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Time, change and the archaeology of hunter–gatherers: how original is the 'Original Affluent Society'?

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The Original Affluent Society

This highly evocative phrase first appeared in *Man the Hunter* (Lee and DeVore 1968*a*), used by Marshall Sahlins to describe hunter–gatherers:

> This was, when you come to think of it, the original affluent society. By common understanding an affluent society is one in which all the people's wants are easily satisfied . . . [but] wants are 'easily satisfied' either by producing much or desiring little, and there are, accordingly, two possible roads to affluence. The Galbraithian course makes assumptions peculiarly appropriate to market economies . . . But there is also a Zen solution to scarcity and affluence, beginning from premises opposite from our own, that human material ends are few and finite and technical means unchanging but on the whole adequate. Adopting the Zen strategy, a people can enjoy an unparalleled material plenty, though perhaps only a low standard of living. (Sahlins 1968: 85)

These concepts were developed in *Stone Age Economics* (Sahlins 1972), the first chapter of which was entitled 'The Original Affluent Society'. Sahlins rooted the Zen concept of 'want not, lack not' (p. 11) in the mobility of hunter–gatherers. Most groups carry with them all their material possessions, which must thus be kept to a minimum. In a word, 'mobility and property are in contradiction' (p. 12).

Sahlins's formulation sprang directly from the definition of hunter–gatherers provided by Lee and DeVore in *Man the Hunter*: 'we make two basic assumptions about hunters and gatherers: (1) they live in small groups and (2) they move around a lot' (Lee and

DeVore 1968*b*: 11). Five outcomes of this were responsible for shaping hunter–gatherer society: (a) little personal property and an egalitarian social system; (b) sporadic gatherings of bands, and much mobility of individuals between bands; (c) a fluid organisation involving no territorial rights; (d) no food storage; and (e) no group strongly attached to a particular area (Lee and DeVore 1968*b*: 12). This was the Original Affluent Society (OAS) in a nutshell, and provided a clear vision of what hunter–gatherers were like.

Hunter–gatherer variability

The OAS was so powerful a concept that hunter–gatherer variability received little consideration until 12 years after *Man the Hunter.* Binford (1980) and Woodburn (1980) then each created a typology of hunter–gatherers in which one type conformed to, while the other type diverged from, the OAS model.

Binford (1980) distinguished between 'foragers' and 'collectors' (Figure 3.1). Foragers correspond to the OAS: they move relatively often, and individuals return to the residential base each day. Collectors however move less often, and are found in environments in which resource availability varies in both time and space. Resource storage helps counteract temporal variation: food collected in a season of plenty may be stored for later use. Resource transport helps counteract spatial variation: special-purpose field camps are used to procure and process resources which are then transported back to the base camp. Binford termed this a 'logistic strategy'.

Woodburn (1980) coined the term 'immediate return' for groups corresponding to the OAS because food collected on a particular day is consumed almost immediately: the return upon labour is immediate. In 'delayed return' societies on the other hand consumption is delayed. Resources may be stored for later consumption, and/or work may be expended on complex items like fish traps before the relevant resource becomes available. Woodburn explored two further corollaries. First, a fish trap involves considerable labour, and the trap and its catch will therefore belong to those who constructed it. Individuals or groups thus own territories. Second,

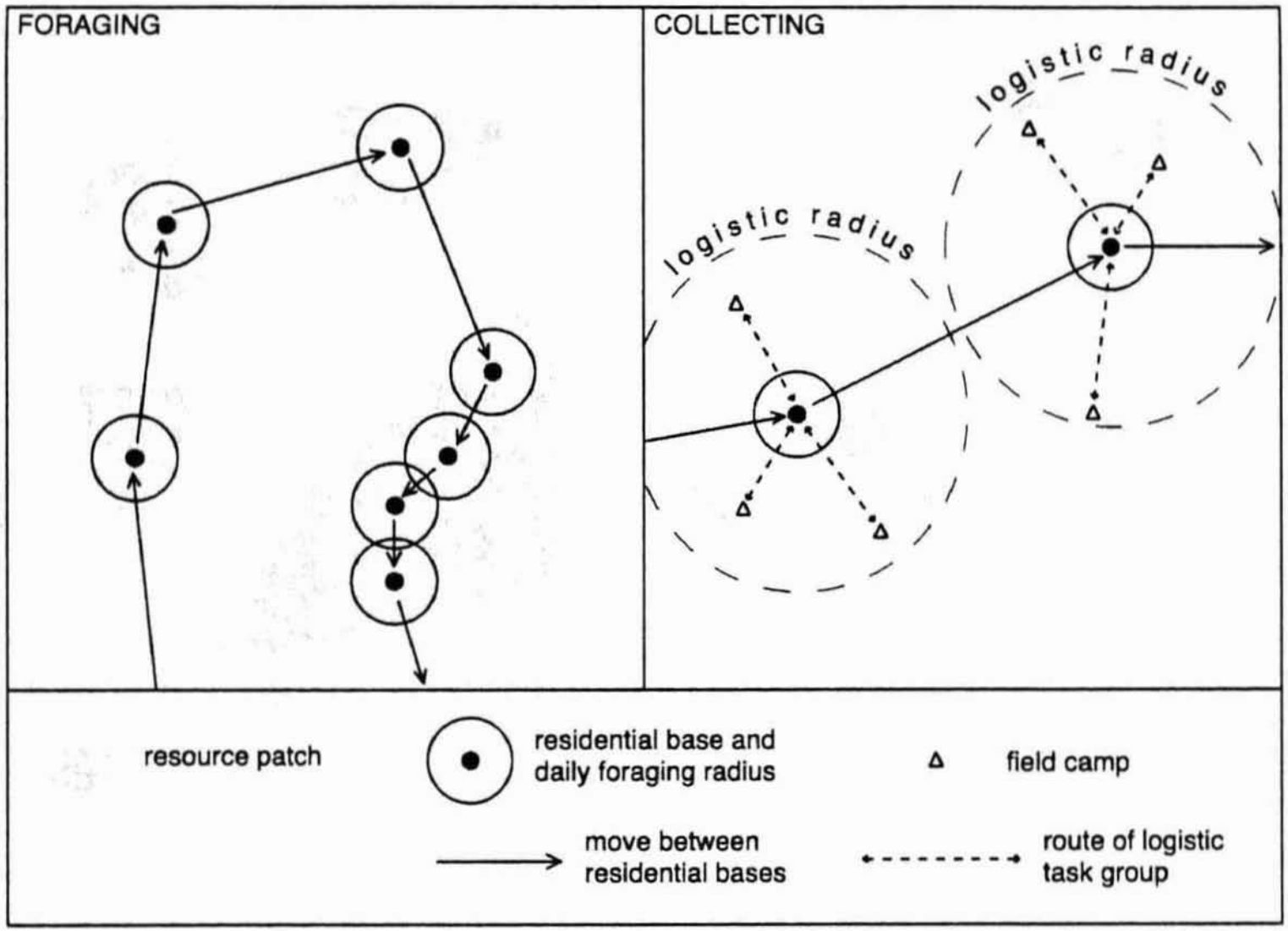

Figure 3.1. Schematic maps contrasting foragers (left) with collectors (right), based on the discussion of Binford (1980). Each shows the same proportion of hypothetical annual rounds, so that foragers' residential bases are occupied for shorter periods than those of collectors.

the ownership of both territories and stored food represents unequal access to wealth. Food is not shared throughout the group, so society tends to be hierarchical. Territoriality and social hierarchy are both in flat contradiction to the OAS.

These two typologies produce similar but not identical classifications. Inuit store food and are logistically organised, although most are not territorial or hierarchical. Australian Aborigines do not store food, but are to an extent territorial. Layton (1986) resolved these anomalies: Inuit are obliged to store food due to seasonal variation in resources, but unpredictable inter-annual and spatial variations make territoriality unviable. Aborigines are territorial mainly with regard to water: ritual knowledge about water sources is jealously guarded while in other respects they practise an immediate return strategy. This allows us to construct a four-fold typology of hunter–gatherers (Rowley-Conwy 1999):

1. The OAS: groups with little or no logistic movement of resources or food storage. These are mostly found in tropical regions (e.g. the Aborigines), although some occur in higher latitude areas where resources are available throughout the year; people can move from one resource to the next, exploiting them in sequence without the need for much storage.
2. Logistic groups that do not defend territories, such as most Inuit.
3. Logistic groups that do defend territories – many of Woodburn's delayed return groups.
4. Sedentary groups who invariably defend territories and store resources, forming a continuation from type 3.

