and more grave goods, an elaboration and increase in size of local rulers tombs is first recognised in Upper Egypt during the Naqada IIB phase (Hierakonpolis T16 & T23) when a stratified society starts to appear (Castillos 1982; 1998; 2000).[11] During the Naqada II phase there seem to be eight major Upper Egyptian polities: Kawamil area, Abydos area, Abadiya area, Naqada area, Armant area, Gebelein area, Hierakonpolis area, and Meshali area (van Wetering in prep.).

Acculturation during the Naqada IIC period was marked by the spread of Upper Egyptian pottery into Lower Egypt. The Lower Egyptian material culture did not simply vanish and at sites such as Kom el-Khilgan, Minshat Abu Omar and Tell el-Iswid, Lower Egyptian pottery types remained prominent until at least Naqada IID (Köhler in press). During the Naqada IID-IIIA period petty kingdoms in Upper Egypt with separate cemeteries for the rulers are well documented (Kemp 1989; Wilkinson 2000b). Although large separate cemeteries have so far not been found in Lower Egypt, the on-going excavations at Buto and possibly Sais may well in the future reveal their presence. The three major polities - Abydos (Thinis), Hierakonpolis (Nekhen) and Naqada (Nubt) - vied for power in the late Predynastic and early Protodynastic Period when the other polities were already showing signs of the loss of their political independence (Campagno 2000: 49-52; Raffaele 2003b: 102-103). During the Protodynastic Period the struggle for Upper Egyptian hegemony continued between the polities of Thinis and Nekhen, Nubt already having been annexed (van Wetering in prep.).

Throughout the Predynastic and increasing in the Protodynastic the neighbouring regions maintained a trade network, exchanged prestige goods and gifts and engaged in peer polity competition, which led to dissemination of cultural values and religious beliefs (Köhler 1996; Takamiya 2004; Trigger 2003: 101). In most regions of Egypt there was increasing social complexity *c.* 3300 BC. Köhler (in press) suggests that unification was a complex, multi-linear process, and that the final stage of Thinite expansion, *c.* 3100-3050 BC, was secondary state formation on a territorial scale, after the state mechanism had already been installed in Upper, Middle and Lower Egypt, where proto-states were already in existence (see Campagno 2002: 52-60 on the meaning of proto-states). Right up until the threshold of Dynasty I, it appears that the line of regional Upper Egyptian kinglets ruling from Hierakonpolis, maintained a degree of control over the southern part of the country, whereas those ruling from Abydos/Thinis controlled northern Upper Egypt (van Wetering & Tassie this volume; Wilkinson 2000b: 392). As Scorpion II is only confidently recognised at Hierakonpolis (the recognition of a scorpion on a brick tile from Abydos is not universally accepted as representing Scorpion II), it is possible that he was the

last in a line of rulers from this polity, being buried in T1 (Brinks 1979: 148); although no tomb in either Hierakonpolis or Abydos has confidently been assigned to him.[12] In the Memphite region an independent polity may well have existed up until the reign of Ka; and in the East Delta one or two polities may have existed up till this time, as well. In the West Delta polities may have been centred at Buto and Sais, possibly coming under Thinite control during the reign of Narmer or possibly Aha.

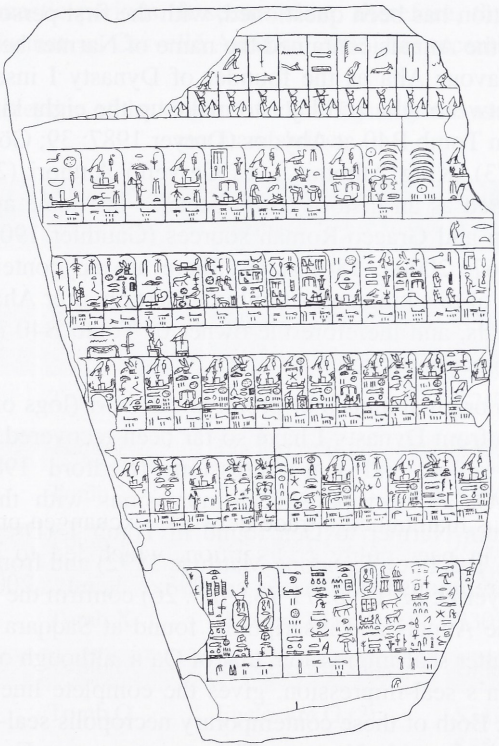

Fig. 2. The Palermo Stone (drawn by A. J. Serrano).

For Dynasty I there is a lot more information that can be drawn upon, principally written evidence of lineages of rulers. The Annals or Palermo Stone (and its associated fragments) date to the beginning of Dynasty V (see Fig. 2). This document listed most of the preceding rulers, giving their length of reign, special events occurring in that reign and heights of Nile floods. Although not a complete record, having many lacunae and some omissions by the original

scribes, it is of prime importance, and although being compiled some 400 years after the end of Dynasty I, it is the oldest of the ancient Egyptian archives for the study of the Early Dynastic Period.[13] The first register on the recto of the Annals lists the names of 23 Protodynastic kings (9 in the Palermo fragment), none of whose names are attested from contemporary records (Helck 1956; 1974). The kings of Dynasty I are listed in registers 2 and 3 on the recto of the Annals. It has been suggested that the first king listed in register 2 on the recto of the Annals was Aha (Barta 1981; Helck 1956; 1974; Kaiser 1961; Malek 1986), and they therefore equate Aha with Menes. As the beginning of the Annals is badly damaged this interpretation has been questioned, with the first person to suggest that the missing part of the Annals contained the name of Narmer being Petrie (1916: 117). Those who favour Aha as the founder of Dynasty I insert an ephemeral king, Athothis I, between Aha and Djer to make up the eight kings of Dynasty I and even assign him Tomb B40 at Abydos (Dreyer 1987: 39; Görsdorf, Dreyer & Hartung 1998a: 173). King Athothis I, as Cervelló Autuori (2003) has stated, could not be admitted as an historic king, because his name appeared in much later New Kingdom and Graeco-Roman sources (Gauthier 1907: 3-5). Also, as Wilkinson (1999: 67; 2000a: 186) states, there are no contemporary sources recording the name of this king and Athothis' insertion after Aha is due to a misreading of the Annals, and therefore the owner of Tomb B40 is probably an as yet unidentified Protodynastic ruler.

