

A comparative outline of the Early Neolithic cultures in China and in the Near East

Claude Björk

Department of Classical Archaeology and Ancient History, Stockholm University

ABSTRACT – *The transition between a hunting-gathering and food-producing economy occurred at both ends of the Asia continent at roughly the same time. A survey of the archaeological evidence published on this cultural period in these regions produces some very interesting results. It clearly shows that, if the basic principles for sedentism and the domestication of local plants and animals were similar in the Near East and in China, the respective adaptive strategies chosen by the local populations to solve technological and metaphysical problems which must have been similar, were completely different. It must then be accepted that the cultural changes that happened at the beginning of the Neolithic period were not the result of direct contacts or exchanges of influences between the Near East and China, and that the transition occurred independently in these regions.*

POVZETEK – *Do prehoda iz lovsko-nabiralnega v pridelovalno gospodarstvo je v vzhodni in zahodni Aziji prišlo skoraj sočasno. Pregled objavljenih arheoloških podatkov o tej kulturni fazi ponuja v omenjenih regijah nekaj zanimivih rezultatov. Ti jasno kažejo, da so bile adaptivne strategije, ki so jih uporabljale lokane skupnosti pri reševanju tehnoloških in metafizičnih problemov, kljub podobnim osnovnim načelom sedentizma in domestikacije lokalnih rastlin in živali na Bližnjem vzhodu in na Kitajskem, različne. Velja ocena, da se je prehod na kmetovanje na teh področjih odvijal neodvisno in da kulturne spremembe, ki so se dogodile na začetku neolitika, niso bile posledica neposrednih kontaktov, izmenjav in vplivov med Bližnjim vzhodom in Kitajsko.*

I. INTRODUCTION

At a certain point in their development, people decided to stop wandering around and to settle down instead. The real reasons for this have yet to be established with certainty, beyond probable climatic, ecological or demographic problems. It is even possible that Jacques Cauvin's suggestion that the decision was primarily a step towards human sociological and intellectual maturity (*une mutation mentale*) is indeed correct (Cauvin 1994,97). We do not know, but what is certain is that similar events occurred in both Eastern and Western Asia at roughly the same time.

Based on archaeological reports, this study is a synoptic outline of what is presently known about the events resulting from the switch from the hunting-gathering way of life to sedentism and a systematic food-producing economy i.e., the Early Neolithic cultural period. Generalization means oversimplifica-

tion, which may be dangerous, but it is necessary if one wishes to draw conclusions about general trends. Consequently, in order to have an overall view of how each region solved problems which must have been similar, I decided to deal with the Chinese archaeological evidence in the same way Western researchers usually treat the Near Eastern material. China will therefore be considered as a single cultural block, and will not be divided into the four traditional geo-cultural zones of the North, the North-East, the Central Plain and the South, as is the case elsewhere in more detailed investigations of some Early Chinese Neolithic cultures (Zhao Chaohong and Chen Xingcan, *this volume*).

What, then, really happened during the earliest Neolithic period in China and in the Near East? In both regions, the cultural period appears to be the result of indigenous developments of the local, Palaeoli-

thic foundation. How, then, did both groups solve problems which must have been similar?

Method

The methodology is straightforward. After a brief summary of the Early Neolithic in the Near East, the equivalent period in China is rapidly surveyed. Then a series of specific features is surveyed and the East Asian evidence is compared with analogous data from Western Asia.

Definitions

To begin with, we must be aware that the definition used for the cultural period is slightly different at each end of Asia.

In the Near East, the Neolithic is essentially characterised by sedentism and an economy based on agricul-

ture and animal husbandry. Pottery is not involved during the two earlier phases, which are known as Pre-Pottery Neolithic A (PPNA), starting around 9000 BC, and the later, Pre-Pottery Neolithic B (PPNB). There was even a Pre-Pottery Neolithic C (PPNC) which appeared on a limited basis in the Syrian Desert and in the Southern Levant (Cauvin 1994.20-21; Avner et al. 1994; Yakar, this volume).

In China, any settlement dated to the early Holocene with pottery and some form of sedentism is attributed to the Neolithic period, even if agriculture and/or animal husbandry was not yet fully developed.

Radiocarbon Dates

In this study, all the radiocarbon dates were calibrated according to the latest publications (Kuijt & Bar-Yosef 1994; Zhongguo Kaoguxue Zhongtiao Shisi Niandai Shujinji 1991).

BC	BP	Central Anatolia	Coastal Phoenicia Cyprus	S. Levant Negev Sinai	Jordan Damascene	Middle Euphrates	Eastern Taurus	Syrian Desert	Eastern Djezireh (Sinjar)	Zagros
6000-	7200			YARMUKIAN				El Kowm 2 PNA PPNC	Hassuna	PN
6500	7600-	Hacilar		Ain Ghazal						
			Amuq A-B Ras Shamra V Byblos Neo.	PPNC Ain Ghazal F-PPNB	Ramad III XXXXXXXXXXXXX	Abu Hureyra 2C	XXXXXXXXXX	F-PPNB El Kowm 2	Umm Dabaghyah	Jarmo
		↑	XXXXXXXXXXXXX	L-PPNB XXXXXXXXXXXXX			Gritille		XXXXXXXXXX	XXXXXXXXXX
6900	8000-	Çatal Hüyük	Khirokitia L-PPNB		L-PPNB Abu Kosh	L-PPNB		L-PPNB XXXXXXXXXXXXX	L-PPNB (Sinjar)	Aceramic Jarmo Ali Kosh Ganj Dareh
7000-	8100	XXXXXXXXXXXXX		Ain Ghazal	Ramad I-II Beisamoun	Abu Hureyra 2B	Cafer Hüyük	Bouqras		
			Ras Shamra V			Tell Assouad XXXXXXXXXXXXX			Magzalia	
7600	8600-	Asikli			M-PPNB	M-PPNB Mureybit IVB	PPNB			
8000-					Jericho PPNB Munhata	Abu Hureyra 2A Halula	Cafer Hüyük Çayönü		NEMRIKIAN Nemrik	
					SULTANIAN	E-PPNB Mureybit IVA				
8800	9600-	?			Jericho PPNA Netiv Hagdud	Mureybit IIIB	Çayönü			
9000-			KHIAMIAN (Lebanon)	KHIAMIAN Abu Madî I	Jericho Protoneo.	(XX) Mureybit IIIA				?

