



THE ORIGIN OF GRAVEYARDS: THE INFLUENCE OF LANDSCAPE ELEMENTS ON SOCIAL AND IDEOLOGICAL CHANGES IN PREHISTORIC COMMUNITIES

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TECHNICAL AND "NATURAL" MEANS OF FOOD PRODUCTION AND THEIR INTERACTION

The economy of all "primitive" societies both Prehistoric and modern was based mainly on food production, which, in turn, determined the forms of social organization, and to a great extent, the ideological notions of Palaeolithic communities (Kabo, 1986, p. 258- 270). The social and economic organization of human communities was in many cases, the specific reflection of biological models of animal behaviour or ecological niche (such as seasonal adaptation, sexual and reproductive peculiarities of food resources, etc.) connected with the natural environment. Each separate component of latter had its own specific influence on the various spheres of human activity.

The relative inefficiency of the technological means of production in the Stone age, however determined the important role of "natural" means of food production, especially the various elements of the environmental landscape (e.g. rapids and banks of rivers, steep slopes of rock, mountain passes, etc.) were it was possible to obtain a large quantity of food during a short period. It is notable that, both in Prehistory and modern times, economic systems broadly applied these means with increased "natural" efficiency (e.g. the more difficult elements of landscape on the migration route of game and fish) allowed the use, with good results, of more simple technological means of production. In many cases, such efficiency and high concentration of monotonous "objects of extraction" in a limited area and period of time were a prime reason for cessation of further technological improvement, but they also demanded the collective cooperation of a

group with a more complicated and developed form of social organization.

An example of unimproved technology is the simple basket or wood constructions used by both prehistoric and modern fishers since the Mesolithic, favored over tools for individual fishing in open water which now are very technologically improved. The Final Paleolithic and modern specialized tundra-hunters (which in the first case already had bow and arrows and in the second, even guns) preferred to use "simple" spears for the collective mass slaughters of reindeer during their seasonal migration across a river (Simchenko, 1976, p. 90- 94, 284; Zalizn'ak, 1989, p. 96, 129- 131). The same evidence of the reduced role of new technology (guns and horses) is evident among the Native American mass bison hunting (Kehoe, 1973, p. 178-179). In all cases, this method had the shape of complete industrialization of hunting or fishing, but demanded more improved forms of social organization and the cooperative efforts of many persons. It is significant that, according to ethnographic data, the community collectively owned and utilized such places with efficient "natural" means of food production (whether or not altered with technological constructions) (Bromlei, 1986, p. 207). On other hand, the absence or reduced role of good "natural" means of food production in an economic system, stimulated the technological development of tools and methods (within the limits of general economic level of society), used in individual labor. For the development and existence of the latter economic strategy, the complicated form of the labour organization and social structure of society were not so important.

THE FOOD CRISIS AND PROBLEM OF ORIGIN OF AGRICULTURE

The problems of changing economic strategies of Stone Age societies and the origins of agriculture are the object of interest to numerous anthropologists. Why was agriculture adopted by some Prehistoric groups while others continued to hunt and gather through modern times? The traditional conclusions of many scholars about lowered carrying capacity or poor diet of hunter-gatherers societies, stimulating a move to agriculture, were disproved by many modern ethnographic studies during the 1960's (Lee and De Vore, 1977). The new studies, however, have done little to aid our understanding of economies changing from hunting and gathering to agriculture.

Why did some prehistoric groups adopt agriculture on the vast territories of both the Old and New Worlds so quickly, if it demanded more labor and the possibility of an insufficient diet? In the current literature, the idea of a general crisis in the hunter-gatherer economic strategy leading to the origins and adoption of agriculture is now the most well represented (Cohen, 1977, p. 2- 17; Bromlei, 1986, p. 242-272 etc.). The phenomenon of a food crisis is explained by various factors such as: global and local climatic changes, overpopulation or gradual improvement of the technological means of food production (e.g. the increased efficiency of projectile weaponry caused the overexploitation of game resources etc.) (Childe, 1951; Bibikov, 1969, p. 22; Cohen, 1977, p. 276- 283; Stanko, 1982, p. 84- 87; Zalizn'jak, 1989, p. 103; Balakin and Nuzhnyi, 1990, p. 90- 101). These factors, however had quite different effects and durations of influence, both on the economic life of societies and one on another. The gradual technological progress had a more or less constant development during history in all regions, while the influence of ecological changes had more discrete character. The latter, however, for example in form of opening or covering with ice or seawater of large territories, was able to direct the economical and social development of prehistoric societies in different directions (Binford, 1968, p. 313- 341). Cohen's argument (1977, p. 3-8) that periodic climatic change

did not greatly influence the adoption of agriculture is not correct. As a main result of the increasing disparity in the economic and, especially, technological developments in different parts of the world through history, the diffusion of more efficient methods and tools (with trade, migration, war etc.) was carried out more and more rapidly from developed societies to "primitive" ones (Balakin, Nuzhnyi, 1990, p. 99- 100). Therefore, according to the technological level of society, the influence of the numerous above- mentioned factors was quite different too.

