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Early Pastoral Nomadism and the Settlement of Lower Mesopotamia

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The Akkadians' nomadic origins have generally been assumed. However, the conventional prehistoric archaeological picture fails to illuminate those origins and the Akkadians' involvement in Akkad. Thus the origins of pastoral nomadism must be sought in the context of mixed farming within the Fertile Crescent, specifically during the PPNB. Subsequent expansion into marginal agricultural lands led to a symbiotic relationship between pastoral nomads and farmers. The Akkadians seem to have moved into the northern Arabian steppe and desert (Jezireh and Hamada) during the mid-seventh millennium B.C.; the PPNB/C populations apparently began intensive herding at the end of that period, and maintained ties to the Fertile Crescent seen in both exotic trade and everyday culture. They began to penetrate into Akkad during the time under discussion. Archaeological sequences in the Arabian desert suggest that the Akkadians probably were of a West Semitic (Levantine) background. Thus, the alluvium in the Akkadian area became a distinct entity as early as ca. 6000 B.C. and represented the early prehistoric forerunners to Akkadians of the fourth and third millennia B.C.

INTRODUCTION

A half century has passed since the appearance of Jacobsen's two seminal works on the early historical settlement of the southern Mesopotamian plain. The first (Jacobsen 1939a), dealing with ethnolinguistic questions, set the tone for evaluating the Sumero-Semitic interaction during the mid-third millennium B.C. and later. The appearance of his Sumerian King List (SKL) in the same year (Jacobsen 1939b) took us to the frontiers of early recorded history for the same region. Our perceptions of the early historic settlement of the southern alluvium have changed greatly since then. We should hardly find that surprising given the nature of cuneiform and archaeological studies: much of the change involves a wide variety of data from many sources. From Mesopotamia itself, the survey of the southern plain has shown the changing patterns of settlement over many millennia (see esp. Adams 1965; 1972; 1981; Adams and Nissen 1972; Jacobsen 1969; Wright 1981). The post-World II archaeological definition of the Near Eastern Neolithic has been critical to our understanding of Mesopotamian origins, and the excavations at Mari, Ebla, and Abu Salabikh have widened our horizons for the third millennium B.C. Finally, the exploration of the larger Arabian peninsula, from both a geological and an archaeological perspective, has improved our understanding of the Mesopotamian data. Clearly, while examining each of those topics separately would be a herculean task, a brief examination of each will help clarify the central questions of the current study: first, how and when did early pastoral nomadism from the greater Arabian peninsula affect human settlement on the alluvium? and second, can we be justified in examining the historical Semitic presence in Mesopotamia and relating it to the earlier archaeological record?

Our perceptions of the early historic settlement of the southern alluvium have changed greatly since then. We should hardly find that surprising given the nature of cuneiform and archaeological studies: much of the change involves a wide variety of data from many sources. From Mesopotamia itself, the survey of the southern plain has shown the changing patterns of settlement over many millennia (see esp. Adams 1965; 1972; 1981; Adams and Nissen 1972; Jacobsen 1969; Wright 1981). The post-World II archaeological definition of the Near Eastern Neolithic has been critical to our understanding of Mesopotamian origins, and the excavations at Mari, Ebla, and Abu Salabikh have widened our horizons for the third millennium B.C. Finally, the exploration of the larger Arabian peninsula, from both a geological and an archaeological perspective, has improved our understanding of the Mesopotamian data. Clearly, while examining each of those topics separately would be a herculean task, a brief examination of each will help clarify the central questions of the current study: first, how and when did early pastoral nomadism from the greater Arabian peninsula affect human settlement on the alluvium? and second, can we be justified in examining the historical Semitic presence in Mesopotamia and relating it to the earlier archaeological record?

AKKAD IN THE EARLY THIRD MILLENNIUM B.C.

The study of Semitic populations within the southern alluvium hinges on three generalizations found in virtually every examination of the problem. First, based on anthropological studies of regions in which both sedentary and mobile populations



Fig. 1. Principal steppe/desert PPN/PN sites in relation to Mesopotamia.

have been present, the consensus is that a symbiotic or closely linked relationship exists between the nomadic and sedentary groups. The particular ecological development between them in such regions is very closely intertwined. Settled and nomadic components (“tribe and town, desert and sown”) must integrate to create a “dimorphic,” or mixed, society with different social forms (Rowton 1969: 311; 1973a: 257). That way of life was particularly characteristic of Akkad (fig. 1) due to the specific geomorphological and ecological conditions there both in the past and present (Rowton 1969: 311). Based on the contemporary record, historians and archaeologists also conclude that since it appears unlikely that the Sumerians (and possibly their predecessors) originated from a nomadic background, the Semitic element contributed most substantially to that biethnic or dimorphic condition, especially in Akkad (Falkenstein 1954: 789; Moscati 1957: 50; Gibson 1972a: 2; Rowton 1969: 311; Knapp 1988: 77).

The second statement hinges on the popular and widespread notion that the Semites invaded the alluvium in periodic waves. Generally, the grouping works chronologically as follows (Kupper 1957:

xiv–xv; Adams 1974: 2; Kienast 1981: 83–84; Gelb 1961a: 27):

- Akkadian: ca. 3000–2500 B.C.
- Amorite: ca. 2500–1800 B.C.
- Aramean: ca. 1500–900 B.C.
- Arab: ca. 900 B.C.–present

These “more pastoral and tribally organized invaders” generally are integral to the study of the alluvium and exhibit interdependent forms of adaptation on the plain (Adams 1974: 2).

The third generalization holds that the “nomadic” settlement of the Syrian Jezireh and its impact on Mesopotamia was a late development. Historians have regarded Arabia before 2000 B.C. as a “waste land” (Gelb 1961a: 27), “barely inhabited before the domestication of the camel” (Rowton 1982: 319). Scholars do not consider the prehistoric aspects of pastoral nomadism or climatic improvement, nor do they present a reasoned argument for relating historical development to prehistoric cultures. Such shortcomings in scholarship make it impossible to interrelate the inhabitants of the Arabian peninsula with those of the civilized lands such as Mesopotamia and Egypt or

Fig. 1. Principal steppe/desert PPN/PN sites in relation to Mesopotamia.

- | | | |
|----------------------------------|---|--|
| 1. Mureybit | 28. Sabkhet Muh PPNB Site 79 | 54. Field Site 77 |
| 2. Dibli Faraj | 29. Sabkhet Muh PPNB Site 122 | 55. Field Site |
| 3. Abu Hureyra | 30. Field Site 102 and 108 | 56. El Jidd, Field Site 21 |
| 4. Tell es-Sinn | 31. Jebel Tenf (Field Sites 4, 12–13) | 57. Field Site 22 |
| 5. Bouqras | 32. Field Sites 16–17 | 58. Field Site |
| 6. Baghouz | 33. Jebel Seys | 59. Field Site 233 |
| 7. Mari | 34. Dmeyr (as-Sidd) | 60. Field Site 15 |
| 8. Sippar | 35. Deir es-Shemali | 61. Field Site |
| 9. Uqair | 36. Umbachi | 62. Tellul al Basutin (Field Sites 62, 67, 69, 70, 72, 81) |
| 10. Jemdet Nasr | 37. Khebariye | 63. Field Site |
| 11. Kish | 38. Nemara | 64. Field Site 36 |
| 12. Abu Salabikh | 39. Jawa | 65. Field Sites 41, 51, and “Sugarloaf” |
| 13. Nippur | 40. Shubeika | 66. Wright 1958 |
| 14. Uruk | 41. Qasr al Burqu (02000 and 03000) | 67. Qasr Muhaiwir |
| 15. Ur | 42. Qa’a Mejalla/Dhuweila 2202 | 68. Watelin in: Dussaud 1929: 150 |
| 16. Eridu | 43. Jebel Naja 2321 | 69. Ta’as al Kaffar |
| 17. Jowf | 44. Ibn al Ghazzi 3133 | 70. Usiyah’ |
| 18. Moore 1981 | 45. Jebel Qurma/El Ghirga | 71. Tell Chokkeh |
| 19. Qdeir 1 | 46. Azraq | 72. Tell Aswad |
| 20. Nadaouiyeh 4 | 47. Wadi Jilat (Dhobai) | 73. Haditha Neolithic Site 71 |
| 21. Umm Tlel 2 | 48. Kilwa | 74. Haditha Neolithic Site 73 |
| 22. Kowm I and II | 49. Umm Wual | 75. Haditha Neolithic Site 75 |
| 23. Tell Taibe | 50. Bardawil | 76. Haditha Neolithic Site 76 |
| 24. Watelin in: Dussaud 1929:150 | 51. Dawqira | 77. Haditha Neolithic Site 81 |
| 25. Soukhne (Rigm es-Saboun) | 52. 201-42 | 78. Wadi Hussainiyat |
| 26. Douara Cave | 53. Muhunsur (Field Sites 25 and 30 al Umchaimin) | 79. Es-Souab 3 |

even the villages of the Fertile Crescent. The Arabian peninsula is forever seen as a literal and cultural blank (see Knapp 1988: maps 2–3; 3–1; Nissen 1988: fig. 14).

The idea that Amorites, Aramaeans, and Arabs were essentially pastoral nomadic Semitic people who invaded the plain has been largely accepted, perhaps based on the historical data extant for those populations (Buccellati 1966; Kupper 1957; Brinkman 1968; Hitti 1970; Gibson 1972a: 2). The crux of the matter in historical terms centers on the “Akkadians.” “Akkad” as an ethnopolitical entity is a very vague concept and the use of the term in royal titulary does not begin until Ur III (Hallo 1957: 87–89; Rowton 1982: 319). The (presumably) Sumerian logogram URI (meaning Akkad) has no satisfactory etymology (Edzard 1960: 244; Kraus 1970: 36–42, 61–82; Edzard, Farber, and Sollberger 1977: 175–76) and we do not know when the term came to mean “Akkad” (for the Uruk IV period attestation of the sign, see Green and Nissen 1987: 305, no. 594). The older title “King of Kish” may have represented early political control over the area later known as Akkad (Gibson 1972a: 2; n. 20). Therefore, the study of Semitic populations within the Akkadian area can proceed only if we analyze the political and economic history of the region in conjunction with contemporary historical documentation. Although many of the data have been presented before, notably by Gelb and Jacobsen, more recent information can tie together some relevant observations.

Jacobsen’s reconstructed Sumerian King List begins with Etana in the Early Dynastic II period (his ca. 3100 B.C.) as the first authentic “king” of Kish (Jacobsen 1939b: 152; Table 2). He suggests that the earlier legendary rulers belonged to a more remote period. Table 1 presents an Early Dynastic I–IIIa sequence that follows his reconstruction and adds more recent relevant material from Kish, Mari, and Ebla.

At least 13 of the 23 names that the table lists from the SKL for the Kish I dynasty are Semitic (Gelb 1961b: 4–5; 1981: 54–55; Edzard 1960: 245) as are the majority of attested names from independent sources. However all of the names are probably Semitic, some merely expressed in Sumerian ideographs. At Mari, a series of six names attested in the SKL have now been reconstructed as Semitic (Geller 1987; Gelb 1989), as have all of the independently attested inscriptions (Dossin 1967; Gelb 1989). The one name from Sippar in the

SKL appears to be Sumerian but the one independently attested (ED II–IIIa?) name is Semitic: Manki-Beli (Budge 1899: pl. 4/22451; Walker and Collon 1980: pl. 27/21; Gelb 1961b: 2 *contra* Leichty 1986: 212).

The presence of nonroyal Semitic names and words is also attested from the northern part of the alluvium. Many private votive inscriptions and land sale documents are either from Kish, Sippar, or other northern centers, or contain Semitic names and phrases (Edzard 1960: 245–46; Gelb 1960: 266; 1961b: 2–4; 1981: 55; Gelb, Steinkeller, and Whiting 1990). Economic texts from Kish and Mari mention Semitic names and phrases, e.g., *mi-at* for “hundred” (Gelb 1960: 266; 1981: 55; 1989: 129; Charpin 1987: 89–90). Deities also occur in Semitic form (Gelb 1989: 132). The recently reconstructed Old Semitic calendar system from the Early Dynastic had a wide distribution in the Upper Euphrates at Ebla, Mari, and presumably Kish (Lambert 1970; Charpin 1982; 1987: 90; Pettinato 1977; 1981: 147–48).

The Semitic developments in Akkad during the early third millennium B.C. are reflected in materials recovered in Sumer. Semitic names are attested in Early Dynastic documents from Fara, Adab, Ur, Lagash, and Nippur (Gelb 1961b: 4). Akkadian loan words passed into Sumerian (Gelb 1960: 266; 1961b: 5, 141). Biggs (1967; 1974) has noted scribes with Semitic names at Abu Salabikh. In an Abu Salabikh economic text (IAS 518), the use of Semitic *li-im* for “thousand” and *mi-at* for “hundred” parallels the usage at Mari and Ebla (Biggs and Postgate 1978: 106–7). Another economic text from the site (IAS 508) may be written in Semitic (Biggs 1974: 44, 96). Texts from Abu Salabikh, Adab, and Girsu use the early Semitic month names as well (Gelb 1989: 140; Charpin 1987: 90). The Abu Salabikh literary text IAS 326 (+ IAS 342) is referred to as a Semitic hymn to the sun god (Michalowski 1987: 171). It may have duplicates at Mari and Ebla and is probably written in Semitic (Michalowski 1987: 171; Gelb 1987: 53; Edzard 1984: no. 6; Archi 1987: 128–30). Biggs (1981: 127) suggests it was composed at Kish or Ebla.

