

War and Warfare in Archaeology¹

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For a long time, archaeologists have tended to deal preferably with the most voluminous, most numerous, and most conspicuous remains of the past and to base their reconstructions of the past only on these phenomena. This procedure has led frequently to typical distortions of our image of prehistory [our vision of the past from the so-called archaeological perspective (S. Vencl, 1979, *Archeologické rozhledy* 31:680)], bordering sometimes on absurdity. This kind of interpretation presents, for example, the production of pottery, bone and stone implements, and other types of frequent finds as a dominant preoccupation of prehistoric populations. The comparison of all the archaeological evidence from a given spatiotemporal unit with the information offered by analysis of contemporary written sources [e.g., the comparison of data of Merovingian archaeology with information provided by M. Weidemann (1982, *Kulturgeschichte der Merowingerzeit nach den Werken Gregors von Tours*, Teil 1,2, RGZM Monographien, Mainz), who analyzed the writings of Georgius Gregorius, the archbishop of Tours in 573-594 A.D.] does, however, point out the often peripheral position and frequent irrelevance of archaeological data with respect to the sum total of past activities of man. Obviously, written texts do not reflect past reality without gaps and, on the contrary, without undue stresses (introduced both by omissions and by the character of origin and contextual biases of the documents in question), but their image of past societies is, in any case, undoubtedly to be preferred to the testimony of archaeological sources. This can be seen in the universally acknowledged gap or fissure emerging throughout the world at the transition between prehistory and history, that is, at the very moment at which the basis for description of the past is transferred from archaeological data to textual evidence. I take up this phenomenon with respect to war and warfare as one of the history-making aspects of the past hitherto overlooked by archaeology. The study of war in archaeology represents a special case of research in an area in which the importance of things perished distinctly surpasses the importance of the retrieved testimony. I try here to demonstrate (1) that an adequate interpretation of archaeological remains is impossible per se but always must be carried out in complementary opposition to the parts of past reality that have perished, and (2) that it is, then, relevant to indulge not only in archaeology of remains preserved, but in archaeology of remains perished as well. This article sums up the conclusions of S. Vencl (1984, *Problémy poznání vojenství v archeologii—Problems relating to the knowledge of warfare in archaeology*. Archeologický ústav ČSAV, Prague).

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INTRODUCTION

War and warfare do not constitute a major theme for archaeology, as they are connected with activities concerning no more than a limited amount of material remains. A significant part of military behavior is intertwined with questions of political power, which does not immediately generate material remains. Other components of this type of behavior fail to create adequate conditions for burial of material evidence (troop transfers, battles), or the material evidence is difficult to interpret (types of tools or weapons such as axes, unworked stone missiles, and the like). All in all, this leads to underrating of the importance of warfare in most societies known only from archaeological evidence. This, in turn, brings about biased comprehension of developments and activities during the whole of prehistory. For instance, the fact that, according to modern interpretations, most of the cultures of European prehistory developed locally and peacefully stands in contrast to ancient and medieval reports and to the observations of modern ethnology, which imply that most important changes emerged in connection with, and as a consequence of, some form of armed violence. This contradiction in depicting the course of history on the borderline between periods studied from different types of sources doubtlessly does not reflect objective reality, but, first and foremost, the circumstance that while archaeological sources underrate the importance of warfare, written records have a tendency to the contrary.

The majority of the earliest written records from all over the world are filled with reports of fighting and wars. As these sources sometimes reflect the behavior of adjacent barbarian communities as well, the question of research on these phenomena in archaeology is legitimate. A possible objection that wars started to plague humankind only since the first occurrence of written sources may be easily refuted (1) by pointing out that such an assumption is flatly contradicted by uninterrupted development of archaeological evidence for, and frequency of, weapons, fortifications, and other indications of warfare within the periods before and after the introduction of literacy; (2) by the fact that, in written records, the earliest wars are so sophisticated that some preceding development must have taken place; (3) by the observation that within individual areas of the world, the earliest written records come from such remote periods of time and from such different societies (e.g., Sumerian, Egyptian, Greek, and Roman texts followed by sagas of the European North or by the first chronicles of European nations, in addition to texts from Asia or the American continent) that they constitute neither any coherent chrono-