This typology applies to ethnographically known groups. Archaeology was similarly challenging the assumption that all hunter–gatherers conformed to the OAS, but identifying divergent groups was more difficult because of the problems of interpreting the archaeological record. Sedentism, which could be identified, did not conform to the OAS (Price 1981, Rowley-Conwy 1983). Archaeologists use the term 'complex' to describe non-OAS groups, perhaps unfortunate because it means that 'simple' is sometimes used to describe OAS groups, but it will be followed here. Applying this terminology to the four-fold typology, type 1 or OAS groups are non-complex, the rest forming a continuum towards the most complex type 4 groups.

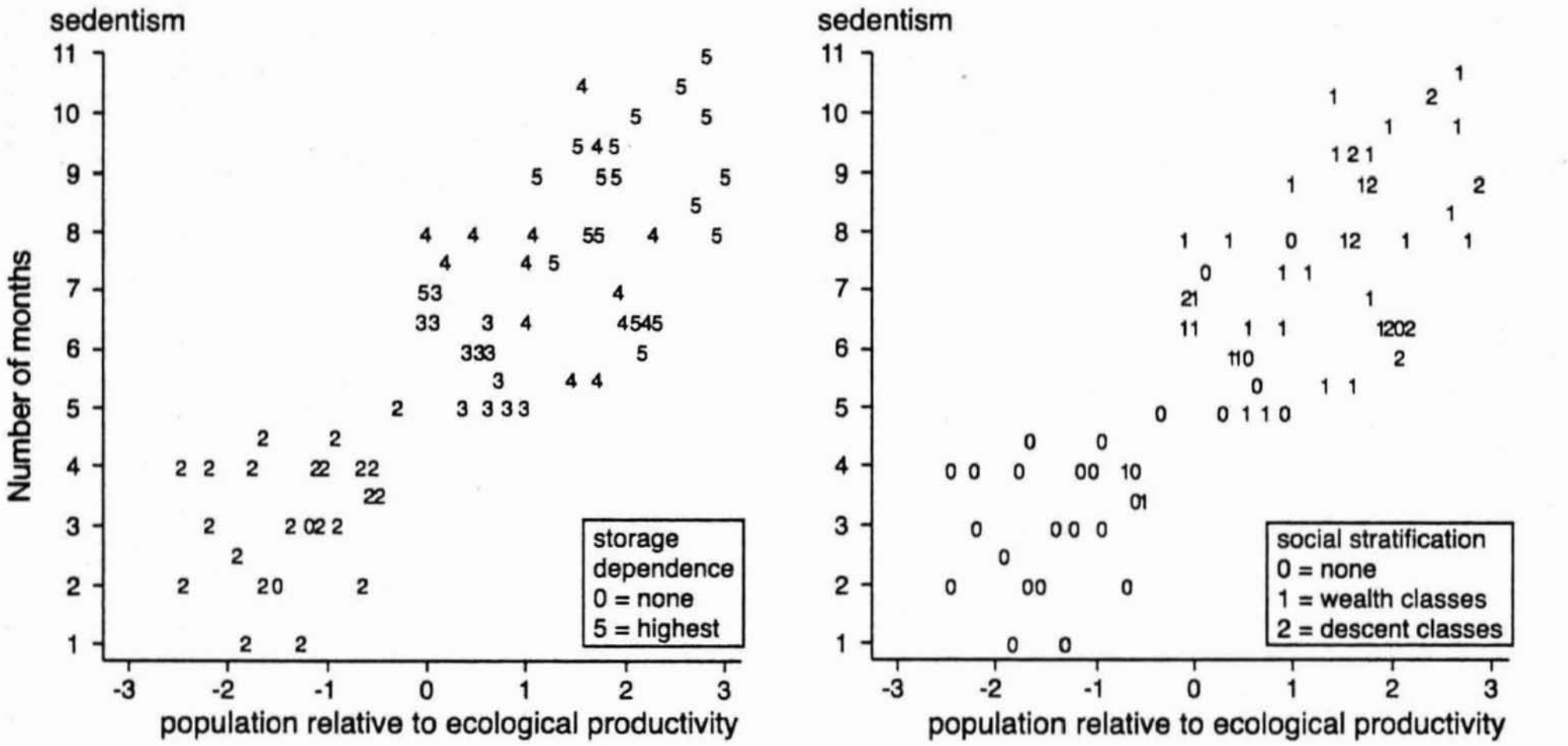

Figure 3.2. Correlations between various attributes of hunter–gatherer societies. Each data point is one ethnographic hunter–gatherer group. Sedentism is the number of months for which the winter settlement is occupied. Population relative to ecological productivity is calculated by Keeley (1988, p. 385). Societies with wealth classes are those where individuals can acquire high status during their lives; societies with descent classes are those in which status is inherited. (Redrawn from Keeley 1991, Figs. 17.1 and 17.6.)

Anthropological work on variability has been taken further in several ways. For example, territoriality has been linked to environmental factors: if an important resource appears in predictable concentrations, then that area is likely to be the exclusive territory of an individual or group; while if resources are unpredictable, flexibility is a better response (Dyson-Hudson and Smith 1978). Archaeology gains an unexpected bonus here because territorial hunter–gatherers sometimes bury their dead in cemeteries whereas non-territorial ones do not. An archaeological cemetery thus probably indicates a territorial group (Saxe 1970, Pardoe 1988). Technology becomes more specialised when maximum resources have to be procured in a short period (Torrence, this volume). The major cross-cultural surveys of Keeley (1988, 1991) demonstrate that population density and sedentism are linked (Figure 3.2); so is dependence on storage, and social factors: territorial descent classes characterise the sedentary groups with most storage. A hierarchical society is thus linked to economic factors. This is a further bonus for archaeology: if we can demonstrate a degree of sedentism or locate a cemetery, other aspects of complexity, harder to see archaeologically, may be confidently predicted.

Progressivist views of complexity

Anthropology in recent years has usually presented variability as synchronic, occurring across space, in a largely adaptive context. Archaeology tends to approach it very differently, often presenting it as diachronic, developing through time, in a largely progressive context. More often than not this is done implicitly. While Brown and Price (1985: 436) eschew the band/tribe/chiefdom/state progressivist typology of Service (1962), their volume is entitled *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity* (Price and Brown 1985). The search for an 'emergence' of complexity, reflected in so many article and chapter titles, signals an implicit belief that there was a time *before* complexity emerged; a time, therefore, of universal simplicity.

These two views cannot both be right. Either variability is a

response to local conditions, or it is time-dependant and tending towards complexity. This chapter argues in favour of local responses and local historical trajectories, and against any progressive trend, by challenging the one aspect of the OAS that is usually accepted without question: its originality.

Progressivist views of the emergence of complexity are usually couched in one of two ways. Both involve intensification, namely an increase in the productivity (or production) of resources. However, demographic viewpoints see population increase as the prime mover, while social viewpoints see increasing social obligations as causing increased production.

The demographic view holds that hunter–gatherer populations increase as a matter of course, so groups must intensify, i.e. produce more food from a given area. A particularly clear statement comes from Zvelebil (1995), reproduced as Figure 3.3. Each time population catches up with resources it 'bounces' productivity upwards, firstly via greater mobility and diversification (OAS strategies), then specialisation (a type 2 logistic strategy), storage (types 3 or 4), and ultimately husbandry and domestication. The problem lies in the time-scale: complexity is the endpoint of a long trajectory. Figure 3.3 covers only the late Mesolithic of Zvelebil's region (the Baltic). This implies that during the previous 5000 years since postglacial colonisation, population was below environmental carrying capacity. Population must therefore have been growing very slowly. In areas like Portugal, continuously occupied since the arrival of modern humans, the time lag would be 30 000 years.