Although no original annals or prototypical *gnwt* (logs of events, particularly flood heights) from Dynasty I have so far been recovered, we are left with the adaptations - tablets and seal-impressions (Redford 1986: 86-88). The Abydos, Umm el-Qa'ab necropolis seal-impressions with the names of the Dynasty I kings from Narmer to Den found in Tomb T (Dreyer 1987: 33-36, Abb. 2, 3, Taf. 4-5, Taf. b, c; Scandone Matthiae 1992) and from Narmer to Qa'a from Tomb Q (Dreyer *et. al.* 1996: 71-73, Abb. 26) confirm the order of Dynasty I kings given in the Annals and inscriptions found at Saqqara (Lacau & Lauer 1959; 1961). The latter seal-impression, that of Qa'a, although omitting Merneith as recorded on Den's seal-impression, gives the complete line of eight Thinite kings of Dynasty I. Both of these contemporary necropolis seal-impressions start their line of ancestors with Narmer. The contemporary Egyptians certainly considered the rulers from Narmer to Qa'a as forming a political grouping owing to both their common origin (Thinis) and burial at Umm el-Qa'ab. Therefore, Narmer must have been a central figure of Egyptian history, and should be considered not only the first king of Dynasty I, but also the last king of the Protodynastic Period or Dynasty 0. Although Narmer may not have ruled over the whole of what was considered Egypt in the Old Kingdom and later periods, his monuments, such as the Narmer Palette, show him wearing the crowns of Upper and Lower Egypt.[14] On the necropolis seal-impressions, Narmer's imme-

diate Thinite predecessor, Ka, although probably being buried in Cemetery B at Abydos (B7/9), is not named, indicating that he and other predecessors were not regarded as rulers of Upper and Lower Egypt by the kings of Dynasty I (see Tab. 2). Therefore, a pivotal event must have occurred during the time of Narmer for him to be regarded as a king of Upper and Lower Egypt; this event being probably the incorporating into his realm of land in Lower Egypt through a political treaty or conquest. If Narmer as a ruler of Thinis was able to extend his rule over parts of Lower Egypt, therefore being regarded by his contemporaries as the first in a line of kings, he could have been regarded as straddling both the Protodynastic and Dynastic periods. It seems clear, therefore, that Menes has to be identified with Narmer, as Cervelló Autuori (2003) has recently proposed.

Table 2. The succession of the kings of the First Dynasty and associated tombs and mortuary shrines.

Position	Reign	Abydos Tomb	Abydos Mortuary Shrine	Saqqara Tomb
1	Narmer	B17/18	Unknown[15]	Unknown
2	Aha	B19/15/10	Enclosure H, I (?), J (?)	S3357[16]
3	Djer	Tomb O	Enclosure A	S2171, S2185, S3471
4	Djet	Tomb Z	Enclosure B	S3504
5[17]	Merneith	Tomb Y	Enclosure C (?)	S3503
5	Den	Tomb T	Enclosure C (?)	S3035, S3036, S3506, S3057, X
6	Anedjib	Tomb X	Western Mastaba (?)	S3038, S3111
7	Semerkhet	Tomb U	Western Mastaba (?)	Unknown[18]
8	Qa'a.	Tomb Q	Enclosure G (?)	S3120, S3121, S3338, S3500, S3505

The necropolis seal-impression of Den lists his mother - Merneith - as one of his predecessors. Although Merneith was not actually a pharaoh, after her husband Djet died she acted as regent for her young son Den up until the time he was old enough to take up his full regal duties (see Fig. 3). Gould (2003) proposes that after the long reign of Den there are signs of weakness and a downturn in the fortunes of the kings of Dynasty I. After the reign of Qa'a, there

are some signs of political upheaval, with a possible brief power struggle (Gould 2003: 38-42). During this upheaval, there may be at least one, possibly four ephemeral rulers after Qa'a. The best attested and most likely king to have ruled after Qa'a, and before Hetepsekhemwy, is Sneferka, who is recognised from his *serekhs* found on vessels from Netjerikhet Djoser's Step Pyramid Complex, Tomb 3505 at Saqqara and another found on the surface at Saqqara (Gould 2003: 38-42; Raffaele 2003b). It is possible that Sneferka was a son of Qa'a, but died before completing his father's funeral arrangements, which were finally completed by Hetepsekhemwy (van Wetering *pers comm.* 2005). The other three ephemeral rulers: bird, Ba and Sekhet are probably Dynasty II or III rulers, although much more evidence is required to confidently place these rulers firmly in the dynastic sequence.

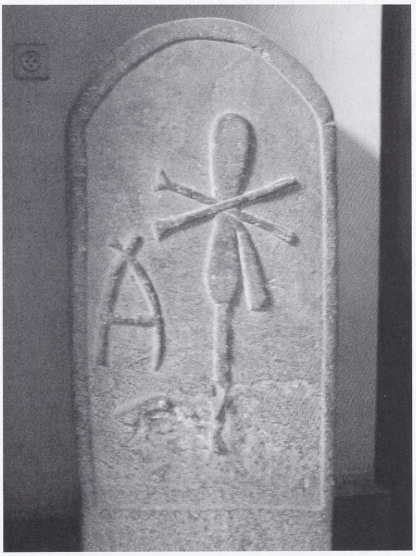

Fig. 3. Funerary stele of Queen Merneith, Cairo Museum (photo G.J. Tassie).

The burial place of the rulers of Dynasty I was most probably Abydos, Umm el-Qa'ab (see Cervelló-Autuori 2002 and Tavares 1999 for recent discussions on the burial place of the kings of Dynasty I – Abydos or Saqqara). With the capital of the newly formed nation state being located at Memphis (Campagno 2003), an elite cemetery was established at Saqqara (other separate Early Dynastic cemeteries were also established as well, see van Wetering 2004). In this cemetery at North Saqqara, tombs of contemporary high officials of Dy-

nasty I were located on the edge of the escarpment overlooking Memphis. It is almost certain that those interred in these large tombs were part of the extended royal family and their tombs may have acted as monuments of royal power (cenotaphs) in the landscape, along with possible mortuary shrines located in the area now occupied by the Step Pyramid of Netjerikhet Djoser (van Wetering 2004). Elite tombs of officials are also located at other Memphite cemeteries such as Helwan, Giza, Abusir, Abu Roash, and Tura, although these tombs are generally not so prominently placed in the landscape.