We agree, in principle, with the modern concept of "population pressure" for the origins of agriculture, but it does not, however, explain the preservation of hunter-gatherer economies through modern times, even when shown archaeologically to have undergone Cohen's "food crisis and overpopulation" (Cohen, 1977, p. 71- 84). Without question, among the prehistoric groups, as well as among modern ones, the same methods of efficient restraint of population growth were used. From the authors' point of view, the main error of modern anthropological science is the wide definition of crisis in hunter-gatherer economy as a "food crisis". Due to the importance of meat in the process of human evolution as a biological species, a hunting crisis was the greatest impetus in the changing of social institutions. Hunting was the leading and most dynamically developed branch in the pre-agricultural economy, which directed and stimulated the technological progress in the Stone Age (Nuzhnyi, 1993, p. 41- 52). Therefore, all evidence of intensive collection of fish and, especially, plant food resources, both by modern and prehistoric societies, is clear-cut sign of a general crisis in the hunter-gatherer economy.

ROLE OF HUNTING AND "NATURAL" MEANS OF FOOD PRODUCTION FOR CHOICE OF GENERAL ECONOMIC STRATEGY

The very important biological and social role of hunting and animal albumin in the acceleration of human evolution are

emphasized repeatedly in the literature (Tolstov, 1931, p. 77- 83; Clark, 1977, p. 58- 70; Boriskovskii, 1979, p. 46- 49; Bromlei, 1983, p. 198- 257). It stands to reason that because of the absence in hominids of efficient biological "hunting means", the more or less regular possibility to receive of animal albumin was possible only two ways.

The first was carried out with so-called "meat-gathering" or safe-hunting of biologically primitive and small animals (as this took place periodically among the modern primates). The second, connected with genuine hunting of large mammals and the regular possibility to obtain a considerable volume of meat, required an intensive improvement of both the technological means and the social aspects of hunting organization. As we can see from the continual presence of numerous bones of different large game with more and more perfected tools, on all Paleolithic sites (and particularly, various efficient kinds of projective weapons), the latter method was preferred by both the hominids and modern humans. The invention of the first chipped stone tools was perhaps a result of using stone pebbles on stone anvils for breaking bones for marrow by the oldest hominids.

In accordance with the proposed view about the presence in prehistory of two main categories of food production, all economic systems of the pre-agricultural societies are divided into two main categories also, based on the dominance of technological means and increased role of "natural" ones. This approach is slightly different from the model proposed by A. Testart (1982, p. 523- 537), where the presence or absence of food storage was the basis for distinguishing between these two quite different economic systems. However, the possibility to provide food for a large group, was first of all, the result of the combination of rich "natural" resources and "natural" means of production, with sufficiently developed technological ones.

The first type of economy was characterized by sufficiently amorphous, but very flexible, multi-branch structure, as a result of the maximal adaptation of primitive societies to the crisis of hunting. The non-specialized and multi-method type of hunting

(practically on all the species of animals existing in a region) as a key branch of this economy was supported by the same kind of fishing and, in more hot climatic zones, by gathering. The societies with the above-mentioned economic strategy are distinguished by mobile residence patterns, absence of systematic food storage, and more intensive development of technological means of production mostly for individual, rather than collective, use.