Would population density remain below capacity for so long? This is widely debated, the Australian terminology being the most explicit: 'fast-trackers' suggest fast population increase up to carrying capacity, 'slow-trackers' that it remains low for a long period (Mulvaney and Kamminga 1999: 132–3). Human populations might well grow very fast. Discussing the hunter–gatherer occupation of North America, Diamond (1987) states that an annual growth rate of 1.4% will turn 100 people into 1 000 000 people *in one thousand years*. Birdsell (1957) calculates that a founder population of 25 people could saturate Australasia with 300 000 hunter–gatherers in 2204 years. Pennington (this volume) documents much

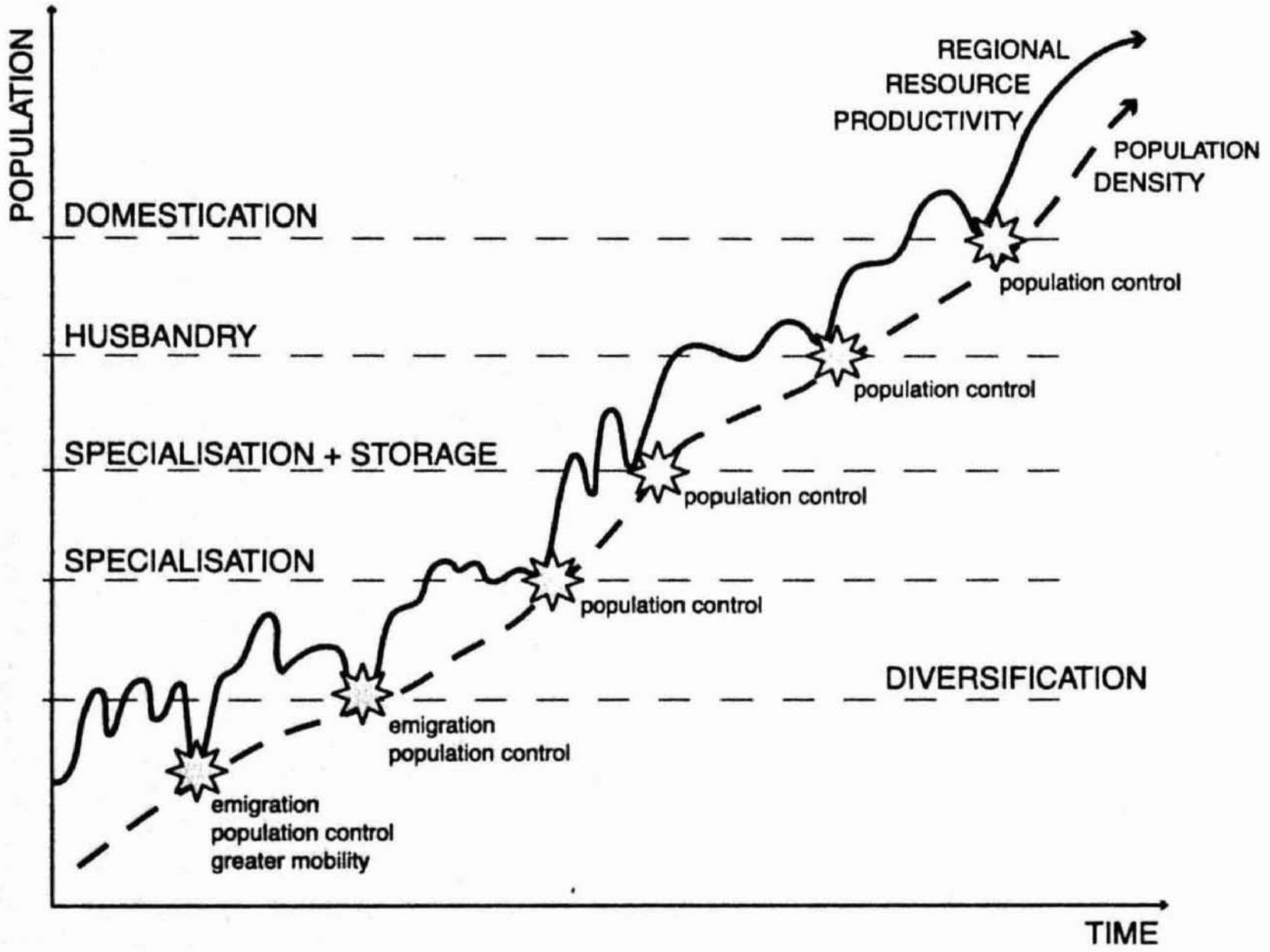

Figure 3.3. Population density, resource productivity, and resource-use strategies. (Redrawn from Zvelebil 1995, Fig. 2.)

variety in growth rate even within the small remaining sample of hunter–gatherers. Groups colonising new areas like the Baltic would probably have had rates of increase at or above the highest levels observed recently.

Faced with such figures, slow-trackers must explain why hunter–gatherer populations should increase only very slowly. Voluntary population control is usually suggested (Hayden 1972): people perceive that increased population means increased work, and therefore choose to keep their population well below carrying capacity by means of infanticide, etc. There are two difficulties with this. First, it is difficult to establish whether infanticide really has been very important among recent hunter–gatherers (Kelly 1995: 232ff.). Second, the suggestion runs counter to biological theory by treating the group rather than the individual as the unit of selection, by invoking 'cultural controls' as the means of decision-making. Individuals who ignored the 'controls' would however gain an evolutionary benefit by filling the underpopulated landscape with their descendants. Non-hierarchical OAS groups exercise little control over individuals and would not be able to police a slow-track demographic policy.

Social obligations are the other pressure sometimes invoked for increased production. Bender (1978) states that developing alliance networks are crucial; there is 'a direct link between evolving social institutions and increasing pressure on production' (1978: 213). This can transform an OAS group into a type 4 society: 'Surplus production involves delayed return: in response to the requirements of the alliance and leadership seasonally abundant foodstuffs and other material items will accumulate in quantities over and above immediate requirements' (ibid.). Under these circumstances 'clearly there is a pay-off in staying put and creating permanent storage facilities' (ibid.).

Directional and incremental change in social institutions is assumed, but there is no reason why alliances should become more complex and demanding through time. OAS groups in fact maintain some of the most complex alliance networks known to anthropology, and these are satisfactorily serviced without departure from OAS behaviour. The !Kung of Botswana maintain numerous part-

ners up to 200 km away in the exchange system known as *hxaro* (Wiessner 1982). In southeastern Australia people travelled hundreds of kilometres to attend gatherings at points of temporary resource abundance (McBryde 1984). Such activities fit well with the flexible organisation of these OAS groups and do not appear to cause directional change away from this. Social intensification *per se* does not therefore account for when and why some societies should become complex and others should not.

Hunter–gatherer complexity: the archaeological record

It has been argued above that the theoretical underpinnings of the progressivist view are not solid. The archaeological record of anatomically modern humans is now examined. There are six assumptions, often implicit, involved in the progressivist view, which are discussed in turn.

Assumption 1: There is a trend from simple to complex

It is often argued that aquatic resources are a late addition to the human diet. Binford (1991) states that 'Pleistocene people . . . , it is well known, favoured terrestrial resources' (p. 134); at the Pleistocene/Holocene boundary there was an 'aquatic resource revolution'; the appearance of logistic (type 2 or 3) strategies was dependent on this revolution, and on the development of transport technologies such as water transport and pack animals (p. 138).

Pleistocene marine strategies are hard to examine because the sea has risen >100 m since the last glacial maximum and has flooded most coastlines, but work in various areas has revealed aquatic interests. New Ireland (northeast of New Guinea) was occupied by 33 000 BP, requiring a sea crossing of *c.* 50 km (Allen *et al.* 1988). The Solomon Islands were occupied before 28 000 BP, requiring a voyage of over 130 km, involving sailing out of sight of land (Wickler and Spriggs 1988). Several sites have produced

marine fish and molluscs; these are in steep areas where the sea was never far away. The evident use of watercraft removes one of Binford's objections, and at 19 000 BP live marsupials were transported to New Ireland and released to found populations which could be hunted (Flannery and White 1991) – a delayed-return activity if ever there was one! On the Australian mainland marine evidence is available from at least 25 000 BP (Morse 1988), and it has even been suggested that the entire first occupation of Australia was coastally oriented (Bowdler 1977). In southern Africa marine resources were exploited still earlier. The shell midden at Herolds Bay is 125 000 years old (Brink and Deacon 1982). Many others are known, and marine foods may have played an important role in the evolution of modern humans (Parkington in press).

Binford's statement was heavily based on Europe, where evidence of marine exploitation is indeed concentrated in the post-glacial. However, some hints from the glacial period are found in areas of steep topography. Thousands of Upper Palaeolithic limpets come from the northern Spanish sites of El Juyo (Madariaga de la Campa and Fernández Pato 1985) and La Riera (Ortea 1986). Seal bones have been recovered from Nerja (Morales *et al.* 1998), Gorham's Cave and Altamira (Cleyet-Merle 1990), all in Spain. Bones of tunny were recovered from the Grimaldi caves in northwestern Italy, which suggests offshore boating, and occasional marine fish turn up elsewhere (ibid.). Artistic representations of marine fauna include the famous baton from Montgaudier, an inland site in southern France, which shows two seals (Figure 3.4). Seals may occasionally swim up rivers and be seen inland, but the Montgaudier specimens are well depicted and clearly engraved by someone who knew seals well. Under the nose of the leading seal is what is sometimes described as a salmon, but this is more likely to be a whale as it appears to have a spout above its head. Fish depictions are generally difficult to identify, but flatfish are exclusively marine and are shown at Mas d'Azil and Altxerri in the Pyrenees.