Absolute Radiocarbon Chronology

With the amount of new data about various rulers of the Protodynastic, more accurate establishment of the succession of Dynasty I kings, and the refining of the Naqada III relative chronology (Hendrickx 1996; 1999; Köhler & Smythe 2004), it was essential that an absolute chronology for the period be established. Hassan (1980; 1984a; 1985) and Hassan & Robinson (1987) (and see also Hendrickx 1999) examined the absolute dates from Egypt, comparing them with Mesopotamian and Levantine dates and confirmed that there were different radiocarbon data for some of the kings of Dynasty I. Since these original studies in radiocarbon dating, more data, particularly from the re-excavation of the elite and royal cemeteries at Abydos by the German Institute (DAIK) team led by Günter Dreyer, has become available on the chronology for the elite class who ruled this region of Egypt during the Protodynastic and went on to be the kings of a unified Egypt (Boehmer, Dreyer & Kromer 1993; Görsdorf, Dreyer & Hartung 1998a; Görsdorf, Dreyer & Hartung 1998b, for a map of Cemetery B and Umm el-Qa'ab see Dreyer 1998 and for Cemetery U see Dreyer *et. al.* 2004). This additional data requires a revision of the chronological dates of the Protodynastic and Dynasty I. The radiocarbon data from Hierakonpolis (see Hoffman 1982, Hoffman et. al. 1993, Pazdur et. al. 1993, Burleigh 1983, and Close 1988) and Naqada (see Hassan 1984a and 1985) has generally not been included, as only limited new Naqada III dates are available from these two sites.

Although there are now 38 age measurements for Dynasty I, there are several problems in radiocarbon age determination that do require a great deal of caution if they are to be regarded as reliable, precise estimates of the age target (Hassan 1989). One of the main problems is the variation of carbon isotopes in the atmosphere which requires the use of calibration programmes to calibrate the raw ^{14}C age measurements. The results are comparable using either the CALIB 5 or OxCal 3 radiocarbon calibration programmes (Reimer et. al. 2004; Stuiver & Reimer 1993; Stuiver et. al. 1998), but we have opted to report calibrated dates (Tab. 6) using the CALIB programme. The calibrated dates cited here are the most probable range of the age estimate within one sigma. The area under the probability curve covered by the range reported is given in parentheses. Different

measurements of the same event vary depending on the duration of the period, contamination, or wrong attribution, and material. A piece of wood from an old tree will yield a date older than the associated, momentary cultural event. An old object may be placed in a tomb providing an older date than the date of burial; samples from a period spanning 200-300 years will show variations within that range. The calibration curve that the ^{14}C determinations from these discrete events are measured against is not the same throughout history, as it has been

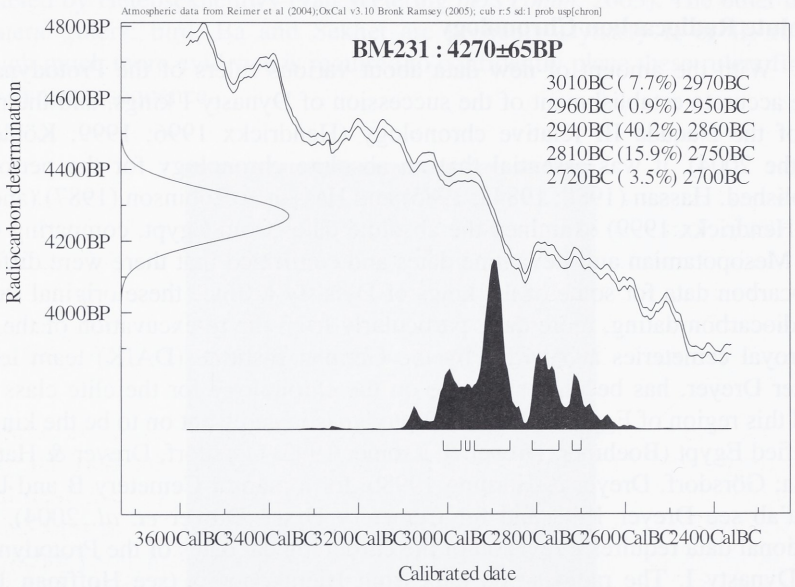

Chart 1. A single radiocarbon measurement (shown on the left) from Tomb 3035 showing various peaks measured against the OxCal calibration curve (going from top left to bottom right) and the likelihood of the measurements falling within that date.

affected by periods of atmospheric activity. The steeper the dendrochronology calibration curve, the smaller time range an event is likely to fall within. Unfortunately, the beginning of Dynasty I falls within a gentle part of the curve, thus giving a wide time span in which the discrete events can fall within, usually plus or minus 150 years. Instead of having one good peak, such as could likely be expected on a steeper part of the curve, especially when comparing good AMS radiocarbon dates, several peaks across a 300 year period are shown for many of the Dynasty I measurement (see Chart 1). Therefore, various steps have been taken to overcome these problems and to minimise errors from such factors. Firstly, we chose discrete events (preferably same tomb or occurrence) with mul-

tiple age measurements and checked if the measurements are within the range of one standard deviation at .95 probability. After, discarding aberrant dates, a pooled mean was calculated (Ward & Wilson 1978: 19) and then calibrated. The age estimate obtained was then assessed and interpreted in terms of its congruity with other measurements from the same event, its order with regard to preceding and succeeding events, and finally historical context and relative dating from ceramics.

Protodynastic Period

The German excavations have provided 16 radiocarbon determinatives for Cemetery U; as two fall outside the time range of this research (Naqada I) they have not been analysed. The Naqada IID tombs in Abydos Cemetery U were occupied by rulers who played an important role in the process of state formation (Dreyer 1998: 173-182). The eight dates from the Naqada IID graves from Cemetery U Abydos are: Tomb U-133 (Bln-4465), Tomb U-149 (Bln-4466) and (Bln-4493), Tomb U-207 (Bln-4494), Tomb U-210 (Bln-4467), Tomb U-547 (Bln-4463), Tomb U-224 (Bln-4672), and Tomb U-287 (Bln-4673) (Görsdorf, Dreyer & Hartung 1998a: 171, fig. 1-2). After comparing the results of the analysis, Bln-4467 was rejected because it was too late in comparison with the others. The result was 4656±16 bp (5.23<14.10) with a calibrated date of Cal. BC 3498-3456 (0.82%).

For Tomb U-j the largest and most well endowed tomb in the cemetery, there are two data, Hd-13057-12953 and Hd-13058-12954 (Görsdorf, Dreyer & Hartung 1998a: 171, fig. 1-2). As there is a great difference between them (more than one hundred years), the younger date (Hd-13057-12953) was rejected, because the other one is closer to the radiocarbon date obtained from tombs U-a (Bln-4464), U-qq (Bln-4461 and Bln-4462), and U-pp (Bln-4671) (Görsdorf, Dreyer & Hartung 1998a: 171, fig. 1-2), which are all very close in time. For the relative dating of those tombs, see for example Dreyer (1992; 1998: 179), who concludes that these two tombs are slightly earlier than tomb U-j. All together (with Hd-13057-12953), the six dates are significantly different, thus we rejected Bln-4671 and Hd-13057-12953, because they show a great difference with the rest of the set. The final date for the period of Naqada IIIA1-2 was: 4588±17 bp (9.11<9.49) or Cal. BC 3352 (Cal. BC 3360-3345 with a probability of 1.0%).