For the reasons given above, the formation process of this earliest type of economy was begun in the first stages of Lower Paleolithic and the beginning of human evolution. However, the final shape and structure of afore-mentioned type of multi-branch economy, as a whole, were attained only with invention of an efficient assemblage of long-range projectile weaponry (at first, the atlatl and later, the bow and arrows) adapted for highly efficient methods of individual hunting by modern humans. Since the Upper Paleolithic, this economic strategy diffused to cultures outside of the glacial zone, especially in the more closed forest and mountain terrain of Africa, Asia and Southern Europe, and later, during the Holocene, was adopted by non-specialized bow-hunters of many Mesolithic cultures in taiga and forest zones. This is not to say that the "economy of constant crisis of hunting" decided only the urgent food necessities of society. However, such a narrow orientation of economy based on the decision of the current "tactical" problems of society also limited the general improvement of technological means only in the sphere of food production. At the same time, the main direction of technological progress in the Stone Age was connected with discovering of new raw materials (especially of pottery and metal processing) and the specialized craft of more complicated and efficient tools. The latter, was possible only with a food surplus storage, and a settled residence pattern which were absent in these societies.

In the ethnographic literature, the above-mentioned economic strategy is well known in the most archaic societies of non-specialized hunter-gatherers (Bushmen, Hadza, Pygmies, Australians, Amazonians etc.) primarily in sub-equatorial and tropic

zones (Adrianov, 1985, p. 43-48). These groups represent the most ancient natural systems of the world with completely filled ecological niches, which also are characterized by a maximal diversity of biological species (Semenov, 1968, p. 321- 322). With these are societies also associated with the conclusion of modern scholars about dominance of plant foods in the diet of "primitive" populations of the southern zone (Lee, 1977, p. 30- 48; Clark, 1977, p. 63- 70; Hayden, 1992, p. 140- 141). However, in many cases the economy, was changed even before the first contacts with Europeans as a result of the influence of more developed societies. This process is well documented in the changing Bushman hunting economy and social structure, which was originally based on the collective mass hunting of large herd mammals in the more rich savanna regions. After the XVIIIth century, due to the migration of African cattle-breeders on these territories, the Bushmen were forced out into semi-desert and desert regions, and their economy and social organization obtained both the modern individual form adapted to new environment, and a more simple and amorphous social structure (Bromlei, 1986, p. 142).

The same economic strategy, also altered by the influence of fur-trade and use of reindeer transport and dog breeding, was used among non-specialized hunter-fisher societies of the taiga and forest zones of Northern Asia and America until the XIXth century (Sel'kupy, Jukagiry, Evenki, Kety, Oigibway, Cree, etc.). According to ethnographic data, the populations of the above-mentioned societies ate the meat of bird, small animals and fish or plant food only by necessity during the unfavourable season ("rabbit starvation" in terminology of American Indians of taiga zone) and only in the case of total absence of the meat of large mammals (Jochim, 1976, p. 16- 40). The intensification of fishing, manifest in many of these recent societies was the direct result of dog breeding for the transport aims of fur-hunting and trade (Zalizn'ak, 1991, p. 65- 68).

The second kind of economic strategy was connected with the specialized extraction of a specific kind of prey, with a dominance of collective forms of labor, the increased role of food storage and, finally, with more settled

residence patterns and highly developed forms of social organization. The process of the latter's formation was connected with beginning of Pleistocene, characterized by open steppe and savanna landscapes and by large herd mammals. The primitive forms of collective hunting on this type of landscape were present not only among first hominid groups, but even in packs of wolves and coyotes (Kehoy, 1973, p. 183). Probably, the evolution of "classic" species of Neandertal hominids in Europe was the result of the particular specialization in one in the afore-mentioned types of economic strategies which was well adapted to hunting in open Pleistocene landscapes with maximal concentration of large herd mammals. However, the final development of this strategy was attained, both in the Old and New Worlds, in the second part of the Upper Paleolithic in the time of Last Glacial Maximum after 18 thousand years ago (Zalizn'ak, 1990, p. 4- 13). As a classic example of this type of economy in both the prehistoric and historic times was represented by societies of specialized hunters who carried out the collective mass hunting of herd large mammals (mammoth, bison, horse, reindeer etc.) in the Glacial and Post-Glacial steppe and tundra zones of Eurasia and Northern America (Kehoy, 1973, p. 158- 163; Zalizn'ak, 1990, p. 4- 13; Krotova, 1993, p. 125- 142). The latter are represented by young ecological systems with many unfilled ecological niches, and are characterized by poor structure of biological species but with a higher seasonal concentration (Semenov, 1968, 321- 322). According to the ethnographic evidence, among modern specialized tundra hunter societies, existing in the most severe climatic conditions, only meat of large mammals was considered as a genuine food, and in some cases, the word for "food" was synonymous with large mammal meat (Simchenko, 1976, p. 84; Zalizn'ak, 1989, p. 132- 134). From the authors' point of view, among pre-agricultural economies only one of "meat-storagers" was not exposed to the periodic or constant influence of the hunting crisis (connected with obtaining food in the inter-seasonal time or poor diet) and completely provided all necessities of society. The crisis, however, is the main factor, which stimulates the intensive development of technological means of all societies both modern and prehistoric for any branch of

