

Studying the Archaeology of War: A Model Based on the Investigation of Frontier Military Sites in the American Trans-Mississippi West

Douglas D. Scott

The history of technology is part and parcel of social history in general. The same is equally true of military history, far too long regarded as a simple matter of tactics and technical differentials. Military history too can only be understood against the wider social background. For soon as one begins to discuss war and military organization without due regard to the whole social process one is in danger of coming to regard it as a constant, an inevitable feature of international behavior. In other words, if one is unable to regard war as a function of particular forms of social and political organization and particular stages of historical development, one will not be able to conceive of even the possibility of a world without war (Ellis, 1986:1).

Introduction

Military sites, particularly forts, have long been of interest to archaeologists. There are a plethora of site reports in the literature detailing the results of investigations at American military forts, camps, prisons, and battlefields. These investigations have often been conducted as ancillary studies to the preservation, restoration, reconstruction, or interpretation of military-related sites. Many of the investigations have had little or no theoretical orientation or explanatory goal above that set by an architect or interpreter. This statement is not made as a negative criticism of the many fine reports that have resulted; rather, it is a statement of fact made with the knowledge that, until recently, the archaeological study of military sites in general, and westward expansion American sites in particular, has

had a limited research orientation. Here I intend to present some theoretical perspectives and models for the anthropological and archaeological investigations of military sites. While I do not ignore work on military sites east of the Mississippi River or in other parts of North America (or the world), my own research focus is on the Trans-Mississippi West and U.S. westward expansion, so the majority of the examples are drawn from that body of research.

Military sites are usually one of the best-documented site types available for study for the historian or historical archaeologist. Military sites are easily defined archaeologically and are relatively compact social, cultural, and physical units, which make them ideal for historical and anthropological studies. Military sites also have unique aspects that are related to their function, in that they are related to the prevention or making of war. In that area, military sites offer a unique perspective on the behavioral aspects of a culture, or cultures, in conflict. The intent of this contribution is to define an archaeological or artifact pattern by which military sites can be studied with an anthropological perspective. This perspective holds that military sites and their occupants exhibit a cultural behavior that is highly structured and stratified. The military is described as an element of society, a subcultural unit that mirrors the greater society's cultural ideals, constraints, and orientation. Military sites, because of their structured and ranked nature, provide information on a well-defined segment of the broader society in which to study behavioral patterns and cultural expressions of economic and social status. While the focus here is on U.S. Army frontier military sites west of the Mississippi River,

D.D. Scott e-mail: dougscott@aol.com

it is a corollary that any era's military sites will exhibit unique patterns. Those patterns can be identified and interpreted as they relate to the broader cultural entity of which they were a part. Technological changes through time will be evident, and those technologies related to the making of war will be horizon markers for the adaptive responses seen in the archaeological record of military site construction and battlefield patterns.

Military Sites as an Expression of the Parent Culture

In the last 30 years, the theoretical perspective for studying the military has been defined and been given an impetus in several seminal works (Carman, 2005; Geier and Winter, 1994; Geier et al., 2006; Lewis, 1984; South, 1977; Steffen 1980). Authors, in their own manner, argue that the study of military history and archaeology must be accomplished by seeing the military as a subset of broader cultural patterns. As the prominent British military historian John Keegan (1993:223) has so concisely stated, "Military sociologists take as their premise the proposition that any system of military organization expresses the social order from which it springs."

One element often discounted in the literature of war, because there is no ready means to study it, is the allure of the warrior life. The culture of the military is suited to some more than others. Those that best adapt to the structure and discipline of the military are often those that require order in their lives. They define the military culture, and they refine it for themselves. Often they take risks and do their job of war whether they are touted by society as a whole or not. They do it because it is their job, and the awards and rewards are not important; intrinsic reward is of only minor interest. There is fulfillment of a personal nature in the sharing of risk and hardship that is purely symbolic and personal, but is satisfying to the group members.

Obviously, booty, control, power, new lands, structure, and order are also goals that are implicit in war making, but they are narrow and limited explanations to the allure of the warrior. These are

often national or societal goals established and pushed by the power elite, either implicitly or explicitly. These goals are often reflected in the warrior class, but do not explain the willingness to continue taking risks and enduring hardship (Keegan, 1993:226).

Anthropologists and sociologists use the tenet that human behavior is patterned as their basic premise in studying people. The basic concept is that human behavior is constrained by the norms, values, morals, and sanctions of society, all of which combine to govern a group. Individual behavior may deviate from the expected norms to a certain degree, but in order to maintain membership in a group, society, or culture, an individual must generally conform to the group standards.

Archaeologists extend this premise to the physical remains of a society. Group and individual beliefs and behaviors are reflected in the material culture of that society, and thus can be studied by archaeological means. Among those advocating a processualist approach to the study of military sites is Lewis (1984), who identified a military settlement pattern within the American frontier. Lewis was influenced by historian Jerome Steffen's (1980) cosmopolitan frontier theory, which espouses the concept that cosmopolitan frontiers are regions of specialized economic activity that exhibit minimal cultural diversity during colonization. Hardesty (1982) and Steffen (1980) have stressed the structural similarity and cultural continuity of these frontiers within the colonization process.

