# The Paleolithic-Mesolithic Transition

Marcel Otte

**Abstract** An historical approach to the study of Paleolithic cultural evolution considers it a long sequence linking universally relevant events that lead to change in human behavior. However, a more general approach reflects the role of human awareness—an ongoing and increasingly intensive factor for behavioral change—as shown, for example, by the independent invention of agriculture in different parts of the world.

The most important of these "developmental phases" concerns what has been considered by some archaeologists to have been the "optimal" adaptation of hunter-gatherers to their environments (see Sahlins, 1972 and subsequent debate). In Europe, Asia, and North America, this is particularly evident during the Late Glacial period, but other examples exist elsewhere in the world and from both earlier prehistoric periods and modern hunter-gatherer groups (e.g., the Khoi San, Amazon, and Polynesian tribes) (Cziesla, 1992; Conte, 2000; Deacon and Deacon, 1999). In this developmental phase at the end of the Paleolithic, technological culture is characterized by the geometrization of microliths made on bladelet segments, and the generalized use of the bow and arrow. Yet, on a metaphysical plane, the transformation is much stronger: human representations show man in narrative scenes and in action, dominating animals and nature, well before domestication (e.g., in British Columbia). With respect to subsistence economy, the range of fauna hunted is much broader than during the Paleolithic, and plant food resources broaden as well, making it possible to lead to sedentism prior to the adoption of agriculture (e.g., Natufian, Capsian).

**Keywords** Settlers • Hunters • Sociology • Religion • Evolution

## Introduction

There are only a limited number of processes proposed by archaeologists to account for or explain the forms of transformation during the Paleolithic. The first makes reference to the evaluation of the degree of cognitive *capacity*, as has been applied to the Lower to Middle Paleolithic transition. The second concerns the *accomplishment* or *realization of capacities* applied to comparison of the expression of different Upper Paleolithic cultures (Gravettian-Solutrean in Europe, Clovis in North America, or Wilton in Africa). The third category combines these two types of processes applied to the Middle to Upper Paleolithic transition. All three kinds of processes take place within environmental contexts that permitted the choices that were made, without being deterministic: cultures vary much more than climates and biotopes.

The transition from the Paleolithic to the Mesolithic belongs to the third category. In our view, this is the most significant transition that occurred in human history; not only was it universal in scope (as if it were "contained" within the human spirit), but it was also the basis for the subsequent Neolithic food producers (Bar-Yosef, 1983, Cauvin,

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**Fig. 1** Introduction. *Left*: Lepenski Vir head (Serbia) (after Gimbutas, 1991). *Right*: divinity statuette (Polynesia) (after Collective, 1972)

1978; Valla, 1988). Moreover, this transition can be observed, even today, in different parts of the world. It combines both changes in cultural aptitudes and adaptation to dramatically changing climatic conditions. We consider that this phase more particularly corresponds to a radical change in the structure of thinking, in which humans developed an entirely different view of their relationship to nature. Some examples presented here will illustrate this phenomenon (Fig. 1).

## Chronology

The dating of this transition begins with the chronological patterning in which the Paleolithic always precedes the Mesolithic, as if the Mesolithic in each area of the world developed from the Paleolithic. We also note the much shorter duration of the Mesolithic period in comparison with the Paleolithic—also apparently in all regions of the world. In consequence, the evaluative *rhythm* followed by the succession of cultural traditions appears to be much more elevated during the Mesolithic than during the Paleolithic; even during the Epi-Paleolithic—its final phase. This phenomenon may be due to a demographic increase—itself caused by new ways of life—or the development of denser exchange networks during the Mesolithic than previously. Because the developmental phases of the Mesolithic are both more rapid and more clearly separated, it is thus possible to distinguish them with greater facility than for those of the Paleolithic.

This chronological uniqueness, in relation to Paleolithic traditions often lasting several thousands of years, did not take place everywhere at the same time, but the approximate equivalents can be observed. For example, in Europe, a chronological gradient is observed from southeast to northwest, in which this transition took place from the 8th millennium BC (in the southeast) to the 4th millennium BC (in the northwest), depending on the adaptation rates of the food-producing ways of life that followed. In the Near East, this transition begins earlier, during the 12th millennium BC (the "Natufian"), and is quickly replaced by the Early Neolithic which developed directly from the preceding Natufian (in contrast to Europe). The schema is fairly similar in North Africa, with the Capsian. But, in our view, in the modern world, entire regions still practiced what could be considered to be "Mesolithic" ways of life until the first European contacts: British Columbia, South Africa, Amazonia (Lavallée, 1995; Deacon and Deacon, 1999) (Figs. 2 and 3).