economy. The absence of constant internal stimulation for technological improvement deprived the above-mentioned very stable economic model of "the Golden age of the mankind" of any historical perspective. The alteration of one could take place only through the influence of external factors: in the case of global climatic change, like the Glacial period in Europe or temperature optimum in Northern America, or with influence of more developed civilizations (trade, assimilation of new technical means, colonization etc.).

ROLE OF LANDSCAPE ELEMENTS USED AS "NATURAL" MEANS OF FOOD PRODUCTION IN ECONOMIES WITH CRISIS OF HUNTING CONDITIONS

As has been shown, both the above-mentioned economic strategies were not responsible for the continual improvement of technological means of production; in the first case the improvement took place "sui generis" the excessive oppression on the economy of "primitive" societies of crisis of hunting, and in the second - the absence of such oppression. But both in prehistoric and modern times we can see a sufficiently different strategy in the economic organization represented by specialized fisher- hunters of large river valleys and sea coasts which were widespread in the world (Ainy, Nivhi, Nanaicy, Itel'meny, Tlingit etc.) This type of economy was connected with the intensive exploitation of water resources and increased role of "natural" means of food production, and also with presence of food storage, complicated forms of social organization and more or less settled residence patterns (Adrianov, 1985, p. 48- 49). Its formation was probably only the first specific reaction of prehistoric societies to the crisis of hunting where there was reduced availability on their territory of efficient "natural" means for mass food production of animal albumin, even in case of the fish meat. As was suggested earlier, the more or less expressed crisis of hunting was a constantly present factor in the above-mentioned multi-branch economy or could be effected in a more severe form by global climatic changes both in the latter

case, and of strategy in the specialized hunters.

The increased aggressiveness and control of communal territory borders as typical reactions of all "primitive" groups to reduced carrying capacity and the competition for regions with more rich food resources, are well known from the ethnographic literature (Kabo, 1986, p. 75- 79, 91-94). Recent hunter-gatherers (e. g. among the Australian Aborigenes of sea coasts) were also characterized by more fixed communal borders and increased tribe-clan consolidation (Bromlei, 1986, p. 429- 432; Kabo, 1986, p. 74-76). There is every reason to believe that similar processes, although in a different form (because of more severe climatic changes in Final Pleistocene and Early Holocene), took place in prehistoric societies too (Vencl, 1984, p. 116- 132; Hayden, 1993, p. 207- 208). In the latter case, the oldest evidence of human mass killing and the environmental situation of these sites are of particular concern. The analysis of these indicates that all such sites in the form of graveyards are situated on the rapids of the largest rivers of world.

For example, in the graveyard Jebel Sahaba (Sudan) situated in the region of second Nile cataract, dated 12-10 thousand years B.C., nearly 40% of individuals, male, female and children, were killed with microlithic projectile weapons of the Kadan culture (Wendorf, 1968, p. 954- 995). In four of the skeletons, the fragments of microliths were embedded in bones, the seven others had healed injuries of arm bones (raised perhaps as ashield in defense). The Jebel Sahaba, as well as an other similar cemetery situated on the other bank of the river in the same region of Nile, are considered by the many scholars as clear evidence of the beginings of sharp rivalry of Prehistoric groups for possession of regions with the richest aquatic resources (Wendorf, 1968, p. 954- 955; Clark, 1977, p. 163). Similar evidence is also found in the graveyard on the site Sarai Nahar Rai (India) situated on the Ganges rapids and dated 8100 ± 110 B.C., where three individuals (one male and two female) were undoubtedly killed with microlithic projectile weapons (Sharma, 1973, p. 138-139).