Within this economic model, military sites are seen as a slight deviation from the norm, in that they were not developed for direct economic exploitation (Lewis, 1980:247–248). Instead, they stand as bastions of protection and symbols of power that are meant to ensure that the parent culture can exploit those resources without undue interference from Native cultures or other competing cultural groups. Lewis (1980:248) stresses that military frontiers are not found in all regions of colonization, but only where threats to the peaceful extraction of resources are seen, and a structured pacifying force is required. The cosmopolitan frontier concept is an excellent umbrella theory in which to view the American frontier military establishment. The economic thrust of the concept appears to be valid, and

it is one that can be subject to archaeological and historical investigation particularly in light of today's Marxist and postprocessual theoretical positions.

Fraser's (1983) historical study of the military in the Southwest is an excellent example of the use of an economic approach to explain the influence of the U.S. military in regional development. On the frontier, the military required a variety of support services to accomplish its missions. The Army, with its small budgets, limited manpower, and extended supply lines, had to acquire or purchase many services or goods from local inhabitants. The strict, and often severe, Army budgets of the nineteenth century required the field commanders to take the most economical measures possible in the acquisition of goods and services.

Fraser (1983) presents an argument that the Army's presence in the West, specifically the Greater Southwest, stimulated the development of local economies. He argues that the presence of the Army in New Mexico and Arizona, and to some extent in California, during and after the Mexican-American War, stimulated the development of a variety of support services. The places that provided these services, including hotels, flour mills, logging camps, farms, ranches, breweries, and saw mills, would not have developed as rapidly, if at all, without the pacifying effect of the Army's presence. Fraser's (1983), as well as Staski and Reiter's (1996), theses are economically based and emphasize market stimulation of an area by a new arrival with specific support requirements. Both arguments presuppose that such support services will be developed by local inhabitants. Furthermore, both contend (Fraser, 1983:180-190; Staski and Reiter, 1996) that the presence of the Army, from 1846 to the beginning of the American Civil War, stimulated new economic endeavors, created new jobs, and realized a large profit for the entrepreneurs who chose to actively participate in the marketplace.

Undoubtedly an economic perspective is valid; however, it does not take into account many cultural factors. The presence of the Army in the Southwest was a direct result of the Federal government's policy of manifest destiny, which was a culmination of the basic American and general Victorian philosophy of cultural superiority

and the need for territorial expansion. Fraser's view of a symbiotic economic relationship between the military and the civilian economy is good, but its cause must be viewed from a cultural perspective. First, the Army's presence in the Southwest, and in most other places in North America, must be seen as an imposition of an alien (Anglo-American) culture on "in situ" groups (i.e., Hispanic or Native American). The in situ cultures did not have the services in place to support the U.S. Army's occupation of the region and, of course, were, in some cases, actively resisting American expansion. The important point is that the support-service requirements were those of the mainstream of Victorian America. The Army was not trying to acculturate to the area; instead, it was imposing a previously defined culture on the existing societies. In order to maintain its own cultural identity and distinctiveness, the Army required goods and support services similar to those found in its core area. In New Mexico during 1846-1851, soldiers leaving the service, old Santa Fe Trail merchants, and entrepreneurs from the East, recognized this need and within their own cultural venue proceeded to import tangible and nontangible elements of Victorian-American culture to the Southwest. The imposition of American cultural ideals over the Native cultural expressions is generally termed the Territorial period. The archaeological implications of this period of transition are obvious.

The Mexican-American War should be a horizon marker in the Southwest, reflecting the transition from a Mexican- or Spanish-dominated economy to one dominated by Anglo-American industries and goods. Initially the industries and goods should be associated with the maintenance of the Army in the area and then gradually spread to a wider stream of society as the materialism of Victorian philosophy becomes more infused in the society.

While the economic approaches of Fraser (1983) and Steffen (1980) to the study of frontiers, specifically military frontiers, yield useful and valid hypotheses, they should not be the only approaches. The pattern of military sites is best viewed in the context of the culture that produced it and fostered the economic system that placed it on the frontier. Studies of military sites need to be understood within the perspective of the American-Victorian culture. The anthropological concept of the American-Victorian

culture and its attendant archaeological model was developed by Baker (1978). By placing the military within this construct, as a part of the larger cultural scene, archaeological patterns of military sites are more easily investigated and understood (Staski, 1989, 1992; Staski and Johnston, 1992).

The American frontier Army of the American-Victorian era must, a priori, be viewed as a mirror of the rest of the society that it represented (Greene, 1880; Knight, 1978). The material culture of the Army is that of the mainstream society with a few specialized tools to demarcate it from the rest of society. The Army, in effect, becomes a subcultural unit, even more archaeologically recognizable than most ethnic groups because of its material culture. The military is a rigidly structured and stratified subcultural unit by its very nature. Its job is war—the prevention of or making of it—and this job requires a rigidly stratified structure to carry out its goals (Dyer, 1985). The officers assume the higher authority and status, in effect becoming the various levels of staff and line managers. The enlisted personnel are lower on the class scale because they bear the brunt of waiting for or being committed to combat. They are easily equated to the working class in the larger society. This very real and necessary dichotomy provides an excellent point for study. The trappings of the military uniform, from buttons to rank insignia, are indicative of class stratification in all levels of the military. This status differentiation essentially mirrors the whole of Victorian society in a slightly exaggerated form.