logical horizon nor an identical developmental and cultural stage. Moreover, (4) at times, written sources report fights even among the barbarians, i.e., in a purely prehistoric social milieu. Again, (5) ethnological evidence for wars in pristine societies is abundant. Obviously, written records put such an emphasis on military affairs because they represented a fully developed and constituted behavioral complex in close connection with the struggle for political power, which was distinctly dominated by social élites who initiated the writing of texts as well. In contrast, a major component of archaeological evidence is the by-products of common, everyday existence of the masses in the past. Changes and drifts in the spheres of power and politics left their archaeological imprints only in an indirect and belated fashion. For this reason, archaeology suffers from a general tendency to limit the consideration of war to the occurrence of a few static attributes of them. Archaeology consequently also underrates this aspect of existence of early societies at least to the same extent to which written records (surveying the sphere of power as a subject of preoccupation and honor of the ruling élites) overemphasize it, for instance, at the expense of production.

The feedback between the level of military affairs and social development from technical, economic, and political viewpoints is generally acknowledged; for this reason, the archaeological study of warfare surely should represent an important aspect of the study of pre- and protohistoric periods. So far, archaeology has—in a rather one-sided fashion—dwelt upon description and analysis of individual, static elements (e.g., typology and chronology of swords, research on fortification techniques, and the like), but in most cases, prehistoric warfare has not been conceptualized as a historical phenomenon with its social connections, causes, and consequences. This is so because answering these questions is definitely beyond the possibilities of archaeological sources themselves. [For instance, even a specialist so historically oriented as V. G. Childe (1941, 1944:71) was very skeptical about the possibilities of studying questions of war in prehistory.] Without knowledge of military matters, however, we would have to give up full recognition of the interconnections and historical trends in prehistory; we would not know the ways and means of expansion and fall of some prehistoric cultures. The fact that war and warfare are, without doubt, underrepresented in archaeological evidence should not lead to their underestimation in explanation.

If historians of warfare begin their treatises—in most cases—by describing wars of a developed type between slave-holding states, this is an untenable situation from the viewpoint of the origin of wars. At the same time, this implies that archaeological evidence alone is unable to provide

definitely convincing information. For this reason, research on military matters has to be undertaken in a complex and systematic fashion. Static and one-sided archaeological data have to be reintegrated into the structure of interconnections which they have lost through incomplete preservation and through the long isolation of different sources of information within different modern scientific disciplines. This reintegration must be accomplished by means of large-scale comparisons with data from physical and cultural anthropology, history, and the natural sciences. It is only through the comprehension of the original context of all kinds of data that the incompleteness, and thereby also a partial distortion, of information provided by individual types of sources studied today by different scientific disciplines may be overcome—at least to some extent. The procedures of induction and deduction must be applied in a complementary fashion; a one-sided approach will always lead to distortion of explanation. As is well known, deduction may be misguided by belief in phenomena which might have once existed but which did not actually emerge in the particular situations, induction, in turn, is risky because of the idea that only these phenomena evidenced by material remains ever came into existence, i.e., of the ability to overcome the so-called archaeological perspective.

ORIGINS OF WARS

Violence represents a phenomenon considerably older than mankind; in nature it makes itself felt as an important developmental factor, as a means of selection. Ever since the origin of man, biological factors, acquired through long-term development, have not ceased functioning, social influences being introduced as an addition. Gradual differentiation of cultural attributes (language, costume, behavior, and the like) diminished the similarities among populations and consequently also the inborn biological inhibitions against killing members of one's own species—that is, the primary, instinctive “animal morale,” based on optical and olfactory signals. The identifications of causes and pretexts for fighting and wars is inaccessible through archaeology. Anthropological and historical sources indicate that extremely low population density considerably lowered the probability and frequency of clashes, for which the most common reasons seem to have been either defense of hunting grounds or blood revenge. Neolithic discoveries of plant and animal domestication led to an increase in available biomass, with consequent multiplication of human populations and emergence of more permanent settlement structures. This was in connection with the first accumulation of provisions and property, whereby the fundamental condition for plundering and enslavement of people outside the community in question came into

existence. It is probable that the Neolithic discovery of harnessing the forces of others, in particular, of animal labor, constituted a model for the idea of similar exploitation of human labor. Together with this, irrational and psychological factors [e.g., fear of witchcraft or of misunderstood natural phenomena, intergroup antagonism as a complementary manifestation of intragroup coherence (Murdock 1960)] were obviously in operation from the beginning.