Also of Final Pleistocene age is Voloshskii cemetery in the region of the third Dniepr rapid (Ukraine) where three of 12 skeletons buried in flexed position were found with micro-gravettian points (Danilenko, 1955, p. 56- 61). These represent the oldest undoubted evidence of the use of bows and arrows with microlithic points in Eastern Europe (Nuzhnyj, 1992, p. 122, fig 41, 44). The graveyards Vasil'evka I and III are situated in the region of fifth Dniepr rapid, and had two and seven skeletons, among 24 and 45 burials respectively, which were hit with different microlithic projectile weapons (Telegin, 1982, p. 205- 208; Nuzhnyj, 1989, p. 91). Among the graves of this cemetery, which has dates circa 8060 B.C., were represented two skeletons with skulls injured by weapons (Gohman, 1966, p. 21- 25). It is of interest that among the earliest 15 Mesolithic and Neolithic cemeteries which were localized in this specific region of Dniepr valley 14 cemeteries were situated in places where the river crossed through a rapid. The most powerful rapids (e. g. Nenesitec', Vovnigskii) were also characterized by the larger number of Mesolithic and Neolithic graveyards however, among the latter there was little evidence of the killing of humans. The flexed humans from burials in all above-mentioned Ukrainian Mesolithic cemeteries were killed with microlithic backed arrowpoints, which had analogies in assemblages of the local Final Paleolithic cultures of latest bison-hunters of steppe zone (Nuzhnyi, 1992, p. 29- 31). On the other hand, the humans buried in extended positions in Vasil'evka III were killed with a specific type of triangle, which undoubtedly are present in the assemblage of Shpanska culture (Nuzhnyi, 1992, p. 123). The latter culture during the Final Glacial and Earliest Holocene was found in the southern regions of Ukraine in the Crimea, and on Azov and Black Sea coasts (Janevich, 1993, p. 3- 15).

In the more recent cemetery Schela Cladovei (Romania) situated on the rapid Iron Gate of Danube and dated 6700- 5600 B.C., two skeletons had bone projectile points embedded in human bones (Nicolaescu-Plopsor, 1976, p. 3- 5). Later, similar cemeteries with undoubtedly murdered individuals appeared on the coastal shores such as Teviec in France or Vedbaek in

Denmark (Pequart M. et St., 1929, p. 373- 400; Bryony, 1981, p. 239- 245).

Graveyards represent not only the oldest evidence of regular warfare conflict for regions with rich resources during a period of global food crisis at the Pleistocene-Holocene boundary. The other data reflect both considerable stress of societies and fierce forms of such struggle. For example, in the above-mentioned cemetery Jebel Sahaba, the skeletons of some of the burials (n° 44, 20, 21 etc.) were pierced with numerous microlithic arrows (from 6 to two dozen) shot into different parts of the body (Ferrill, 1986, p. 19- 20). The joint presence of many fatal hits and their trajectory testified also that the some humans, females included, were shot in a reclined position and very likely after death. Among the slain humans from Voloshskii cemetery (n° 3, 5, 16), one skeleton was pierced with 3 arrowpoints, fatal examples included. Two other skeletons, missing one and two hands were pierced with two and one arrowtip respectively. The human from burial n° 17 of Vasil'evka I was injured with four arrowpoints, fatal shots included, which hit in different parts of the body. Similar evidence is also present in the Vasil'evka III graveyard where two skeletons (n° 5, 34) were pierced with three fatal arrows and spear points and the other with two spearpoints (Nuzhnyj, 1989, p. 91). From the authors' point of view, in the two above-mentioned graveyards, evidence of anomalous trajectory of projectiles (such as a shot in the first neck vertebra with an angle more than 20 degrees above the line of horizon at a human from Voloshskii or arrowpoints in the middle rib of a body from Vasil'evka III with angle near 15 degrees below this line) which, perhaps, are due to shooting at recumbent targets. The similar anomalous shooting trajectory we can also see in the burial n° 2/3-3a of Schela Cladovei where a bone point was shot into the face of human near 45 degrees below the line of horizon. The second slain human from this grave (n° 2/3) was hit with three similar points (Nicolaescu-Plopsor, 1976, p. 3- 5). Finally, the male and female from graves n. X and XIII on the site Sarai Nahar Rai were killed with three and two microlithic points (Sharma, 1973, p. 138- 139). The human from the well-known burial n° 20 of Teviec was hit

with two fatal arrowpoints (Pequart M. et St.-J., 1929, p. 387).