For the Naqada IIIB-C period there are only three dates from tombs of local rulers, two from Abydos Cemetery B: Tomb B40 (Hd-12912 and Hd-12907) and one from Hierakonpolis HK6: T1 (WIS-1180). The pooled mean for the Naqada IIIB to beginning of IIIC was 4390±55 bp or cal BC 3078-2967 (with a probability of 0.78%).

The Early Dynastic Period

Radiocarbon data for Dynasty I were some of the first to be examined using scientific dating techniques, with material from Emery's excavations at Saqqara (Libby 1955; Ralph 1959), particularly that from Tomb 3053, the tomb of Hemaka, a high official in the reign of Den being some of the first ever examined. However, although radiocarbon dating has been conducted on Egyptian material for over fifty years there are at present still no radiocarbon measurements for Narmer and Anedjib, and although Minshat Abu Omar Tomb 1590 is dated on pottery to the reign of Semerkhet, these dates have been rejected as being unreliable. The majority of the data for this period comes from Abydos Cemetery B and Umm el-Qa'ab, supplemented with data from Saqqara, and a limited amount from Tarkhan.

Aha - There are five age measurements for the reign of Aha. Three measurements on reeds are from the same tomb S3357 in Saqqara. They are statistically the same and provide a mean of 2995-2927 cal BC. Two other measurements from Abydos are also the same and provide a mean 3326-3232 cal BC. There is thus a marked difference between the two age estimates. The older age estimate is almost the same as that of the preceding Naqada IIIA1-2 period. Six measurements from this period (from four different tombs) are statistically different. Elimination of two measurements (Lab Nos. Bln-4671 and Hd-12953) provides a statistically consistent set of four measurements. The pooled mean of the four measurements is 3363-3345 cal BC. Even when all the five measurements are combined to give a pooled meaning, the resulting pooled mean gives a similar time range: 3363-3343 cal BC.

Djer-Merneith - One of the tombs believed to date to the reign of Djer-Merneith is S3503 at Saqqara, which contained a sealing of King Djer and also inscriptions of Merneith on stone vessels and jar-sealings. Significantly, no sealings of Djet or Den were found in this tomb and the architecture of this tomb places it at the beginning of Dynasty I, being similar to both those of Aha and other tombs of Djer's reign, such as S3471 (Emery 1961:66). Merneith was probably the daughter of Djer, wife of her half-brother Djet and mother of Den (Wilkinson 1999: 74). There are three measurements on reeds from tomb S3503 in Saqqara. One of the measurements (BM-229) is much older than the other two measurements, which give a mean estimate of 2942-2889 cal BC. Inclusion of the older date gives an estimate of 3094-3023 cal BC.

Djet - There are seven measurements from tomb S3504 in Saqqara dating to the reign of Djet, showing marked differences. Their pooled mean gives 2995-2927 cal BC. Opting to reject three aberrant measurements (P215, GrN-1109, BM321), the remaining four consistent measurements give a calibrated pooled mean of 2922-2886 cal BC.

Den - There are measurements from four tombs attributed to King Den. Eight measurements from Tarkhan on linen are statistically the same, yielding a calibrated mean of 2906-2887 cal BC. There are eight determinations on wood for Saqqara Tomb 3035. One of the measurements (C-267) is too young and must be rejected. We note that the young dates are on reeds by comparison to older dates on wood. By testing the dates on reeds (BM-230, UCLA 1202, and GrN-689, BM-27) we find that they are statistically the same, with a statistical average of 4310 ± 39 which calibrates to 2934-2888 cal BC. Two other tombs have only a single age measurement each.

Qa'a - There are two sets of measurements for the last king of Dynasty I. The three measurements from the Saqqara Tomb 3505 have one anomalous measurement (GrN-902). The other two measurements give a calibrated pooled mean of 2819-2748 cal BC. Inclusion of the aberrant measurements gives a mean of 2911-2872 cal BC. Two measurements from Abydos Bln-4680 and Bln-4681 are different. The pooled mean is 2911-2894 cal BC.

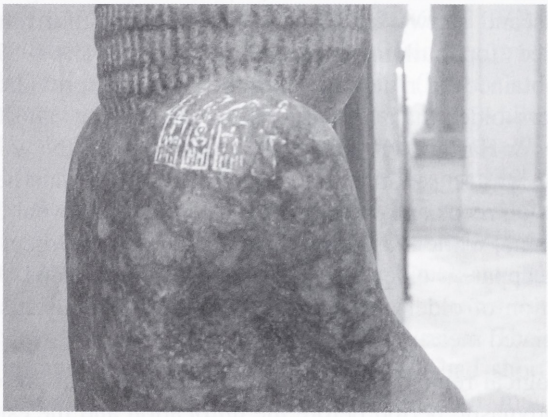

Fig. 4. Statue of Hotepdief showing the first three kings of Dynasty II. Memphis now in the Cairo Museum (photo G. Tassi).

For Dynasty II only a few radiocarbon dates exist, and none from the tombs of the kings. However, the continuing DAIK excavations at Abydos include the re-excavation of the tombs of Peribsen and Khasekhemwy, and those at Saqqara include the tomb of Nynetjer. The ongoing Dutch excavations at Saqqara have recently located more tombs of Dynasty II rulers (van Wetering 2004). These current excavations may provide radiocarbon age determinations for this important, and in comparison with Dynasty I, little known period of Egyptian history (Dodson 1996). One of the best documents (Fig. 4) to survive

from this period is the statue of Hotepdief, a mortuary priest who served in the mortuary cults of the first three kings of Dynasty II - Hetepsekhemwy, Nebra and Nynetjer. Although these rulers are listed in the Annals and later king lists, the internal chronology after these three kings up to the reigns of Peribsen, Sekhemib and Khasekhemwy is still the subject of much debate (Gould 2003: 47-51; Wilkinson 1999: 42).