These cases do not of course demonstrate logistic strategies, but it is hard to see how hunter–gatherers could have survived in ice-age

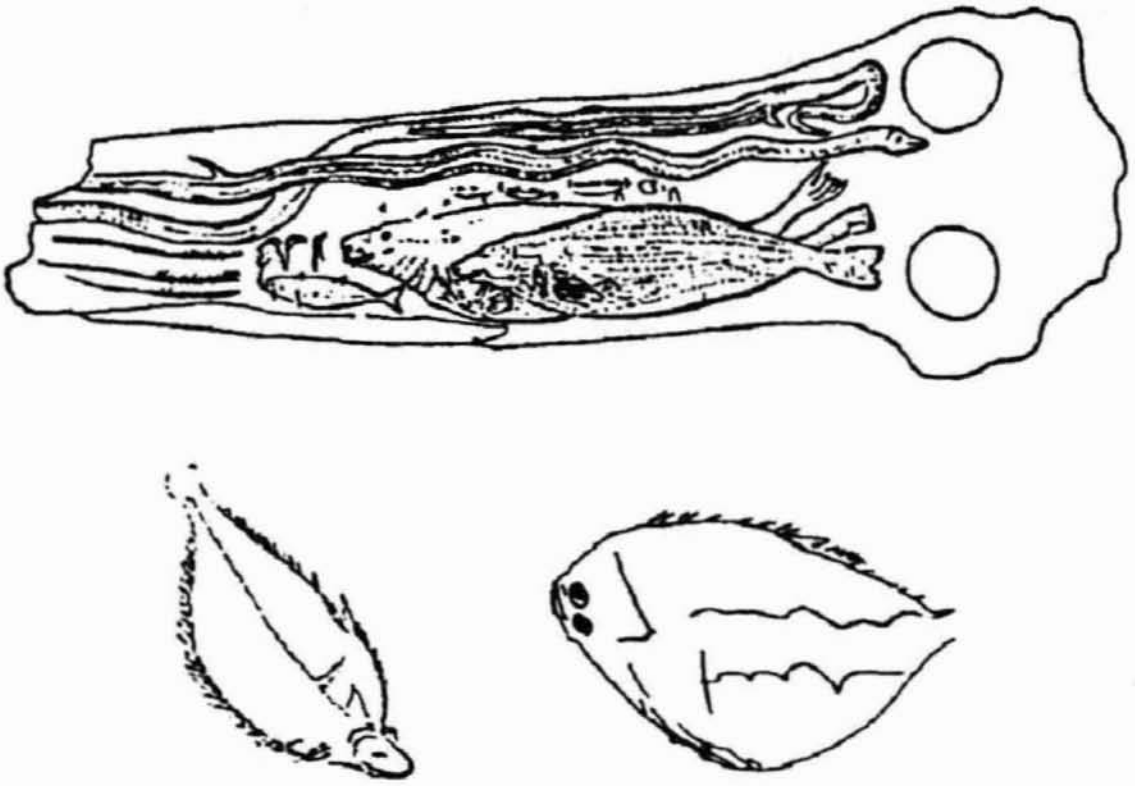

Figure 3.4. The Montgaudier baton (top), and the flatfish from Altxerri (left) and Mas d'Azil (right). (Redrawn from Cleyet-Merle 1990.)

Europe without them. Reindeer and salmon were the major terrestrial and aquatic resources, and ethnographically they are classic targets of logistic strategies. What could have prevented Upper Palaeolithic people from developing maritime adaptations? Specialised multi-component technology for hunting land mammals appeared by 30 000 BP (Knecht 1993), and recent dates on art reveal a complex ritual system just as early (Clottes 1999), so technological and ideological flexibility were evidently not lacking. There are some hints of coastal specialisation. Clustering of art sites along the north Spanish coast may indicate territorial groupings (Layton 1987), and marine shell ornaments predominate at Riparo Mochi in northwestern Italy but hardly penetrate inland (Stiner 1999). These examples suggest communities oriented towards the sea – but of whose territories we can only see a small part. Coastlines dating from the Pleistocene/Holocene boundary are above water in western Sweden and Norway due to isostatic rebound, and they have evidence of settlement. Neither the sites in Sweden (Schmitt 1995) nor those in Norway, some of which are

large and lie north of the Arctic Circle (Thommessen 1996), have preserved fauna, but they must be coastally oriented. Most of Norway was still under ice, with only islands and headlands available for settlement. This Arctic maritime adaptation must have been logistically organised.

This evidence is sufficient to indicate the likelihood of maritime adaptations during the Upper Palaeolithic, and the nature of the resources makes type 3 or even type 4 groups most probable. The only time we can examine a relevant coast (Norway and Sweden), settlement is demonstrated – and most glacial Atlantic and Mediterranean coasts would have been less demanding than this because of the presence of hinterland resources not available in Norway due to glacial coverage.

The postglacial however remains the accepted time that complexity emerged, in particular the later Mesolithic. Cemeteries are often late Mesolithic, and it has been argued that 'some sort of demographic threshold was crossed in some parts of western Europe at around 6500 years ago' (Clark and Neeley 1987: 124). Most cemeteries are however near the coasts, which is where we should expect them: the territorial groups that use cemeteries would appear in productive and reliable resource areas, which mostly means the coasts. Because earlier coasts are now under the sea, any earlier Mesolithic cemeteries would remain inaccessible. Europe does have one terminal Pleistocene cemetery, at Arene Candide in northwestern Italy, containing 20 individuals (Cardini 1980); this is an area where topography means that the shoreline has not moved far, and as at nearby Riparo Mochi there are many shell ornaments. This is a strong indication that complex groups may have existed elsewhere as well.

The hypothesis that cemeteries result from demographic increase must be examined against evidence in other areas. In the Murray Valley in southeastern Australia cemeteries are known as early as 13 000 BP (Pardoe 1988) – some 40 000 years after the first colonisation of Australia. In North Africa a series of late glacial cemeteries (Wendorf 1968, Lubell *et al.* 1984) postdates modern human occupation by maybe 100 000 years. In the Mississippi Valley however the logistically organised Dalton culture used cemeteries as early as