If, then, the natural struggle for existence and survival was, perhaps soon after the origin of man, transformed into a struggle for a socioeconomic existence (Behrens 1978:4), archaeological evidence indicates gradual transformations of the phenomenon of warfare within the Stone Age. The occurrence of individuals killed by arrows in Mesolithic cemeteries and depictions of archery battles within the stage of hunter-gatherer society (possibly of pre-Neolithic age) document a qualitative break in the Mesolithic. [Ethnological evidence for conflicts in hunter-gatherer societies has been summed up by Ember (1978).] From the Neolithic period onward, the occurrence of fortifications seems to imply defensive military tactics. In the initial phase, the Neolithic demographic explosion found a way out in spatial expansion, but as early as the Late Neolithic period, trends toward a profound change during the Aeneolithic period were felt in Europe (cf. the frequency of weapons, wounds in bodies, fortifications, and the like). Discounting the possibility of gradual borrowing of developed forms of armed violence from the Near Eastern civilization core by most barbaric communities in the vicinity, the general expansion of warfare (first and foremost as a popular form of theft) was undoubtedly accelerated by large-scale introduction of pastoralism. Nomadic shepherds accumulate their surplus in a form easy to expropriate (by driving the herds away), their males are not encumbered by work in the fields, erection of buildings, or production of utensils and tools, while the necessity to defend their herds against beasts of prey induces them to take up arms frequently. Since the Bronze Age, the art of warfare has constituted one of the stable components of social life and of the archaeological image of the past as well.

There are different opinions on the dating of the origins of war in the European archaeological literature. One group of specialists, impressed by the quantity of surviving weapons, suggests that war is a phenomenon of the metal ages (e.g., Behrens 1978:6). Others would put the origins of warfare back to the Neolithic (Camps 1982:311), or to the mature Neolithic or Aeneolithic ages (e.g., Escalon de Fonton 1964). The earlier opinion that the origin of wars may be sought in the Aeneolithic age (i.e., V. G. Childe) does not reflect reality but rather the tendency to explain what seems to be the emerging archaeological visibility, or rather conspicuousness and general expansion, of attributes of warfare at that time

as the moment of origin. There are, however, grounds for suggesting that the origins of war be sought as far back in time as the Mesolithic age. J.-G. Rozoy (1978:916) argues against any evidence for fighting in those times; nevertheless, he overlooks the spatial expansion of lethal wounds in Mesolithic cemeteries from northern Africa to eastern Europe (cf. below). In contrast, the Mesolithic period is for H. Müller-Karpe (1968:257ff.) the age of existence of hunter-warrior groups; obviously, this is the other extreme of interpretation. The fact is that the Mesolithic period, with its environmental and social transformations, can indeed represent the nascent period of intercommunity armed violence. The warmer and wetter Holocene climate favored the expansion of woods inhabited by nonmigratory and consequently rather regularly dispersed species of fauna which did not require large-scale seasonal migrations of hunting groups. Mild climate without drastic temperature extremes supported the growth and stability of biomass so that Mesolithic hunters exploited regular hunting areas. The existence of territories implied border regions, the more so because favorable climate and limited group mobility conditioned population growth [for instance, Rozoy (1978:1178) estimated population in France during the Mesolithic as three to five times higher than during the Late Palaeolithic]. Increased density of settlement and territorial life in fixed hunting grounds created substantial progress in cultural differentiation [S. K. Kozłowski (1975) identifies tens of cultural complexes throughout Europe in the same way as does Rozoy (1978) for France alone]. Emergence of territorial cultural units created conditions for border disputes or disputes over food resources and over space. In extreme cases this could lead to annihilation of competitive groups. This is the only way to explain the occurrence of lethal wounds not only in men but in women and children as well in Mesolithic cemeteries of Europe and North Africa. On the Jebel Sahaba cemetery of Nubia, belonging to the Quadan culture (c. 13,000–5000 B.C.), F. Wendorf (1968) observed among the 60 individuals buried about 24 men, women, and children killed by stone-tipped arrows (only some of the missiles, however, were sticking in the bones). In Graves 5, 12, 34, and 37 of the Mesolithic cemetery of Vasylivka III, arrowpoints were sticking out of the bones of the individuals buried there, and some skulls bore traces of crushing blows (Telegin 1961). Arrowpoints sticking in bones of dead bodies have been reported from other Mesolithic burial grounds throughout Europe: Volos'ke and Vasylivka I (Ukraine), Schela Cladovei (Romania), Vedbaek (Denmark), Téviec (France), and others (cf. Camps 1982:231, 310; Vencl 1984 and references therein).