A number of royal personages in Sumer had close Semitic ties. Pu-abi, a Semitic queen at Ur, belongs to the ED IIIa (Sollberger and Kupper 1971: 41). Meskiaganunna, king of Ur during the ED II(?), had a Semitic wife who in one of the earliest Semitic texts from the south dedicates an offering for him (Sollberger 1965: no. 2; Sollberger

TABLE 1. Legendary and Attested Early Rulers: Kish, Mari and Ebla*

| <i>Kish</i> | | <i>Mari</i> | <i>Ebla</i> | |
|------------------------------|------------|-----------------------------|--------------|-------------|
| ED I (2900–2700 B.C.) | | | | |
| | | Etana | | |
| | | Balih | | |
| Maškakatu | Kalibum | Enmenunna | | |
| Kullasina-Ib ^c el | Qalumum | Melam-Kiš/ Barsalnunna | | |
| Nangiš-lišma | Zuqaqip | Samuk | | |
| Endaraginna | Atab | Tizkar | | |
| Babum | Mašda | Il-ku | | |
| Pu-annum | Arwium | Ilta-sadum | | |
| ED II (2700–2600 B.C.) | | | | |
| Enmebaragesi** | Lugal-UD** | | | |
| Agga | Ur-zag-e** | Il-šu (Il-pu) | | |
| Susuda | Enna-II** | NE-zi | | |
| Dadasig | Uhub** | Ištup-šarru | Ikun-Mari** | Igriš-Kalam |
| Magalgalla | | Sa ² umu | Ikun-Šamaš** | |
| | | Ikun-Samagan** | | Irkab-Damu |
| ED IIIa (2600–2500 B.C.) | | | | |
| | | Iblul-II** | | Arennum |
| Kalbum | | Enna-Dagan** | Idi-narum** | |
| Tuge | | Iš-gi ₄ -Ma-ri** | | |
| Mannunna | | | | |
| Inbi-Ištar** | | Iku-Išar** | | Ibrium |
| Lugal-mu | | Hida ² ar | | Ibbi-Zikir |

* The basic order of names for Kish is after Hallo 1971: 40, 46 and figs. 7, 8; for Mari and Ebla, see Archi 1985; 1987; Geller 1987: 144–45; Gelb 1989.

** Contemporary mention or inscription.

and Kupper (1971: 43). At Lagash, Ur-Nanše had a Semitic wife, Abda (Sollberger 1956: 2, no. 20; Sollberger and Kupper 1971: 45).

The early mention of Semites as destructive nomads revolves around the epic *Lugalbanda and Enmerkar*, which presumably took place in ED II since an early fragment is known from ED IIIa (Biggs 1966: 85, n. 88; 1974: 91 no. 327). In that account, the Semitic MAR.TU besiege Uruk, having ravaged the Sumerian and Akkadian countryside in the past (Kramer 1963: 273; Rowton 1969: 313–14). However, the best known contemporary Sumerian example of the term for the Semites comes from the reign of Eannatum of Lagash (ca. 2400 B.C.). In an inscription dedicating a large Lagash canal, he states that his Tidnum name—his Semitic tribal name—was Lumma. This is in contrast to his “national” (*kalam*) name. Sollberger

suggests that the Semitic background was possible since in the *Stela of Vultures*, Eannatum says that Inanna gave the young prince his Sumerian name (Sollberger and Kupper 1971: 60, 48, n. 3). Edzard suggests that a Tidnum name was reasonable, for Tidnum soldiers served in Eannatum’s army (Edzard 1960: 249–50; for at least three possibilities of interpreting this Semitic name, see Gelb 1980: 144, 147). Kramer suggests that Tidnum, later a MAR.TU tribal name, refers here to the regions west of Sumer (Kramer 1963: 53, 55; Buccellati 1966: 244; see also Heltzer 1981: 1–3; Edzard, Farber, and Sollberger 1977: 157; Edzard and Farber 1974: 30). Tidnum, read as GĪR.GĪR in the above Eannatum inscription, has other ED IIIa parallels. In the *Archaic City List* (Green 1986: 77; Archi 1987: 128) from Abū Šalābīkh, Tidnum is read as GĪR.PIRIG (Biggs 1974: no. 21, col. iii, line 1) with a duplicate

from Fara (Deimel 1923: no. 25; Civil, personal communication). This earlier combination goes back to the Protoliterate or Jemdet Nasr period. The sign ligature GĪR.PIRIG there is read as Tidnum in the Uruk example of the *Archaic City List* (Green and Nissen 1987: 294, no. 552).

Our understanding of the Semitic presence in "Akkad" hinges on a date for those early royal and common references. Sign orthography, historical synchronisms, and textual examination help determine a date for the early "Akkadian" rulers of the northern alluvium. Jacobsen has suggested that "the heroic age" in which Sumer changed from council-orientated leadership to individual heroes or kings probably began ca. 2700 B.C. or ED II (Jacobsen 1957: 106–7, 120). It may have happened even earlier; the sign LUGAL is attested in Uruk III or ca. 2900 B.C. (Green and Nissen 1987: 240, no. 334). Based on the synchronisms in the SKL, several authorities have placed the "mythical" or "legendary" kings of Kish in ED I (Mallowan 1965: 69–70; Hallo 1970: 61, n. 59a; 1971: figs. 7–8). The division between the antediluvian and postdiluvian rulers, then, can be suggested as ca. 2900 B.C. or the beginning of ED I. That date may be confirmed by an examination of the five antediluvian towns of the SKL, only one of which (Larak) still awaits identification (Mallowan 1971: 289; Jacobsen 1987: 147, n. 8). The other four (Eridu, Bad-tibira, Sippar, and Shuruppak) were occupied during the Protoliterate–ED I periods (see Adams 1981: figs. 9, 27). In addition, in the north and south, cities began to take on large-scale urban proportions during ED I (Uruk: Nissen 1972; Adams and Nissen 1972: 12, 17–19, fig. 5; Kish: Gibson 1972b: 115; 1973: table 1).

Unfortunately, the archaeology of Akkad is poorly known. The major sites of Kish and Sippar have been treated in less than exemplary fashion and we are thus at the mercy of recent synthesized studies (Kish: Gibson 1972a; Moorey 1975; Sippar: Walker and Collon 1980). A brief examination of some relevant data from Kish, Sippar, and Mari may support the conclusions drawn from the historical data. Gibson, in his study of Kish, suggested that the A Palace and the cemetery could be dated to ED II based on the assumption that shell inlay fragments found there dated to that period (Gibson 1972a: 59; cf. also Weiss 1975: 435; Moorey 1967: 106–7; 1970: 93–94). The so-called Fara type tablets from Kish (Mallowan 1965: 70, n. 22; Gibson 1972a: 79), Gelb dates to the period preceding Fara,

i.e., ED II (Gelb 1981: 55). Adams and Moorey state that the A Palace was in ruins by ED III and thus the Kish kings exercised their power earlier (Adams 1981: 88; Moorey 1975: 167). Mallowan (1965: 69) also suggests that the great palace dated to ED II.

The relevant material from Sippar was haphazardly excavated by Rassam in 1881 and 1882, probably from the É-Babbar. The material was reexamined recently. Of the 14 ED alabaster worshipper statuettes catalogued (Walker and Collon 1980: 96–97), one is inscribed by Ikun-Shamash of Mari (Table 1). Stylistically, they should belong to the ED II–IIIa (Porada 1965: 163). ED II–III maceheads, stone vases, and stone land sale tablets also clearly mark Sippar as an important ED II–III center. Unfortunately, we have little to suggest that Sippar was an important center in the preceding ED I.

The large number of inlay fragments, worshipper statuettes and plaques from Mari also confirm its tie to the alluvium and place it within the ED II–IIIa (Parrot 1956; 1967; 1971). Recent work in the central Euphrates region near Anah revealed at least three major ED I–III sites (Abdul-Amir 1988: 47–49). One, Ta^cas al-Kaffar, was a walled settlement (Abdul-Amir 1988: 117). Another, Usiyah, had an equid team burial similar to those from the Hamrin basin, Abū Ṣalābīkh, and Ur (Roaf and Postgate 1981: 198; Zarins 1986). Tell Chokheh, just north of Falluya, and Tell Aswad, south of Hit, also had substantial ED II–III occupations (Roaf and Postgate 1981: 174–75; Abdul-Amir 1988: 117), suggesting continuous interaction among the Kish and Sippar environs, the western desert and the area along the Euphrates to the north. That observation is confirmed by the Ebla texts, which show Kish, Mari, and Ebla were intimately connected (Archi 1987 and references). A mathematical text from Ebla (TM 75.G.1693) has a most interesting colophon that may read: "As established by the scribes of Kish" (Friberg 1983: 9; cf. Gelb 1981: 61).

A final archaeological observation should be made in support of this proposal: Recent work in the Gulf and Iran has established that the "série ancienne" or "Intercultural style" of steatite/soapstone vessels had not only a widespread geographical range, but also a short temporal range (Kohl 1974). Where provenance is known, the context suggests an identification with elites (Lamberg-Karlovsky 1988: 53–55). Vessels have been catalogued from Mari (Parrot 1956: pls. 46–52; 1967:

pl. 71; 1971: pl. 14), Kish (Kohl 1974; Lamberg-Karlovsky 1988: 57), Sippar (Collon and Walker 1980: 99), and numerous Sumerian sites, including Adab, Nippur, Ur, Fara and Ur (Lamberg-Karlovsky 1988). The presence of those vessels at Palmyra (Lamberg-Karlovsky 1988: 58 and reference) and the location of walled Early Dynastic forts on the Upper Euphrates reinforce the idea of a trade route through the western desert. Kohl (1979: 62; 1986: 368–74) suggests that the forms reached a peak of popular usage between 2600 and 2500 B.C. Potts (1985: 682, n. 51) places the peak between ED II and ED IIIa. From Tepe Yahya in Iran, the bulk of the excavated material is placed in Yahya IV B1–4, or 2700–2400 B.C. (Lamberg-Karlovsky 1988: 52). Excavation of late third millennium B.C. tumuli at Dhahran and Bahrain has failed to turn up Intercultural style vessels and thus also supports an ED II–IIIa date for the earlier style (Zarins, Mughannum, and Kamal 1984: 27; Ibrahim 1982: 34; Mughal 1983).

The conclusion here is that the title “King of Kish,” used by rulers by the ED I–II, referred to political supremacy over the northern part of the plain ca. 2900–2500 B.C., a period when Semitic writing was beginning to be recognized as a state instrument for political domination (Biggs 1970: 138). Since Semitic populations exercised that control, they exerted political and socioeconomic power not only south into Sumer but also apparently north along the Euphrates to Mari and beyond. A cultural symbiosis was characteristic of the region and the early Semitic populations penetrated Mesopotamia through the middle Euphrates valley; they spread to the regions of Kish, Sippar, and Mari and moved sporadically south (Goetze 1961: 111). This being the case, their entrance into the plain as pastoral nomads would have occurred prior to ED I, or as Cooper (1973: 239–40) says, “Sumero-Akkadian language contact in Mesopotamia can be projected back literally to the dawn of history.” Rowton (1969: 311) suggests that during the fourth millennium B.C., large areas of the steppe and marsh adjacent to the main watercourses were best exploited by mixed farming and pastoralism. Very little documentation can be generated to prove historically that “Akkadian” populations were nomadic, since our ability to interpret the Protoliterate texts is limited (above). However, if we are to take advantage of and explain the anthropological model and paradigm, we cannot arbitrarily suggest that the symbiotic interaction began only in ED

I–II. Nor can we suggest that the same forces were not at work in prehistoric times, shaping the northern alluvium of Akkad. To best understand the nature of prehistoric settlement in the region we must turn to the earliest archaeological record of pastoralism and the Arabian Desert west of the alluvium.

THE PRE-POTTERY NEOLITHIC B COMPLEX AND THE FERTILE CRESCENT

Archaeologists in the last half-century have examined closely the “Agricultural Revolution” in the Fertile Crescent, particularly along the northern rim of the Mesopotamian plain and especially at the limits of natural rainfall farming (fig. 2).

The PPNB cultural manifestations appear to solidify and expand on the earlier tenuous steps toward mixed agriculture that perhaps were begun in the late Epipaleolithic and PPNA. Since its definition at Jericho by Kenyon (1960: 47–57), the sedentary aspect of the PPNB has been found in a large arc covering Saudi Arabia, Jordan, Israel, Syria, and Turkey (Zarins 1989b: 30; fig. 1; fig. 2 here). The northernmost sites have been found on the Balikh and Khabur tributaries of the Euphrates (fig. 3; Copeland 1982; Cauvin 1972; Moore 1981; 1985; Akkermans 1988). The southernmost Euphrates sites appear to be Bouqras and Tell es-Souab 3, suggesting that rainfall farming could not be practiced further south. Recognizing the pattern, most archaeologists refer to a “Levantine” origin for this phenomenon. Moore (1979: 64) suggests a concept called “The Ancient Levant” (fig. 2) which included substantially all of Syria, western Iraq, most of Jordan, and a portion of northern Saudi Arabia. The researchers at Palmyra refer to PPNB sites there as part of the “inland Levant” (Fujii *et al.* 1987: 37).

The cultural characteristics of the period are well summarized elsewhere (Singh 1974; Mellaart 1975: 55–69; Bar-Yosef 1980: 127–30; Moore 1981; 1982: 9–16; 1985). The current article will briefly summarize the latest data on the subperiods.