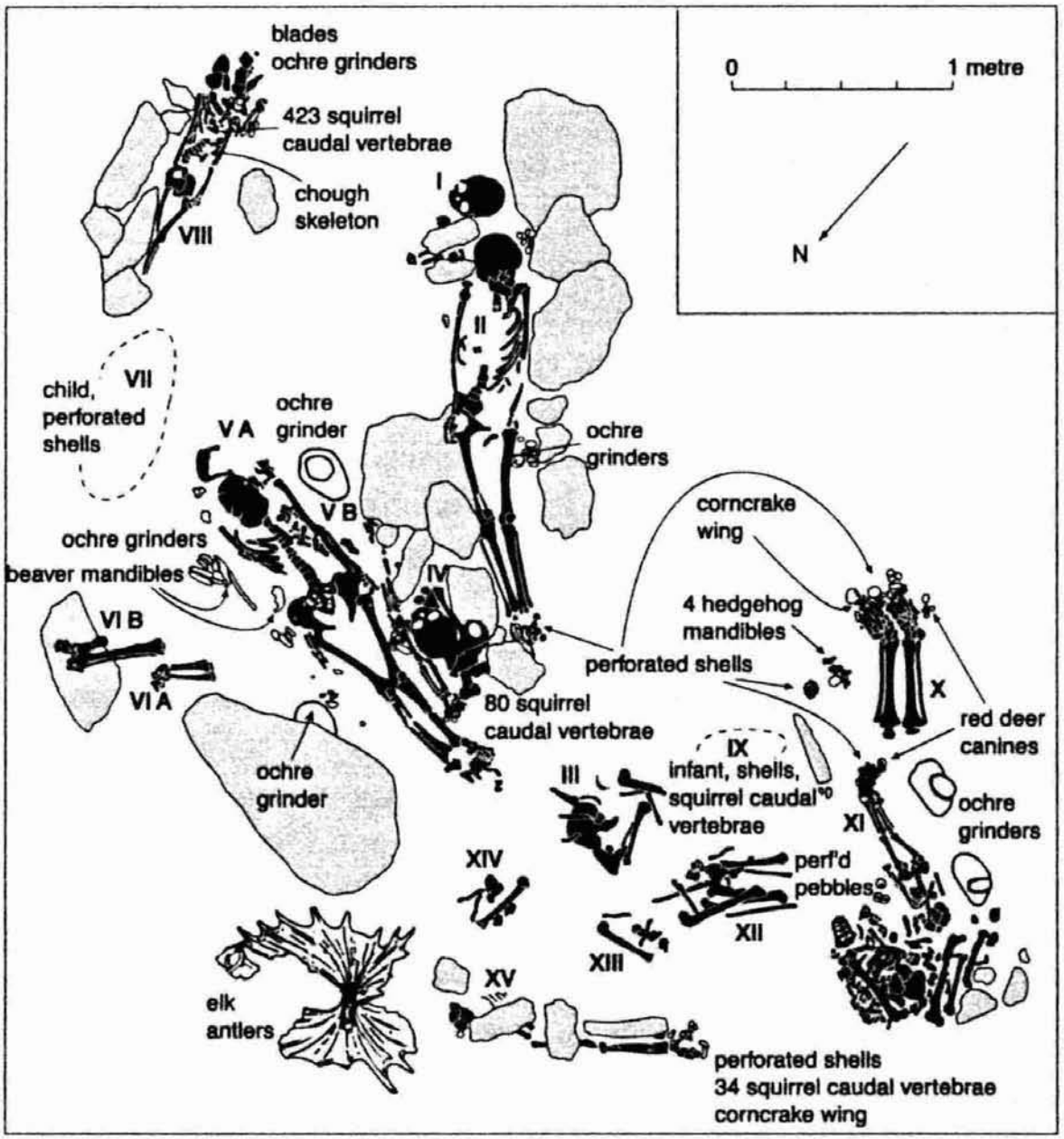

Figure 3.5. Plan of the terminal Pleistocene cemetery from Arene Candide, Liguria, Italy. Positions of some grave goods marked. (Redrawn from Cardini 1980, Fig. 2.) (Published by kind permission of the Istituto Italiano di Paleontologia Umana.)

10 750 BP – just 750 years after the first occupation of the region (Morse *et al.* 1996). Such hugely diverse time-lags argue strongly against the demographic steamroller.

This evidence from around the world demonstrates much Pleistocene interest in marine resources (contra Binford, above). Much evidence is distorted by coastal loss, but enough remains from Norway to New Ireland to make the case for type 3 groups in many areas (see also Kuhn and Stiner, this volume). There is no archae-

ological evidence that hunter–gatherers display an inherent trend from simple to complex.

Assumption 2: Only simple groups were present among early anatomically modern humans

This assumption is virtually ubiquitous, but caution is suggested by the arguments based on Mesolithic cemeteries. Skhul and Qafzeh caves in Israel, both around 90 000 years old, contain 10 and 18 skeletons of modern humans respectively. If they are cemeteries their implications for territoriality should not be ignored because of their antiquity.

Gargett (1999) has argued that the Qafzeh assemblage is a natural accumulation of skeletons rather than deliberate burials, because the skeletons are fragmentary, incomplete and disarticulated, and there are no clearcut grave pits. However, the number of individuals is more than could accumulate by chance, and Gargett does not consider whether these anatomically modern people might also have been behaviourally modern. Disarticulation and breakage are common in cave cemeteries, and grave pits are often unnecessary. At Arene Candide, Cardini states that:

> Some of the inhumations were inserted directly into modest natural depressions formed between the tumbled blocks from the overlying deposits, others appeared to be protected both by these same blocks already present in the deposits and by the deliberate placing of other lumps or slabs of limestone, which in a few cases encircled the inhumation and in others partially covered it. Many graves were disturbed or completely destroyed by the placing of subsequent burials, with the consequent dispersal of the bones. Only in a few cases . . . do we observe a deliberate placing, something like a secondary deposition of groups of bones coming from previous disturbed inhumations. (1980: 13, my translation)

This disturbance appears similar to that at Qafzeh, but Arene Candide is an indubitable cemetery replete with grave goods and ochre (Figure 3.5); utilised ochre was also found associated with one of the Qafzeh skeletons (Vandermeersch 1969).

Much more information is needed regarding the behaviour of early modern humans. In the meantime we cannot dismiss the

possibility of complexity merely because it is 'too early'; this should be investigated, not assumed in advance.

Assumption 3. Change towards complexity occurs slowly

Archaeologists often assume that a trend towards complexity occurs slowly over the long term, perhaps millennia. Archaeological evidence however suggests that such changes can take place much faster when the opportunity arises.

A good example comes from southern Scandinavia. Late Mesolithic coastal settlements have long been taken to indicate complexity (Rowley-Conwy 1983), but the middle Mesolithic was little known because sea level rise had flooded contemporary coastlines. Underwater archaeologists have recently examined these coastlines and put archaeological developments into ecological context. The rising sea crossed the −27 m threshold into the present waterways at 7000 BC (Figure 3.6), and due to flat topography much land was then flooded very rapidly. As soon as sea levels began to stabilise, indications of complexity appeared in the form of large semi-sedentary settlements, cemeteries and large fish traps. The chronology of these (Figure 3.6) shows no time-lag; within the limits of dating resolution they appear immediately.

Other examples have already been mentioned. The Dalton culture in the Mississippi Valley was logistically organised and used cemeteries less than a millennium after people first arrived in the area (Morse *et al.* 1996). The rapid logistically organised occupation of the Norwegian coast occurred as soon as the retreating glaciers had exposed the islands and headlands (Thommessen 1996). Thus complexity may appear rapidly in response to environmental opportunities. This does not support the suggestion that complexity emerges slowly as the endpoint of internal development.

How rapid can responses be? These archaeological examples suffer from the imprecision of our dating methods – uncertain by at least the standard deviation of a radiocarbon date. Various anthropological studies have provided tighter resolution. The Mbaka of central Africa, formerly OAS-type hunter–gatherers, settled down to become farmers and rapidly developed a hierarchical wealth-