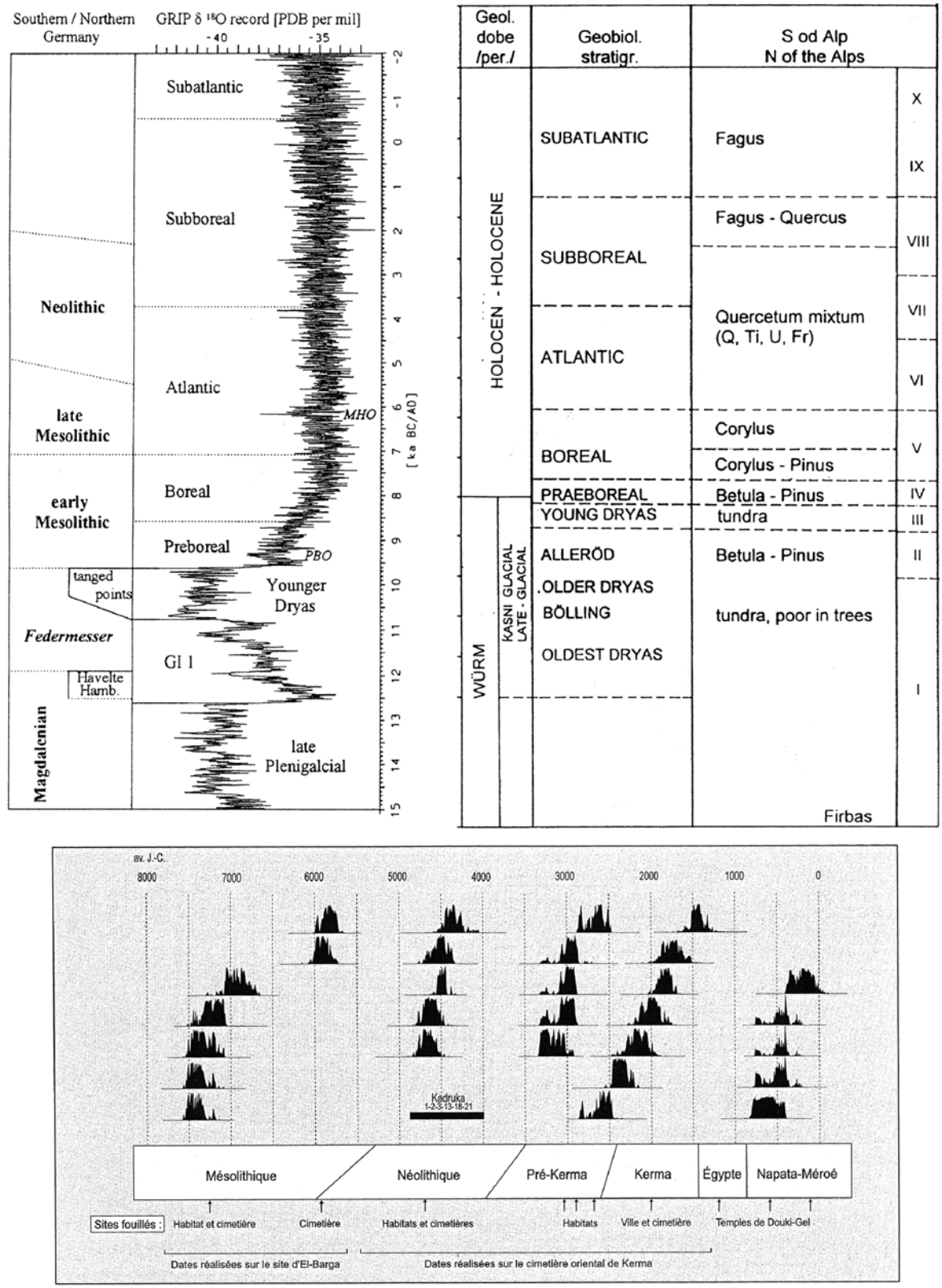


**Fig. 2** Chronology. *Top left*: (after Johnsen et al., 1997 and Jöris and Weninger, 2000, in Street et al., 2001). *Top right*: (after Alojz Sercelj, 1996). *Bottom*: (after Honegger, 2005)

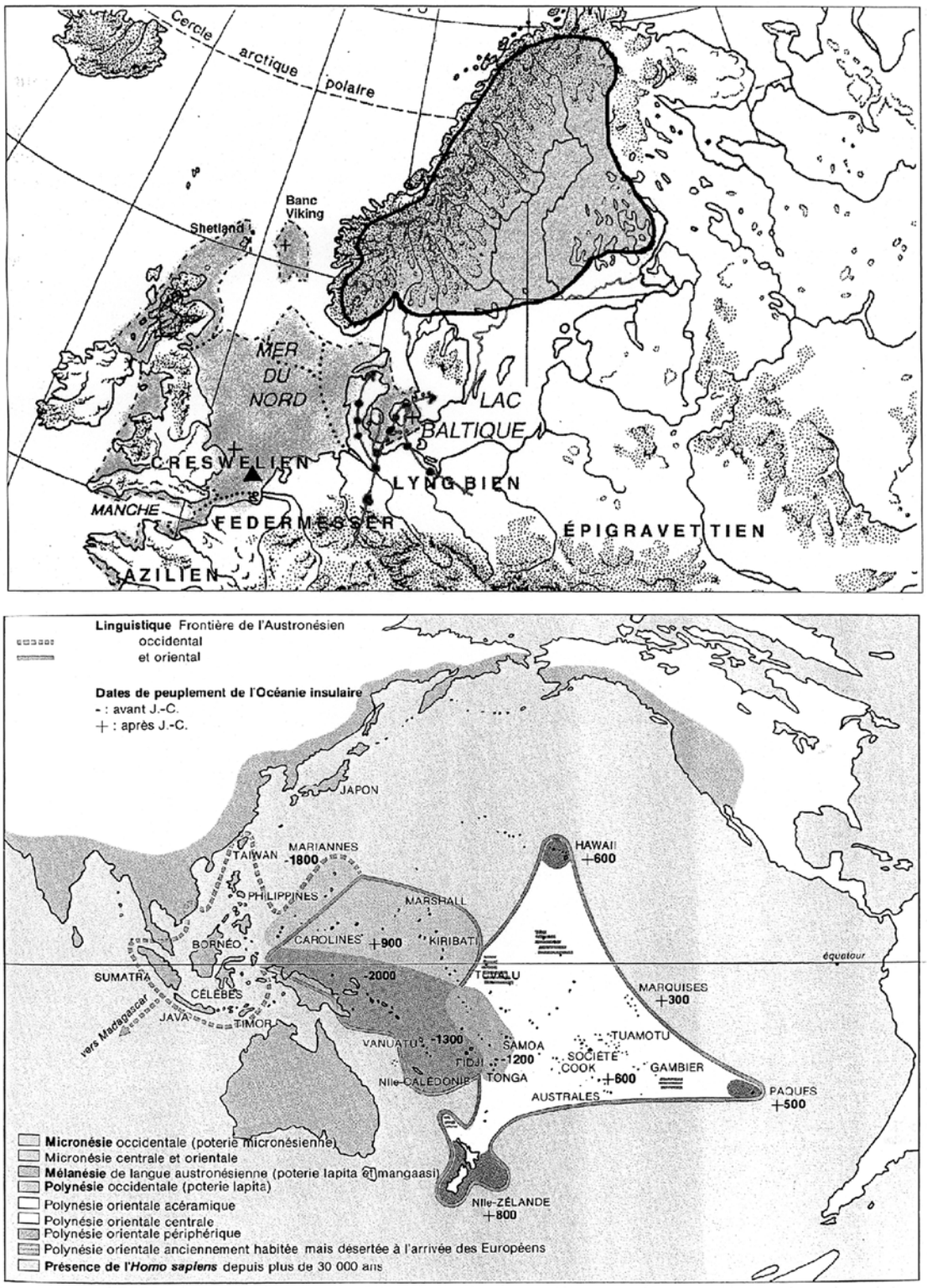


**Fig. 3** Extension. *Top*: European population distribution (after Plumet, 2004). *Bottom*: Oceanic population distribution (after Conte, 2000)

## Environment

In a general manner, the Paleolithic-Mesolithic transition also corresponds to significant changes in climate—the transition from dry and cold conditions to more temperate and humid environments that were more variable. It is difficult to determine a cause-effect relationship between cultural factors and ecological conditions, even less so since certain populations seem to have preserved their Paleolithic values and ways of life nearly until modern times (e.g., Australian Aborigines, Pygmies, Inuits). Even in the archaeological record, we observe this Paleolithic persistence, continuing in parallel with Mesolithic innovations (Central Africa, South America, China). Thus, we can argue that the ecological context of the Late Glacial and Post-Glacial *permitted* the transition to the Mesolithic, but was not deterministic—an argument that can be applied to all of human history. In addition, these climatic changes occurred innumerable times during the Paleolithic without significant cultural changes comparable to the development of the Mesolithic. With R. Braidwood, who alluded to the emergence of the Neolithic, we have to accept, although fairly vaguely, that humanity "was ready" and that climatic change served only to accentuate a trend that was, in any case, inevitable.