After four seasons of excavation at ‘Ain Ghazzal in Jordan, the investigators have subdivided the sequence into three specific phases: PPNB: 7000–6200 B.C., PPNC: 6200–5800 B.C. (also called Final PPN or PPNB final, Stordeur 1988; Cauvin 1981: 481), and the PN (Neolithic): 5800–5000 B.C. (sometimes called “Late Neolithic,” Rollefson 1988;

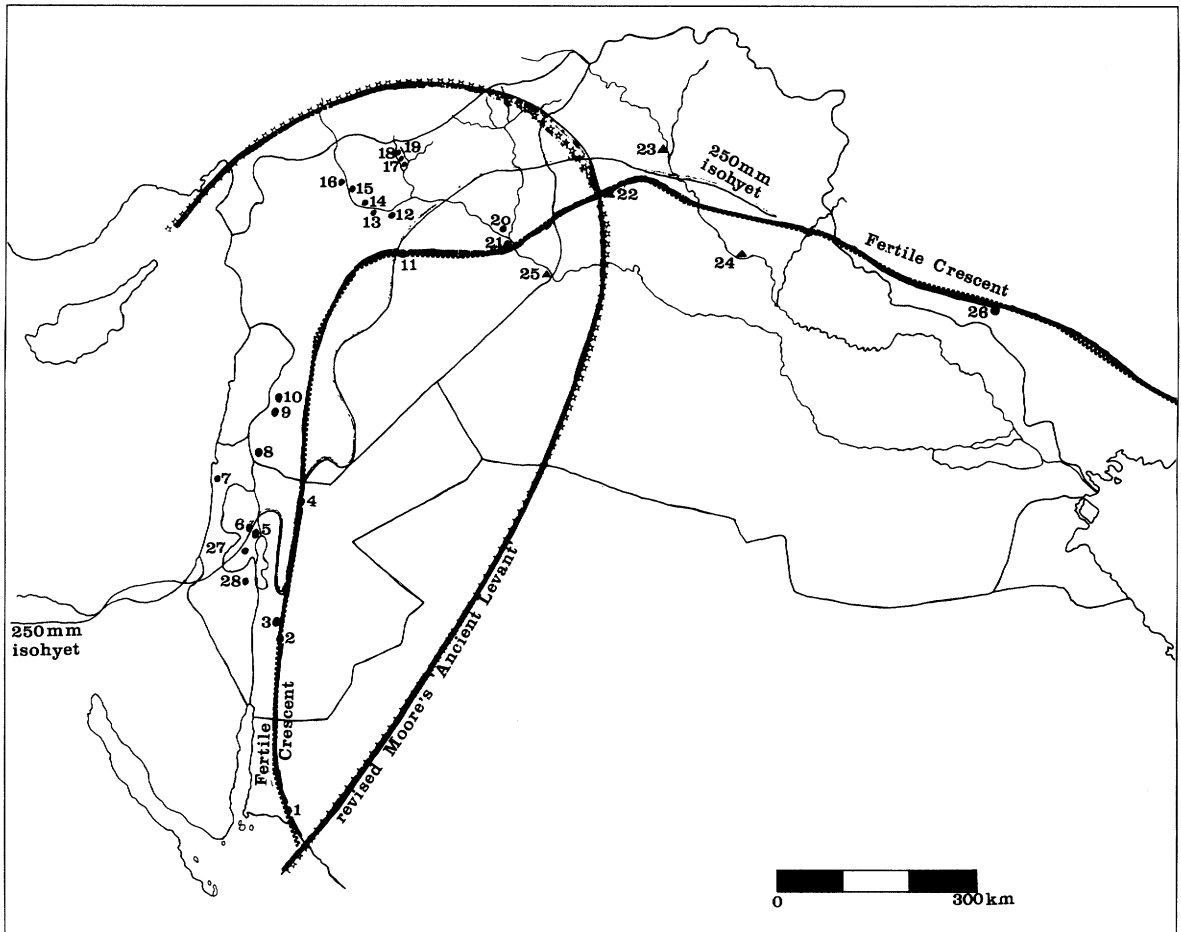


Fig. 2. Fertile Crescent in Relationship to the "Ancient Levant."

- | | | | |
|----------------------|-----------------|-------------------|--------------------|
| 1. Al Aynah, 200–104 | 8. Beisamoun | 15. Sheikh Hassan | 22. Umm Dabaghiyah |
| 2. Abu Neheileh | 9. Tell Ramad | 16. Nahr el Homr | 23. Hassuna |
| 3. Beidha | 10. Labwe | 17. Marfraq Slouq | 24. Tell es-Sawwan |
| 4. Ain Ghazzal | 11. El Kowm | 18. Tulul Breilat | 25. Baghouz |
| 5. Jericho | 12. Abu Hureyra | 19. Tell Aswad | 26. Ali Kosh |
| 6. Abu Ghosh | 13. Dibsi Faraj | 20. Tell es-Sinn | 27. El Khiam |
| 7. Nahal Oren | 14. Mureybit | 21. Bouqras | 28. Nahal Hemar |

Köhler-Rollefson 1988; Rollefson and Simmons 1988: 98–99; Kafafi 1987). Possible similar sequences may be found at ʿAin Abū Neheileh in southern Jordan (Henry 1986), Kowm II in northern Syria (Stordeur 1988), and Al Aynah in Saudi Arabia (Ingraham *et al.* 1981).

Three major topics—climate, subsistence, and lithic technology—which relate to pastoral nomadism and can be recognized in the archaeological record are briefly examined here in light of the revised PPNB/C record. It seems clear that the PPNB/C was part of a climatic optimum that de-

clined slowly and terminated in stages during the late third millennium B.C. (for the evidence, see Zarins 1989b and references). Mellaart (1975: 65) speaks of a "wetter phase" during the early part of that period which allowed the spread of PPNB culture into more marginal steppe sites such as Bouqras and Kowm. Moore (1979: 69) has postulated a major shift in vegetation zones between the beginning of the Natufian and the end of the PPNB. Others have suggested that the climate of southern Palestine was wetter during the seventh millennium B.C. (Horowitz 1979: 248; Danin 1985: 39–40;

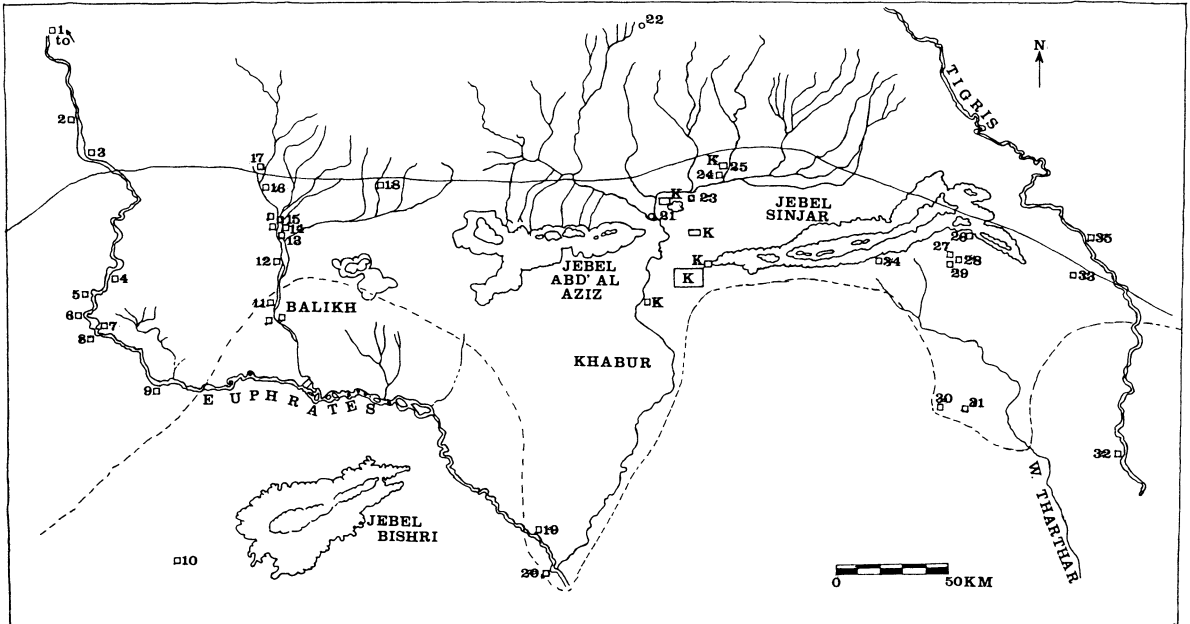


Fig. 3. The Jezireh and Northern Mesopotamia (after Roodenberg 1988; Akkermans 1988).

- | | | |
|------------------------------|------------------------------------|--------------------------|
| 1. Hayaz Höyük and Kumartepe | 13. Mafraq Slouq | 25. Tell Awan |
| 2. Carchemish | 14. Tullul Breilat/Tell Sabi Abyad | 26. Tell Afar |
| 3. Til Barsip | 15. Tell Hammam | 27. Maghzaliyeh |
| 4. Mumbaqat | 16. Tell Assouad | 28. Yarim Tepe |
| 5. Hububa Kebira | 17. Tell Abyad | 29. Tell Sotto |
| 6. Selenkahiye | 18. Tell Chuera | 30. Umm Dabaghiyah |
| 7. Mureybit | 19. Tell es-Sinn | 31. Tellel eth-Thalathat |
| 8. Emar | 20. Bouqras | 32. Assur |
| 9. Abu Hureyra | 21. Hasetche | 33. Hassuna |
| 10. Kowm | 22. Mardin | 34. Grai Resch |
| 11. Khirbet el Bassal | 23. Tell Aswad | 35. Nineveh |
| 12. Mounbatah | 24. Tell Brak | |

table 1; Rosen 1987: 48–49). Work in the Palmyra basin has largely supported that theory (Sakaguchi 1978: 26, 109; 1987: 14; Fujii *et al.* 1987: 29).

Economically, according to Bar-Yosef, a radical change took place by the beginning of the period. However, while there is clear evidence of cereal and pulse domestication from the preceding PPNA, there is little evidence of domesticated animals at that time. Bar-Yosef (1980: 128) suggests that most of the earlier (wild) game had given way to a dominance of ovicaprids and bovids and that their domestication in later periods was not in doubt. Without clearly stating that the PPNB animals were domestic, he suggests that a drastic faunal change was evident at such sites as Mureybit, Abu Hureyra, Beisamoun, Jericho, and Abu Ghosh. The evidence of sheep remains at Jericho, found outside their

natural habitat, also suggests a concerted conscious manipulation. Mellaart (1975: 65–66) feels that a loose association of gazelle and other ungulates with humans prevented intensive domestication during the PPNB and only the domestic goat could be placed in that category. A study of the fauna at Jericho convinced Clutton-Brock (1978; 1981: 56–57, 60–61) that domestic goat and sheep were present by the eighth millennium B.C. Moore (1979: 68) states that ovicaprids and gazelle were herded by the PPNB (see also Legge 1972; Garrard 1984: 126). Moore later (1982: 16) proposed that only ovicaprids were herded and that the innovation began during the PPNB (Moore 1981: 448, 456). Surely, however, the dramatic reversal of the relative percentages of gazelle vs. sheep/goat ca. 6200 B.C. in favor of the latter strongly argues in favor of

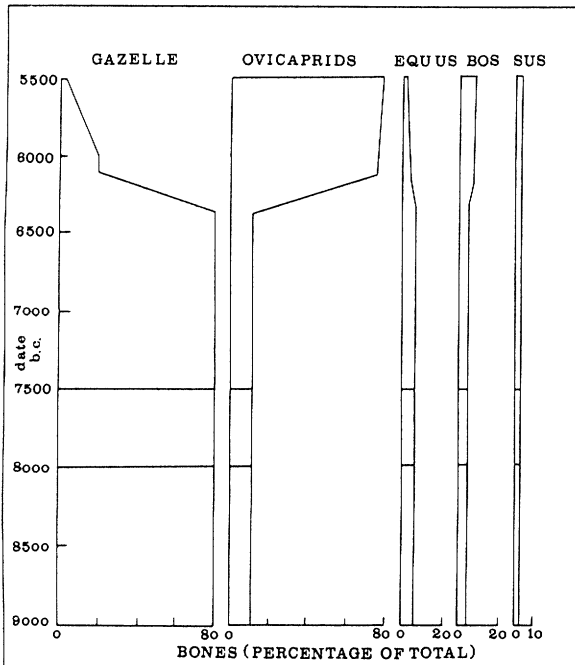


Fig. 4. Composite of total animal bones recovered from Abu Hureyra, Mureybit, Beisamoun, Jericho, Abu Ghosh, Bouqras, and Tell es-Sinn (after Legge and Rowley-Conwy 1987, Clason 1980, 1983, and Bar-Yosef 1980).

the introduction of sheep/goat animal husbandry by the PPNC (fig. 4). This reversal is paralleled at Balikh PPNB/C sites, such as Tell Assouad and Tell Sabi Abyad. The earlier levels at Tell Assouad contained a majority of wild animals but by the PPNC, domestic ovicaprids were dominant (Akkermans 1988). The same pattern for dominant ovicaprid herding in the PPNC is seen further north along the Euphrates at Hayaz Höyük (Roodenberg 1988). At Bouqras, contemporary to the last half of the PPNB at Abu Hureyra and thus part of the PPNC, the initial faunal identification suggested that ovicaprid remains predominated and that goat were "semidomesticated" (Hooijer 1966: 194). A recent study of new material from Bouqras notes the presence of domesticated ovicaprids and wild sheep (Akkermans *et al.* 1982: 57; Clason 1983: 361). At ʿAin Ghazzal during the PPNB, herding domestic goats and hunting were equally important (Rollefson 1988: 4; Köhler-Rollefson 1988). In PPNC, goats were increasingly well represented and hunting declined (Köhler-Rollefson 1988). In addition to ovicaprids at Bouqras, domestic cattle were present in PPNC context (Clason 1979–1980; 1983: 361; Buitenhuis 1984: 213). They were in-

troduced at Abu Hureyra, ʿAin Ghazzal, Hayaz Höyük, Tell Abu Abyad and Tell Assouad at the same time (Legge and Rowley-Conwy 1987: 95; Rollefson 1988; Roodenberg 1988; Akkermans 1988). The distribution of animal domesticates in the Levant, coupled with other evidence (see below), suggests that the hearth area for much of PPNB animal husbandry may have been in the northern Syrian region just north of the Jezireh (fig. 3).