Discussion

In interpreting these results, we first note that in all cases, aberrant age measurements are predominately older than other measurements. When measurements are tested statistically and aberrant measurements rejected, the pooled mean is younger than that of the mean of all measurements, except in the case of Den where two age measurements are significantly younger than others. The tombs attributed to Aha and Qa'a in Abydos are also older than those for the same kings' reigns in Saqqara. In Egypt, wood for royal purposes was usually imported and because of its limited availability within Egypt was often curated or recycled from older structures. In addition, debris (including mud-bricks with remains of reeds and straw) from older settlements or old refuse heaps were routinely quarried for building materials (Haas et. al. 1987). Recent age measurements obtained on materials from the pyramids provided estimates that average 374 years older than historical dates (Bonani et. al. 2001). However, Görsdorf, Dreyer & Hartung (1998b) think it unlikely that the wood in the tombs at Umm el-Qa'ab was reused, due to their import. It is relevant here that two sets of measurements on reeds and wood from the same tomb reveal that the dates on reeds were the same, while those on wood were widely divergent and older. This resolves also the apparent older age of the tombs from Abydos. Accordingly, we favour the rejection of older dates if they are shown to be statistically different from other associated measurements.

Archaeological remains reveal that there was a royal presence at Abydos during the Protodynastic period before the unification and the establishment of a national capital at Memphis and the elite necropolis located nearby at Saqqara. Accordingly, the Early Dynastic tombs at Abydos are likely to have included ancestral objects as well as ancient debris from Protodynastic settlements and tombs, which would have been available in the Abydos royal quarters (in Netjerikhet Djoser's pyramid complex many heirlooms were found dating to earlier rulers). By contrast, although an older settlement existed in the area of Memphis, no graves earlier than Dynasty I have so far been located at Saqqara. We may thus in the case of Aha accept a date of 2995-2927 cal BC based on three age measurements on reeds from Saqqara in favour of the older age estimate from Abydos based on two measurements on wood. Djet is dated by four consistent measurements to 2922-2886 cal BC. The most reliable estimate is

that of king Den, where we have an excellent series on linen from Tarkhan, which provided an estimate of 2906-2887 cal BC, which is concordant with the four measurements on reeds which yield a mean of 2934-2888 cal BC. The age estimates for the last king, Qa'a, from Saqqara is estimated on the basis of two consistent measurements on reeds at 2819-2748 cal BC, which is younger than two divergent age estimates from Abydos, suggesting again that old wood is responsible probably for the apparent age of Qa'a at Abydos.

The older measurements on wood reported here are approximately 300, 240, 160, and 115 years older than monuments from the same period. The difference appears to become progressively smaller through time, around 300 in the case of Aha, 240 for Djer, 160 for Den, and 115 for Qa'a.

The pooled means of the statistically selected measurements given here show a satisfactory descending order in age from older to younger, and moreover, fit nicely (considering that the age estimates have a range of probability within one standard deviation) with the historical sequence of the kings and the duration of their reign as estimated from the Annals (see Tab. 3).

The dates from the reign of Djet (2922-2886 cal BC) are problematic. According to the calibrated results, he had to live after Den, but it is well attested that Den was the son of Djet and Queen Merneith (Dreyer et. al. 1996: 71-73, Abb. 26), his mother – Merneith - acting as his regent while Den was a boy (Dreyer 1987: 33-35; Schäfer 1902: 18, Zeile 3; Sethe 1903: 29, 47; Newberry & Wainwright 1914: 154-155). If the reign of Djet was short, his tomb could have been finished (or even built) during his son's reign. This argument explains the chronological dysfunction. It is also possible to conclude at this point that the reigns of Aha and Djer were longer than Djet's, a conclusion in accord with the averages given in the monuments. In the Annals, it shows that Den and Qa'a enjoyed long reigns, whereas, Djet only had a short reign. The evidence for the reigns of Anedjib and Semerkhet indicates that they had short reigns and that Anedjib, who probably came to the throne as an old man, had a hastily constructed tomb and that the provisioning for his tomb was not fully met in time (Gould 2003: 29-32).

Although the authenticity of the Cairo and UCL fragments of the Annals are questionable and it is uncertain if they were part of the same or similar monument as the Palermo Stone (O'Mara 1979; 1999; Jiménez Serrano 2004), the overall duration of Dynasty I is in accord with Manetho. The interval from the midpoint for Aha (2961 BC) and that for Qa'a (2784 BC) is 178 years, which compares favourably with 167-201 years calculated from the reconstruction of the Annals (Helck 1974; Kaiser 1961; Barta 1981). Manetho (Tab. 3) gives 150-166 years for the same time period. The length of Aha's reign from the Annals is about 34 years, and the mean from Manetho is 42 years, which places the begin-

Table 3. Reign lengths according to the different reconstructions of the Annals and Manetho.

King	Kaiser 1961	Helck 1974	Barta 1981	*Average*	Manetho A/E
Narmer	--------	--------	----------	----------	62/60
Aha	33	35	34	34	57/27
Djer	41	53	52	48/52	31/39
Djet	12	13	15	13	23/42
Den	47	42	51	47	20
Anedjib	8	11	11	10	26
Semerkhet	9	9	10	9	18
Qa'a	17	33	28	26	26
Total				189	253/252

ning of his reign at 2995 BC and 3003 BC, respectively. The higher estimate of the reconstruction of the Annals is about 50 years short of that given by Manetho who gives 252/253 years for the length of Dynasty I, a period of time that can be accounted for by the reign of Narmer. In the two most reliable summaries of the now lost *Aegyptiaca* of Manetho, Africanus gives Narmer 62 years, whereas Eusebius gives 60.[19] Depending on whether the Annals or Manetho is taken as being correct, the most likely estimate for the initiation of Dynasty I under Narmer is between 3055-3065 BC (see Tab. 4). This radiocarbon age estimate is concordant with the recent historical estimates by von Beckerath (1987) and Kitchen (1991) of 2950 and 3000 BC, respectively.

The current analysis of radiocarbon age determinations for the periods predating Dynasty I reveal that the late Predynastic [Naqada II D1-2] dates to 3498-3456 cal BC in Abydos and 3469-3395 cal BC in the Naqada region. The subsequent Protodynastic [Naqada IIIA1-2] periods are here dated to *ca.*3350 cal BC (3360-2245 cal BC) for Naqada IIIA-B and 3078-2967 for the end of Naqada IIIB beginning of Naqada IIIC. The Annals lists the names of 23 Protodynastic kings. Some names of kings from this period are recognised (none matching the Annals) but the majority of them remain unknown (Raffaele 2002a; 2003b). Given a range from 8 to 47 years for the reign of Dynasty I kings, an average of

Table 4. Radiocarbon chronology of the Protodynastic and Dynasty I.