The transition was also dramatic on a geographic scale. The global rise in sea level led to the alteration of coasts that now penetrated deep into formerly terrestrial territories (Fischer, 1995). New aquatic resources became available and new settlements were thus installed near coasts and along rivers. This, in turn, led to considerable demographic change because, apart from seacoasts, the rise in precipitation also created lakes, increased the size of estuaries, and led to the compartmentalization of landscapes by the expansion of hydrological networks. The human-nature relationship was thus profoundly marked by aquatic environments.

## Techniques

For the archaeologist, the most easily accessible data are relevant to technology. This indirectly evidences the universality of changes in thought processes, oriented in the same sense across the globe regardless of context—the transition was simultaneously, global, fundamental, and irreversible. The general tendency is toward the diminution in blank size, which changes from Paleolithic blade or flake to bladelets and microlithic tools. This increased the quantity of blanks from a single raw block, fist-sized, which could itself be exported where needed, depending on hunting demands. Once at a hunting site, the core could then be knapped to produce fine bladelets that would be systematically broken into segments that were directly retouched into microliths. The lightness of lithic products worked well with the propulsion method generally adopted during the Mesolithic, although sporadically present during the Paleolithic. The bow and arrow was much better adapted to the denser forest cover: it was precise, rapid, and silent. But more significantly, it corresponded to an entirely new metaphysical relationship to nature—the bow overcame the constraints of speed, distance, and precision. Humans who mastered this technique came close to being natural gods by borrowing part of nature's power. It is this that defines the veritable transition to the Mesolithic—a more advanced level of human dominance, due to the ability to think over the forces of nature (Fig. 4).

This "amplification of mechanical powers" is identical not only across the world, but also in all material categories. Vegetal materials were abundantly exploited in conjunction with stone: arrowheads, lamps, and bows, as well as woven fishing baskets, canoes, and containers. Bone materials continued to be exploited, especially as axes to work wood, but had less importance than before the transition (Fig. 5).

The most spectacular change in the technical domain lies in the shaping of terra cotta containers (e.g., the ceramics of Limburg, La Huguette, and Ertebölle). These exist from Normandy to Kamchatka to the Americas, in the same cultural contexts. The mobility of the groups supports their limited structure and highly fragmentary state: the main containers were made of vegetal material.

## Resources

With respect to diet, the transition to the Mesolithic is characterized by broadening the range of resources made possible by the more clemental

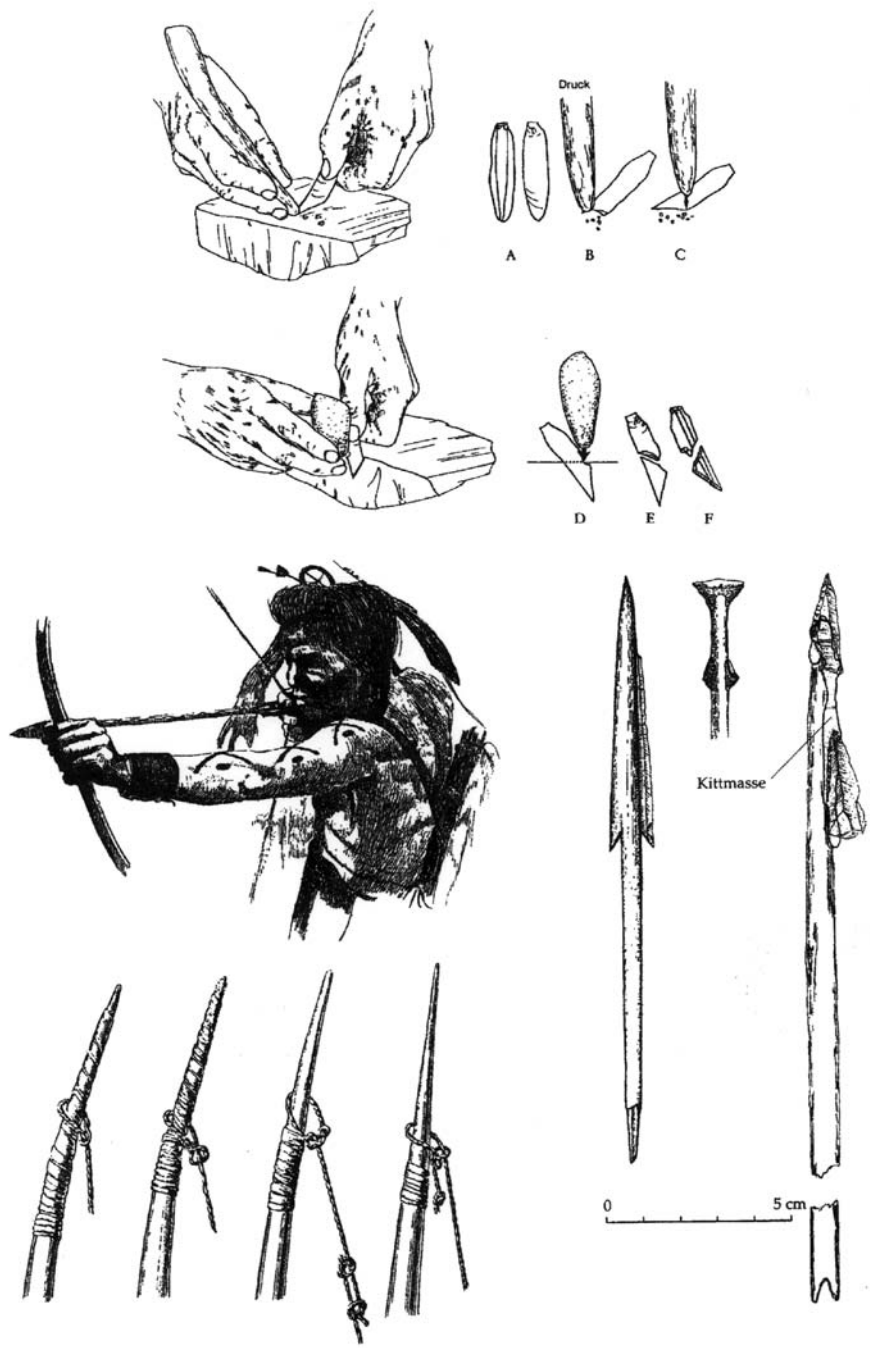


**Fig. 4** Lithic technology (after Cziesla, 1992)

climatic conditions, a better adaptation of techniques to new environments (e.g., fishing baskets), and the crucial contribution of proteins from aquatic contexts (from mollusks to whales). Dietary diversity was staggered throughout the different seasons and included a significant vegetal component: leaves, fruits and roots that were nearly inaccessible during the Paleolithic. Hunting is specialized and a social aspect is added to the search for subsistence, serving to give an individual a specific role within the group. Astuteness, courage, and ability are recognized in a selective hunting strategy