The above-mentioned data from the earliest cemeteries explain also the well-known "scene of shooting" of the lying human by the group of bowmen from Cueva Remigia (Castellon) (fig. 1) (Obermaier, Bandi, Maringer, 1952, fig. 167). The Levantine rock art of Spain depicting numerous fight scenes of bowmen, redated now to the Mesolithic and Neolithic (Beltran, 1982), confirms the increased aggressiveness of recent hunter-gatherers in the Western Europe. It is notable also, that the analogous reaction of recent bison-hunter tribes for defense of their own territory took place in Indian-Euroamerican wars of XIXth century on the Great Plains of America (Bergman, 1987, p. 11- 14). The United States soldiers killed in battle (e.g. on Little Birghorn River and others) by Sioux, Cheyenne and Arapaho tribesmen were pierced with 20 to 105 arrows in the different parts of body and often after death (fig. 2). The corpses of many soldiers were also mutilated by scalping, severing of organs, slashing and tearing of the flesh. According to the ethnographic information, the mutilation and shooting of many arrows into the corpse were to bar the enemy from an afterlife. They also, reflected the intensity of hatred felt by Plains Indians to the Whites, which invaded their territory (Bergman, 1987, p. 14). Perhaps for the same reason, in all early Native American mass burials in the American Southwest, dated 1580 - 950 B.C., the different and numerous evidences of violent death, perimortem mutilation and dismemberment of human bodies and, probably, cannibalism, are well represented also (Turner, 1983, p. 219- 238).

CONCLUSION

The tradition of mass burials and, especially, the use of special graveyards outside of the territory of settlement were practically absent in both the old and new world Paleolithic. The phenomenon of a famous collective "grave in the dwelling" of 8 adult humans and 12 children discovered at the end of the XIXth century in the Upper Paleolithic site of Predmosti in Moravia, was

perhaps correctly interpreted by P. P. Efimenko (1953, 359p.) as the result of infectious disease and death in a hut in a prehistoric community. From the authors' point of view, this evidence also could be explained as accidental death from starvation or food-poisoning and the consequent sudden collapse of the hut built from mammoth bones and stones.

From the reasons given above, the new burial methods and the origin of graveyards was only the first and specific reaction of prehistoric communities to the crisis of hunting and the beginning of inter-group "possessive competition" for the most bountiful regions. This process, concomitant with the establishment of more complicated forms of social organization in prehistoric societies and as the Post-Glacial climatic changes on the whole had a global and severe character. The ecological changes accelerated the crisis and "economic stress" of societies and determined the more or less simultaneous appearance of graveyards as a social phenomenon in different parts of both the Old and New Worlds. The change to the intensive exploitation of aquatic resources as a typical reaction of both ancient and recent "primitive" societies to the crisis of hunting is well known both in the archaeological and ethnographic evidence (Childe 1956, p. 57-58; Vasil'evskii, 1985, p. 52- 57).

The afore-mentioned new forms of social organization, in general, were concomitant with the establishment of more settled residence patterns and the formation of a consolidated and developed tribe-clan structure with the occasional presence of special cemeteries (Averkieva, 1974, p. 60-210). The latter, as a result of fur-trade and warfare for possession of new territories for fur-hunting, was well described by L. Morgan (1934, p. 39- 51) for the "classic" clan organization of Iroquois Confederation. L.H. Morgan also emphasized the important role of the Upper Great Lakes rapids territory with rich aquatic resources for the process of tribe-clan consolidation of many Algonquin tribes of Northern America and, especially, for social organisation of the Chippewa (Morgan, 1934, p. 64). Similar alteration of social structure was well observed among other recent ethnographic societies of water-resource

exploiters such as among the salmon fishers, of Northern America and Siberia (Averkiewa, 1974, p. 141- 170; Vasil'evskii, 1985, p. 52- 57).

From the authors' point of view, this process, brought about by definite landscape and environmental conditions, was the first and typical reaction of many Prehistoric societies in the different parts of the World to the hunting crisis. The hastened formation of more strong and developed clan organization (well-represented in the archeological data by the oldest graveyards) was stimulated by the intensification of "possessive competition" among Prehistoric groups, warfare and the constant necessity of defense of collectively-owned territories with the rich "natural" means of albumin food production, especially of fish.

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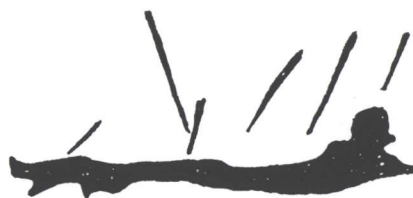


Fig. 1 Scene of "shooting" of human in Levantine rock-art (Cueva Remigia, Castellon, Spain). (According to H. Obermaier et al., 1952).



Fig. 2 Engraving of from the XIXth century showing American cavalrymen surveying the remains of dead white soldiers on the Great Plains (According to C. A. Bergman, 1987).