Difficulties in explaining the archaeological remains of warfare are an objective expression of the fact that (1) some important features do not enter archaeological contexts because of their nonmaterial character (po-

litical and diplomatic negotiations, causes for wars, etc.) or because of their perishable nature (like weapons of organic materials), or, alternatively, for insufficient concentration and burial (in cases of battles). Archaeology is further characterized by (2) a limited capacity to distinguish phenomena following one after another in a short interval of time (e.g., troop transfers) and by the inability to synchronize spatially isolated phenomena (e.g., village and fortification fires). Difficulties of interpretation are brought about further by (3) the undoubtedly primitive and undifferentiated character of the earliest wars. Embryonic forms of war were obviously close to these phenomena (or they might even have imperceptibly blended into them) which, according to their subsequent developmental forms, are now systematically differentiated and marked by other terms. Obviously, this state of affairs survived—in simple societies—down to the Middle Ages and, in a way, it may be seen in a quotation from the laws of King Ine from the end of the A.D. seventh century, namely, that a group of armed men numbering less than 7 were to be considered brigands; 7 to 35 men-at-arms represented a band while a group of more than 35 men constituted an army.

ARCHAEOLOGY OF THINGS UNFOUND

It is generally known that past reality equally included actions and behavior leaving material traces as well as those which left virtually none or no traces at all. For this reason, it is advisable to complement the usual procedure in archaeology, namely of research on the past through the analysis of finds (representing no more than a documented part of the remains preserved), by additional study of the past from the viewpoint of things not preserved, in order to prevent the identification of the level of study of the past with the one-sided and fragmentary structure of archaeological data. The vanished past will be more comprehensible if all components of the cultures in question are treated with a measure of attention in proportion to their significance within the original (historical) structure rather than in proportion to incidental and mechanical factors conditioning their archaeological, i.e., partial, existence or nonexistence. Consequences resulting from such a change in the angle of perception will be demonstrated below by examples from the sphere of warfare. This complex of problems, intertwined with questions of power and politics, and with consequences reaching as far as the existence or nonexistence of whole communities, represents a significant segment of study of the past without respect to the volume or conspicuousness of the body of archaeological evidence left by it. The general assumption that the transfer of attention from research on archaeological facts to comprehension of entire historical structures will necessarily topple priorities and

change the composition of research problems is valid. The moment when questions will be asked not according to the perishability of materials but from the viewpoint of historical significance will necessarily relegate a number of currently fashionable archaeological themes to third- or fourth-rank importance, and, at the same time, interest in questions hitherto archaeologically sterile (absolutely or relatively) will be promoted.

The first step on our way toward overcoming the limits of structures of archaeological data should be a study of interrelations of individual classes of remains. The recognition of functional correlations among individual—relatively autonomous—manifestations of warfare leads to observation and subsequent explanation of contradictions and gaps within material sources themselves. (An example of this is the relative scarcity of weapon finds within fortifications which would be defenseless without them; another discrepancy is represented by the relative abundance of bodily wounds and the scarcity of other indications of warfare in some Aeneolithic cultures.) The second step is represented by research on phenomena not preserved archaeologically. The purpose of this is the identification of position, extent, and relations of things not preserved with respect to archaeological evidence, or rather the understanding of the distortions resulting from one-sided explanation of archaeological finds without taking these relations into consideration. It is true, of course, that positive information concerning things not preserved will not surpass the level of a general outline (as the arguments tend to rest principally in the sphere of conclusions *ex silentio*).

The notion of battle, representing one of the cardinal points of warfare, is absent from archaeological evidence, as this kind of behavior deposits archaeological remains neither in great depths in the ground nor in significant spatial concentrations. Archaeology is thereby deprived of one of the types of findspots and conditions from which knowledge of the occurrence and of the consequences of battles might be derived. To put it simply, nonpreservation of appropriate archaeological traces of battles leads to lack of comprehension of the forces behind certain turns and changes in cultural development and, in due course, to a general underrating of the importance of warfare in prehistory. In spite of occurrences of weapons, warriors' graves, fortifications, and the like, the absence of an archaeological record of battles results in an idea of an almost exclusively peaceful development of preliterate societies.