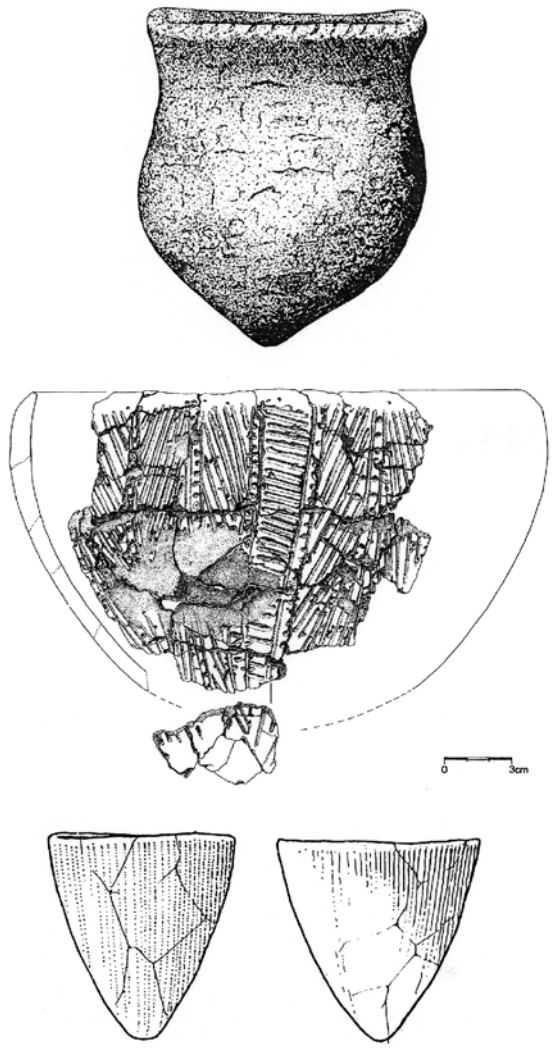


**Fig. 5** Ceramics. *Top*: Ertebölle (Denmark, 5th mill. BC) (after Fischer, 1995). *Center*: Limburg pottery (Mesolithic, 6th mill. BC) (after Jadin et al., 1991). *Bottom*: Pottery of northern Eurasian hunters (after Groot, Sugihara and Serizawa)

of single animals more than a strategy oriented towards herds, as was practiced during the Paleolithic.

Resource-gathering was thus varied and abundant, implying the existence of a greater diversity of tasks, and included the participation of women and children, with large-game hunting being limited to young adult males. The guarantee of resources, and thus survival, became a largely collective task, reinforcing social links as can be seen in artistic and religious domains, for which the basis became man himself and (less clearly) nature.

The varying access to different resources throughout the years has a symmetrical counterpart: seasonal migrations following herds (e.g., reindeer, horses, and bison) lost their economic importance and were limited to the sphere of traditional customs. The ethnic landscape of the Mesolithic was more parceled out, with a greater degree of regional differences, than during the Paleolithic. The Paleolithic-Mesolithic transition thus has a social value (Fig. 6).

## Habitations

Associated with such new ways of life, the greater ethnic division of the landscape, and the broadening of the resource base, settlements accentuate more permanent aspects—in particular, by the concentration of tasks. More "durable" structures appear, for long-term use and to protect a wide range of activities—crushing and grinding of materials included. Remaining circular, like transportable tents, such structures were permanent. Circular and vertical postholes show evidence of posts to support walls made of clay and stone. The traditional heritage is thus one of nomads, living in portable tents, but the definitive transition is marked by their fixity that would be later given to the orthogonal houses of the Neolithic.

This change from mobile to fixed led to a completely different relationship to the landscape. Although it remained exploited in its wild and natural state, land was from then on "owned" by the clan, family or lineage, because it was already the main source of life and reproduction. This perpetuity can also be observed by the grouping of burials in cemeteries close to semipermanent "villages" of the living; this would be further developed by the complete integration of burial places and habitations. Isolated skulls, and at other times entire bodies, were sometimes physically interred into the habitation floors, as if to mark the permanence of this dominance over the obstacles from life to death. The Mesolithic habitation forms a symbol of this new idea, like the use of the bow is for prey. The possession of such powers, symbolic and technical, evidence both a spiritual conquest of man over biological constraints and a will to be freed relative to caloric procurement (Fig. 7).