Lithic production was becoming more specialized during the period and exotic or highly desired flint sources were exploited as part of an apparent, long-range trade network involving the Mount Carmel area, central and southern Syria, and northern Arabia (Mellaart 1975: 65). Other long-distance trade items moving through Syria, northern Arabia, and the Levant included Vannic obsidian, alabaster, jadeite/greenstone, turquoise, and white plaster ware. The "markers" identified with lithic production include the distinctive banded cores (often called naviform or boat-shaped) and crested blades as byproducts that produced the desired long blades characteristic of the PPNB. Such blades sometimes exhibited pressure retouch and were turned into reaping knives, distinctive tanged projectile points (e.g., Amuq and Byblos points), end-scrapers, sickle blades, borers, notches, and very commonly simple and transverse type burins (Mortensen 1970; M.-C. Cauvin 1972: 90–93; Mellaart 1975: 63; Moore 1982: 11; Rollefson 1988). This classic PPNB sequence can be tied to numerous other sites and the assemblages are most often identified on the basis of projectile points (fig. 5). For the PPNC, smaller projectile points occur although Byblos and Amuq points are still present. Burins are still dominant but truncation types become much more common (Table 2). Notches and retouched flakes occur in greater numbers and sickle blades disappear (Rollefson 1988). By the Pottery Neolithic, small bifacially knapped, tanged, and winged projectile points are common, as are truncation burins and large side scrapers (Gilead 1990). Tabular or cortical flint scrapers also appear (fig. 6; Rollefson and Simmons 1988: fig. 7).

THE STEPPE/DESERT PPNB

Several researchers view the steppe/desert south of the central Fertile Crescent as distinct from the settled zone, although the various ecological sub-groupings of the region are usually more complex

than is generally realized (see Wirth 1958; Zarins 1989b: 35–36; Betts 1989; Betts *et al.* 1990: 1–4). In fact, PPNB materials were found outside the expected sedentary zone before similar finds at the Levant tell sites, but they were not recognized as such. Material was reported from Wadi Ahmar in the south Sinai early in the twentieth century (Currelly 1906: 229–44). In eastern Jordan and central Syria, explorers saw from the air large-scale enigmatic structures, Maitland's [1927] and Rees's [1929] so-called "kites" or Poidebard's [1934] "*enceintes fortifiées indigènes*." Finds in Jordan, Syria, and Iraq remained unknown within the larger context of Levantine archaeology (see Field 1951: 89, n. 9; 1960; Rhotert 1938; Waechter and Seton-Williams 1938). However, by the 1940s, three distinctive categories of artifacts were known in this vast area: rock art, lithics, and structures.

Intensive work conducted since the 1960s in the Negev and Sinai, eastern and southern Jordan, and northern Saudi Arabia (see Zarins 1990) allows us to begin assessing similar material from Syria and Iraq. Based on work in the Negev, researchers have constructed a tripartite division of the PPNB based on knapping techniques, projectile point typology, and Carbon-14 dates (Bar-Yosef 1981a: 221, 226; Noy and Cohen 1974; Zarins 1990: table 1). Summary studies suggest a site typology based on site size, architecture, and lithic usage (Simmons 1981: 32–47; Goring-Morris and Gopher 1983; Baron 1981). In the Sinai, PPNB sites are known from both the north (Gilead and Goldberg 1976; Mintz and Ben-Ami 1977: 242–43) and south (Cope land and Hours 1971: 17; Goring-Morris and Mintz 1976: 138; Bar-Yosef 1981a; 1981b; Goldberg and Bar-Yosef 1982). It appears that many sites belong to the PPNC, a significant fact mirrored at Syrian sites (Bar-Yosef 1981b: 45). In the Azraq region of Jordan, a number of PPNB sites have been defined on the basis of stratigraphical association or surface concentrations (Garrard and Stanley-Price 1975–1977; Garrard *et al.* 1985; Garrard *et al.* 1987; Rollefson 1982: 26–27; Rollefson and Frohlich 1983). From Jilat 7, two Carbon-14 dates suggest a mid-seventh millennium B.C. date for the PPNB occupation (Garrard and Stanley-Price 1975; Garrard *et al.* 1988: 322).

Betts's five-year campaign in the eastern arm of Jordan has helped to define the steppe/desert facies of the PPNB/C and the PN. Work at Dhuweila, on the western side of the Harrat Rajil, revealed a two-fold sequence. The earlier PPNC occupation was dated to 6240 B.C. and represented a small

camp composed of stone circles. The lithic assemblage on flint was characterized by the presence of naviform bipolar cores, projectile points of Beidha and Byblos type, and dihedral and truncation burins (Betts 1988b: 9). Recovered animal drawings on small basalt boulders (Betts 1987) are paralleled at other sites to the southwest, such as Kilwa (Rhotert 1938), and represent in secure context the early outline style associated with the PPNC. "Kites" of the region may now be safely dated to the PPNB/C period (Helms 1982: 101; Betts 1988a), especially the Byblos and Beiha projectile points (Parr *et al.* 1978: 36–37; Helms 1981: 46–47, fig. 23; Betts 1983: 9–10; 1985: 39; Helms and Betts 1987, figs. 15–16). At Ibn el-Ghazzi, northeast of Dhuweila, a conscious attempt was being made in the PPNC to control scarce water resources by channeling and impounding. That may be one of the earliest precursors to the more famous *seil* technique the South Arabs used centuries later (Betts 1988a; Betts and Helms 1989). The apparent southern limit of the PPNC sites is in north-central Saudi Arabia. Site 201–42 in the Wadi Arar drainage contains the usual PPNC materials (Parr *et al.* 1978: 36; pl. 39, nos. 46–54). Possibly the settlement, 206–36, found at Hail (Parr *et al.* 1978: 39; pl. 27b/c) and a kite south of the Nafud (206–6) may represent the southern early extension of the PPNC expansion. To the west, the southern PPNC line remains at Kilwa, where a recent resurvey has confirmed Rhotert's earlier work (Gilmore, personal communication).

The spread of the PPNC culture over the desert/steppe suggests the continuation of a mixed subsistence strategy, but one that also included some limited sheep/goat herding (Betts 1988a; Tchernov and Bar-Yosef 1982). At Jilat 7, in southern Jordan, the subsistence strategy for the earlier PPNB included hunting gazelle and other animals, domesticating cereals, and exploiting wild grasses in a pattern similar to that at ⁶Ain Ghazzal. At Azraq 31, by 6400 B.C. domestic ovicaprids complemented the previous dietary pattern (Garrard *et al.* 1987; 1988: 322). The use of kites to trap gazelle and equids suggests the eventual demise of large-scale game hunting and presages the introduction and dependence on specialized herding, i.e., pastoral nomadism.

Betts defined for the first time the relationship between the PPNC and the following PN period, a period poorly understood in the Levant itself until the discoveries at ⁶Ain Ghazzal. The PN (Stage 2) at Dhuweila has been C-14-dated to 5450–5030 B.C. (3 dates) and at Jebel Naja to 5480 B.C. (Betts

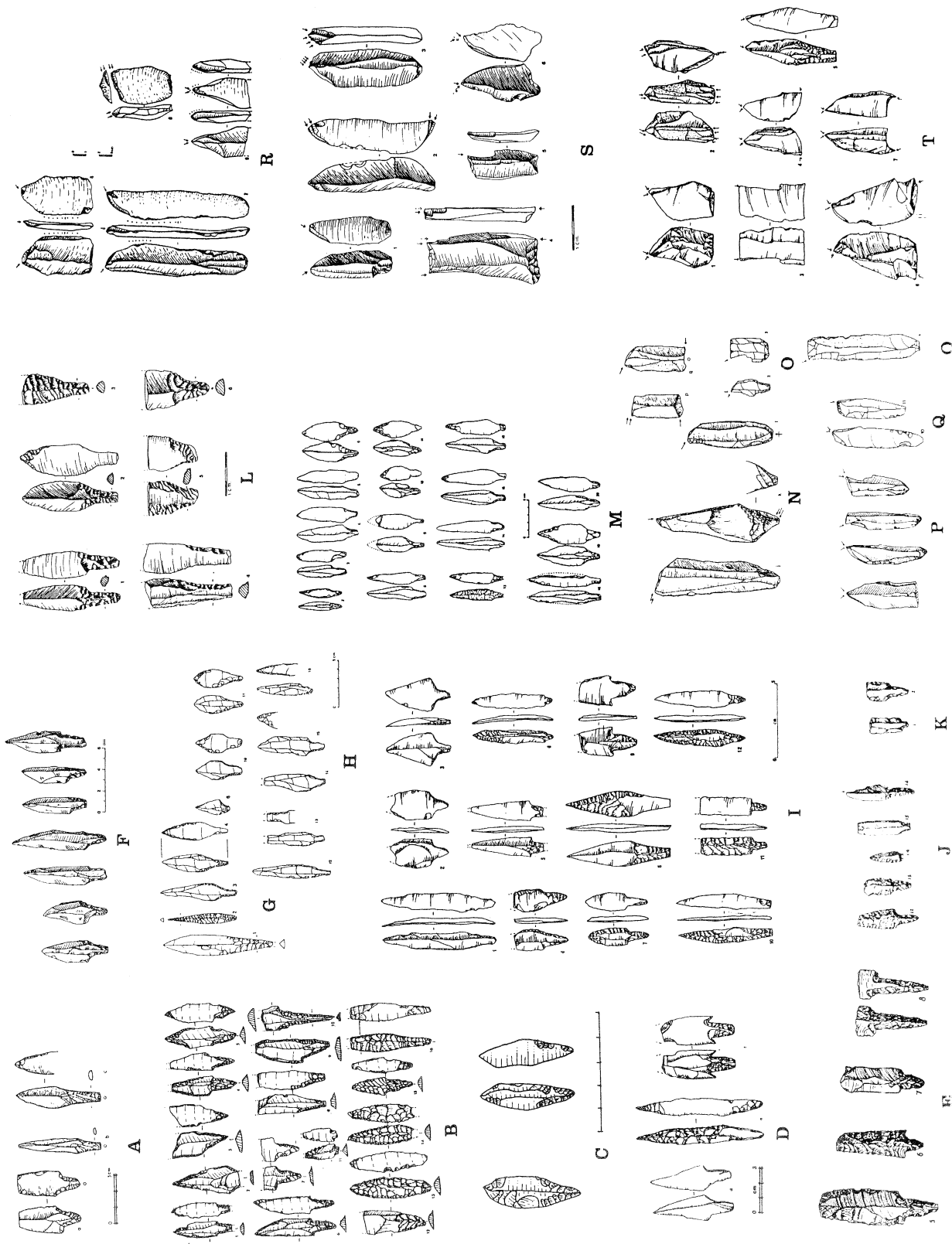


Fig. 5. Seventh and sixth millennia B.C. stone tools, principally projectile points and burins.

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- A. PPNB/C projectile points from 'Ain Ghazzal (after Rolletson and Simmons 1988: 99, fig. 5).
- B. PPNB projectile points from Mushabi VI-H, Sinai (after Mintz and Ben-Ami 1977: 223, fig. 104).
- C. PPNB projectile points from Al Aynah, Saudi Arabia (after Ingraham *et al.* 1981: pl. 69 D/14, 21).
- D. PPNB projectile points from Jilat 7, Jordan (after Garrard *et al.* 1988: 21, fig. 8).
- E. PPNB projectile points from Kiliwa, Saudi Arabia (after Rhotert 1938: 114).
- F. PPNB projectile points from Abu Hureyra, Syria (after Moore 1985: 27, fig. 1.15).
- G. PPNB projectile points from Bouqras, Syria (after Roodenberg 1983: fig. 8).
- H. Projectile points from Tell es-Sinn, Syria (after Roodenberg 1979/80: 33, fig. 5).
- I. PPNB/C projectile points from Dhuweila, Jordan (after Betts 1988b: 380, fig. 5).
- J. PPNB projectile points from Qasr Hallabat, Jordan (after Garrod 1960: fig. 52).
- K. PPNB projectile points from landing ground H (near Tell Hibr, Syria) (after Garrod 1960: fig. 52).
- L. PPNB projectile points from Kowm, Qdeir I, Syria (after Cauvin 1981: fig. 3).
- M. PPNB/C projectile points from Hayaz Höyük, Turkey (after Roodenberg 1988: fig. 2).
- N. PPNB/C opposed and transverse burins from 'Ain Ghazzal (after Rolletson and Simmons 1988: 99, fig. 5).
- O. PPNB burins from Tell es-Sinn (Roodenberg 1979–1980: 32–33, figs. 4–5).
- P. PPNB burins from Abu Hureyra (after Moore 1985: 27, fig. 1.15).
- Q. PPNB burins from Bouqras (after Roodenberg 1983: fig. 8).
- R. PPNB/C burins from Kowm II (after Stordeur 1988: fig. 6).
- S. PPNB/C burins from Kowm I (after J. Cauvin 1981: fig. 4).
- T. PPNB/C burins from Dhuweila (after Betts 1988b: fig. 7).