Prisoners of war and hostages, notions common in written sources of all periods, do not turn up in archaeological literature as these are components of a strictly historical structure of data, for which unequivocal counterparts within the archaeological structure are absent. Both institutions turn up, however—though partly “masked”—in archaeological texts, namely on the interpretational plane of pseudo-historical facts (in

notions of "import" and "influence," as they contributed to bilateral exchanges of artifacts and ideas). The fact that the existence of prisoners of war (probably a mass phenomenon lasting possibly from Neolithic/Aeneolithic times) is not conspicuous in the archaeological record does not relieve archaeologists from the responsibility to conceptualize the consequences of their potential existence with respect to the transformations of physical characteristics of populations, to propagation of ideas and technologies, to depopulation of territories and the like, i.e., with respect to major features of prehistoric developments.

Annihilation of a population through war (genocide, enslavement, or, alternatively, a transfer resulting in the loss of cultural identity in connection with the impossibility of reproducing an indigenous cultural pattern or in connection with being subjected to slave-like toil—basic and culturally indifferent production) is only scarcely manifested in archaeology by direct traces of violence. As a rule, this process results in phenomena documenting the "second phase"—traces of peaceful existence of the winners on the territory of the losers, being generally interpreted as the occurrence of a new archaeological culture. In this way, the first documentation of a violent exchange of population in Bohemia occurs with the first written record to that effect (Dobiáš 1964), since in the archaeological evidence alone, the victory of the Germanic tribe of Marcomanni over the Celtic tribe of Boii is visualized by subsequent expansion of Germanic settlements and cemeteries in an area occupied by Celtic people previous to that time.

Forced population transfers as a consequence of wars (examples in Wahle 1941, Godłowski 1962, Vencl 1984) generally tend to be unequivocally documented from the moment they enter written records (for the Bronze Age, cf. the Pentateuch book of the Old Testament or movements of the Sea peoples documented in Egyptian texts; Greek and Roman writings offer abundant documentation for the Iron Age). Written sources bear this out for barbaric populations, i.e., for prehistoric communities existing side by side with literate societies; the same may be assumed in regions for which no written sources are available (by chance) and, with a high degree of probability, for periods immediately preceding writing of texts. For this reason, every cultural change in archaeology is to be investigated a priori for a possible relation to warfare, especially in those cases when the cultural transformation is accompanied by a change of the population's physical characteristics. Written sources feature as common situations the transformation of conquered, inimical populations into "allies" and the incorporation of subdued or captive populations into the armies of expanding, suzerain organizations, not only in the cases of great states of antiquity (cf. Herodotus VII:61–95) but even in cases of "prehistoric" barbarians of Late Roman and Migration periods (cf. Am-

mianus Marcellinus XXXI:2:13 on the Alans; *ibid.* XXXI:3:1 on the Huns) and later on. The conglomerate ethnic character of large armies, fission of settlements, and related phenomena represent potential alternatives for interpretation of prehistoric situations in which there is a question of explanation of a new sort.

Obviously, there is no need to further enumerate other components of warfare which do not enter the archaeological record (troop transfers, commanding officers); instead, let us treat the consequences of nonpreservation of certain components for recognition of some basic classes of archaeological data on warfare in some detail.

ARCHAEOLOGICAL SOURCES FOR THE STUDY OF WARFARE

In general, all sorts of archaeological evidence have been exposed to the influence of factors which have minimized their typological diversity and frequency. Weapons, as primary vestiges of warfare, are represented archaeologically—in contrast to past reality—by a preponderance of inorganic artifacts. Comparisons between archaeological situations on sites with favorable conditions for preservation of organic materials (mainly wet sites) and of textual and iconographic evidence with archaeological data do point out, however, that stone and metal weapons represent no more than a part (often that intended for display or show as well as use) of the sum total of weaponry of a past population everywhere and at any time. For classical antiquity, this is borne out by analysis (Vencl 1979) of a description of the arsenal of the Persian army which invaded Greece in 480 B.C. under Xerxes (Herodotus VII:61–95). Within the conglomerate of peoples constituting the Persian army, organic materials were predominant in defensive armor, and all-wood javelins with fire-hardened points, wooden maces, lassos, etc., represented a part of the assault weapons.