Tab. 1. The Beginning of Agriculture in Western Asia: a chronology. Simplified after Jacques Cauvin, *Naissance des divinités. Naissance de l'agriculture, (Empreintes)*, Paris 1994.20-21. Calibrated according to Kuijt & Bar-Yosef 1994.227-245 and Evin 1995.15. (E - Early; M - Middle; L - Late; F - Final; Neo - Neolithic; Up. - Upper; == - Beginning of Agriculture; xxx - Beginning of Pottery).

II. THE EMERGENCE OF THE NEOLITHIC IN THE NEAR EAST

In the Near East, the Neolithic evolved directly from the preceding Epipaleolithic (*Yakar, this volume*), which began about 14 000 years ago. The beginning of the agricultural economy was not synchronic in all the different regions of this part of Western Asia (Tab. 1).

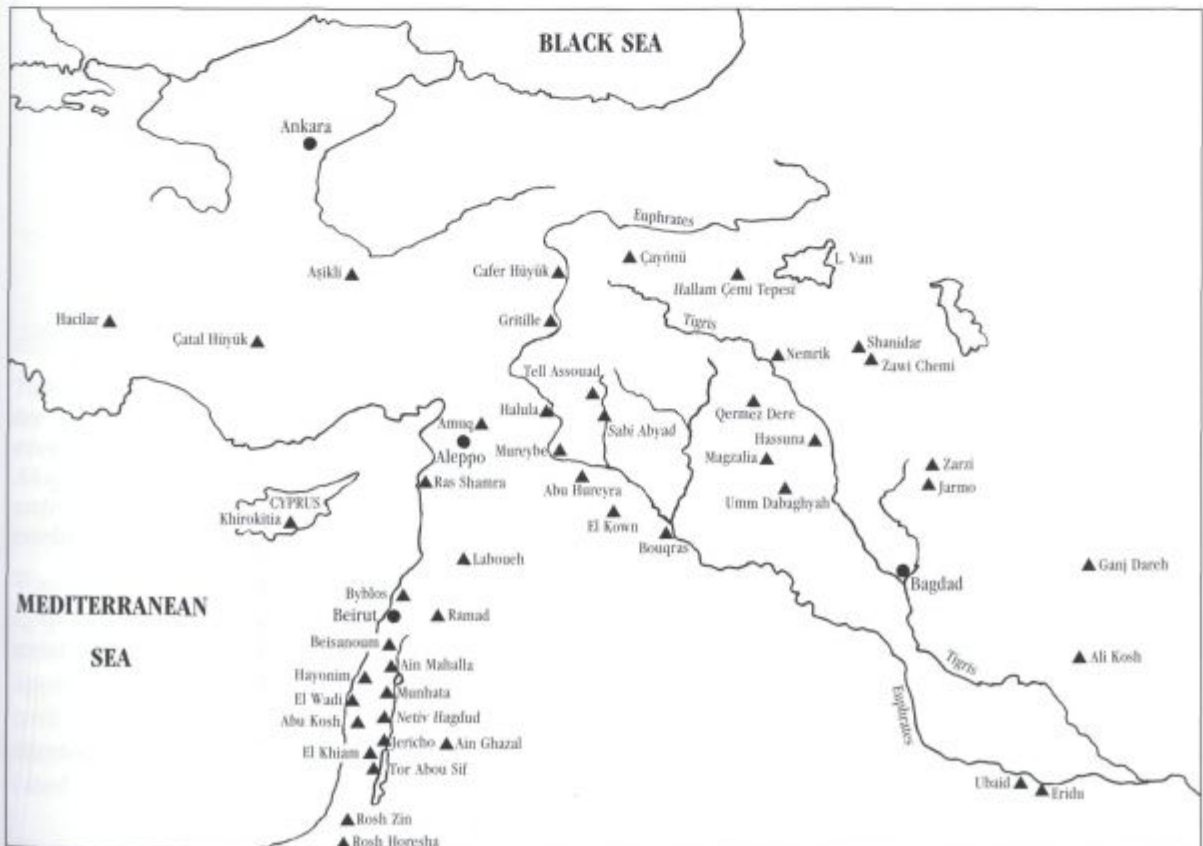
Apparently, it began in the Middle Euphrates region (Mureybit) and the Jordan/Damascene area (Jericho, Netiv Hagdud). It then radiated southwards, to the Negev/Sinai (Ain Ghazal), eastwards to the Djezireh (Mazalia), to the Zagros (Jarmo), and to the Syrian Desert (Bouqras), and northwards, to Phoenicia (Ras Shamra) and the island of Cyprus (Khirokitia). Domestication occurred in the eastern Taurus area (Çayönü) shortly after the two earliest core areas already mentioned, and seems then to have expanded mostly towards Central Anatolia (Çatal Hüyük).

In the Near East, the duration of the Neolithic is divided into three periods: the Early Neolithic (EN), the Middle Neolithic (MN), and the Late Neolithic (LN). This general classification is made for definite

cultures, independently of modern political divisions (Map 1).

III. THE EARLY NEOLITHIC PERIOD IN CHINA: THE BACKGROUND

Until the beginning of the 1920's, there was no archaeological evidence of any Neolithic cultures in China, and this part of prehistory was presumed not to have occurred. Settlements and artifacts, attributed to the Neolithic period, and at the time dated to c. 2500 BC, were, however, excavated in 1921 in the village of Yangshao, in Shaanxi province, by Johan Gunnar Andersson, a Swedish geologist and archaeologist employed by the Chinese government to survey the mineral resources of the country. They were soon followed by investigations in the provinces of Gansu and Henan, which revealed more Neolithic material (*Chen 1997, and this volume*). This was the real beginning of prehistoric archaeology in the country. Classified at first as belonging to the EN period, the Yangshao culture is now recognised as pertaining to the MN, although, because of the high quality of the pottery, some Chinese scholars would attribute it to the early LN.