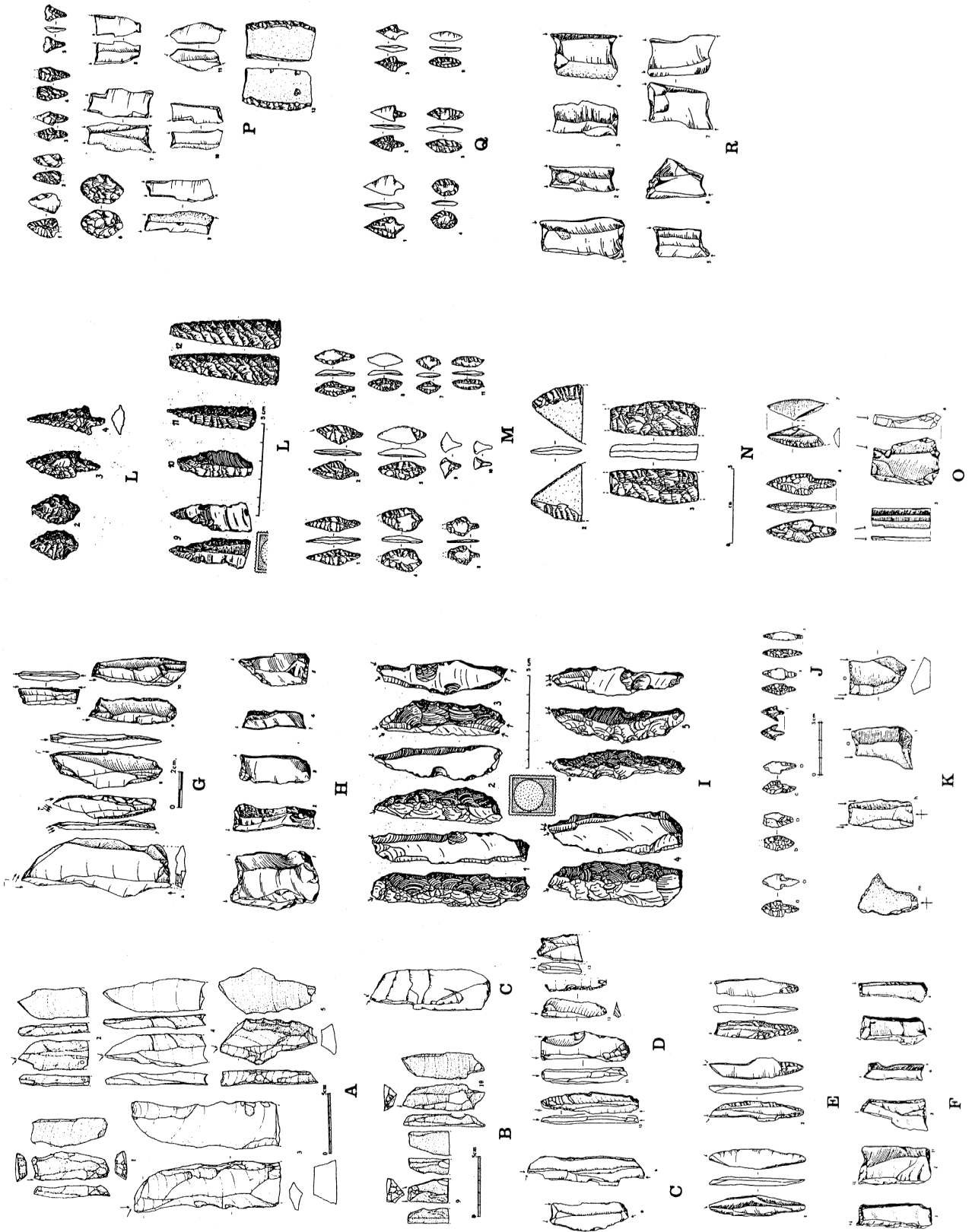


Fig. 6. Seventh and sixth millennia B.C. stone tools, principally projectile points and burins.

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- A. PPNB/C burins from Thaniyyet Wuker, Site 122, Palmyra, Syria (after Fujii *et al.* 1987: 33, fig. 2.3).
- B. PPNB/C burins from Thaniyyet Wuker, Site 122, Palmyra, Syria (after Fujii 35 *al.* 1987: 35, fig. 2.4).
- C. PPNB/C burins from Jilat 7 (after Garrard *et al.* 1988: 21, fig. 8).
- D. PPNB burins from Mushabi VI-H (after Mintz and Ben-Ami 1977: 226, fig. 105).
- E. PPNB/C burins from Dhuweila (after Betts 1988a: 17, fig. 12).
- F. PPNB/C burins from Umm Wual, Saudi Arabia (after Garrod 1960: fig. 47).
- G. PPNB burins from Mushabi VI-G (after Mintz and Ben-Ami 1977: 230).
- H. PPNB/C burins from Rutba, Iraq (after Garrod 1960: fig. 48).
- I. PPNB/C burins from Kiliwa (after Rhotert 1938: 97).
- J. PN projectile points from Qadesh Barnea 3 (after Bar-Yosef 1981: 227, fig. 4).
- K. PN projectile points, burins, and tabular flint scraper from 'Ain Ghazzal (after Rolefson and Simmons 1988: 101, fig. 7).
- L. PN projectile points from Kiliwa (after Rhotert 1938: 114).
- M. PN projectile points from Dhuweila (after Betts 1988b: fig. 6).
- N. Tabular flint and bifacial pieces from Dhuweila (after Betts 1988b: fig. 8).
- O. PN projectile points and burins from Umm Dabaghiyah, Iraq (after Kirkbride 1972: pls. 17, 18).
- P. PN projectile points, burins, and tabular flint scraper from el-Ghirga (after Betts and Helms 1987: fig. 4).
- Q. PN projectile points from Dhuweila (after Betts 1988a: 18, fig. 13).
- R. PN burins from Jebel Naja (after Betts 1988b: fig. 9).

TABLE 2. Selected Significant Relative Frequencies of Burin Types at ^cAin Ghazzal

| <i>Burin Type</i> | <i>PPN*</i> | <i>PN*</i> |
|--------------------|-------------|------------|
| Simple | 2.2 | 5.1 |
| Transverse | 58.3 | 15.4 |
| On Break | 5.7 | 2.6 |
| Canted Dihedral | 3.9 | 20.5 |
| Double | 3.6 | 10.3 |
| Concave Truncation | 1.3 | 10.1 |
| Convex Truncation | 1.3 | 5.1 |
| Combination | 2.2 | 5.1 |

(After Rollefson and Simmons 1988: 102, Table 3.)

*Percent

1989). Two types of sites are attributable to the period. The burin sites have a high percentage of concave truncation burins (Table 2) and a few projectile points, usually either of the small bifacial or transverse variety (Betts 1988b: fig. 13; 1989: 5). The second site type has few truncation burins but more tabular scrapers, bifacial knives, and small projectile points (Betts 1988b: figs. 13–15). Such sites are widespread throughout eastern Jordan and much of Saudi Arabia (see Garrod 1960: 115–24). The burin sites however, appear more restricted to the northern portion of the Arabian desert. Betts's analysis of sites in the Burqu area [Sites 03000 and 02000] confirms the material from Dhuweila (Betts *et al.* 1990: 11–15). Faunal material from the Burqu sites, Dhuweila, and Jebel Naja suggests that ovicaprid herding dominated although hunting was still practiced. Sites tended to be located either along the *harra* or, as at burin sites, along deeply incised wadis where wide flood plains allowed adequate grazing (Betts 1989; Betts *et al.* 1990: 17–19). East of Burqu, Field reported similar sites in the Tellul al Basatin (Field 1960: Sites 62, 67, 69, 70, 72, 81). A rock carving at Dhuweila depicts humans holding hands or implements such as spears or *atl-atls* (Helms and Betts 1987: fig. 18–2; Betts 1987: pl. 1; fig. 2; 1988b: fig. 9–2); although Betts attributes it to the PPNC, it should, in fact, belong to the PN based on parallel scenes found at Milihiya near Hail and Jubba in the Nafud (Parr *et al.* 1978: pls. 28–31). The distinctive artistic style that involves packing or hammering out interior details is characteristic of the PN. For example, the depiction of cattle with pecked out bodies and distinctive profile found at el-Ghirqa in

the eastern arm of Jordan (Betts and Helms 1987: fig. 5b) also parallels finds from numerous sites in Saudi Arabia, all probably dating to the PN as well (Parr *et al.* 1978: pl. 28b; Zarins *et al.* 1979: pl. 9a–b). Garrard, Harvey, and Switsur (1981) produced from the lake deposits at Jubba a single Carbon-14 date of 6685 ± 50 B.P., which places it in the PN.

In sum, by 6200 B.C. a recognizable PPNC culture had begun to penetrate the more “marginal” environments of the Near East, both south into the Negev and Sinai and east of the Levant into Jordan and Saudi Arabia. Evidence for that migration includes lithic materials, structural remains such as stone circles, circle complexes, kites, and in selected areas rock art. In contrast to the sedentary zone where the PPNB is seen as an early climax point after which many sites were abandoned and area reduced, the PPNB in the desert zone is the harbinger of a later climax; the population expanded throughout the Arabian peninsula in the following PPNC, PN, and Chalcolithic periods. In each succeeding period, the growing reliance on domestic herds at the expense of farming and hunting and gathering can be documented, thus demonstrating the gradual but inexorable shift to specialized pastoralism.

THE PPNB-PN STEPPE/DESERT CULTURES OF SYRIA AND IRAQ

The above discussion can provide a basis for examining similar materials from the Jezireh steppe of Iraq, Syria, and Turkey, and the deserts of southeast Syria and western Iraq. The Jezireh assemblages have not been examined for interaction patterns between the steppe and settled zones, and in the desert little work has been done since Poidebard's and Field's initial efforts. Beginning with the Jezireh (fig. 3), both survey and excavation have established a solid chronological range of materials for the sedentary communities to the north on the Euphrates, the Balikh, the Khabur, and northern Wadi Tharthar. Subsistence patterns clearly define a mixed farming/hunting-gathering strategy and the lithics are in the larger Levantine PPNB/C tradition. Several sites in the Jezireh were located on the frontiers of rainfall farming. The influence from the Levantine tradition may extend even to Hassuna. The lithic assemblage there contains several pieces in the PPNB Levantine tradition, including Amuq type projectile points (Lloyd and

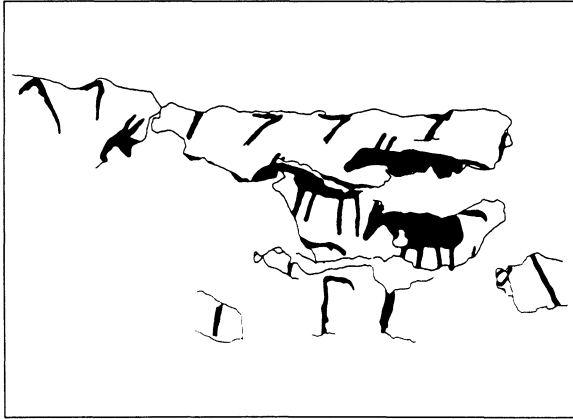


Fig. 7A. PN wall painting from Umm Dabaghiyah depicting an onager hunt (after Kirkbride 1975: pl. 7a).

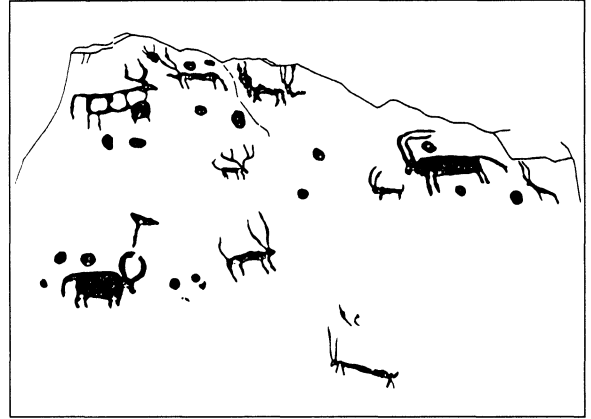


Fig. 7B. PN hunting scene at Qasr Muhaiwir, Iraq, using throw sticks and slings (after Tyraček and Amin 1981: 146, fig. 3).

Safar 1945: fig. 22:9–10), concave burins (Lloyd and Safar 1945: figs. 22:1; 24:2) and crested blades from core preparation (Lloyd and Safar 1945: fig. 23:1). Kirkbride (1972: 14; 1974: 86) describes Umm Dabaghiyah, Tell Sotto, and Tellul eth-Thalathat, in the heart of the Jezireh on the Wadi Tharthar as lying at the limits and completely marginal to the agricultural zone. Little has been recovered there in the way of agricultural products. “In fact, nothing indicates that agriculture played a significant role in the life of the villagers” (Kirkbride 1974: 88). Kirkbride suggests that most cereals and vegetables were imported. The zoological report suggests that although domestic ovicaprids and cattle were present (Kirkbride 1974: 90; Bökönyi 1973: 9), the inhabitants specialized in hunting, especially *E. hemionus* and ovicaprids. Those observations, despite the presence of an elaborate set of buildings, suggest that the inhabitants were already well on their way toward a specialized way of life for the Jezireh. The lithic assemblage also shows relationships to the western PPN tradition (fig. 6). The projectile points are of the Amuq type (Kirkbride 1972: pl. 18:2; Fukai and Matsutani 1977: 51, fig. 3:7–8). The early bifacial points and burins belong to the PN tradition (Kirkbride 1972: pls. 17:6, 18:5–6; 1973: 6; Mellaart 1975: 138, 141). There were a number of parallel sites in the region (Mellaart 1975: 140–41; Kirkbride 1972: 3). A final unique feature at Umm Dabaghiyah again has parallels to the west and the desert. A frieze found in one house complex (Level 3) depicts onagers being hunted). Kirkbride (1975: 7) interprets ob-

jects surrounding the animals as wooden hooks to hold down a net erected for capture. However, no net is actually shown and the objects can best be regarded as throw-sticks with parallels to the desert in the south (fig. 7a; also, see below).

Three other sites in the Jezireh define the effective southern frontier of dry farming along the region. Tell es-Souab 3, just discovered, is the southernmost site and little is known about its composition (Geyer and Monchambert 1987: 315, fig. 10). Bouqras and Tell es-Sinn lie outside the effective farming zone but their location on the Euphrates seems ideal for large-scale sedentary settlement (for the plan of Bouqras, see Akkermans *et al.* 1983: fig. 3). Carbon-14 dating suggests a time span of late PPNB/C and early PN (6400–5900 B.C.) at Bouqras, and the lithics contain the usual Amuq and Byblos points (Roodenberg 1983: 349, fig. 8). The common burins include the dihedral and truncation types (Table 2). Analysis of the palaeobotanical remains suggests that “crop plants were of little economic importance” since little area could be cultivated without irrigation (van Zeist and Waterbolk-van Rooyen 1983: 357, 359). In contrast, the “abundance of animal bones . . . seem[s] to indicate that animals were the main food source. . . .” (Clason 1983: 359). Domesticated ovicaprids and cattle were recovered; sheep outnumbered goats. Gazelle and wild sheep represented a distinct minority. Clason (1983: 361) concluded that people with animal herds came to a place “favorable for a pastoral mode of existence.” Further north, some 30 km on the eastern side of

the Euphrates, Tell es-Sinn occupied a similar position both in time and space. Carbon-14 tests date the finds from 6700 to 6200 B.C. (Roodenberg 1979–1980: 26). The lithics contain a high percentage of projectile points, especially the Byblos type (Roodenberg 1979–1980: 25; figs. 4–5) and a large number of burins on truncation. Domesticated plants again form a very minor component of the site (van Zeist 1979–1980: 55–56), with wild plants predominating. Clason again found an abundance of domesticated sheep, goat, and cattle and concluded that plant cultivation was of little importance (Clason 1979–1980: 35–38). Examination of those sites of the Jezireh suggests that the steppe environment was marginal for farming but excellent for expanding herds.