The reduction in both quantity and quality of weapons within archaeological record is conditioned by a number of diverse factors: (1) Weapons of organic materials have usually perished without trace. For instance, all-wood javelins or spears, maces, clubs, etc., are known as finds since the Palaeolithic age, and written sources from antiquity as well as ethnological observations bear out their use up to recent times (cf. Vencl 1979, Capelle 1982). The long, parallel existence of all-wood weapons together with artifacts with tips or edges of inorganic materials bears out, then, not only the possible distortion of our picture of the origins of weapons themselves but also the doubtfulness of archaeological estimates of frequencies of weapons in ages of metal. (2) Some morphologically atypical weapons elude archaeological interpretation, as these are only exceptionally retrieved in functional contexts (hand-thrown stones, pebbles as slingshot, unretouched stone flakes or fish bones or

simple awl-like points employed on arrows or javelins, fire used as a weapon, and the like). Another group of weapons difficult to grasp in archaeological interpretation is represented by all-purpose tools (knives, axes, lassos), animals (as, for instance, war dogs), poisons or objects used as weapons by chance or in an emergency. (3) Specialized weapons often represented objects of such social significance that they are only rarely found in original archaeological contexts (only disposable weapons were buried in graves; specialized weapons were left only exceptionally in settlements or on battlefields). All these factors jointly lower the frequency (in extreme cases to zero) of weapons in archaeological data, which undoubtedly results in consequences for the evaluation of the character and development of societies and cultures. The volume of weaponry that has perished is impossible to quantify; obviously, this varies but is not negligible, as is evident from contradictions among different categories of archaeological data [e.g., from the existence of male burials equipped with shields only, from the existence of fortifications almost invariably lacking a quantity of weapons adequate and sufficient for their defense, etc.; cf. Vencl (1984) with references].

One of the best components of archaeological evidence for warfare is represented by information from iconography depicting artifacts in toto (for instance, up to the helmet crests) and, most pertinently, in functional contexts, or in action, whereby we get information about the ways and means of fighting. The principal disadvantage of iconographical sources is their scarcity and irregularity of spatiotemporal occurrence. Consequently, they cannot yield information on limits and frequency of phenomena. Their explanation also requires a critical evaluation of the degree of dependence of the depiction on models or on court ceremonies, on talents of the artist, or on fashions of the day. The frequency of military themes may not be in direct relation to the conditions of the period [e.g., Bažant (1981:13), who demonstrated for Athenian vase painting that war scenes were most popular in the period c. 575–550 B.C., making up 19% of all themes, while their frequency during the war with Persia fell to 7%, and during the war with Sparta to no more than 1%].

Warriors' graves constitute another significant indication of warfare in archaeology. The degree of exactness reached in our understanding of such archaeological remains, however, cannot be translated into a true historical understanding. Proportions of warriors' graves or of singular weapon types sometimes expressed with hundred-percent exactness in archaeological publications do not correspond to past reality, as the frequency of phenomena is subjected to multifactorial distortions. For instance, according to historical and ethnological evidence from many times and places, warriors of the defeated side killed in battle were regularly robbed of their arms, and even if they were buried at all, they cannot be

identified archaeologically. Weapons of organic materials deposited in the victors' graves have perished, and a proportion of these graves have been robbed. First and foremost, however, the custom of depositing arms in graves is not only limited to some cultures and periods, but fluctuations are observable within any given cultural tradition. Different legal aspects of tenure also are reflected in the burying of arms in graves: weapons that were conferred on warriors by their sovereigns or that constituted part of a heritage or were indispensable to their comrades in arms in a given moment were obviously not interred. The ratio of graves with arms to those without them may yield a distorted image even at the level of archaeological facts (i.e., through the absence of perishable arms; the ignoring of morphologically inconspicuous weapons as, for instance, stones used as missiles or axes used as weapons). In short, a warrior's grave provided with weapons represents the result of only one of a number of possible ways of handling the body of one killed in battle. Therefore, those burials with preserved weapons always represent no more than a fraction of the number of warriors killed, the number of which is indeterminable. (Texts from all times since antiquity abound in reports of dead bodies left lying without burial). The size of this fraction varies not only according to general spatiotemporal trends of evolving cultural behavior, but, even within one culture and one period, is conditioned by local circumstances (victory or defeat, distance of battlefields from home bases, number of killed and problems of time and means to perform the burial rites, momentary need of weapons, and the like). In general, the trends surveyed above foster the conclusion that victorious populations could be recognized archaeologically by a larger number of warriors' graves, while those groups defeated more frequently might yield a more "peaceful" archaeological image.