Map 1. Early Neolithic settlements in the Near East.

The terminology (EN, MN, LN) is also used in China. Regarding the exact geographical identification of these widespread cultures, the problem is the same for Chinese archaeology as it is for its Near Eastern counterpart. Since archaeological cultural sectors are often located in more than one Chinese province, the name of an eponymous site is used to characterise a culture, even if the latter is then found far from the first excavated settlement (Map 2). However, some confusion may occur if two or perhaps three different sites with the same culture have been unearthed in different provinces, as in the cases of the Dadiwan (Gansu), Laoguantai and Baijia (both in Shaanxi) cultures, which are now recognised as being similar. Any of these three names can be then found in the relevant literature, but the problem will eventually be solved.

IV. THE EARLY NEOLITHIC PERIOD IN CHINA: THE ARCHAEOLOGICAL EVIDENCE

It is still unclear when the Neolithic period proper, as we know it in the Near East, began in China. A large number of Early Neolithic cultures, all with pot-

tery, have recently been discovered in various parts of the country, and many were even excavated and the findings published in many of the local archaeological journals. Few of these cultures displayed strong specific regional characteristics. However the majority showed enough relationships with the cultures of neighbouring regions to suggest inter-site contacts on a limited local basis (Tab. 2).

To date, the earliest Neolithic cultures in China with early ¹⁴C dates have been recovered at Peiligang in Henan (c. 6500–5000 BC), Cishan in southern Hebei (c. 6500–5000 BC), Dadiwan (c. 6000–5000 BC) in Gansu, Laoguantai (or Baijia) in Shaanxi (c. 6000–5000 BC), Houli in Shandong, Pengtoushan (c. 7000–5500 BC) and Zaoshi in Hunan (c. 5500–5000 BC). The cultures of Xinglongwa and Chahai (c. 6200–4500 BC) were unearthed in Liaoning. In the South-Eastern part of the lower Changjiang, Early Neolithic cultures were discovered at Zengpiyan in Guilin (c. 6600–5400 BC) and Fuguodun in Fujian (c. 5600–4700 BC).

In the South, a Sino-American team recently excavated two caves at Wangdong (c. 9000–6000 BC) and Xianrendong (c. 8500–7000 BC) in the Dayuan Basin,



Map 2. Early Neolithic sites in China.

cal. BC	Northern Steppes	Upper Huanghe	Middle Huanghe	Middle Changjiang	Lower Huanghe	Lower Changjiang	S-E China	S-W China
1000		Shang	Shang	Shang	Shang	Shang	Fengbitou (Taiwan)	
		Siba	Erlitou	Erlitou	Yueshi		Dapenkeng (Taiwan)	
2000		Qijia	Longshan	Longshan	Longshan	Liangzhu		Baiyangcun
	post-Hongshan	Majiayao	Miaodigou II	Qujialing	Dawenkou		Songze	Shixia
3000	Hongshan (Fuhe)		Miaodigou I					Majiabang
	Hongshan		(Banpo)	Daxi				
4000	Xinle		YANGSHAO			Hemudu		
					Beixin		Xijiaoshan	
5000	Chahai	Dadiwan/Laoguantai	Peili-gang	Cishan	Zaoshi	Houli	Fuguodon	
6000	Xinglongwa						Zengpiyan	
				Peng-toushan				
7000						Wang-dong		
							Xianren-dong	
8000			Nanzhuang-tou					
9000								
11000								

Tab. 2. The most important Chinese cultures from the Neolithic to the beginning of the Bronze Age. (after Wenwu 1994.3, 83; Kaogu 1995.1, 38-38; adapted after Wang Tao, *Antiquity* 71 (1997).34). Whenever possible, the calibration follows the lists published in *Zhongguo Kaoguxue Zhongtan Shisi Niandai Shujinji 1965-1991 (Radiocarbon dates in Chinese Archaeology 1965-1991)*. Beijing 1991. New excavations and new analyses, however, may slightly alter these ^{14}C dates and even the final name of the earliest cultures.

Wan-nian County, Jiangxi Province. They yielded one Epipalaeolithic and five Neolithic phases, the uppermost being identified as Lungshanoid (LN). Pottery appeared in the first Neolithic phase, still together with wild fauna and flora. Dog, however, was domesticated, and there may be some evidence of domesticated rice dated to c. 11 700 BP (Zhao et al. 1995.52).

There are potential indications of an incipient ceramic phase in the Middle Huanghe region at one single

and very early site, Nanzhuangtou, in Hebei (c. 8600-7700 BC), where 15 coarsely made sherds were discovered in a possible transitional Epipalaeolithic/Neolithic context, together with limited domesticated fauna and the remains of various types of wild flora (Jia & Xu 1992).

Early Neolithic cultures have not yet been excavated, either in the Upper Changjiang, or in the south-western part of China (Map 2).

1. ANIMAL DOMESTICATION

In contrast to what happened in the Near East, the domestication of animals, i.e. the genetic transformation of a limited range of wild species, appears to have preceded plant domestication in China (Miller 1992.50-54). The latter requires sedentism, while the former does not.

With the exception of the dog and the pig, the earliest Chinese domesticates were somewhat different from those in the Near East. It is also worth noting that these early Chinese animals (dog, chicken and pig) can either follow a tribe still partly on the move, or be easily transported from one location to another. As plant domestication occurred after animal husbandry at the local early Neolithic sites, the choice of animal may imply a longer tradition of wandering-gathering in China than in the Near East, where there is solid evidence of settlements during the Epipalaeolithic and Natufian period which were built to last much longer than the simple seasonal periods (Henry 1983; 1989; Yakar, *this volume*).

Dog

As in the Near East, the domesticated dog (*Canis familiaris*) is present from the earliest times in the Neolithic settlements in China at Nanzhuangtou (Baoding *et al.* 1992.965) and at Wangdong, Xienrendong (Reeding 1995.53). Although no systematic analyses of butchering marks have been conducted on the Chinese osteological evidence, dogs may have been bred for hunting, as sacrificial animals, or as food. The latter assumption is quite plausible, especially if we consider that dog is still eaten in modern China.