Culture / King	Available Date Cal BC	Time Span
Naqada II C-D	3498-3456	Late Predynastic
Naqada III A1-2	3352 (3360-3345)	Protodynastic A
Naqada III B-C	3078-2967	Protodynastic B
Narmer	----------	Dynasty I Early Dynastic Period
Aha	2995-2927	
Djer	2942-2889	
Djet	2922-2886	
Den	2934-2888	
Anedjib	----------	
Semerkhet	----------	
Qa'a	2819-2748	

27-30 years for the reign of the kings of the Protodynastic is not improbable. However, there is a strong possibility of many contemporaneous kings ruling different parts of the country at the same time. For the latter part of this period, we have the names and respective tombs of four kings, who preceded Aha: Iry-Hor (Tomb B0/1/2), Scorpion II (Tomb 1?)[20], Ka (Tomb B7/9), and Narmer (Tomb B17/18). If Scorpion II is omitted from this list as he may have been a contemporary of Ka and Narmer, ruling a different polity (probably Nekhen), and attribute each of the three remaining Abydene rulers 30 years of reign (from 3050 BC), there is 180 to 190 years left until the end of the reign of Scorpion I, if his reign started at 3352 BC and ended around 3320 BC. This number of 270 years accords well with the new relative chronology (see Tab. 5), which gives 300 years for the same period. Some of the people buried in tombs U-127, U-p, U-k, U-i, U-o, U-s, U-t, U-u, U-v, U-w, U-x, U-y, U-z, U-pp, U-qq and U-ww were probably relatives of Scorpion I, Iry-Hor, Ka and Narmer, and some must have been rulers of Thinis, a few prior to Scorpion I and others - at least four or five – between Scorpion I and Iry-Hor. The transition from the Late Predynastic to the Protodynastic period may be as a result placed at *ca.* 3400 BC. Although there are other earlier innovations that contributed to the rise of state, it appears that the forming of large polities did not occur until Naqada IIC/D (Wilkinson 2000b). The emergence of a unified state society in Egypt was accordingly preceded by about 400 years of dynamic political developments during the Protodynastic and late Predynastic periods, which in turn was preceded by regional kings in southern Egypt dating back to 3800 BC during the Middle Predynastic period (Raffaele 2002a; 2003b). The unification of Egypt was

consequently the result of a long protracted process of political evolution and regional development.

The concordance between radiocarbon dating after statistical testing and calibration and both the Palermo Annals and recent historical age estimates of the beginning of Dynasty I in Egypt (see also Hassan & Robinson 1987) demonstrates that historians/archaeologists must pay special attention to the problem of old wood and settlement debris, and that radiocarbon age measurements are to be regarded as what they are - probabilistic estimates with a margin of error thus requiring multiple measurements for each target event, testing for significant statistical similarity. The problem is not in radiocarbon dating, but in the misuse of radiocarbon age measurements.

Future Work

With the establishment of a new radiocarbon dating lab by l'Institut Français d'Archéologie Orientale (IFAO) in Cairo the possibility of obtaining new radiocarbon dates for the Predynastic, Protodynastic and Early Dynastic from the on-going excavations at such important sites as Hierakonpolis, Helwan, Saqqara, Abydos and the numerous Delta excavations (Kom el Khilgan, Tell el-Farkha, Minshat Ezzat, Tell el-Samara, Sais, Buto, etc.) becomes a reality. The dating of straw or reeds, which were used to help bind mud-bricks, allows such mud-brick built structures as tombs, mortuary shrines (enclosures), and temples to be dated. The results of this study have shown that the dates obtained from straw, reeds and linen are less likely to give a bias date than wood. Some of the most important structures to have age estimates for are the Gisr el-Mudir and the L-shaped structure at Saqqara, the Khasekhemwy 'Fort' *heb-sed* structure and Narmer 'Temple' at Hierakonpolis, the mortuary shrines at Abydos and Protodynastic and Early Dynastic tombs at all these sites. Dates are particularly needed for the Naqada IIIB-C period, e.g. for the reigns of Ka, Narmer and their direct predecessors and for Dynasty II and III. OSL (optical spectromic luminescence) dating also presents further possibilities for the dating of sites and monuments.

Acknowledgements

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Table 5. New Chronology for Early Egypt.[21]

		Upper Egypt	Faiyum	Delta
Early Dynastic Period	**3,050 – 2,613 BC**			
Dynasty III	2,686 – 2,613	Naqadian IV-V		
Dynasty II	2,800 – 2,686	Naqadian $IIID_1$-$IIID_3$		
Dynasty I	3,060 – 2,800	Naqadian $IIIC_1$–$IIIC_3$		
Protodynastic Period	**3,350 – 3,060 BC**			
Protodynastic B	3,200 – 3,060	Naqadian IIIB	Moerian II / Transitional	Naqadian IIIB
Protodynastic A	3,350 – 3,200	Naqadian $IIIA_1$-A_2	Moerian II	Naqadian $IIIA_1$-A_2
Predynastic Period	**5,500 – 3,350 BC**			
Late Predynastic B	3,500 – 3,350	Naqadian IID_1–IID_2	Moerian I	Transitional
Late Predynastic A	3,650 – 3,500	Naqadian IIC	Moerian I	Late Maadian
Middle Predynastic	3,750 – 3,650	Naqadian IC – Naqadian IIA–IIB	Moerian I	Middle Maadian
Early Predynastic B	3,900 – 3,750	Naqadian IA–IB	Moerian I	Omarian ~ Early Maadian
Early Predynastic A	5,500 – 3,900	Badarian ~ Tarifian ~ Tasian	Faiyumian	Merimdian

Table 6. Radiocarbon data for the Protodynastic and First Two Dynasties.