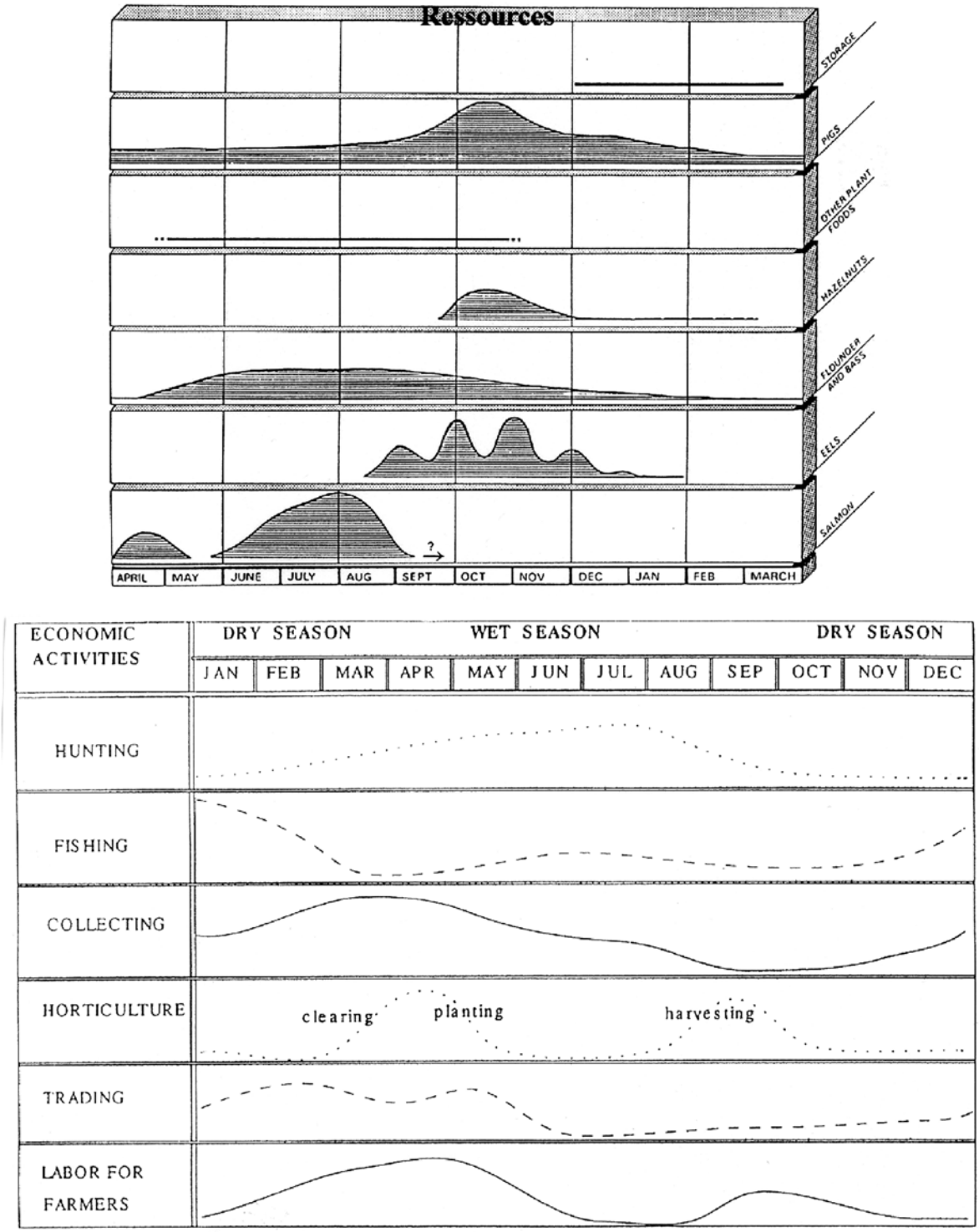


**Fig. 6** Resources. *Top*: (after J. Woodman). *Bottom*: (after Lee Junker, 2002)

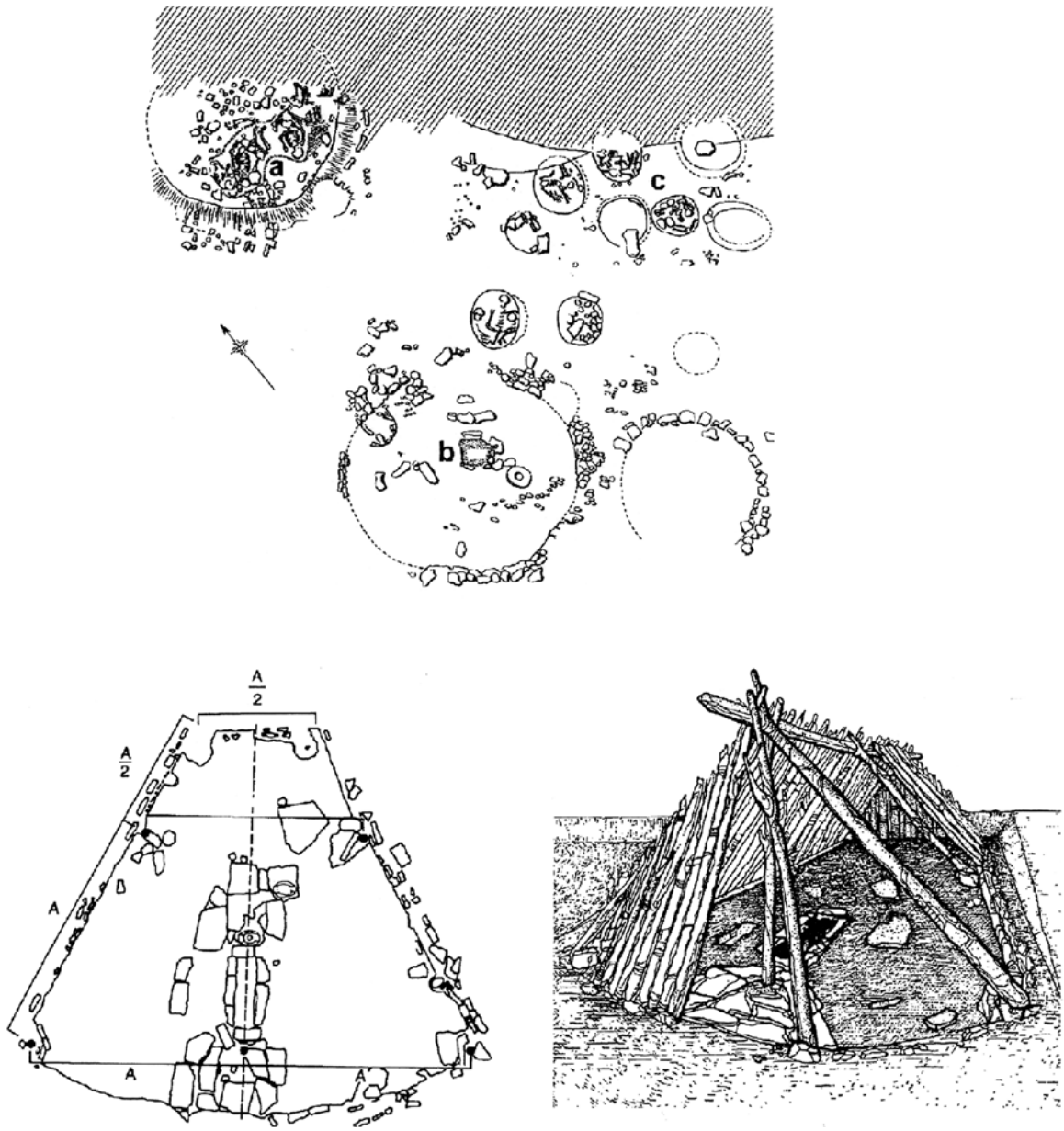


**Fig. 7** Habitations. *Top*: Mureybet (Syria) (after Cauvin, 1978). *Bottom*: Lepenski Vir (Serbia) (after Sailer, 1997)

## Cultural Traditions

As reflected in technical methods, Mesolithic cultural traditions seem to "explode" across the landscape and through time. Countless groups appeared, defined by stylistic criteria, covering Europe like patchwork during the short climatic phases of the Holocene. Such "regionalism" is clearer than during the Paleolithic, defined on the basis of secondary but permanent criteria (armature types, lateralization, geometric forms, retouch types). Such cultural diversity can be observed outside Europe—for example, in the Capsian of North Africa, the Natufian of the Levant, the cultures of the