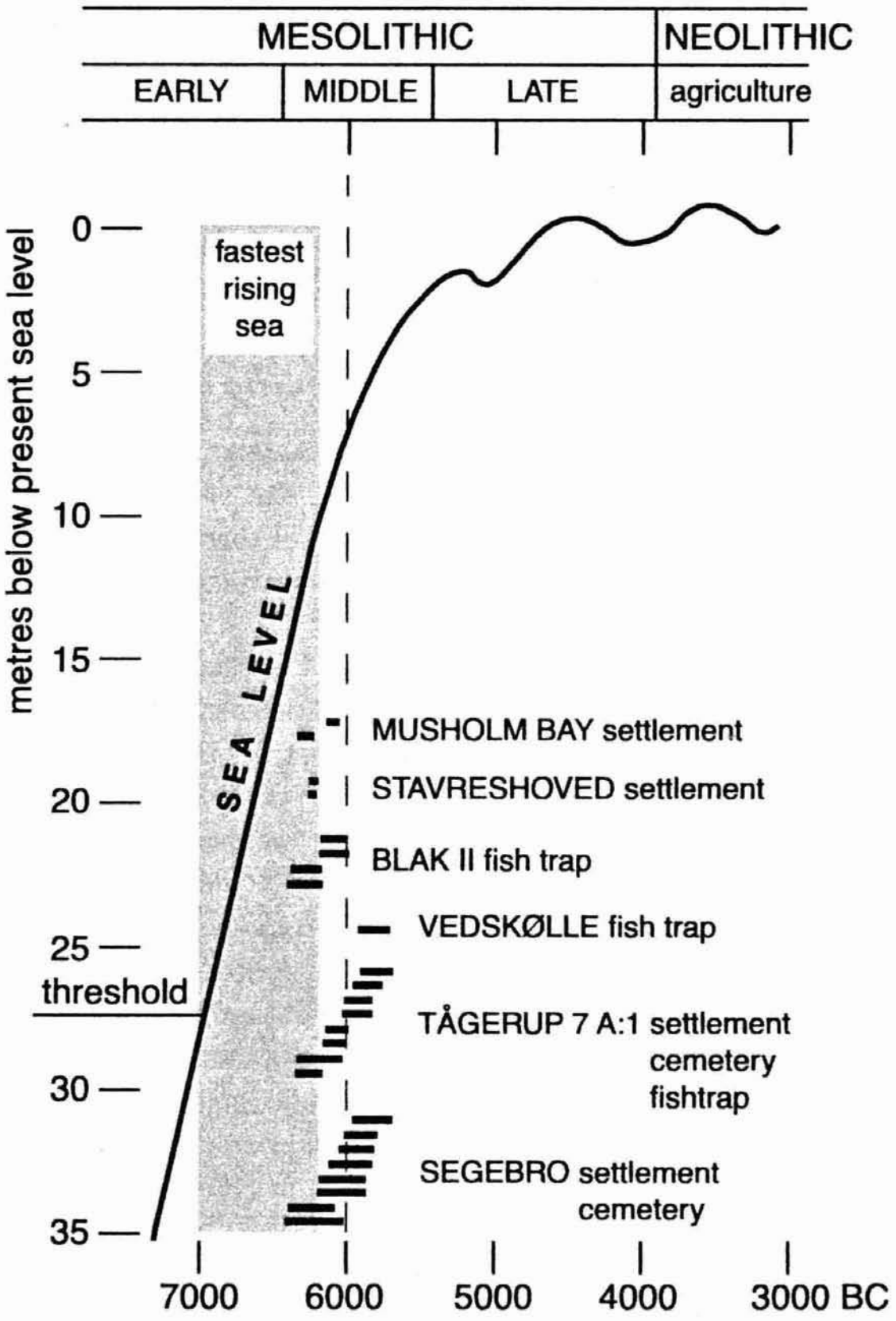

Figure 3.6. Sea level rise and hunter–gatherer complexity in southern Scandinavia; black bars are calibrated radiocarbon ages. The −27 m threshold is the level at which the southern Scandinavian waterways began to be flooded. (Sea level curve from Christensen *et al.* 1997, Fig. 2; Musholm Bay from Fischer and Malm 1997; Stavreshoved from Fischer 1997*a*; Blak II from Sørensen 1996; Vedskølle from Fischer 1997*b*; Tågerup from Andersson and Knarrström 1997; Segebro from Larsson 1982.)

based society – 'not due to imitative processes, but to the requirements of their new activities' (Meillassoux 1973: 197). Aboriginal groups near Lake Eyre oscillated between type 3 territoriality and storage in productive years, and OAS-type sharing and flexibility in lean years (Layton *et al.* 1991: 258–9). This suggests that archaeologists should not view 'social factors' as rigid and inhibitors of change, particularly among hunter–gatherers.

Assumption 4. Change towards complexity is irreversible

The progressivist view that complex groups appear towards the end of hunter–gatherer history carries with it the assumption (often implicit) that agriculture is the next 'stage' of directional development. From this perspective, change towards simplicity is unexpected – but it is far from uncommon.

A good example comes from Labrador, Canada. The Maritime Archaic tradition began about 7500 BP. Numerous settlements are known, such as Aillik (Figure 3.7). The Aillik sequence starts at 6000 BP with structures 6 and 7, and ends at 4300–3600 BP with structure 2, a 28-metre longhouse. This is by no means the largest: Nulliak Cove has 27 longhouses, some measuring 100 metres in length – though all were not occupied at once. The Aillik specimen has seven or more compartments each of a size appropriate for a nuclear family, and about 10 stone-lined storage pits around it; this may indicate storage by the individual families (Fitzhugh 1984). These longhouses were probably foundations for tents, suggesting seasonal occupation in summer. The large aggregation size means that 'some kind of social mechanisms for organizing large groups (for example, leadership hierarchies) may have been in operation' (Hood 1993: 170). This level of social integration disappeared at the end of the Maritime Archaic tradition, which overlaps chronologically with the immigrant Paleoeskimo responsible for structure 1 at Aillik (Figure 3.7).

The demise of other apparently complex adaptations is also documented. Late Palaeolithic occupants of the lower Nile Valley may have smoked and stored large numbers of catfish; the environment was stable and productive and sites quite large (Vermeersch *et*

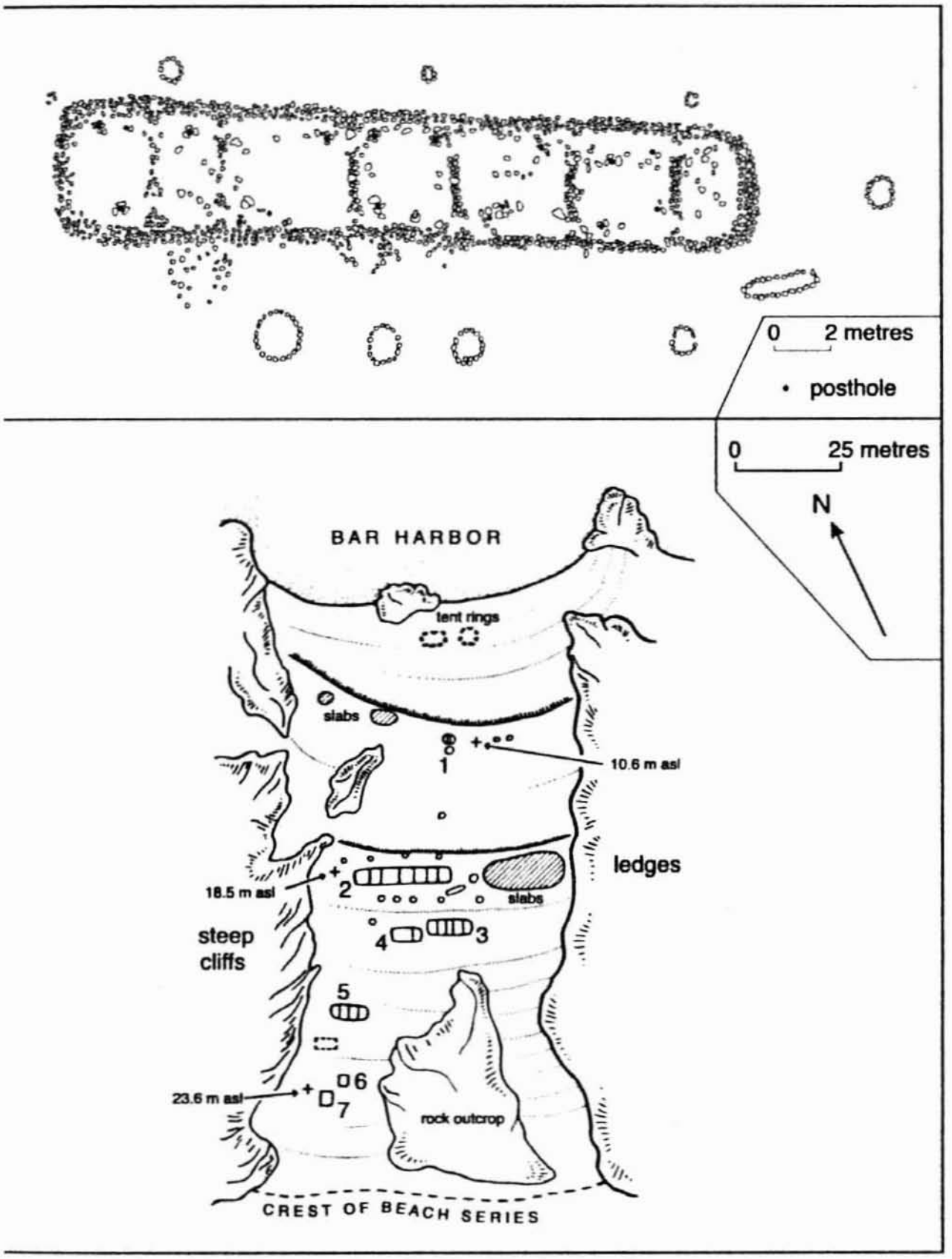

Figure 3.7. Aillik, Labrador, eastern Canada. Bottom: plan of the cove, showing the raised beaches and structures (m asl = metres above sea level). Top: enlarged plan of structure 2. (Redrawn from Fitzhugh 1984, Figs. 1 and 2.)

al. 1989: 111). The 'Wild Nile', a period of high and violent floods starting at 11 500 BP, brought this to a close, and the valley was apparently abandoned until 8000 BP. Thus 'for the inhabitants of the lower Nile Valley, the Pleistocene–Holocene transition would seem to have been an unmitigated disaster' (Close 1996: 54). In the Mississippi Valley, the cemeteries and logistic adaptation of the Dalton culture ended at 10 000 BP, to be followed by an OAS group (Morse *et al.* 1996).

Archaeology therefore provides sufficient examples to demonstrate that change can go either way: simple to complex, or complex to simple. Directional change towards incremental complexity is not supported by the empirical record.