Lab Number	Provenance	Material	^{14}C yr bp	Calib. date BC One Sigma Range
Nagada II, Nagada				
WSU-2257	Nagada North Town, 78-165A	Charcoal	4990 ± 80	3808-3694 (0.65)
TX-2465	Nagada, South Town, SW	Charcoal	4920 ± 90	3800-3636 (0.94)
W-4347	Nagada, South Town, NW, Pit A, 10-15 cm BS	Charcoal	4600 ± 80	3517-3397 (0.45)
W-4349	Nagada, South Town, NW, Pit A, 35-40 cm	Charcoal	4730 ± 70	3632-3557 (0.46)
W-4360	Nagada, South Town, NW, Pit A, 65-70 cm	Charcoal	4680 ± 60	3474-3358 (0.79)
Nagada IID1-D, Abydos Cemetery U				
Bln-4466	Tomb U-149 (humic acid)	Wood	4691 ± 41	3465-3375 (0.74)
Bln-4493	Tomb U-149	Wood	4676 ± 44	3470-3394 (0.65)
Bln-4463	Tomb U-547	Wood	4688 ± 48	3468-3374 (0.73)
Bln-4494	Tomb U-207	Wood	4667 ± 40	3474-3422 (0.51)
Bln-4465	Tomb U-133	Wood	4624 ± 64	3519-3341 (1.0)
Bln-4672	Tomb U-224	Wood	4607 ± 48	3501-3429 (0.58)
Bln-4673	Tomb U-287	Wood	4591 ± 41	3376-3335 (0.48)
Bln-4467	Tomb U-210	Wood	4421 ± 43	3101-3004 (0.63)
Nagada IIIA1-2, Abydos Cemetery U				
Hd-13058-12954	Tomb U-j (Scorpion I)	Wood	4595 ± 25	3371-3351 (0.70)
Hd-13057-12953	Tomb U-j	Wood	4470 ± 30	3328-3217 (0.70)
Bln -4671*	Tomb U-pp	Wood	4679 ± 40	3469-3394 (0.65)
Bln -4461	Tomb U-qq	Wood	4528 ± 40	3236-3170 (0.42)
Bln-4462	Tomb U-qq	Wood	4608 ± 40	3497-3449 (0.50)
Bln- 4464	Tomb U-a	Wood	4526 ± 40	3236-3170 (0.42)
Nagada IIIB-C				
WIS-1180	Hierakonpolis 6, Tomb 1 (Scorpion II)	Wood	4300 ± 80	3018-2878 (1.0)
Hd-12912	Abydos Cemetery B, B40	Wood	4430 ± 60	3104-3022 (0.79)
Hd-12907	Abydos Cemetery B, B40	Wood	4440 ± 25	3111-3006 (0.48)
Dynasty I, Aha				
LJ-1490	Saqqara, Tomb 3357	Reed	4370 ± 50	3026-2913 (0.92)
BM-228	Saqqara, Tomb 3357	Reed	4500 ± 60	3197-3101 (0.45)
UCLA-1200	Saqqara, Tomb 3357	Reed	4300 ± 65	3018-2878 (1.0)
Hd-12926	Abydos Cemetery B, B19	Wood	4535 ± 40	3235-3171 (0.42)
Hd-12947	Abydos Cemetery B, B19	Wood	4505 ± 20	3238-3207 (0.23)
Dynasty I, Djer				
BM-229	Saqqara, Tomb 3503	Wood	4520 ± 65	Rejected
LJ-1459	Saqqara, Tomb 3503	Wood	4360 ± 80	3095-2894 (1.0)
UCLA-1201	Saqqara, Tomb 3503	Wood	4290 ± 60	2945-2867 (0.65)
Dynasty I, Djet				
P-215	Saqqara, Tomb 3504	Wood	4554 ± 91	3251-3099 (0.54)
GrN-1100	Saqqara, Tomb 3504	Wood	4360 ± 60	3027-2905 (0.90)
GrN-1109	Saqqara, Tomb 3504	Wood	4460 ± 55	3330-3215 (0.51)

BM-319	Saqqara, Tomb 3504	Wood	4225 ± 70	2813-2740 (0.42)
BM-320	Saqqara, Tomb 3504	Wood	4206 ± 80	2815-2672 (0.69)
BM-321	Saqqara, Tomb 3504	Wood	4496 ± 80	3347-3094 (1.0)
BM-322	Saqqara, Tomb 3504	Wood	4349 ± 70	3030-2895 (0.85)
Dynasty I, Den				
BM-230	Saqqara, Tomb 3035	Reed	4380 ± 65	3039-2912 (0.75)
UCLA-1202	Saqqara, Tomb 3035	Reed	4235 ± 60	2812-2850 (0.44)
GrN-689	Saqqara, Tomb 3035	Reed	4450 ± 100	3138-3011 (0.42)
BM-27	Saqqara, Tomb 3035	Reed	4100 ± 150	2877-2548 (0.87)
P-214	Saqqara, Tomb 3035	Wood	4447 ± 150	3195-3001 (0.49)
BM-323	Saqqara, Tomb 3035	Wood	4342 ± 70	3028-2892 (0.90)
C-267	Saqqara, Tomb 3035	Wood	4883 ± 20	3664-3645 (0.68)
TF-563	Saqqara, Tomb 3035	Wood	4550 ± 60	3238-3107 (0.65)
GrN-684	Saqqara, Tomb 3607	Wood	4450 ± 100	3334-3264 (0.41)
Hd-13056-12952	Umm el Qa'ab, Tomb T	Wood	4495 ± 35	3334-3264 (0.41)
LJ-1448	Tarkhan, Tomb 2050	Linen	4388 ± 50	3031-2919 (0.79)
NPL-5	Tarkhan, Tomb 2050	Linen	4310 ± 90	3093-2868 (0.93)
UCLA-739	Tarkhan, Tomb 2050	Linen	4265 ± 80	2945-2857 (0.62)
Brm-20	Tarkhan, Tomb 2050	Linen	4224 ± 97	2819-2661 (0.62)
Brm-???	Tarkhan, Tomb 2050	Linen	4206 ± 68	2813-2737 (0.44)
A-569	Tarkhan, Tomb 2050	Linen	4200 ± 90	2817-2664 (0.68)
BM-248	Tarkhan, Tomb 2050	Linen	4160 ± 110	2885-2620 (0.98)
BM-203	Tarkhan, Tomb 2050	Linen	4150 ± 110	2879-2619 (0.96)
Dynasty I, Qa'a				
GrN-902	Saqqara, Tomb 3505	Reed	4385 ± 70	3090-2908 (0.48)
BM-231	Saqqara, Tomb 3505	Reed	4270 ± 65	2940-2861 (0.59)
UCLA-1203	Saqqara, Tomb 3505	Reed	4140 ± 60	2777-2630 (0.72)
Bln-4680	Umm el-Qa'ab, Tomb Q	Wood	4244 ± 41	2909-2867 (0.72)
Bln-4681	Umm el-Qa'ab, Tomb Q	Wood	4397 ± 42	3031-2925 (0.77)
Dynasty II				
BM-232	Saqqara, Tomb 3046	Reeds	4230 ± 65	2813-2743 (0.43)
UCLA-1204	Saqqara, Tomb 3046	Reeds	4190 ± 60	2813-2738 (0.47)
Lv-1050D	Elkab, Tomb 60	Charcoal	3910 ± 210	2666-2128 (0.92)
U-4	Ma'sara, Tomb 6	---------	3970 ± 150	2674-2278 (0.90)
UCLA-667	Ma'sara, Tomb 6	---------	3970 ± 80	2580-2340 (0.99)
A-520	Ma'sara, Tomb 6	---------	3810 ± 80	2349-2138 (0.87)
A-333	Buhen, Castle	Charcoal	4190 ± 60	2813-2738 (0.47)
A-344	Buhen, Castle	Charcoal	4090 ± 50	2696-2572 (0.69)

End Notes

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[4] Re-named in the 1980s Iry Hor by Kaiser and Dreyer 1982: 232-235, although this interpretation has been refuted by Wilkinson (1993) who interpreted *iry* as goods belonging to Narmer, contra cf. Jiménez-Serrano (2004a: 102-3).