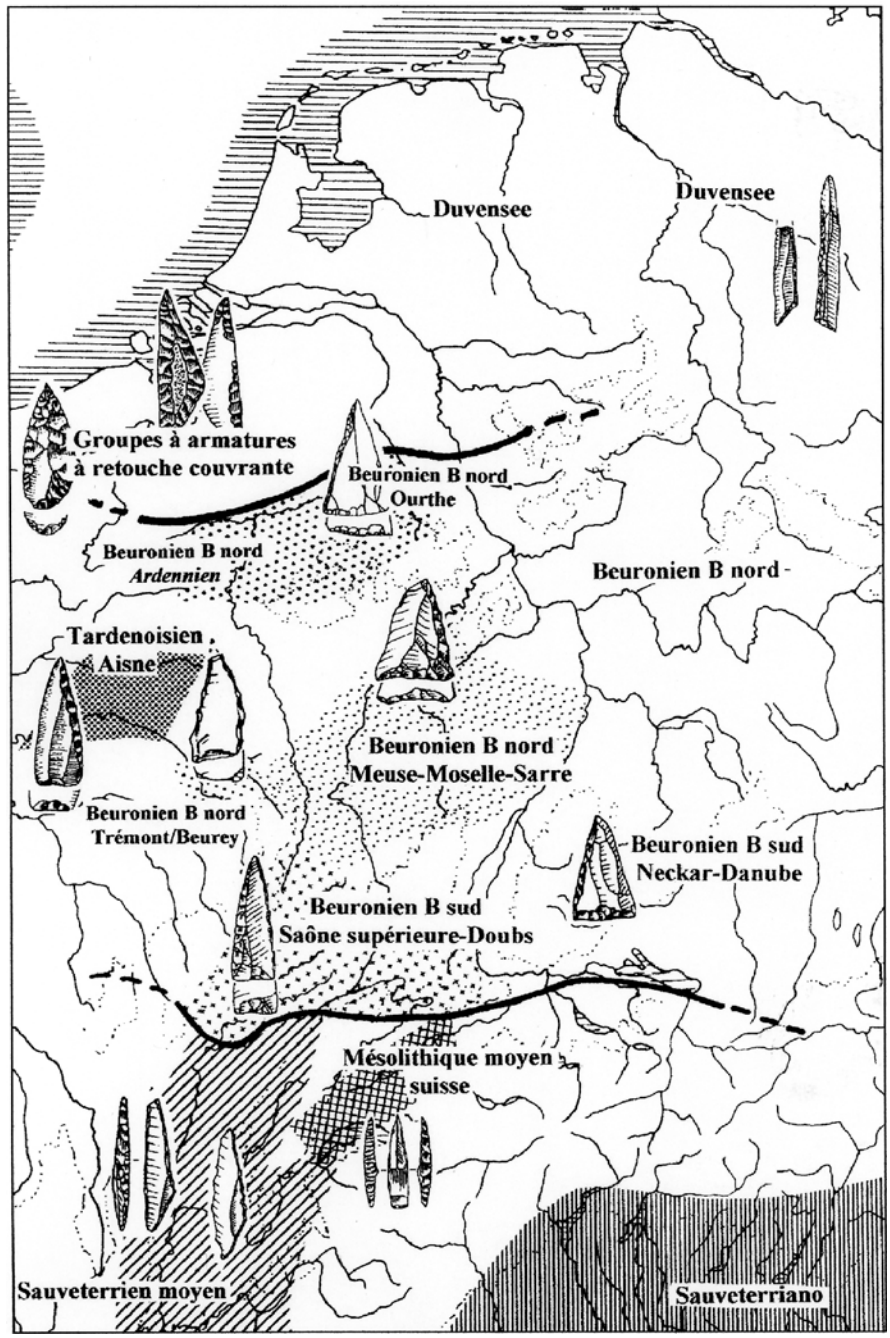


**Fig. 8** Northwest European traditions (after Guillot et al., 1997)

Amazon, the north of the Far East, and especially the abounding production of armatures in East and South Africa (to modern times in the case of the latter) (Fig. 8).

For each region in Europe, "vertical" developmental charts have been constructed to demonstrate variation in both time and space. Certain constants can be seen within this diversity, however, such as the geometrization of microliths or expansion of core reduction by the pressure technique. These demonstrate the impact of the circulation of effective technical concepts, despite traditional and geographic barriers (Fig. 9).

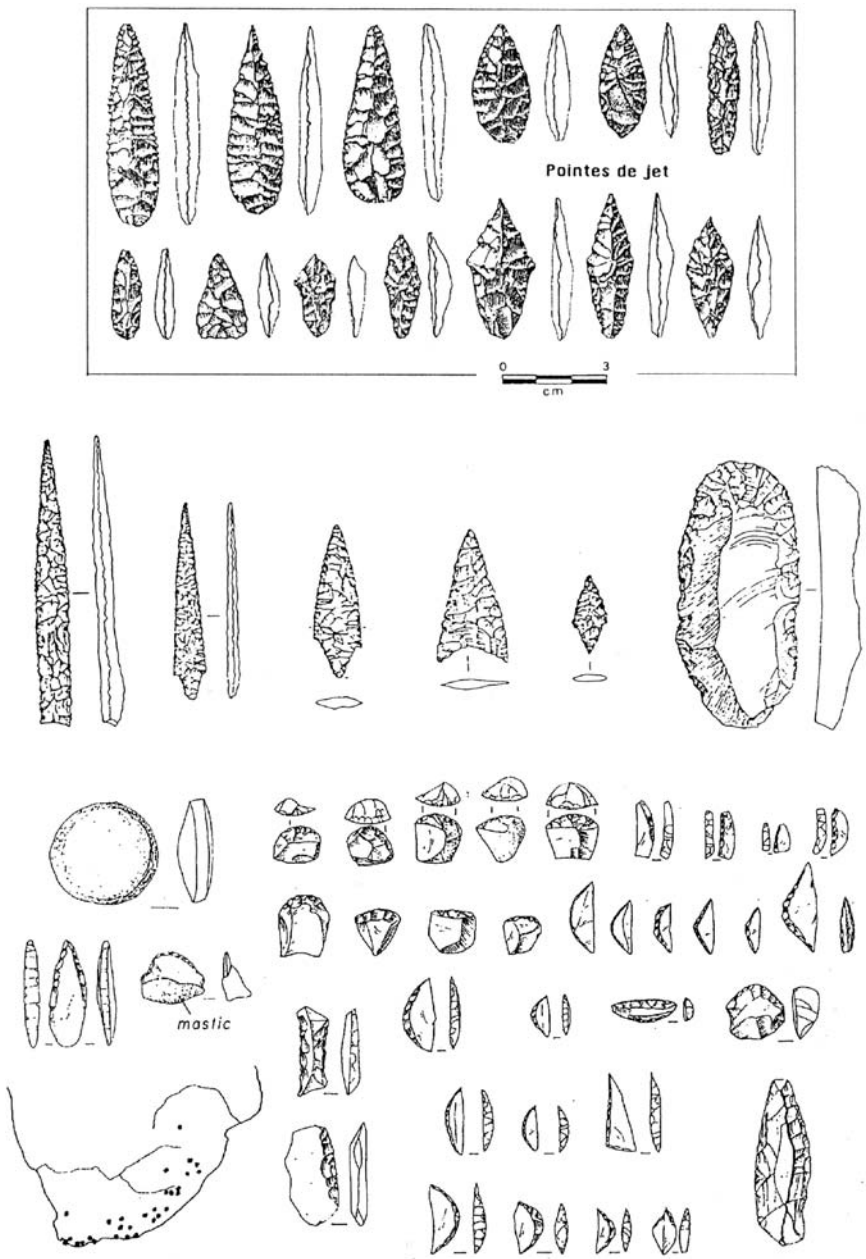


**Fig. 9** Traditions. *Top*: Brazil (after Lavallée, 1995). *Center*: Japan (after Inamura, 1996). *Bottom*: South Africa (after Deacon and Deacon, 1999)

The transition is here attached to the decomposition of the large ethnic and cultural units of the Paleolithic, replaced by social boundaries indicated by connections of highly specialized technical practices and, in consequence, intimately linked to the self-identification values of a group (Figs. 10 and 11).