The dog appears to have been the earliest domesticated animal in the Near East (Bökönyi 1994.392). The evidence from Natufian tombs (Epipalaeolithic period) at Mahalla, where men were buried under floors with canids (Henri 1989.215), suggests, however, that dogs may have been raised for hunting, or even as pets, although the possibility that they could have occasionally been eaten cannot be ruled out. Their use as sacrificial animals has also been advanced (Bökönyi 1994.391). Domesticated dogs have been found at the lowest PPNA level at Çayönü, in the Eastern Taurus (Braidwood & Braidwood 1986.8).

Chicken

As a domesticate, the chicken (*Gallus gallus domesticus*) is possibly present in a ninth millennium BC

context, both in the North, at Nanzhuangtou (Jia & Xu 1992.964) and in the South, in the Wangdong and Xienrendong caves (Reeding 1995.56, 58). However, the most reliable evidence so far is for the early sixth millennium BC, at Cishan (Chow 1981.340).

The domesticated chicken was present in southern Europe possibly as early as about 5000 BC (in Rumania), but much later (c. 3900–3800 BC) in the Near East, at Tepe Yahya, Iran (West & Zhou 1988.520-521). The genetic change in fowl seems to have occurred locally, although the possibility of diffusion to the West, probably via Eurasia rather than India, has recently been suggested (West & Zhou 1988.528).

Pig

As one of the local basic food animals, the pig (*Sus scrofa*) was domesticated very early in China. It can be bred easily, even within a woody environment. The samples from the South, in the Wangdong and Xianrendong caves, show that a genetic change had already taken place in the ninth millennium BC (Reeding 1995.56). Domesticated pigs are reported from the Cishan, Peiligang and Hemudu cultures (Smith 1995.139).

In the Near East, the earliest evidence for domesticated pig comes from Jarmo (Zagros), around the middle of the seventh millennium BC (Stampfli 1983.454).

Cattle

Bos exiguus Matsumoto, an Asiatic species of cattle, has been reported from the EN site of Cishan, and dated to the late early sixth millennium BC (Chow 1984.364). However, it is not considered to have been completely domesticated. As a full domesticate, it became more and more common from the Yangshao cultural period (MN; c. fifth millennium BC) onwards.

In the Near East, the local wild cattle, *Bos primigenius*, was possibly domesticated at Bouqras (Syria) and at Çatal Hüyük (Anatolia) around the late eighth millennium BC (Perkins 1969).

Sheep

In China, sheep (*Ovis*) are first found for certain in the mid-fifth millennium, in a MN context (Hemudu culture). The Chinese domestication data is still not definitive as to the existence of a local wild progenitor in the region, and the archaeological reports are

often unclear on this point; the species is even suspected to have been imported from Western Asia (Chang 1986.65-94). As no detailed osteological analysis of the material was apparently conducted at the time of the excavation, it is doubtful whether the bones identified in a Majiayao context in Gansu (third millennium BC) really belong to the *Ovis* species (Andersson 1943.43).

In the Near East, domesticated sheep (*Ovis aries*) are already present in the archaeological record at Ali Kosh, in the Zagros mountains, in a ninth millennium BC context (Hole & Flannery 1967).

Goat

In China, domesticated goats (*Capra hircus*) do not appear early in the archaeological record. The earliest archaeological evidence was excavated at the Miaodigou II site, from the second half of the third millennium BC (Chow 1984.365). For the same reasons mentioned above for sheep, it is doubtful whether the bones identified in Gansu, in a Majiayao context (third millennium BC), really belong to the *Capra* species (Andersson 1943.43).

The wild goat of Iran (*Capra aegagrus*) has now been accepted as the wild progenitor of the Near-eastern domesticated goat (*Capra hircus*). To date, the earliest domesticated animals have been excavated at Ganj Dareh and Jarmo (c. eighth millennium BC), both in the Zagros (Smith 1995.58-61).

2. PLANT DOMESTICATION

The categories of the earliest plants domesticated in China are completely different from those in the Near East. This, however, only indicates that the genetic transformation of the native wild progenitors was adapted to local ecological environments. Contrary to what happened in the Near East, plant domestication occurred after animal domestication in China.

Millet

Broomcorn millet (*Panicum miliaceum*) and foxtail millet (*Setaria italica*) were the first cereals domesticated in China. They were present as main crops in the earliest Neolithic settlements (possibly including Nanzhuangtou, during the ninth millennium BC, although there are still some doubts about the validity of the evidence), and were apparently cultivated

parallel to each other. Green brittlegrass (*Setaria viridis*), which is presumed to be the wild ancestor of foxtail millet, originates, among several other areas, in the Huanghe valley.

Broomcorn millet (*Panicum miliaceum*) is not identified with certainty in Western Asia (Iran) until the fifth millennium BC (Zohary & Hopf 1988.78), while the archaeobotanical evidence indicates that it was fully domesticated in the sixth millennium BC in Austria (Kreuz 1991.67, 70, 81, 82, 164, 207), and also possibly at the same time in the Caucasus (Lisitsina 1984.288). The earliest known occurrence of Central European foxtail millet (*Setaria italica*) was dated to the second millennium BC, while at this time it was still unknown in the Near East (Zohary & Hopf 1988.81). Although *Setaria viridis* occurs in eastern Turkey, it does not seem to have been cultivated as a domesticate until the Iron Age (c. seventh century BC) in the region, at Tille Höyük (Nesbitt & Summers 1988.86, 92).