[5] Originally Petrie (1901b) equated Aha with Menes, but later saw Menes as a composite figure embodying the deeds of both Narmer and Aha (1920; 1924) and placed Narmer as the first king of Dynasty I.

[6] All cultural dates are based on Stan Hendrickx's 1996 and 1999 revision of Kaiser's 1957 original Stufen dates. Although the Hierakonpolis monograph is attributed to Quibell (1900), it has contributions from Petrie and it seems that together these two early Egyptologists developed the term Dynasty 0 for names of kings pre-dating Dynasty I (Raffaele 2003: 105). Also see van Wetering In Prep. for a fuller argument against the terms Dynasty 0, 00 and -1.

[7] According to Raffaele (2002), the first ruler of Dynasty 00 was buried with the Gebelein cloth (early Naqada II), followed by the owner of Tomb 100, Hierakonpolis, Locality 33 (Naqada IIC), then owners of the elite tombs in Cemetery T, Naqada, the owners of tombs in Cemetery U, Abydos (Naqada IID - IIIA) and the contemporary tombs from Hierakonpolis Locality 6, particularly Tomb 11, and also the Lower Nubian tomb L24 at Qustul and tomb 137,1 at Seyala (Naqada IIIA) (Jiménez Serrano 2003b; Kemp 1973: 36-43; Raffaele 2002; Wilkinson, 1999: 52; Williams 1986: 149). Consequently, the time frame for Dynasty 00 has expanded back to Naqada IIC.

[8] Both of these kings have had the *min* (→) symbol associated with their name - Aha on an ivory plaque from Naqada [JE31773] and Narmer on jar-sealings from Abydos (see Emery 1961: 21-37; Gardiner 1961: 400-415 and Hoffman 1980: 289-305 for a discussion of the philological and iconographic implications). A new reading of Narmer's name interprets the *nar* sign as *min* (Ray 2004: 111).

[9] The Palermo Stone does not classify the rulers before Dynasty I as the Followers of Horus, but lists kings with the red crown and others with the white; the first mention of the Followers of Horus is on the Dynasty XII, Koptos stela of Rahotep. In the Turin Royal Canon the divisions before Menes are split into the Great Ennead, led by Ptah, the Lesser Ennead, led by Horus, the Divine Spirits and then the House of Menes, Manetho splits these same divisions into Gods, Demigods, Heroes and Dynasty 1-5 (Redford.1986: 13, 160-1, 233). Although the Followers of Horus are literally those who came after Horus – the Lesser Ennead, it is generally accepted that the Followers of Horus are the Lesser Ennead and the Divine Spirits (Demigods and Heroes).

[10] Schneider (1997: 241-67) interprets this sign as a symbol of Seshat, the scribal goddess associated with foundation ceremonies and the recording of other rituals.

[11] Before this period Egyptian Predynastic society should be classified as a ranked society.

[12] Michael Hoffman, in Hoffman et. al. (1982: 45), suggested that he could have been buried in Tomb 1 at Hierakonpolis. However, Adams (1995: 51, n. 23) proposed that T1 could be a southern tomb of Narmer, or an official of his time. Dreyer (1990: 71) suggests that he could have been buried at Abydos in Tomb B50.

[13] Concern over the authenticity of the various fragments of the Annals has been raised by O'Mara (1999a; 1999b), who suggests that the only reliable portion is the Palermo Stone (see also Jiménez Serrano 2004: 18-21 and Baud 2003 for further discussion). However, the recent finding of another abbreviated Annals version on a sarcophagus lid of one of Pepi II's queens

in his pyramid complex at South Saqqara seems to confirm the ordering of the kings on the Annals (Baud & Dobrev 1995; 1997).

[14] The exact meaning of wearing the two crowns during this period of history is uncertain and may have had more of a ritual rather than territorial meaning. The earliest attestations of the white crown are on a Naqada IID ivory label from Cemetery U, Abydos (Hartung 1998: 201, Abb. 8), a contemporary carved ivory knife handle of Upper Egyptian provenance and a decorated incense burner from Qustul, Cemetery L (Wilkinson 1999: 49). It is uncertain when the red crown was first transferred to represent Lower Egypt, but it probably originated from Nubt, and the white crown Nekhen (Hassan 1988: 174; Spencer 1993: 55-6; Wilkinson 1999:49-50).

[15] The absence of a mortuary shrine for Narmer may be due to the fact that its likely position lies under the Coptic monastery or cemetery. Although 10 mortuary shrines have been discovered in the North Cemetery at Abydos, eight can be assigned to Dynasty I, of which three can be assigned to specific kings (Aha, Djer, and Djet) and two recently discovered ones (I & J) probably to queens of Aha. Three from Dynasty I remain unassigned. The remaining two belong to the end of Dynasty II and are assigned to Peribsen (Enclosure E) and Khasekhemwy (Enclosure F) (Bestock in press; Schaffer et. al. 1997: 32-40).

[16] The owner of Tomb 3357 – Prince Het - possibly acted as a chancellor to both Narmer and Aha.

[17] Merneith is given the same reign number as Den due to the fact that she acted as his regent.

[18] There is no tomb at Saqqara assigned to the short reign of Semerkhet, probably because the high-official that served under him – Henuka – outlived him and died in the reign of Qa'a (Gould 2003: 32).

[19] The Armenian version of Eusebius gives 30 years for Menes.

[20] Probably buried at Hierakonpolis, but see endnote 12.

[21] The dates up to the end of Dynasty 1 are based on radiocarbon dates and the chronological sequence is based on: Adams & Cialowicz 1997: 5, Hendrickx 1996: 64, and Shaw & Nicholson 1995: 310-312. Maadian here equals the Lower Egyptian Cultural Complex, also termed Maadi/Buto. The Tasian, although a nomadic culture, is included here, as it is a distinct culture. The inclusion of Naqada IV and V has been suggested by Köhler 2004. The assistance of Joris van Wetering in compiling this chart must also be acknowledged.

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