## Art

The rupture with the Paleolithic is perhaps strongest in this category of activities. Several major trends appear and emphasize the impact of the new epoch. The first consists in a form of "inertia" from the Paleolithic in which artistic

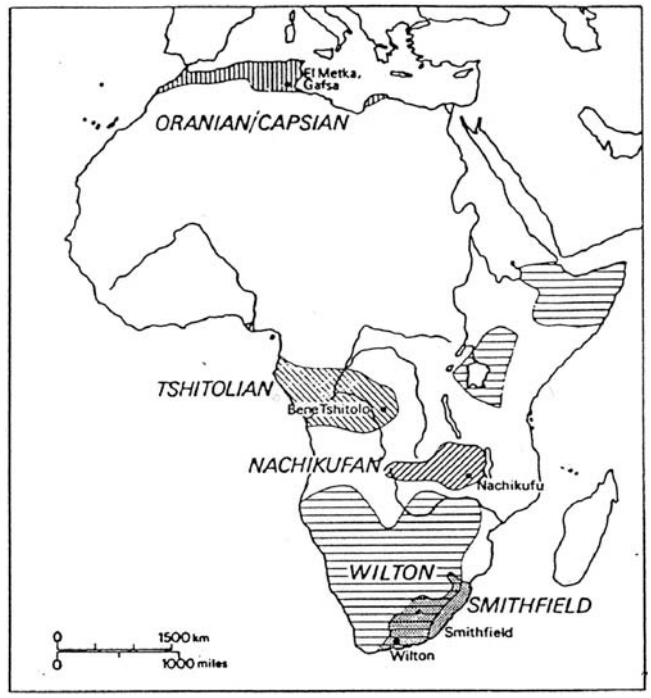


**Fig. 10** African traditions (after Clark, 1977)

values slip in their material importance. Animal motifs that dominated Paleolithic mythology descend from monumental walls and are found as harmless objects, such as handle decorations on sickles in the eastern Levant or amber pendants in Scandinavia (Clark, 1975). The savage nature of animals has clearly lost its importance in the symbolism expressed by the image, as if separated from its potency, thus accentuating the demarcation between the natural world and human society. Another trend highlights this transition—the increase in the number of images of humans, in engraved bone in Scandinavia, statuettes in the Levant, and veritable permanent statues sculpted at the entrances of the houses at Lepenski Vir in Serbia (Sailer, 1997). This phenomenon is observed everywhere that has a way of life comparable to the European Mesolithic—the tikis of Oceania and African and Amazonian statuettes. Such art materializes a totally new power given to humanity by the image, as if the nascent gods were comparable to humans and thus gave humans their power and value by their image. Finally, art became "animated" during this transition; we now observe scenes—a network of relationships that unite the figures (men, women, animals) in a significant way (Spanish Levant, Sahara, South Africa). From then on, this became the perceived, recounted, and understandable reality that took its first steps toward a world idealized by the mythological practice of the Paleolithic (Figs. 12 and 13).

## Religion

Man was thus placed at the center of spiritual preoccupations after this fundamental transition. Nature beat a retreat and, by his action transposed in images, man continued to master his natural behavior while still remaining (in part) in the natural world. This is comparable to burials that remind one of the Paleolithic period, and to animal fetishes that were introduced (teeth, antlers). The religion of the Mesolithic did not eliminate nature; many representations evidence this fact and, moreover,

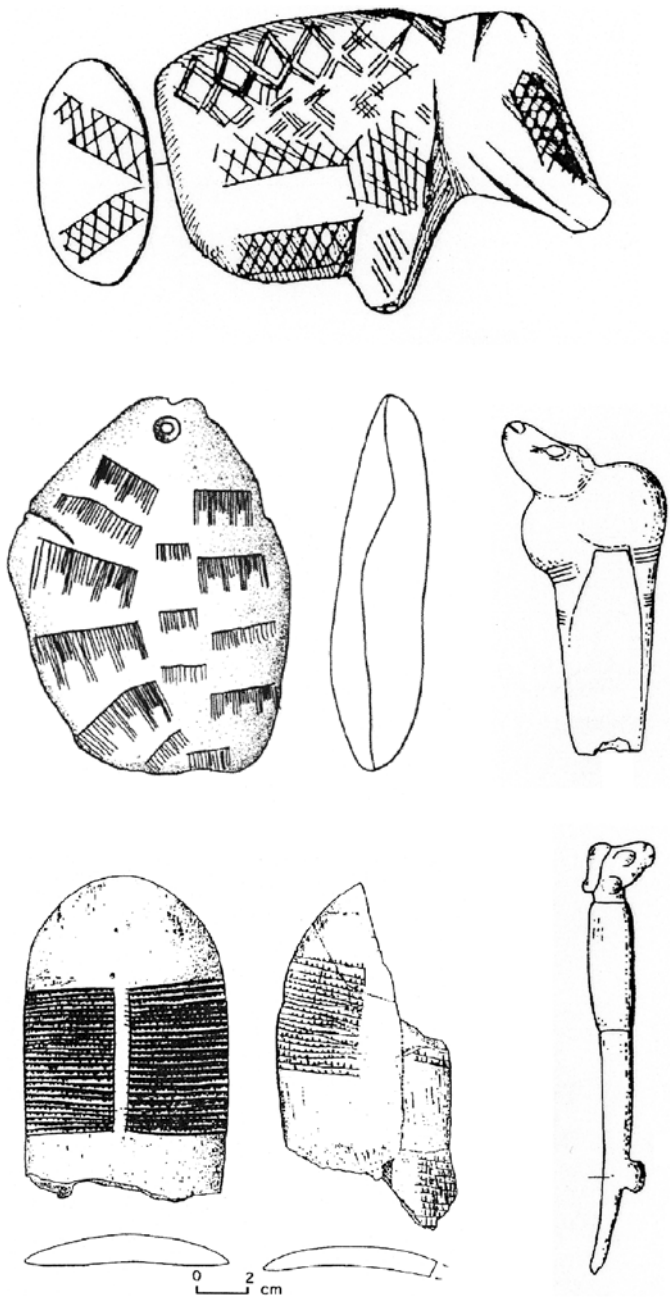


**Fig. 11** Mobile art. *Top and center-left*: Denmark (after Clark, 1975). *Center-right*: Kebara (Israel) (after Bar Yosef, 1983). *Bottom-left*: Russia (after Plonka, 2003). *Bottom-right*: Hayonim (Israel) (after Bar Yosef, 1983)

the demographic equilibrium was (and still is) maintained in this societal mode. The Mesolithic is properly "transitional," and in this sense is both fundamental (the Neolithic derives from the Mesolithic) and perfectly balanced (many populations live today with this way of life) (Fig. 14).