Rice

Domesticated rice (*Oryza sativa*) was fully cultivated in the early phase of the Hemudu culture (fifth millennium BC), in the Lower Changjiang region. Domestication seems to have occurred locally in the region as early as the eighth millennium BC, as wild rice grows normally in the Middle and Lower Changjiang zones (Chang 1983.70-77; An 1989a.647; Zhao et al. 1995.52). Consequently, it was not an import from third millennium India, as previously believed (Chang 1983.70). Samples of what may be cultivated rice were also excavated in the late 1980's at the Early Neolithic site of Pengtoushan (Middle Changjiang) and were dated to the late eighth/early seventh millennium BC (Hodges & Chen 1994), but the degree of domestication is apparently still under discussion (Glover and Higham 1996.430). A little further south, however, two caves in the Dayuan Basin of Wan-nian County, Jiangxi Province, were recently excavated by a Sino-American team, and yielded possible evidence of domesticated rice dated to around the twelfth millennium BP (Zhao et al. 1995.52).

In the Near East/Europe, rice is a fairly recent import from southern Asia, i.e., the Indian sub-continent. To date, the archaeological and archaeo-botanical evidence indicates that it was present in the second millennium BC at all the Harappan sites (modern Pakistan), from where it possibly spread into the Near East and eventually into Europe (Zohari & Hopf 1988.215).

Wheat

Wheat (*Triticum monococum*) was one of the earliest domesticated cereals in the Near East, apparently in the Karacadag mountain (Heun *et al.* 1997; Heun, *this volume*). It was excavated around the early ninth millennium BC at Mureybit (Middle Euphrates), Jericho (Levant) and Çayönü (eastern Taurus).

Wheat does not appear in the Chinese archaeological assemblage until the first millennium BC, and is strongly suspected to have been imported from elsewhere, probably Western Asia, as no wild progenitor is yet known to be indigenous to the Far Eastern region (Chang 1977.1-21, 25-52; Chang 1983.65-94; An 1989a.643-649; Crawford 1992.8).

3. POTTERY

It is most interesting to note that, contrary to what happened in the Near East, China does not seem to have gone through a Pre-Pottery Neolithic (PPN) phase.

It must be noted, however, that there is a slight dilemma with the Near-eastern term "Pre-Pottery Neolithic" (PPN). The term PPNA was originally devised by Kathleen Kenyon for the first levels with a Neolithic economy, but without pottery which she excavated at Jericho (Kenyon 1957). Extended to the following phase (PPNB), one must be aware that, since then, pottery which cannot always be classified as primitive was unearthed in the Middle Euphrates (at Tell Assouad), and in the Syrian Desert (at Bouqras) from an already late PPNB economy (c. mid-to-late eighth millennium BC), and everywhere during the Final PPNB/PPNC (c. seventh millennium BC).

If we exclude the very few small (4-7 cm high) containers of lightly fired clay from Mureybit IIIA (c. 9500 BC), which appear to have come from an isolated and short-lived experiment in the Middle Euphrates (Cauvin 1994.64), the earliest vessels of properly baked clay excavated so far were in the same region, at Tell Assouad, and are ¹⁴C dated to about 7500 BC (Cauvin 1994.200). They were manufactured nearly one and a half millennia after the beginning of an economy which was largely based on agriculture.

In Neolithic Greece, the function of the earliest pottery was not primarily related to processing the results of the new economy, i.e. domesticated food-

stuffs, over a fire (Björk 1995; Perlés & Vitelli 1994; Vitelli, 1989; Yiouni, 1996). The long period of one-and-a-half to two millennia of plant domestication and animal husbandry, in the absence of clay pots, speaks against a direct relationship between the new economy and the invention of containers made of baked clay devised for cooking, although no technological and functional analyses of the earliest Near-eastern pottery have yet been published.

The earliest pottery from the Near East was coil-made, tempered with sand or grass, low-fired, and most of the time well burnished. The shapes were simple, often globular, and with or without ring-bases. Large vessels were often made out of clay slabs (Vandiver 1987).

There are no vessels made of lime plaster or gypsum (*Vaisselle Blanche*) in China. The pyrotechnology involved in the manufacture of the necessary "raw" material, and the technique for making these containers are recognised to have been crucial for the transition between pots made of plaster and those made of ceramic in the Near East (Kingery *et al.* 1988.240). It is doubtful whether plaster technology was known in Neolithic China, as the "plaster floors" found in the Early Neolithic houses at Peiligang and Cishan were actually made of mud-plaster which was first simply air-dried, then fire-hardened (Shih 1992a.127).

According to the archaeological evidence, pottery and animal domestication were contemporary in China. Pottery even appears to have preceded plant domestication in the earliest Neolithic settlements (at Nanzhuangtou and in Southern China). Due to the quality of this early ware, it seems doubtful whether the earliest Chinese vessels were really designed for processing plant species over a fire. It must be noted that, up to now, no advanced technological analyses have been conducted on Chinese pottery vessels to discover their exact functions.

The case of pottery preceding plant domestication is not, however, specific to China. Although synchronic neither to the Chinese data, nor even to each other, the archaeological evidence from Japan (Ika-wa-Smith 1970; Imamura 1996.442) and South-America (Legros 1990) testifies to the production of pottery prior to a Neolithic economy.

The earliest pottery from Nanzhuangtou was crude, and the size of the 15 small sherds recovered during the trial excavation did not yield any definitive

information on the size or shape of the vessels, even if the pots are presumed to have been jugs or bowls (Baoding *et al.* 1992.963). The material, porous, permeable, very sandy, fired very low (below 573° C) and not burnished (Li *et al.* 1995.3; 1996.69) does not seem to suggest any real use in cooking, since it is accepted that porous and permeable vessels were unsuitable for boiling liquid over a fire (Rice 1987.231).

The pottery from Peiligang and Cishan was also coil-made, but was better fired, that is between 820° C and 1020° C (Li *et al.* 1995.3; 1996.89) and possibly in kilns, since one was excavated at Peiligang (Li *et al.* 1995.4; 1996.90). Some of these vessels were burnished or decorated with knobs or impressions (comb-ware). Most of the containers were bowls or bottles, with or without ring-bases, and the great variety in shape and quality of the ware suggest various functions.

In the Near East, in contrast with China, feet under a vessel were extremely rare and the very few examples (MN) are small and usually made of stone. To date, the earliest Chinese tripod bowls (ding) made of clay have been excavated at Laoguantai Peiligang and Cishan (EN). Such a shape seems to be an important marker, with strong symbolism attached to it throughout the following millennia in China. Although flat and round bases have been recognised as necessary for cooking-pots in other cultures (Rice 1987.237), nothing prevents these early ding from having been used as such, as this was clearly their function in later cultural periods in the country.