A number of “kites,” constructed game traps, have been reported across the Euphrates to the east and up the Khabur (fig. 3). Poidebard describes the concentration of more than 16 kites in a few select areas (Poidebard 1934: pl. 140). Seven were recorded near Jebel Ćembe (Poidebard 1934: 153, pl. 145), one at Jebel Jeribe, and one south of Goseibi. Two were found just north of Khatuniya on the Wadi Frati; and three were reported on the slopes of Jebel Kokab just north of the Euphrates and south of Tell Aswad. The westernmost kite was seen near Jebel Gug, along the Thallaba–Tell Barti road (Poidebard 1934: 150). The northernmost kite to date was found at Tell Awan just north of Tell Brak (Poidebard 1934: pl. 140).

Southwest of the Jezireh, in the desert zone proper, a series of recent excavations and surveys at Kowm and Palmyra supplement and clarify Field’s data from western Iraq and southern Syria. The Kowm basin (fig. 1), astride the route between the Middle Euphrates and the Wudyan region and the Al Hamada (including the Palmyrene), lies between Jebel Bishri and the northern Palmyrene massif. Four major tells in the region—El Kowm I and II, Qdeir I, and Umm Tlel 2—exhibit the classic characteristics of the sedentary steppe PPNB/C community and clearly ally the sites to Bouqras, Tell es-Sinn, and Tell Souab 3 on the Euphrates as well as the classic Levantine sites of the coast, e.g., Tell Ramad. The stratigraphy and Carbon-14 dates suggest that Kowm I, Qdeir I, and Kowm II were occupied in the early sixth millennium B.C. (Cauvin 1981: 472; Stordeur 1988). At Kowm I, the projectile points are of the Byblos type already seen in abundance at Jordanian and Syrian sites (Stordeur 1988: fig. 3; fig. 5 here). An unusually large number

of truncation and transverse burins was also noted (e.g., at Qdeir I, Stordeur 1988: fig. 4; fig. 5 here). Nadaouiye 4 in the Kowm basin resembles many of the lithic scatter sites found in the desert phase of the PPNC and contains the usual Byblos points, burins, and scrapers (Cauvin 1981: fig. 7). Excavations at Kowm II revealed six major PPNB levels, and as at ʿAin Ghazzal, a continuation into the PNA (Stordeur 1988). The lithics again contain the usual Byblos points (Stordeur 1988: fig. 6:1) and the very high percentage (over 50 percent) of burins (transverse, angle, and dihedral types; Stordeur 1988: 20; fig. 6; cf. Table 2 here). Floral samples from the site suggest the presence of domestic cereals but with an emphasis on wild spectra as at Bouqras and Tell es-Sinn (Vaughan, cited by Stordeur 1988). Domesticated sheep outnumber goats but hunting was still considered very important. Wild animals, dominated by gazelle and equids, comprised between 40 to 50 percent of the recovered fauna (Helmer cited by Stordeur 1988).

Work along the now fossilized lake and stream beds of the Palmyra basin (fig. 1) has also added to our understanding of the region. The area has a rather dense occupation history for the PPNB/C (Sakaguchi 1978: fig. 2.1). Moore (1985: 20, fig. 1, 8) lists 13 PPNB sites around the lake area. While little material was found inside the Douara cave itself (Endo 1978: 80; Sakaguchi 1987: 9–10), the wadi fans in front of the cave yielded abundant PPNB/C material including naviform cores, crested blades, and tabular flint cores (Endo *et al.* 1978: 96–97). Surface surveys along the fossil lake Sabket Mouh have turned up a number of PPNB sites, clearly indicating an active lake phase in the region (Koizumi 1978: 47, fig. 3, 11; Akazawa 1979: 215, 219; Sakaguchi 1987: 14). Those sites, like Bouqras on the Euphrates, are found most often on terrace remnants; but here they consist of simple lithic inventories dominated by naviform core production, crested blades, and truncation burins (e.g., Site 35: Akazawa 1979: 177–86, fig. 13.9; Site 79: Akazawa 1975; 1979: 187–95, figs. 13, 13–14; Abe and Akazawa 1977; Suzuki and Kobori 1970; Suzuki and Akazawa 1971; Site 122: Fujii *et al.* 1987: 29–39). The overlap of the late PPNB tradition into the early PN is found at Palmyra at Site 64 (Akazawa 1979: 215).

For the remainder of the Syrian steppe/desert, the results are uneven. For the area of interest south of the Palmyrene range stretching to the Iraqi border, virtually nothing is known (fig. 1).

The topography is very similar to that found in western Iraq; the region has often been called "Al Wudyan," since a series of wadi systems flow into low-lying basins dominating the landscape, e.g., Al Qawa³ar, Miyah, Al Uwayrid, al Hayl and Dubbayah. West of that region, southern Syria forms a large rectangle with the Palmyrene range on the north paralleled by the Jordanian border. The southern end of the rectangle is marked by Jebel Druze. Within that area, partially dominated by the northern extension of the vast Harrat al Rajil (Helms 1981: fig. 27), a number of brief studies have taken place since the 1920s (Maitland 1927; Rees 1929; Field 1960; Poidebard 1934; Beaulieu 1944–1945; Braemer 1984; Buccellati 1966: 237, nn. 13, 14). Excluding the Kowm and Palmyra basins, our data base in Syria is restricted to surface material consisting of kites, stone circle constructions, and lithic concentrations.

Kites show a clear continuation of the material found in the Negev, Jordan, and Arabia. In Syria, they constitute perhaps one of the few reliable guide markers, having been spotted from an initial aerial perspective (Maitland 1927; Rees 1929; Poidebard 1934). Their distribution follows a southwest to northeast arc; the southernmost are around Jebel Druze and south of Safa, possibly at Jebel Seys (Poidebard 1934: 194, pl. 91:2). Note the kite cut by Wadi as-Saham at Nemara, Poidebard 1934: pl. 51; Rees 1929: 399). The kite mentioned earliest in the literature is "as-Sidd" at Dmeyr. It was described by Musil in 1908 (Musil 1928: 3–4, 7) and was photographed by Poidebard (1934: 43, 192, 194; pl. 14) and Legge and Rowley-Conwy (1987: 89). According to Watelin, kites also may have been located in the al-Hamada near Jebel Tinf (Poidebard 1934: 191–92). Following the lava scarp south of Dmeyr, Poidebard (1934: 194) describes another series of kites at Deir Semali and over ten more on the Wudyan plain from the Souhné area on the Jebel Rigm as-Saboun (Poidebard 1934: 77–78, pls. 48, 49). Watelin saw kites north of Soukné and south of Gdeihm wells (Dussaud 1929: 150; see also Helms 1981: fig. 27; Legge and Rowley-Conwy 1987: 91). West of Jebel Bishri he also found a series of kites between Resafa and Taibe (Poidebard 1934: 79, 191–92, n. 1; Legge and Rowley-Conwy 1987: 91; Helms 1981: fig. 27).

Other structures associated with the PPNB/C and PN remain problematic because no ground control has been exerted. Since work in eastern Jordan has strongly suggested that the stone circle

forts and jellyfish complexes belong to that period, we can assume that similar structures in the Jebel Tinf area are contemporaneous (Field 1960: 52–54, 93; Poidebard 1934: 126). Watelin observed circle complexes in the Jebel passes between Jebel Bishri and Abu Rigmén (Dussaud 1929: 150) and Buccellati noted a number of such structures in the vicinity of Jebel Bishri (Buccellati and Kelly-Buccellati 1967; Buccellati, personal communication). Helms (1981: fig. 27) placed "forts" in the vicinity of Jebel Bishri, Jebel Tinf, and the Sinjar. Unfortunately, many of those structures may belong to subsequent periods. For example, Khirbet el-Umbachi and Hebariye, excavated in the 1950s, should be identified with the EB III/IV (Dubertret and Dunand 1954).

Diagnostic lithic material from those regions of Syria is also rare. Field traversed a small portion of southern Syria in the 1920s. On the route from Rutba to Damascus, he found typical PPNB/C and PN burin material from Wadi ash-Shalan just north of the Jordan–Iraq line (Sites 7, 16) and at Jebel Tinf itself (Sites 4, 12, 13). Those concentrations may be part of a major complex at Jebel Tinf—if they are associated with both nearby kites and structures. Further along the road near Maqha ash-Shami, Sites 102 and 103 also may belong to the nearby "circle village" (Field 1960: 139). More recent surveys in the Hauran region suggest that the PPNB/C and PN lithic sites may be associated with structural remains (e.g., at Taibe, Zelaf, Dara³a, and elsewhere; Braemer 1984: 224).

Finally, western Iraq has sites that clearly belong to the PPNB/C–PN tradition. The region, a continuation of the Wudyan topography of southern Syria, contains a series of eastward-flowing wadi systems into either the Euphrates or the playa lakes west of the river (i.e., Hawr Habbaniya and Abu Dibbis/Bahr al Milh) (fig. 8). As in Jordan and Syria, the westernmost portion of Iraq is characterized by smaller playa lakes (such as the Palmyra basin Sabkat Mouh) and occasional lava outliers of the Harrat al Rajil (Wirth 1958). Topographically, then, it is part of the larger Levantine landscape. Field reported at least 12 relevant sites in separate, rather random traverses of western Iraq between 1926 and 1928. They are clearly located on tributaries or main branches of wadis leading to the Euphrates. His westernmost sites, Nos. 15, 22, 25, and 30, are on the braiding stream bed known as Sha³ib al Walaj. That former watercourse apparently flowed north to the Iraqi–Syrian border,

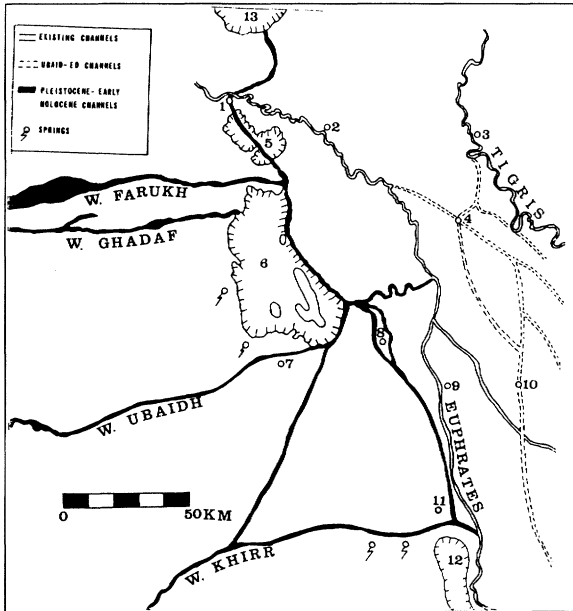


Fig. 8. Suggested Early Holocene tributary wadi and Euphrates channels in prehistoric Akkad.

- | | |
|--------------------------|-------------------|
| 1. Ramadi | 8. Karbala |
| 2. Falluja | 9. Babylon |
| 3. Baghdad | 10. Kish |
| 4. Sippar | 11. Najaf |
| 5. Habbaniyah Depression | 12. Bahar Najaf |
| 6. Abu Dibbis Depression | 13. Wadi Tharthar |
| 7. Ukhaider | |

where it turned east and merged with a series of wadis and lakes flowing into the Euphrates. To the northwest of Sites 25 and 30, geologists identified al Umchaimin crater, a large solutional caldera (Merriam and Holwerda 1957; Mitchell 1958). Analysis of the published aerial photo revealed several stone circle village sites, probably of the PPNB/C. On two small tributary arms of the Wadi Mullusi (classical Meloša), Field found Site 242. Other sites are now known from that wadi where it touches the Qa^cara escarpment and merges with the Wadi Rutqah (Field 1951: 89; n. 9; Wetzel in Fleisch 1952: 214–16; Solecki 1955: 18; Tyraček and Amin 1981: 148, n. 1). In the extreme southwestern corner of Iraq, sites are found on several large wadi or lake tributaries, and the Ghadfat Ali Awaj and aj-Nuhaydayn (Site 77), both flowing into the Wadi Hauran.

Sites also have been reported on the Wadi Hauran itself, including Field's Site 36, Sugarloaf, 41, and 51 (Solecki 1955: 18; Field 1960; Wright 1958: 56). The most recently discovered is at Qasr Mu-

haiwir, approximately 125 km west of the Euphrates. The reports suggest that Neolithic finds along the Wadi Hauran are fairly common (Tyraček and Amin 1981: 148). A small tributary of the Hauran in the Muhaiwir vicinity, Wadi Hussainiyat (fig. 1), yielded abundant evidence of PPN and later materials, including lithics, ceramics, structures, and apparently graves (Hashimi and Skoček 1982: 32). South of Wadi Hauran, a parallel, major tributary, the Wadi Amiq, also has sites, one of which was approximately 150 km from the Euphrates (Watelin in Dussaud 1929: 150).