Studies of bodily wounds add significantly to our information on warfare, although even this category of sources has its limits. The number of bodies with wounds, be they artificially mummified or buried in peat bogs (Dieck 1965:register), is limited in size, space, and time. Skeletons, constituting a commonly accessible source, do not exhibit causes of death by wounds in soft tissues of the body. Again, those periods when cremation was practiced widely or those regions with acid soils (where skeletons have either completely disintegrated or have been substantially corroded) yield no data at all. The overall image is further distorted by wounds inflicted as legal punishments or ritual proceedings. In general, however, bodily wounds represent a hitherto underutilized source for the study of prehistoric warfare (Vencl 1984 with references).

Fortifications show by their spatiotemporal and typological diversity that they most often belong to the archaeological, not historical, realm of data. Obviously, they may represent similar archaeological manifes-

tations of different historical and behavioral phenomena (for details cf. Vencl 1983), even if we omit consideration of the employment of components of military architecture in structures of profane or sacred character. The truthfulness of the archaeological image is belied by nonpreservation of traces of some types of fortifications (since the times of antiquity, we have only textual references to abatises, impromptu fortifications of shields, sandbags, and the like). For instance, the general employment of wagon fortifications in barbaric armies of the Migration period contrasts with the absence of any archaeological evidence of fortifications from that time (for details, see Vencl 1983:298 with references). On the other hand, the absence of fortifications in some periods of prehistory cannot be taken mechanically to represent periods in which perishable means of fortification were used, as this absence could have been brought about by various, imponderable factors. Indeed, ground fortifications typically are not erected by populations accustomed to offensive, assault tactics, or by pastoralists without immovable property. However, their absence—totally unexpected and irregular—could have been caused by cultural factors beyond the possibilities of archaeological documentation. (An eloquent example is provided by the strategy of the Greek state of Sparta whose leaders—in contrast to all other Greeks—refrained from erection of fortifications as they believed that fortified refuges undermined the marital spirit of their troops.) Proper comprehension of the significance of fortification is further hindered by their size, surpassing practical possibilities of excavation, their multiple functions as residences of numerous groups of people, the frequent reemployment of old ramparts, and, last but not least, the absence of archaeological traces of troop transfers.

Archaeologists consider fortifications in general as components of stable structures of defensive strategies. Textual references since classical antiquity bear out, however, that fortified camps as refuges for troops on the march were erected in the course of military operations and transfers. For instance, Livy (X:15) recorded an event in which two detachments of a Roman army, after a stay of five months in the region of Samnium, left 131 fortified camps visible on the surface by their ramparts and ditches even after several centuries. Alternatively, ground fortifications on hilltops could have been put up in haste by retreating troops or troops confronted with an enemy superior in numbers (cf. Vencl 1983, with references). For this reason, a certain segment of prehistoric to medieval fortifications could be presumed to have had tactical significance, although they will be difficult to discern. [Exceptions are represented by temporary Roman military camps of standard geometric forms in Scotland, on the Rhine, etc., documented by air photography—e.g., St. Joseph (1981 with references).] Obviously, these will have simple rampart

constructions and scanty traces of settlement, interpreted hitherto by archaeology as places of refuge or unfinished/uninhabited forts. These examples indicate that even the testimony of fortifications as seemingly unproblematic components of archaeological evidence for warfare is plagued by distortions brought about by certain missing data.