4. STONE IMPLEMENTS

The sophisticated manufacture of certain stone tools found in China is extremely rare in the Near East. Although the prevailing technology used to produce flint blades may be somewhat related in both areas, the shapes of sickles and querns is not, even though it would be expected that these essential instruments for processing cereals, whenever employed, would be formed in more or less the same way.

Near-Eastern querns were usually flattish, thick stone slabs, with the pestle very often being a suitable, roundish or oval stone. The quality of the stone was, however, carefully chosen, and was often non-indigenous to the region. This can be taken as proof not only of contacts with other areas, but of an apparent knowledge of mineralogy.

The early Chinese equivalents were completely different. At Cishan and Peiligang, the querns were about 40 cm long, flat, oval (a little like miniature "skateboards") and resting on four small feet cut out of the stone. The pestles were long and shaped like thin rolling-pins (Cishan, Peiligang), while the sickles (bone at Cishan, stone at Peiligang) were crescent-shaped, flat, up to 17 cm long and 5 cm wide, with an almost regular dentation on one side (Henan Working Team 1984.31).

Originating from eastern Turkey (Lake Van, Bingöl) or from Cappadocia, obsidian has been excavated throughout the whole of the Near East from c. 14 000 BC onwards (Cauvin 1994.127, fig. 32). Technological analyses have pinpointed the exact origin of the tools excavated in most of the principal Near-eastern settlements in the eighth millennium BC, essentially indicating a diffusion towards the South, the South-west and the West. Irrespective of whether this was a case of some down-the-line exchange or of direct procurement, the diffusion of such raw material indicates the beginnings of a permanent inter-regional network of "trading routes" which could even have been used for other goods, as is suggested by the type of stone selected for querns (Yakar, *this volume*).

In China, obsidian tools were discovered in Neolithic and Bronze Age (Xingcheng culture) contexts (c. 3000 to 1300 BC) only at Jingu and Daliudaogou in eastern Jilin (Liu 1995.91; Liu 1995.219) and at Yinggeling in eastern Heilongjiang (Tan *et al.* 1995.126). The raw material has been identified as coming from the Changbai mountains on the border with modern North Korea (Nelson 1995.89). Its absence elsewhere in China, even in other settlements in Heilongjiang and Jilin, indicates that inter-site contacts in the North, and wider, North-South, inter-regional contacts did not develop during these periods. This is also confirmed by the interaction spheres based on the relationship between sites in the same region (Chang 1986.235; Yan 1987.47).

5. SETTLEMENT PATTERNS: ARCHITECTURE

Whether in the Near East or in China, the earliest human dwellings were caves. As soon as people settled down in groups on plains, shelters were circular and semi-subterranean, forming a new settlement pattern: a village. Buildings situated directly on the ground, with straight walls inside and outside, as well as more or less rectangular houses, were devised much later.

In the Near East, this evolution is best studied at Mureybit, a settlement on the Middle Euphrates (modern northern Syria), although the evidence is similar in practically all the regions (at Beidah and Tell Ramad, for instance). Excavated by the French in the late 'sixties and late 'seventies, it shows that in Phase I (belonging to the Natufian (Epipalaeolithic) culture) shelters were circular or oval, semi-subterranean and with flat roofs. During Phase II, a transitional period between the Epipalaeolithic and the PPNA, they were still circular, but were built directly above the ground, the few inner walls being curved. During Phase III (PPNA culture), the houses were still circular and built above ground, but the inner walls were now straight. It is from the end of Phase III B and during the following Phase IV (PPNB period) that the first rectangular houses, with several rooms, were excavated (*Cauvin 1994.60-64*). They were built mostly in pisé, with stone foundations. However, from the Middle Neolithic period, Near-eastern people had already begun to use stone walls and mud-bricks.

In China, the house-building technique and material does not appear very different from the Near Eastern dwellings, although the evolution of architectural forms was not as systematic. The earliest houses, excavated at Peiligang and Cishan, were either semi-subterranean or built directly on the ground. They were constructed in pisé on stone foundations, and sometimes with mud-plaster floors. Most of them were circular, with a diameter between 2 and 5 m., although a few were almost rectangular and apparently larger than the circular structures. This construction technique was used well beyond the Neolithic period. Mud bricks were not used until the Late Neolithic Longshan period (*Chang 1986.263*), and stone walls (including fortification walls) were a rarity in China until well into the Iron Age (fourth-third century BC).

6. FIGURINES

Figurines appear early in the Near East. The first isolated examples were zoomorphic (small grass-eating animals, birds and dogs, i.e., the first domesticated animals); they were found in the southern Levant, and dated to the Natufian period. Associated with fertility because most represent large females, Near-Eastern anthropomorphic figurines had already appeared in large quantities in the PPNA period (c. 10th millennium BC) in the Levant (*Cauvin 1994*).

Few figurines are present in the Chinese Neolithic data, whereas they exist from the earliest period in the Near East. The earliest figurines in China were all zoomorphic and connected to domesticated animals. Anthropomorphic representations do not appear in China until the MN period, although they were not exactly figurines as such; they were either painted on the inside or the outside of pots, or modelled as heads only and used as lids (Yangshao, c. middle of fifth to the end of the fourth millennium BC). The first real anthropomorphic figurines do not appear in China until the end of the Middle Neolithic period, and only then in the northern part of the country (Hongshan culture, middle of the fourth to the middle of the third millennium BC).

As they are the first female representations discovered in a Chinese archaeological assemblage, they have been associated with fertility cults, on the sole ground that such an interpretation is traditionally accepted for similar figurines in the prehistoric Near East and Europe.

7. BURIALS

In China, from the Early Neolithic period onwards (at Peiligang, Cishan, c. eighth-seventh millennium BC), burials seem to have been systematically performed in large cemeteries outside of settlements, with one individual per tomb and with grave-goods. Flexed positions appear to have preceded supine, and intramural burials are extremely rare, seemingly reserved for babies who were inhumed in pots placed closed to the entrance of the house (at Banpo, MN, for example).