Much of the early material from the Iraqi sites is now in the Field Museum in Chicago. Garrod, in her initial study of the material in 1934, described it as belonging to the "Wualian" after the site of Umm Wual in Saudi Arabia (Garrod 1960: 118–19). She suggested the material had certain affinities with the "Tahunian" or the early Neolithic of Jericho. Her analysis and my reexamination of the material revealed that the assemblages were often dominated by an extraordinary high percentage of burins, especially angle burins (including simple, faceted, and multiple). Other finds included concave-ended blades, Byblos points, end scrapers, backed knives, steep scrapers, retouched flakes and naviform cores (Garrod 1960: 120). Those examples, together with tabular flint scrapers and T-shaped implements, suggest virtual identity with assemblages seen in large context from the Negev and the Sinai to the Sinjar (see also Fleisch 1952: fig. 2). Based on Carbon-14 dates and the stratified context at sites from both the desert and the steppe, it appears that the material from the wadi complexes of western Iraq dates to the PPNB/C and the early sixth millennium B.C.

ROCK ART

Rock art from western Iraq was described for the first time in 1978. Many localities were examined around the Qa^cara escarpment and the adjacent wadis Mullusi and Aghari (Tyraček and Amin 1981: 148, n. 1). Two spots at Qasr Muhaiwir were photographed and drawn. In both cases gazelle and ibex are the most numerous animals depicted, but long-horned cattle are also present (fig. 7b). Analysis of the style (Tyraček and Amin 1981: fig. 3) shows virtually identical parallels to the more voluminous rock art known from north-central Saudi Arabia. In particular, the scenes from Iraq show clear parallels to the rock art from Jubba

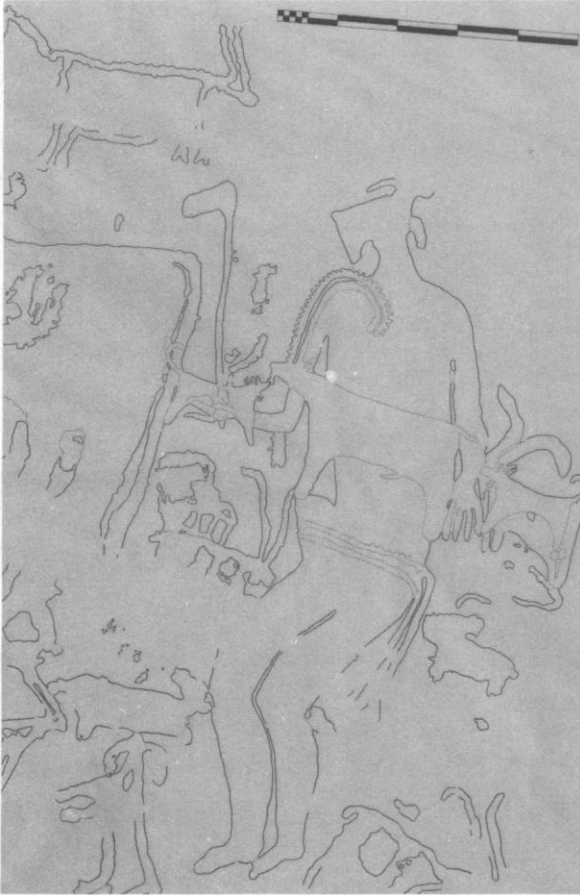


Fig. 9A. PN rock art at Jubba, Saudi Arabia, illustrating a held throw stick (after the drawing by C. Clarke).

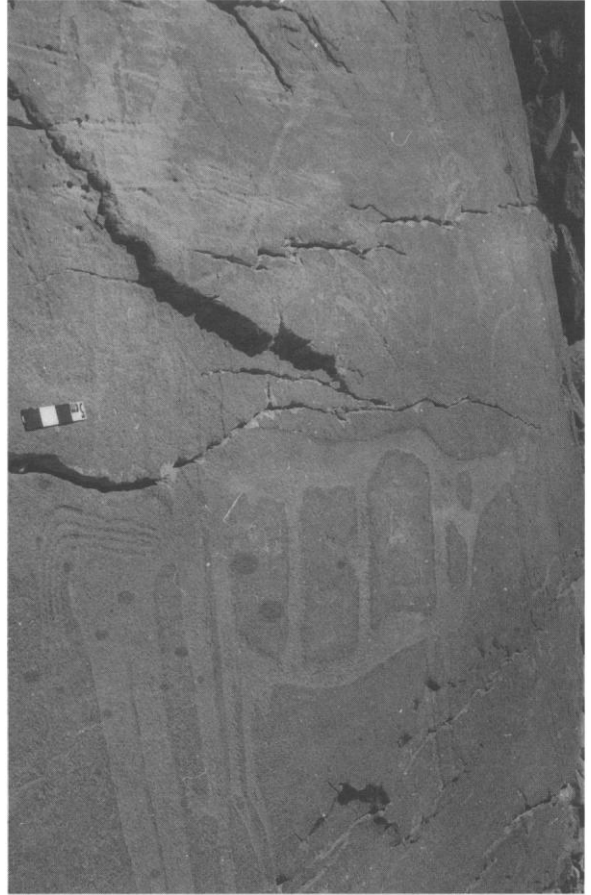


Fig. 9B. PN rock art at Jubba, illustrating the pecking technique on bovids.

in the Nafud. The technique is common there of pecking spots on the cattle (fig. 9b) and other ovicaprids (Adams *et al.* 1977: pls. 12, 20; Parr *et al.* 1978: pls. 28–31); it is repeated in the Wadi Hauran as well as in Azraq art in Jordan (Helms 1981: 27, fig. 9; see also Courtenay-Thompson 1975). The presence of the “Jubba throw stick” in the Wadi Hauran scene (fig. 7b) shows parallels to many northern Saudi Arabian sites (fig. 10a) and also links the Wadi Hauran in style to the northern site of Umm Dabaghiyah (fig. 7a). In several Arabian drawings (figs. 9a, 10b), the implement is held by humans. Such drawings of animals and associated humans supports the contention that ovicaprids and cattle were known in the western desert of Iraq as well as throughout the “vast PPNB *koïné*” (Stordeur 1988). The materials gathered thus far date

the rock art at Wadi Hauran to the late PPNB/PN. The earlier outline style at Dhuweila and Kilwa properly belongs to the earlier PPNB (Betts 1987; Rhotert 1938; Anati 1979: 29–35).

Investigations by Field and others since 1926 have confirmed that PPNB/C–PN sites existed in the wadi tributaries of the Euphrates. Unfortunately, nothing has been reported from a vast, unexplored region of western Iraq, but such materials have been reported as far south as the Wadi Arar in Saudi Arabia. A brief glance at major wadi and lake systems in the western desert promises to yield numerous sites along such wadis as Wadi Ghadaf and its western tributaries; Wadi Tubal flowing into a tremendous playa; and Wadi al Ubbayid, a known historical route into the Euphrates, which now terminates at Qasr Ukhaider. To the south, Wadi Arar

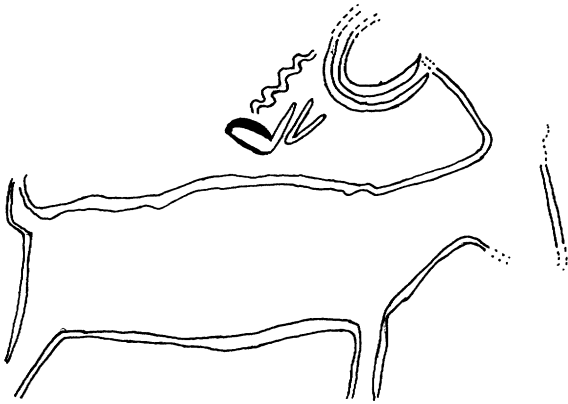
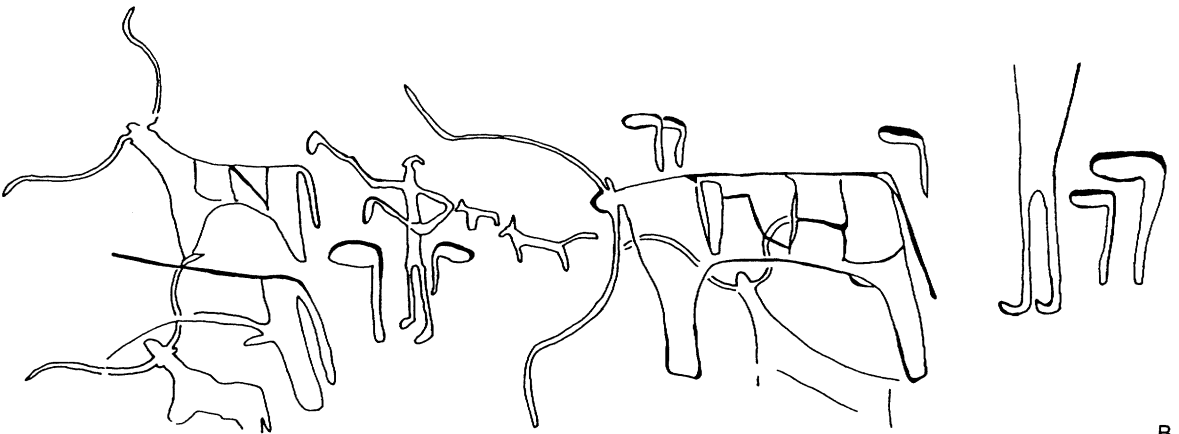


Fig. 10A. (left) PPNB/C rock art at Kilwa, depicting the throw stick (after Rhotert 1938: pl. 16).

Fig. 10B. (below) PN rock art at Hanakiya, Saudi Arabia, depicting held and thrown throw sticks (after Courtenay-Thompson 1975).

A



B

merges into Wadi Hamir. The traditional Darb Zubaydah pilgrim route in the Abbasid period follows the Wadi Khirr (among others) and it is on a tributary of this wadi that the possible southernmost PPNC/PN burin site was found at Linah in Saudi Arabia (Gilmore, personal communication).

To summarize, PPNB populations began to expand into the areas of the Near East often considered marginal to the Fertile Crescent. That expansion has been well documented in the Negev and Sinai; eastern Jordan; and at Kowm in Syria, where surveys and limited excavations have established some chronological reliability, artifact context, and relevant faunal and floral particulars. Structures such as kites and linked houses are at least partially contemporary to the lithic concentrations and rock art. Sites in southern and eastern Syria and in western Iraq have been less well investigated and their total distribution remains a matter of conjecture. A number of points suggest a

close interaction between those steppe and desert sites and the Levantine region itself. The lithics (above) point to an astonishing similarity and contemporaneity. Obsidian, presumably from central and eastern Anatolia, was traded across the Upper Jezireh and the Euphrates (Akkermans 1988; Moore 1979: 67) to Umm Dabaghiyah (Kirkbride 1972: 10), Tell es-Sinn (Roodenberg 1979–1980: 25), Bouqras (Roodenberg 1983: 349), the Kowm complex (Cauvin 1981: 473; Stordeur 1988), and to Jilat 7 in southern Jordan (Garrard *et al.* 1988: 322). Obsidian at ʿAin Ghazzal (Rollefson 1983–1984: 244) and Nahal Hemar (Stager 1990) may show connections with the steppe–desert or with the Levantine coast distribution. Similarly, green Dabba marble used for beads and other purposes has been reported from Jilat 7 (10 km from the source), at ʿAin Ghazzal (Rollefson 1988; Rollefson personal communication), and as far north in the desert as Site 03000 at Burqu (Betts 1989;

Betts *et al.* 1990: fig. 10). At Nahal Hemar on the Dead Sea, it was found in beadwork, and green-painted wooden beads may have been imitations of the marble (Bar-Yosef 1985: 12, 28).

One of the most interesting network trade items appears to be the gypsum or plaster white ware. That material is known from the second half of the seventh millennium B.C. at a wide range of north Syrian sites in the Fertile Crescent (see Kafafi 1986: fig. 1; Postgate and Watson 1979: 153). The material also has been found at the Jezireh sites of Syria (Umm Dabaghiyah, Tell es-Sinn, Bouqras, and Kowm). Rollefson suggests its occurrence at ʿAin Ghazzal points to interaction with social groups in Syria (Rollefson 1983–1984: 244). This white material also was found at Dhuweila in the Jordanian desert in PPNC/PN context (Betts 1988a: 11).

A final note on interaction patterns involves a truly astonishing detail. The ʿAin Ghazzal excavators noted that a left foot fragment from one of the ʿAin Ghazzal plaster human statues had six toes, a “genetic anomaly relatively rare among most populations” (Rollefson 1983: 37; pl. 4:3). Rollefson also noted a similar foot from the PPNB Jericho statuary (Simmons and Rollefson 1984: 394; Tubb 1985: 130; fig. 11b). More recently, a foot fragment recovered from Nahal Hemar also had six toes (Stager 1990). A reexamination of a rock art scene depicting a copulating couple at Kilwa (fig. 11a) reveals that one of the figures, possibly the woman, has six toes on the left foot; she may have six fingers as well (Rhotert 1938: pl. 22). Since we have suggested that the Kilwa style belongs to the PPNB, its close relationship to the PPNB of the Levantine settled zone is beyond doubt. These connections between the “settled” and the “steppe” clearly establish the fact of symbiotic relationship in the region and strongly argue that the pattern has been in existence since the PPNC/PN. It now remains only to establish the nature of the phenomenon and to apply it to the Lower Mesopotamian valley.