Assumption 5. Change towards complexity is a step towards agriculture

This assumption is often explicit. An argument that complex hunter–gatherers in southern Sweden at 4400 BC were not developing towards agriculture (Rowley-Conwy 1998) has been criticised by the editors of the volume in which it appeared! 'Rowley-Conwy is wrong . . . Even though the movement of agriculture across central Europe at 4400 BC was a coincidence unrelated at that point to the lives of south Scandinavian hunter–gatherers, *they were soon to feel its impact* . . .' (Zvelebil *et al.* 1998: 2, added emphasis). This endows the hunter–gatherers with 20–20 foresight, as well as a curious desire to 'get ready' for the arrival of farming on the opposite side of the Baltic Sea – over 100 km away. Farming did not actually appear in southern Sweden until 1500 years later. Another clear statement comes from Hodder (1990), who argues that a major step towards agriculture was the 'domestication of society'. This was essentially the appearance of a hierarchical delayed-return organisation that Hodder terms 'the domus' (from the Latin word meaning 'home'). After this, domestication occurred: 'it was through the domus that the origins of agriculture were thought about and conceived . . . The domus became the conceptual and practical locus for the transformation of wild into cultural . . . [and]

provided a way of thinking about the control of the wild . . .' (Hodder 1990: 38–9).

To what extent are complex hunter–gatherers potential agriculturalists? In both northern Europe and eastern Turkey, such groups were probably sedentary and collected nuts; wild cereals grew in neither area. Domestication claims are based on pigs: there are many juveniles in the archaeological assemblages, and this is believed to result from domestic culling patterns (Zvelebil 1995, Hongo and Meadow 1998, Rosenberg *et al.* 1998). But is a juvenile age structure likely to indicate domestication? Large sedentary hunter–gatherer groups would increase hunting pressure, and this can lead to a more juvenile kill without any domestication being involved (Elder 1965). The hunting of juveniles can markedly *increase* the wild population, even though this seems counter-intuitive to Western notions of sportsmanship. This is shown for moose in Figure 3.8. (Grenier 1979). The effect will be even more marked in pigs because of their multitudinous offspring. Many juveniles in an archaeological pig population is probably not about domestication; it is simply about hunting more pigs.

It is refreshing to examine the best-researched complex hunter–gatherer tradition known to archaeology, and see how it has dealt with agriculture. The Jomon of Japan comprises mainly type 3 or 4 groups which lasted from the late Pleistocene until the first millennium BC (Imamura 1996). Many large sites are known, including coastal shell middens and inland villages, and houses are substantial (D and E in Figure 3.9). Sedentary occupation has been demonstrated via shellfish (Koike 1980) and fish (Akazawa 1981). Salmon was a major quarry, involving a logistic strategy and storage (Matsui 1996). In the interior, storage pits for nuts are large and common (Imamura 1996 pp. 104–6). Some still contain nuts; the oldest of these is from Higashi-Kurotsuchida, dated to 11 300±130 BP (Miyaji 1999). There are many cemeteries, and society may have been hierarchical (Kobayashi 1992). This led to early suggestions of agriculture (e.g. Kamikawana 1968), but a great deal of subsequent work has demolished this claim; suitable plants are in fact absent (Imamura 1996: 106–9). Agriculture

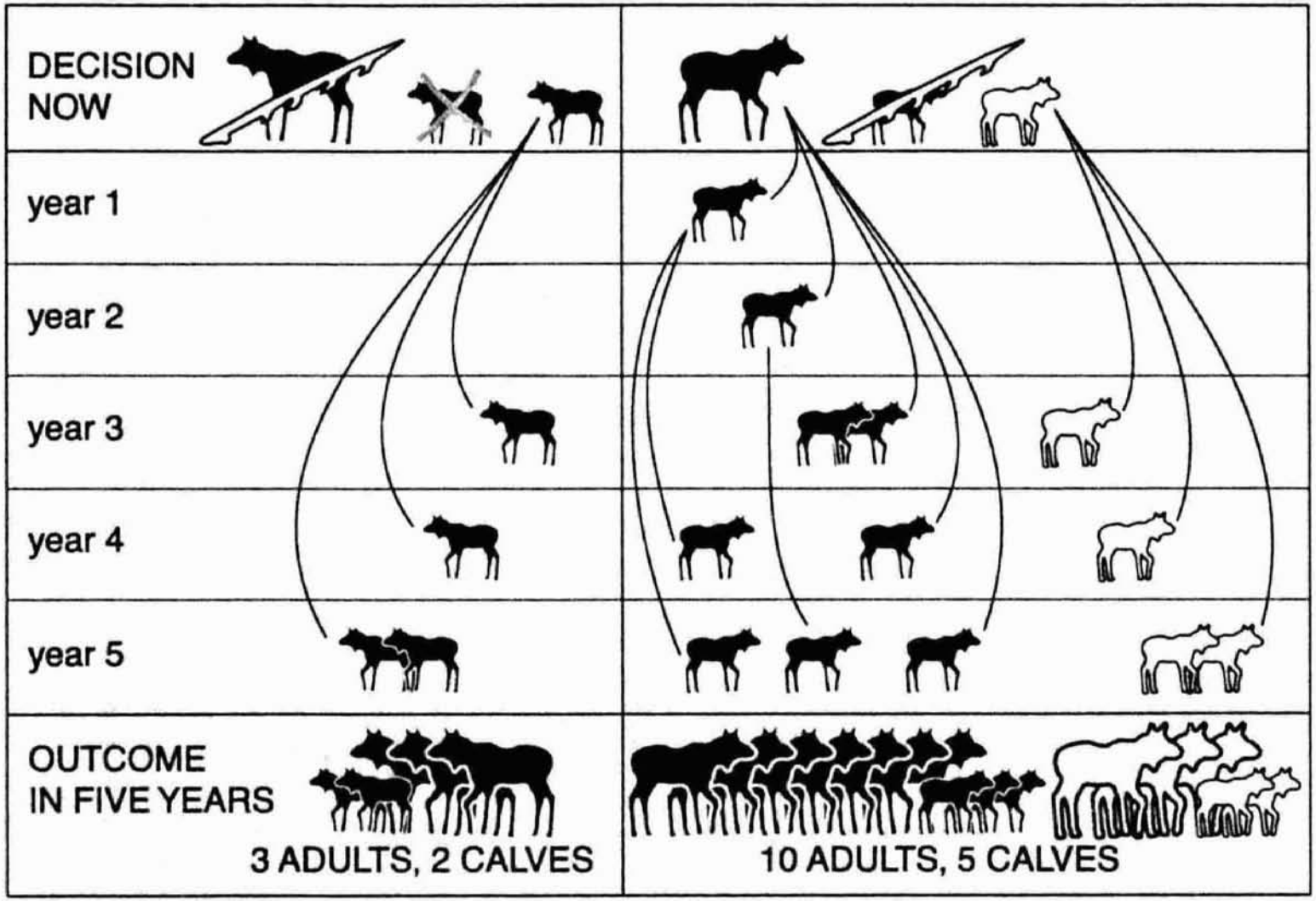

Figure 3.8. Effect of hunting choice on a moose population. Encountering a female and two calves, a hunter may kill the adult; on average one calf will die without the protective female, while the other and its progeny total five animals after five years. Alternatively the hunter may kill a calf, in which case the adult female continues to breed, as does the other calf, producing 15 animals after five years. (Modified from Grenier 1979, Fig. 2.)