By showing humans as dominant in artistic scenes, art restored a religion in which the human conscience is displayed and takes on a new privileged status. Man took on a crucial importance, as much in images as the quite real force obtained by the use of the bow. Aiming long and precisely, he

**Fig. 12** Arts. *Top*: Levantine art (Valencia, Spain) (after J. Jelinek, 1978). *Bottom*: Khoi San art (South Africa) (after D. Lewis-Williams)

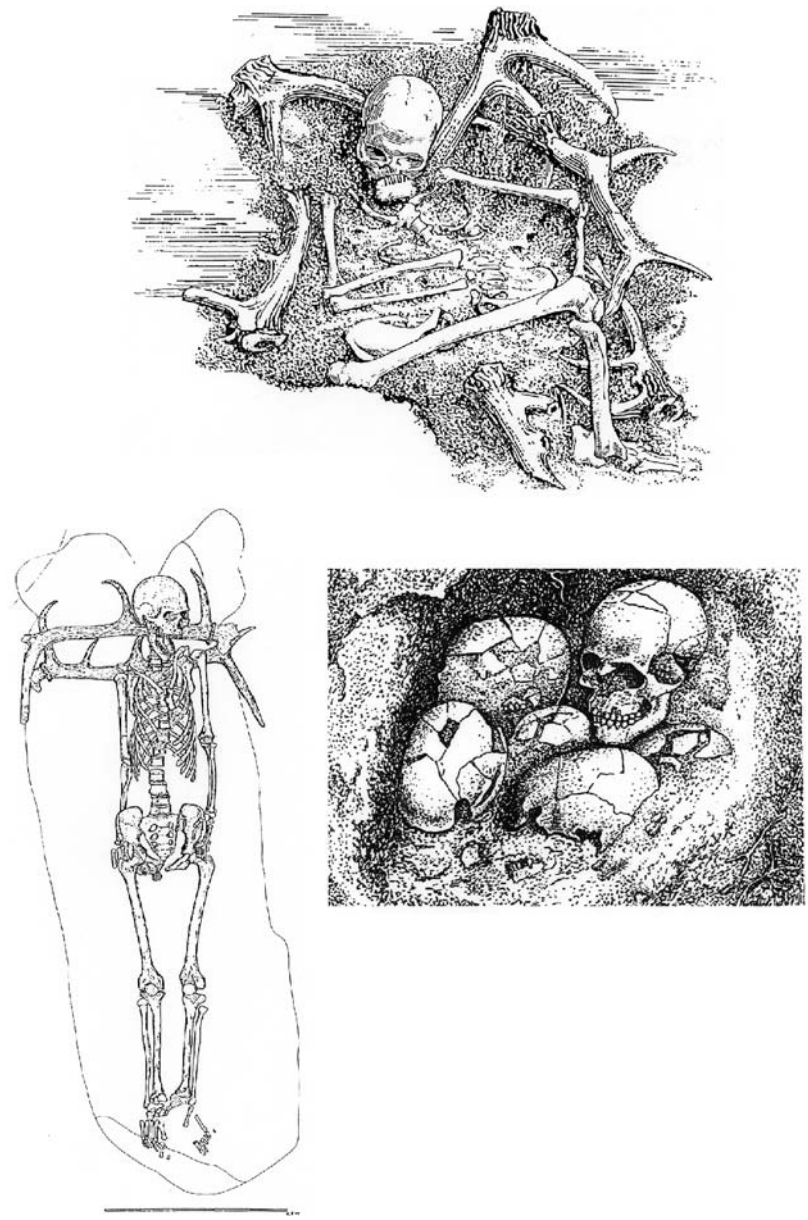

**Fig. 13** Religions. *Top*: Teviec (Brittany, France) (after M. and St-J. Péquart, 1954). *Bottom-left*: Denmark (Albrethsen, Petersen, 1976, Excavation of a mesolithic cemetry at Vedbaek, Denmark, Acta Archaeologica, 47). *Bottom-right*: Ofnet (Bavaria, Germany) (after Cziesla, 1992). Burials (PEQUART M. et S.J., Hoedic, deuxieme station-necropole du mesolithique cotier armoricain, Anvers, De Sikkel)

physically extended the power of thought; man developed as a demonstration of this dazzling power accorded to the spirit as to weapons. Man was freed from biological constraints and demonstrates this in religious thought as in his visualized reflections. Classical religions would soon be developed to complete this process, while gods would be in the image of man and animals would be reduced to the rank of attributes. The symbolism of arrows became omnipresent (e.g., Diana the Huntress) and universal because they symbolize not only the deferred power of the human will, but also the spirit of justice, clarity, and messenger remaining in communication with the cosmos.

## Conclusion

The transition to the Mesolithic has a critical importance in the human adventure. It corresponds to a very specific period, both fundamental and

**Fig. 14** Arts. *Top*: North Africa (after Alonso and Grimal in J.-L. Le Quellec, 1998). *Bottom*: South Africa (after Clottes et Lewis-Williams, 1996, Les chamanes de la prehistoire, Seuil, Paris)

universal. Like all transitions, it has both Paleolithic "souvenirs," Neolithic potentialities, and intermediate particularities that support its autonomous status as a period on its own. Certain populations today have kept the same Mesolithic way of life over the millennia.

Among the principal factors that characterize this "heavenly" epoch, we note the perfect adaptation by predatory paths, in extremely varied environments, across space and through time. This harmony with the savage world evokes that described for Eden in the Old Testament: the Neolithic could only be the subsequent period when humans became farmers and earned their bread by the sweat of their brow. During the Mesolithic, we thus observe the desire to conserve a hunting way of life and to maintain harmony between demographic development and perpetually under-exploited capacities offered by the savage world. In this sense, the Neolithic breaks this "alliance" and we suffer the inconveniences—today more than ever.

The transition to the Mesolithic thus corresponds principally to a phenomenon of change in metaphysical thought. The Upper Paleolithic seems characterized by all-powerful natural laws acting on human destiny. The Mesolithic, in contrast, is a period of definition of this condition, against the control of natural laws, attempting to render man the master of his destiny—but in revenge, conferring on him a terrible responsibility.

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