ORIGINS OF PASTORALISM

Anthropologists have long debated the definition of pastoral nomadism. Several recent syntheses (Dyson-Hudson and Dyson-Hudson 1980; Goldschmidt 1979; Johnson 1969; Khazanov 1984: 16–84) have suggested that all pastoral nomads share certain characteristics such as strong, localized kinship and lineage bonds, impermanent dwellings,

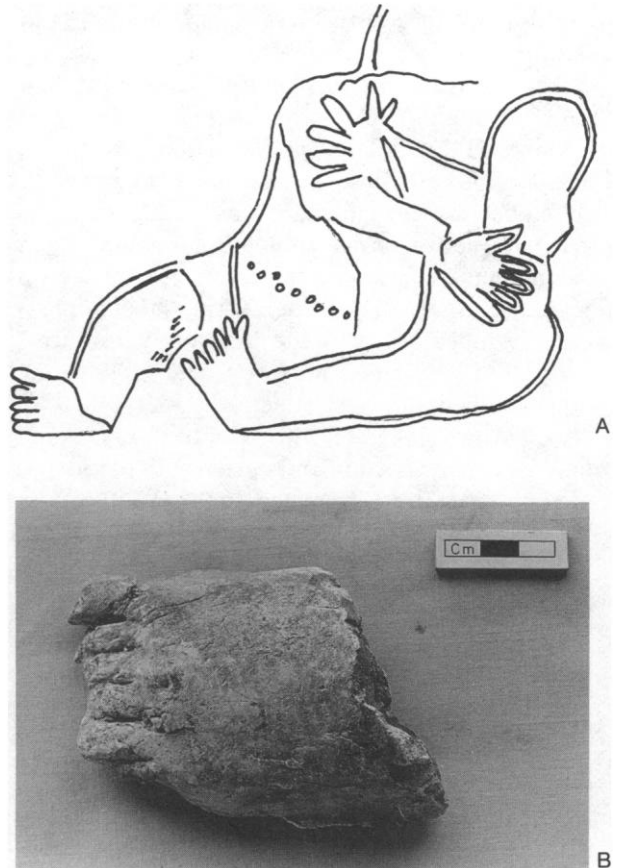


Fig. 11. A. PPNB/C rock art, copulating couple at Kilwa. Note the woman's extra toe on the left foot and possibly finger (after Rhotert 1938: pl. 22). B. Human plaster statuary fragment from PPNB at ʿAin Ghazzal, Jordan. Note the six toes (after Rollefson 1983: pl. 4/3, photo by B. Byrd).

movement to procure pasturage and water for herds, and specific relationships to formal states. Herd animals are viewed as the main form of subsistence although alternate strategies are also known (Lancaster 1981: 8–23; Lancaster and Lancaster, unpublished). Thus, pastoral nomadism seems to stress animal husbandry along patterned migration routes exploiting marginal environments (from a settled point of view). Developmental models studying pastoral nomadism have largely focused on the historical record (Khazanov 1984: 10–14; Ephʿal 1982: 5–11; Briant 1982: 12–56; Lees and Bates 1974; Zarins 1989a), largely because researchers have concluded that a close symbiotic relationship exists between the urban, settled peoples and the nomadic peoples (Rowton 1973a; 1973b; 1974). In

addition, the lack of theoretical underpinnings has seriously hampered progress in defining the early stages of pastoral nomadism (see Khazanov 1984: 89–90). Sahlins (1968: 33), Krader (1981: 499), and Spooner (1971: 201) suggest that this adaptation was late and entirely secondary to agriculture. They conclude that the nomadic way of life only developed when extensive population pressure began in sedentary zones, together with dramatic crop strategies. Alternately, Sherratt argues that nomadism developed only with the “secondary products” revolution (exploitation of wool and milk) in the fourth millennium B.C. (Sherratt 1981; 1983; see also Garrard 1985: 45). More specifically, many have associated pastoral nomadism with the advent of the urban state (Lees and Bates 1974; Adams 1981; Rowton 1973a; 1973b), thus artificially restricting the study of the problem in lower Mesopotamia to the mid-third millennium B.C. and later.

The evidence, however, points toward a new interpretation. Pastoral nomadism began by the end of the seventh millennium B.C. as populations began to utilize the discovery of animal husbandry in a new and dramatic way. The process can be seen as a three-tiered step. First, based on faunal material found in the Fertile Crescent, we can conclude that domestic ovicaprids and cattle were present as early as the mid-seventh millennium B.C. Second, within the steppe region, as exemplified by the Jezireh sites and Kowm, herding was emphasized. That suggestion is based on the location of sites in a very low rainfall area (currently less than 150 mm annually) and the apparent domination of animals over plants in the economy. Third, if domestic animals were known to the inhabitants of the Fertile Crescent and the steppe, and the desert sites are chronologically contemporaneous or interrelated, the latter may represent early pastoral nomads who still exercised a broad spectrum approach for subsistence.

The picture of faunal reversal beginning at the PPNC supports these conclusions. As the faunal curves at Abu Hureyra and elsewhere suggest (fig. 4), a reliance on wild gazelle was almost totally replaced by one on domesticated ovicaprids. Legge and Rowley-Conwy argue that domestication of the ovicaprids within the steppe border area of Abu Hureyra was stimulated by the widespread killing of gazelles in the steppe and desert (using the kites of the early to middle PPNB). Gazelles could not migrate north in the summer season and

now verged on extinction (Legge and Rowley-Conwy 1987: 95; figure, p. 91). The demand for meat protein was best met by domesticating ovicaprids rather than depending on gazelle; and forager groups in the desert turned toward the domesticated ovicaprids as an alternative food source. Several scholars have already suggested that pastoral nomadism began at that point (Cauvin 1981: 482; Helms 1987: 51; Moore 1981: 448; Betts 1989).

Although no faunal analyses have been carried out on sites from western Iraq or from southern or eastern Syria, the faunal profiles from such sites as Abu Hureyra and the dominance of sheep and goats at Bouqras, Tell es-Sinn and Kowm 2, point to incipient pastoral nomadism, as does the presence of ovicaprids and cattle in the desert sites.

Two other arguments can buttress the suggestions here. First, the substantial increase in site numbers and site sizes in the late PPNB in the desert and steppe seem strongly related to complex interactions between the nomads and the settled populations. Animal domestication may be one variable responsible for that increase. Indeed, the ⁹Ain Ghazzal–Jericho–Kilwa–Nahal Hemar link would argue for close interaction of the type suggested from the ethnographic record. Second, the appearance of numerous sites in western Iraq along watercourses that today are dry indicates both climatic amelioration during the PPNB (Moore 1979: 69; Sakaguchi 1987: 14; Fujii *et al.* 1987: 38) and the ability of a new way of life to sustain human existence in the region. It appears that late Upper and Epipalaeolithic populations in western Iraq and southern Syria largely abandoned the steppe and desert (Garrard *et al.* 1988; Betts 1988c: 373–76; Cauvin 1981: 481; Braemer 1984: 224). Therefore, the PPNB–C sites represent the initial resettlement that pastoral nomadism made possible. It is also intriguing to note that the succeeding period within the Levantine sedentary zone represented a considerable decline in fortunes (Rollefson 1988), but that most of the larger Arabian peninsula was occupied largely due to the exceedingly rapid spread of pastoral nomadism.

PREHISTORIC AKKAD

The “sudden” appearance of populations without any previous occupational history in the desert and steppe (or at least a hiatus of three millennia) raises the question of ethnic and linguistic identity.

The Semitic populations identified as “Akkadians” (or Kishites, cf. Gelb 1987: 63; 1989: 124) were pastoral groups who migrated from the western desert or hamada sometime within a protohistoric Mesopotamian context. No available historical data clarify their condition in the late fourth and early third millennia B.C., although some possibly contemporary sites have been identified in the desert (Betts 1989; Zarins 1989b). The MAR.TU who succeeded the Akkadians are well known, principally from Mesopotamian texts beginning in the mid-third millennium B.C. Historical mention ties the MAR.TU occasionally to Jebel Bishri, the mountain massif just west of the middle Euphrates. It is sometimes referred to as their homeland (Kupper 1957: ix–xiv; Buccellati 1966: 236–42; Archi 1985a). Nonetheless, the names “Akkadian, Kishite” and “MAR.TU” are merely convenient terms for populations that had existed in the region since the end of the seventh millennium B.C. Therefore, the “layering” of Semitic populations in the alluvium must be more complex and older than previously thought (*contra* Frankfort 1943: 133).

Adams (1981: fig. 27) presents an informative summation of sites and watercourses of the Mesopotamian plain for the third millennium B.C. In spite of disclaimers—natural alluvium thicker in the north, changing methodology and greater present cultivation in the north (Adams 1972: 182–83; 1981: 155)—“Akkad” was distinct from “Sumer” in terms of population density, settlement size, and settlement strategy. Nissen (1988: 144) suggests that the plain is divided into two parts, “Northern and Southern Babylonia.” He describes the northern plain as having more channelization and the Euphrates there as slow moving with little latitude to develop (see also Paepe and Baeteman 1978: 46–55, regarding Sippar). The southern part of the plain, less restricted and with much more amplitude, is crisscrossed by a braiding Euphrates. Control of Kish (and Sippar) was thus important from both an ecological and an economic perspective (Nissen 1988: 144–45). Therefore, whether one uses data from Adams (1972: maps 3, 4; 1981: fig. 27), Gibson (1972a: figs. 7–10), or Weiss (1975: 444, fig. 1), it is apparent that in the northern alluvium the sites are fewer, more linear in pattern, and less dense than in the southern alluvium, suggesting a distinctly different utilization of the plain. If we apply the historic term “Akkad” to define the northern alluvium, Abū Ṣalābīkh seems to lie clearly on

the border. The site represents the frontier of Semitic influence to the south (Biggs 1981). In addition, the historical data from the third millennium B.C. indicate that the kings of Kish were Semitic and ruled over the northern part of the alluvium. The distinctive ecology of Akkad favored—as it does now—a dimorphic approach to society. In that way the pastoral populations and settled farmers and urban dwellers together created a unique settlement pattern in the northern alluvium (Rowton 1969: 311).

THE GEOMORPHOLOGY OF AKKAD

Conditions in Akkad in the prehistoric and protohistoric periods point to a similar pattern. Unfortunately, our understanding of the Euphrates and its tributaries during the period in question is poor (Adams 1981: 16, 61; Paepe 1971: 20–27; Paepe and Baeteman 1978: 37–56; Baeteman 1980: plan 1). In spite of assertions that the current Euphrates has existed in its present form since 8000 B.C. (Paepe 1971: 19–20; Boerma 1983: 362), the major tributaries that contain PPNC/PN materials in the western Iraqi desert debauched either on the central Euphrates itself (above) or a past course of the Euphrates running through the Hawr Habbaniya or Abu Dibbis (Voûte 1957). West of the current river, in the Ramadi–Karbala region, three of the western wadi tributaries flowed into a possible early Holocene bed of the Euphrates (fig. 8). In addition, both the Habbaniya lake and Abu Dibbis depression are arid land features characteristic of the larger Arabian peninsula; they also were active in the early Holocene, ca. 8000–3000 B.C. (Zarins, Rahbini, and Kamal 1982: 28, with references). Therefore, future research on the middle Euphrates and the tributaries immediately to the west should turn up PPNB/C–PN materials. All the major routes from the western steppe and desert wind into the area known historically as Akkad, while virtually no tributaries of any kind that have produced early identifiable materials lead to Sumer. That explains in part the lack of early archaeological materials from “Akkad.” Those materials are more likely to be found west of the present Euphrates along the geomorphological features described above (see Voûte 1957: 136, 141). The problem, then, of interpreting a major western bed of the Euphrates in the early Holocene contemporaneous with the PPNB/C, is to reconcile that

channel with the evidence of the proposed Ubaid–ED Channel much farther east (fig. 8). In fact, several major channels may have existed in the early Holocene. Voûte (1957: 136) and Paepe (1971: 19) assumed that the westernmost (fig. 8) dated only to the late Pleistocene or Palaeolithic. It could, however, also have belonged to the early Holocene in its terminal phase.

Within the southern alluvium proper, the earliest identifiable sites are no older than the Samarra period (Adams 1981: 58; Vértessalji 1981) and they should date to the mid-sixth millennium B.C. Within Akkad itself there are no contemporary sites, but some should be found on the early Holocene western branch of the Euphrates (above). Around Anah at least six Neolithic sites have been identified (Abdul-Amir 1988: 107; fig. 1 here). No PPNB-type agricultural settlements of the Bouqras type have been found, so the Neolithic remains should fit the pattern found in the western desert. In addition, the sites cluster in the area leading from the Wadi Hauran region. The earliest sites in Akkad are Ubaid II/III as represented by Ras Al Amiya (Stronach 1962; Adams 1981: 58) and are datable to the early fifth millennium B.C. Large sites such as Tell Uqair (ancient Urum?) apparently peaked during the Ubaid period and were a focus of early settlement in the plain (Lloyd 1943; Steinkeller 1980; Green 1986). Kish existed during the Ubaid period (Moorey 1975: 101; Gibson 1972a: 111; 1972b: 115, n. 5) and may have been an important center already.

From the following Protoliterate period (ca. 3500–2900 B.C.) Kish was a large regional center (Gibson 1972a: 111, figs. 6, 26a; Moorey 1975: 101, 164) and is mentioned in the Uruk IV texts from

3200 B.C. (Green and Nissen 1987: 232; no. 297). Sippar is also attested from that period (Adams 1972: map 2; Walker and Collon 1980: 99, pl. 27:34). The site survey pattern of Akkad from the Ubaid–ED I is almost identical to that recovered from the later ED I–I/L periods. Again, in spite of the caveats expressed by Adams (above), prehistoric Akkad was already distinct from Sumer. The division may be expressed in the earliest available texts (KALAM, “Sumer”? vs. URI, “Akkad”?; Green and Nissen 1987: 232, no. 282 vs. 305 and no. 594). The prehistoric occupation pattern, like that of historical time, suggests a strong pastoral (Semitic) presence interacting with the settled population. Both have the same linear, less dense settlement patterns. That evidence correlates strongly with the arguments here from the steppe–desert to the north and west of the Akkadian alluvium. The suggestion for the Protoliterate period is confirmed by the occurrence of the term TIDNUM, the later MAR.TU tribal term, in the Uruk *Archaic City* List (above). The presence of the term so early in the historical record indicates that the pastoral–settled continuum described for the later third and second millennia B.C. was already established by ca. 2900 B.C.

Semitic pastoralists appeared in the steppe–desert and the alluvial fringe of Mesopotamia as early as ca. 6000 B.C. (cf. Kramer 1948: 160). In succeeding periods, both prehistoric and historic, they contributed in a major way to the settlement of Akkad. Their rise to political preeminence in the north may have begun in the Protoliterate period as the legends of the later Sumerian SKL so admirably expressed it.

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