Again, the ways of fighting are reflected only to some extent by archaeological sources. Dominant types of wounds, arms, weapon combinations in graves, iconographical sources, estimates of total weight of outfits, size of shields, representations of cavalry, and the like allow certain general conclusions concerning the mobility of troops and their tactical faculties. For this reason, we always have to explain fundamental changes in composition of the outfits (i.e., rearmament) by asking the question whether this did not reflect a general transformation of tactics. Of course, even in investigations of the ways of fighting there are fields where archaeology has virtually nothing to say (wars on water, psychological war) or, at least, very little, as in the case of chariotry. (This is documented for the Celts as important by Caesar but hardly reflected in archaeology, because chariots, as sizable and valuable items, were seldom interred, and not even an occasional inclusion among grave goods will permit us to identify it as a means of transport or a military vehicle.) The same goes for cavalry fights: together with scanty archaeological finds of perishable materials, historical and ethnological data indicate that the incipient harness consisted obviously of no more than a simple bridle of leather or cord. If, then, the origins of horsemanship are difficult to discern archaeologically (mostly by scanty iconographical evidence (cf. Vencel 1984 with references); since the earliest forms of harness did not include psalia, saddles, stirrups, spurs, and other attributes of horsemen, evidence surfaced archaeologically mostly in their showy forms in later phases of development as metal items), identification of the origins of cavalry fighting almost surpasses the faculties of archaeology. Iconographic evidence for military employment of cavalry horses or of other animals turns up too fragmentarily and rarely during the second millennium to be sufficient for spatiotemporal definition and estimates of frequency of the phenomenon in question. In the same way, irregular deposition of horses or their heads or attributes of horsemen warriors' graves elude objective assessment. Consequently, cavalry constitutes one of the components of warfare which has left the weakest archaeological traces in spite of the importance of the role it once played. In general, then, the archaeological image of the ways of fighting again yields an incomplete and distorted picture.

CONCLUSION

In general, the study of warfare in archaeology represents one com-

ponent of a wider problem, i.e., of explanation, in which the question of the relation between preserved and nonpreserved components of past reality is raised. The art of warfare belongs to those themes which illustrate pertinently that material and textual sources most often reflect divergent components of past activities, that they accentuate different segments from the totals of vanished cultures and create thereby two different information structures in which, together with points of contact and points in common, singular and mutually intranslatable notions turn up. Such notions as "prisoner of war," "king," and "battle," from a historical structure of facts, do not find counterparts in an archaeological structure of facts, which, again, offers terms such as "hoard," "import," "influence," and the like, which do not correspond to singular historical events, but which summarize similar material consequences of a number of rather different actions and patterns of behavior. In translating such notions from archaeological to historical structure, i.e., in explanation, semantic lapses, imprecisions, and even errors turn up frequently and, in part, necessarily. In this way, archaeologists tend to talk about kings as "important persons" or as "members of the ruling élite," war becomes a "turbulent period," annihilation of a population, "introduction of a new archaeological culture," and so on. As is generally known, all these facts play their part in the conspicuousness of the break in depictions of the past, felt at any time and place in the switch-over from explanations based on material sources to those based on textual sources. Though the continuity of material remains before and after the introduction of written sources does not unconditionally guarantee the continuity of all actions, we may pronounce a general judgment according to typical limitations of information derived from material sources in the sense that the level of civilization of so-called prehistoric communities will seem to be lower, their structure simpler and less defined, than for equal communities known on the basis of written sources. On one side, archaeological sources are far from having reached the limits of their faculties; new evidence may be gained not only by extensive excavations but by systematic efforts directed toward filling the gaps within the present structure of archaeological facts through analyses of rarely preserved or hitherto overlooked inconspicuous artifacts (e.g., Coles, Heale, and Orme 1978; Vencl 1979, 1980). On the other hand, certain facts will forever stay outside the sphere of material remains. In general, the archaeological structure of facts may be understood only on the basis of wide comparison with extra-archaeological facts. Though the nonpreserved components of archaeological structures may be traced out only negatively, i.e., in outline and without possibility of quantification, the very fact of their incorporation into explanatory concepts brings about a fuller comprehension of the significance of the remnants of past ages documented by material evidence. Progress in understanding of both archaeological and

historical structures of facts is mutual interconnected, and, consequently, it would not seem advisable to put the development of either one of them in opposition to the other. It is, however, true that understanding of the historical structure of facts in archaeology is currently underdeveloped.

Research on warfare in archaeology represents a particular case of research on a historical phenomenon which left disproportionately few material remains in view of its far-reaching social consequences (for instance, its role in the origin of patriarchal society or in the origins and expansion of a number of prehistoric cultures). Its proper evaluation will come as a result of future studies in this field, too long neglected by archaeology.

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