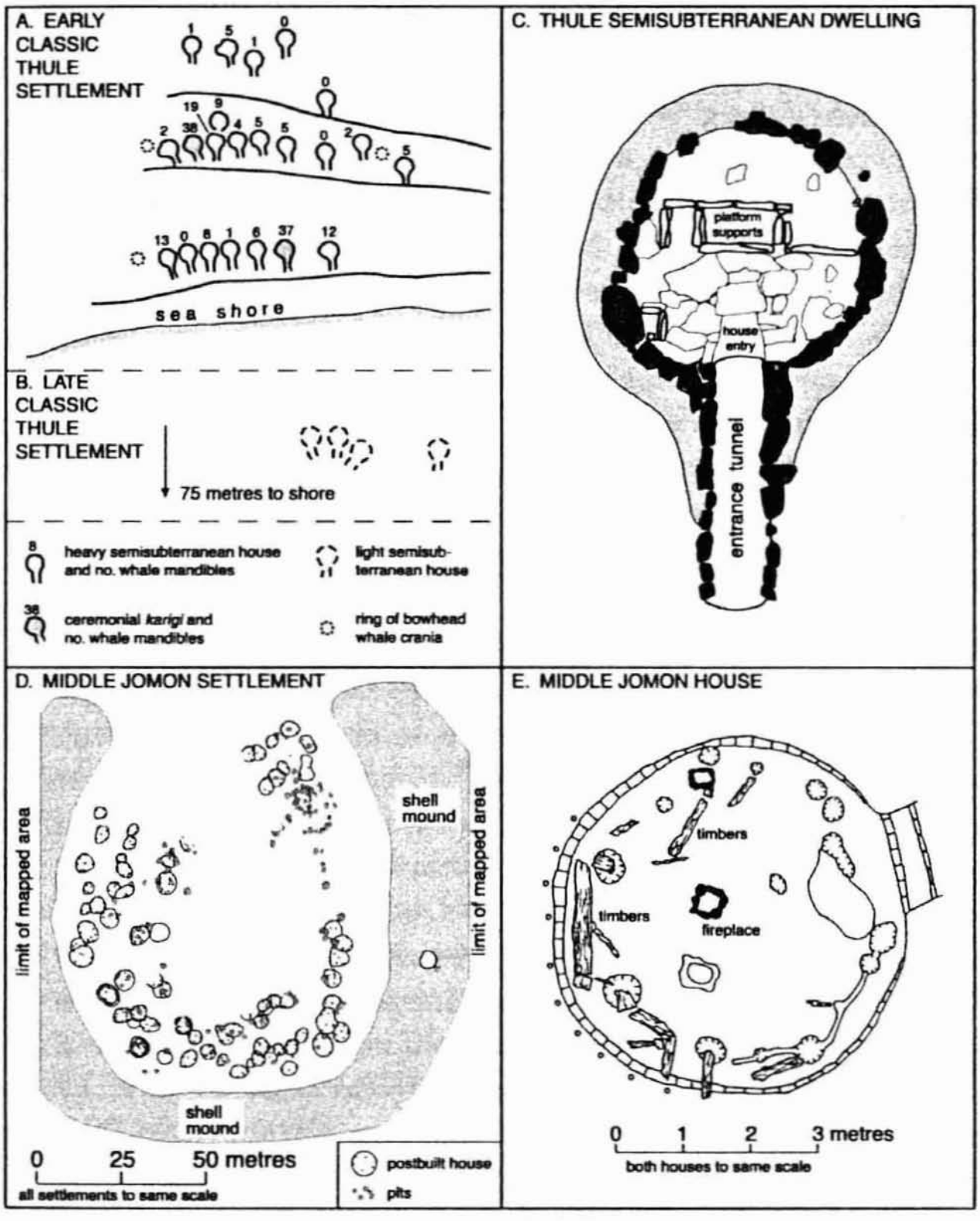

Figure 3.9. Settlements and houses. A–B: Early and late Classic Thule Inuit settlements at Creswell Bay, northern Canada. (Redrawn from Savelle 1987, Figs. 87 and 90b). C: Early Classic Thule winter house. (Redrawn from Dumond 1977, Fig. 111). D: Middle Jomon shell midden at Takane-Kido. (Redrawn from Barnes 1993, Fig. 28). E: Middle Jomon house from Idojiri. (Redrawn from Aikens and Higuchi 1982, Fig. 3.31). In A, B and D not all houses need have been occupied at the same time; four building phases are represented in D.

arrived from the Asian mainland in the first millennium BC, when domestic pigs appear (Nishimoto 1994). The Jomon was not 'getting ready' for this to occur; in most areas of Japan population was decreasing in the period before this. Only in the northeast, the last area to go agricultural, was population increasing (Koyama 1978).

Eight thousand years of complexity did not lead to an indigenous Jomon agriculture. Jomon studies have freed themselves from this predestination, so groups can be examined for their own sake – not for what they might become.

Assumption 6. The most interesting hunter–gatherers are those who became farmers

Natufian type 3 or 4 groups inhabited the Near East for 3000 years before the emergence of agriculture. They collected wild grass seeds. The idea that this activity is a prelude to agriculture is widespread. Arguing for autochthonous intensification in Australia, Lourandos (1983: 92) describes 'the process being nipped in the bud by the coming of the Europeans'; but as grass seeds were being collected there before 25 000 BP (McConnell and O'Connor 1997) one may ask how much longer one would have had to wait. Harlan (1989) argued that modern African seed collection with beating baskets was a prelude to domestication, but this collection method causes no genetic change in the grass (Hillman and Davies 1992); wild sorghum has been collected in Africa since at least 8500 BP (Magid 1995), so collection evidently need not lead to domestication. The belief that seed collectors were proto-agriculturalists led to the Wadi Kubbaniya fiasco, where domestic barley, lentils and chickpeas in contexts dated to 18 000 BP were uncritically accepted as evidence of Palaeolithic agriculture (Wendorf *et al.* 1982). These items all proved to be misidentifications or recent contaminants (Hillman *et al.* 1989).

So was the Natufian in any sense pregnant with agriculture? Claims of Natufian domesticated cereals have proved groundless (Legge 1986), and the collection of wild cereals at Abu Hureyra

decreased through time (Hillman *et al.* 1989). Wild wheat and barley were collected by 19 000 BP in the Near East (Kislev *et al.* 1992), so here too there was a very long lead-in time. Wild grass seed collection is by no means restricted to complex groups. In Keeley's (1992) survey of 93 ethnographic hunter–gatherer societies, complexity and wild grass seed collection revealed no correlation whatsoever.

There was therefore nothing about the Natufian that made agriculture inevitable. Agriculture appears to have resulted from the meshing of a series of unrelated factors of which the Natufian delayed-return economy was only one; climatic change and plant genetics were just as crucial (Hillman 1996). Had these factors not all come together, the Natufian might have continued hunting and gathering indefinitely.

The Arctic is the area that all hunter–gatherer archaeologists should know about. The impossibility of agriculture in the Arctic is an antidote to theories of its inevitability elsewhere. Groups may use ceramics and ground stone (Gusev *et al.* 1999) without being suspected of Neolithic activities. Thule Eskimo in the central Canadian Arctic were presented with a remarkable opportunity around AD 1000: a warming climatic trend meant less sea ice, and an increase in bowhead whales. Thule Eskimo actively hunted these; even juveniles weighed up to 10 tons (Savelle and McCartney 1991). This practice led to the construction of villages as large and as sedentary as those of the Natufian (Figure 3.9A), consisting of many heavy semisubterranean houses built of whalebones, stone and turf and equipped with a coldtrap entrance tunnel (Figure 3.9C) – though not all houses need have been occupied at once. Ceremonial *karigi* houses and circles of whale crania appear. Sites are quite far apart, with smaller camps and storage locations in between them, indicating a logistic strategy with a large logistic radius (cf. Figure 3.1) (Savelle 1987; Savelle and McCartney 1988). Of all the type 3 and 4 groups described here, this is probably the most remarkable. A cooling trend from AD 1200 decreased bowhead whale availability; settlements became smaller, houses less permanent, and *karigi* and whale skull circles ceased being constructed

(Figure 3.9B). After AD 1600 further cooling decreased whale availability even more. At European contact the Netsilik people in the area used many short-lived settlements to exploit sequentially available resources. They were among the least storage-dependent of any Inuit groups (Balikci 1970) and so most closely approached the OAS.

Agriculture could never have been an outcome of Thule complexity; but had such a spectacular archaeological manifestation occurred anywhere else in the world it would surely have been suggested.

Conclusions

There is no directional trend among hunter–gatherer societies. Numerous examples reveal complexity coming and going frequently as a result of adaptive necessities. The adaptationist view cannot be reconciled with progressivist theories, whether demographically or socially based, but is in stark opposition to them. Most hunter–gatherers who became farmers have done so as the result of stimuli from agricultural neighbours. Hunter–gatherers with no agricultural neighbours originated agriculture very rarely, perhaps only three or four times – empirical evidence for the low likelihood of such an event occurring. Most hunter–gatherer historical trajectories would never have resulted in agriculture had that way of life not impinged on them from the outside.

In 10 000 years agriculture and its outcomes have come to dominate the world. Agricultural economies, despite catastrophes and reversals, can usually be intensified: new animals can be domesticated, ploughs can be made more effective, locally adapted crops such as oats can be added, animals can provide traction and other secondary products, transport and redistribution systems can be improved, pests controlled, industrial fertilisers produced, and crops genetically modified. Hunter–gatherer economies were not like this. Salmon, nuts, reindeer or grass seeds cannot be intensified indefinitely; the limits to growth will be reached unless domestication follows.

If the Original Affluent Society is not 'original', what is it? Archaeologists have often regarded terroriality, rigid group membership and social hierarchy as stepping stones from the OAS towards ourselves, but these features are all found among chimpanzees. From this perspective the flexibility, mobility and social equality of the Original Affluent Society may be the most remarkable and specialised social form that humans have ever evolved. It has no claim to be the original human condition.

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