Variation in burial systems over time, but within the same region is often accepted as proof of local foreign immigration, and/or of evidence of different religious beliefs. If this is always the case, the apparent systematic uniformity of Chinese burials, both in time and space, would suggest that similar metaphysical concerns were generally accepted throughout a vast area with differing ecological environments. Consequently, a certain elementary "religious unity" may already have been present in China at the beginning of sedentism, which was at that time a very new way of life. It is then possible to suppose that this form of burial may originate from the previous cultural phase.

The Near Eastern schemes for burying the dead vary according to place and time. Primary and sec-

ondary single burials, without specific orientation, but with grave-goods (personal jewellery only, never with stone vessels or tools), existed during the Epipalaeolithic/Natufian period (Mellart 1975: 38). Whenever recovered, the evidence indicates that Neolithic burials were mostly without grave-goods, in flexed or semi-flexed position, most of the time without the skull, which was plastered and used for cultic purposes (Jericho, Ain Ghazal). They were more often under the floor of the house, as secondary burials (Jericho, Mureybit, Beidah, Çatal Hüyük) rather than outside in adjacent courtyards (Abu Hureyra). Grave goods appeared later and in limited quantities, mainly in regions more to the West than the Levantine core areas (at Çatal Hüyük, in Anatolia). Cemeteries outside villages are often found in regions far from the coast (Jarmo, Halaf), although this does not seem to be an absolute rule, since intro-mural burials were carried out at the same time at Halaf and Samarra. Regular grave goods do not seem to appear until the early sixth millennium BC at Halaf and Samarra (Ubaid cultural period).

8. INTER-SITE CONTACTS

Inter-site contacts appear very early in the Near East (during the Epipalaeolithic period) with the emergence of obsidian blades in many settlements from the fifteenth millennium BC onwards. Technological analyses have narrowed their origin to only three sources - Bingöl, Lake Van and the Cappadoce, all of which are located in Anatolia (Cauvin 1994:127). The diffusion/exchange of domesticated plants and animals from at least two core areas towards the rest of the Near East confirms the continuity of these early "trade routes".

Any possible contacts with exogenous cultures from the Chinese side, cannot be considered earlier than the appearance of new elements in the archaeological material. The present archaeological evidence indicates that inter-site contacts began at a very limited regional level during the Early Neolithic (EN) period in China. The extremely limited diffusion of obsidian, occurring only in eastern Jilin and Heilongjiang, illustrates this clearly (Nelson 1995:89).

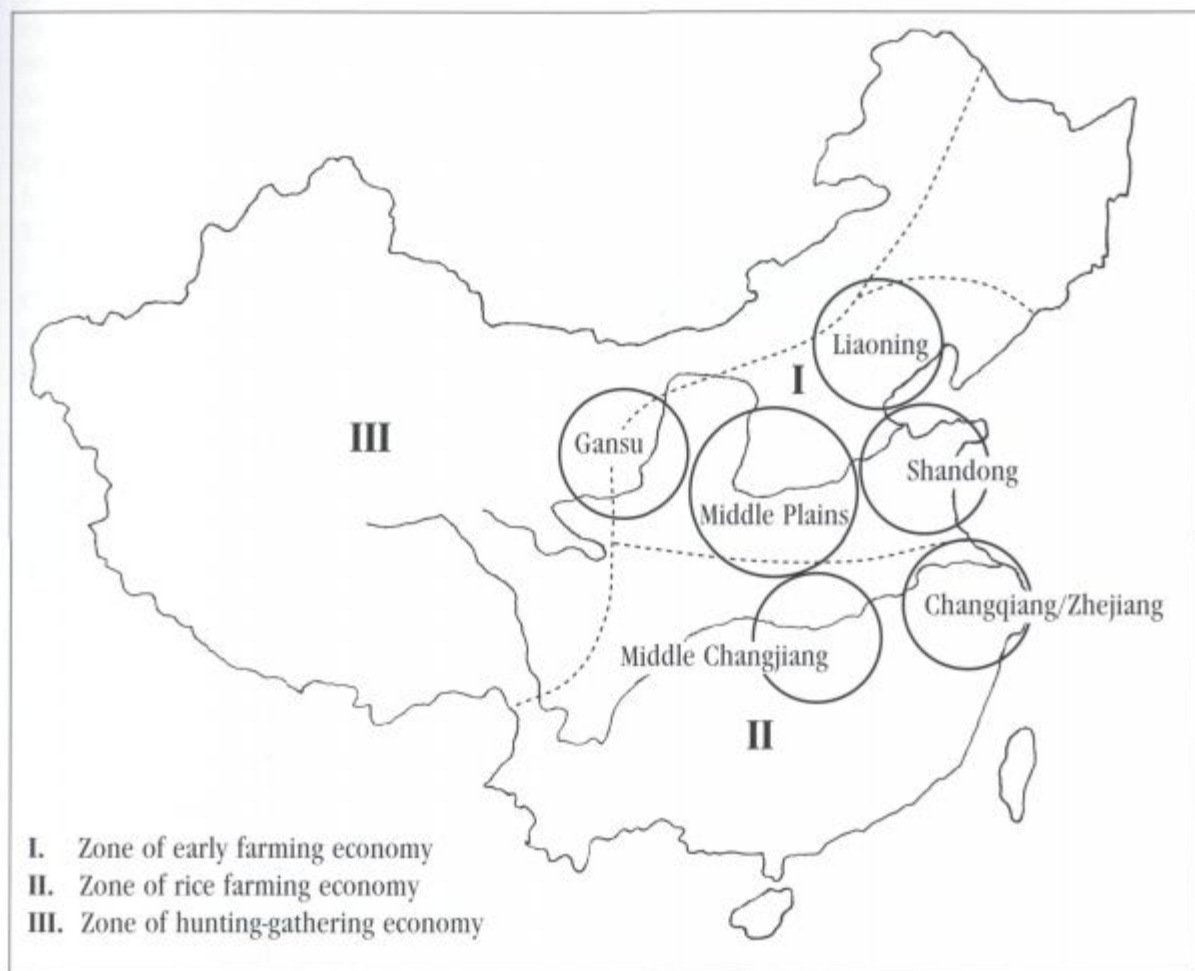


Fig. 1. General distribution of the Early Neolithic cultures in China (after Yan Wenming 1987:47).

The spheres of interaction established a little more than a decade ago (*Chang 1986.235; Yan 1987.47*) stress the indigenous, cultural impact of China's basic geophysical zones (Fig. 1). These spheres slowly started to establish wider contacts with each other only from the Middle Neolithic period (MN), slowly breaking down the barriers between these cultural zones.

V. SUMMARY

The basic material problems for a transition between a hunting-gathering and sedentary way of life appear to have been similar in the Near and the Far East. However, beyond the ecological constraints which dictated the selection of plants and animals to domesticate, the adaptative solutions to this new economy are different. A synopsis of the two sets of data

clearly shows the similarities and differences which occurred at both ends of Asia (Tab. 3).

Similarities

The species of both domesticated plants and animals follow a similar pattern both in western and eastern Asia, although differences in the choice of domesticates were obviously dictated by ecological parameters. The early Chinese husbandry points however to species closer to a non-sedentary way of life than in the Near East. The fact that animal domestication preceded that of plants also fits this trend.

Considering a more general level of Neolithisation, the evolution of settlement patterns (from cave to village) and house-building systems seems to be related in both regions, even if the eastern Asian evo-

	China	Near East
Animal domestication:	before plant domestication	after plant domestication
Dog	c. 12 th mill. BC	c. 14 th mill. BC
Chicken	c. 6 th mill. BC	c. 2 nd mill. BC (Iran)
Pig	c. 9 th mill. BC	c. 7 th mill. BC
Cattle	c. 6 th mill. BC	c. 8 th mill. BC
Sheep	c. 5 th mill. BC	c. 9 th mill. BC
Goat	c. mid-3 rd mill. BC	c. 8 th mill. BC
Plant domestication:	after animal domestication	before animal domestication
Millet	c. 8 th mill. BC	c. 5 th mill. BC (Iran)
Rice	c. 9 th mill. BC	c. 2 nd mill. BC (Pakistan)
Wheat	c. 1 st mill. BC	c. 9 th mill. BC
Pottery	before plant domestication (no plaster vessels)	after plant domestication (plaster vessels before pottery)
Implements (stone/bone)	sophisticated (sickle/quern) obsidian only in northern sites from c. 5-3000 BC	un-sophisticated (sickle/quern) obsidian everywhere from 14000 BC onwards
Settlement pattern	cave to village	cave to village
Architecture	round to square (unsystematic) semi-subterranean (round) with above ground (round) with above ground (rectangular)	round to square (systematic) semi-subterranean (round) to above ground (round) to above ground (rectangular)
Figurines:	stone walls rare until end of BA	stone wall common from MN
zoomorphic	few	many
anthropomorphic	yes	yes
Burial	no (until MN)	yes (from beginning)
	flexed to supine	flexed or supine (unsystematic)
	cemeteries (one/several per grave)	intramural (several) to
	very few intramural (children)	few cemeteries (unsystematic)
	primary, rare and late secondary	secondary to primary
Grave goods	always (from 8 th mill. BC)	none until 6 th mill. BC
Inter-site contacts	EN onwards: limited to low regional level	Epipalaeolithic onwards: multi-regional level

Tab. 3. Synopsis of Early Neolithic data for China and the Near East.

lution from circular to rectangular dwellings does not exactly follow the somewhat more rigorously systematic, western Asian evolutionary model.

Differences

The differences are, however, to be found in two very important areas which reflect people's creativity as well as their anxiety about the unknown: in technology and metaphysics.

On the technological level, the manufacture of tools (of stone and even bone) is related not only to the economy, but also to the creative ability of the local population. The shape and manufacture of Chinese querns and pestles are very different from those in the Near East, in spite of the fact that this type of implement is directly connected to the processing of cereals. Any direct exchange of ideas related to the preparation of a similar category of staple food between the two ends of Asia does not seem to have taken place during the Early Neolithic period.

Pottery preceded the new agricultural economy everywhere in China. There is no transitional period in the country, either in time (no Pre-Pottery Neolithic period), or in technology (no manufacture of plaster vessels). Nevertheless, the differentiation of pottery technology, typology and, consequently of function, appear earlier in China than in the Near East.

On the metaphysical level, the very early emergence of well organised cemeteries with grave-goods (Peiligang and Cishan) in Neolithic China seems to indicate a concern with the problems of the after-life which was different from that in the Near East, with secondary internment (Jericho, Mureybit, Çatal Hüyük) and plastered skull cult (Jericho, Ain Ghazal). It even seems that a very early social differentiation, which does not seem to have existed in the Near East at an identical cultural level, could have occurred in China.

The occurrence of figurines, generally associated with cultic purposes at each end of Asia, is also very different. In the Near East, they appear early, and being mostly female, seem to relate exclusively to fertility cults, while in China, being mostly zoomorphic, they seem to be more associated with the quest for food. Such an interpretation would not, however, exclude religious purposes, possible related to an early form of shamanism, for the Chinese figurines (Chang 1992.217).

VI. CONCLUSION

If the basic principles for sedentism and the domestication of local plants and animals were similar in western and eastern Asia, the specific solutions chosen by the Neolithic populations in China to solve similar problems to those which arose more or less at the same time in the Near East, point to a most interesting result. This is clearly demonstrated by the idiosyncrasy shown by the choice of technology and typology of the implements (tools/pottery) required by the new economy, and also by the metaphysical aspects (burials/figurines). Such reactions point to fundamentally different responses to identical problems.

These respective adaptive strategies show not only the originality of each human group, but even that direct cultural contacts or some mutual exchange of influences could not have taken place between both ends of Asia during the Early Neolithic period. We can then conclude that the transition between a hunting-gathering and a food producing economy occurred independently in China and in the Near East.

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