Quartered Safe Out Here

The archaeological study of military patterns has tended to focus on the excavation of forts for many years (Carlson, 1979; Hanson and Hsu, 1975; Harrington, 1957; Scott, 1975; Smith, 1972; South, 1974). Some investigators have dealt with artifact patterns and their relationship to site function and past lifeways (Adams, 1991; Bowyer, 1992; Coe, 2006; Lewis, 1980; Wilson, 1965, 1971). Other investigations have focused attention on the definition of patterns. Lees et al. (1983) and Lewis (1984), using South's (1977) frontier pattern, have identified a

military site pattern that exhibits a regimented and uniform construction layout, with architectural artifacts dominating the assemblage and personal artifacts being predominantly male and military oriented.

The class and socioeconomic stratification of the military is a well-known phenomenon. Officers were generally better educated and from higher socioeconomic classes than the enlisted men (Greene, 1880; Rickey, 1963). While the officers were better educated and better paid than the enlisted personnel, they were required to provide most of their own kit, with the exception of housing. While in the garrison, officers were required to purchase or provide their own uniforms to meet the current regulations, home furnishings, mess gear, horses, tack, and other equipment, as well as their own food. Firearms and ammunition were purchased privately, although, for field use, an officer could requisition the use of government-issue weapons from the Quartermaster Department, or he could purchase those weapons as well.

Enlisted personnel were fed, clothed, and housed by the Army. Daily rations were provided to all enlisted personnel and, even in some cases, to their dependents as well. The soldiers were issued clothing and all other equipment according to regulations. Married enlisted men deviated from the norm by providing their own household furnishings. The degree of uniformity among enlisted men's living conditions on the frontier is readily illustrated by perusing photographs of nineteenth-century barracks (Brown, 1984). The degree of diversity or reflection of personal preference among the officers is also seen in photographs from this period (Frost, 1964). The dichotomy between the lifestyle of the two classes, officers and enlisted men, is not only apparent in the visual record, but in contemporary literature (Roe, 1981).

Charles King's (1890, 1891) fictionalized accounts of his service as an officer in the frontier Army are excellent examples of class distinctions between the officer and enlisted groups. The accounts, which have been analyzed for their authenticity by Knight (1978), emphasized the self-perceived tribulations of frontier life, while making note of the material culture available to the officer class on the frontier. Obviously contemporary accounts (Boyd, 1982; Roe, 1981; Stallard, 1978)

are better sources for defining the true variety of material culture, but King's work provides an interesting composite literary view of the frontier military.

The archaeological implications of the dichotomy between military classes are obvious. The material culture of the officers should show less uniformity than that of enlisted men. They should be of higher quality to reflect their socioeconomic status. The officers' material culture should also demonstrate greater diversity within classes, which will reflect personal preferences and variations in personal wealth and status within the group, and in the presence of gender-related artifacts. Specifically, officers' military trappings, such as buttons, buckles, and insignia, will be of higher quality than the government-issue trappings for the enlisted men (Adams, 1991; Stachiw, 1978). There should be greater diversity of quality in that material culture class for officers, which will reflect personal taste, personal wealth, and real, or perceived, status. Artifacts associated with daily life, such as tableware, glassware, cutlery, household furnishings, will also be more diverse and of better quality than the enlisted men's materials (Kapler, 1994; Scott, 1989). Again, diversity in those classes between individual owners also should be recognizable.

Artifacts associated with enlisted personnel will be generally uniform in type and distribution. Field equipment, beds, uniforms, rations, and mess gear were all government-issue. With the exception of

cooking paraphernalia, table services, and a few personal items, enlisted men's artifacts should show a great deal of uniformity. Company messes were allowed to purchase their own table services and cooking gear with company funds. As a general rule, these were sturdy utilitarian goods. Occasionally a company or regimental device will be found on table services denoting unit esprit d'corps. Additions to the rations, condiments, canned fruits, etc., could also be purchased with company funds to add variety to the ratios issued. Some diversity in the archaeological record might be expected to be reflected in the food-related artifacts. The only area of real diversity that might be expected in artifacts relating to enlisted men's contexts is personal items. These would be private purchase items, such as combs, toothbrushes, smoking pipes, and gaming pieces.

Another area of class stratification that can be studied archaeologically is the housing provided by the government for its personnel (Fig. 1). Quarters for the officers ranged from a room for junior officers, to apartments for the more senior officers, and to an entire house for a post commander. Officers gained no additional space by being married or having children; instead, quarters were allocated by rank. Enlisted personnel usually were housed in company-sized communal barracks. Some noncommissioned officers were allotted a room to themselves, and occasionally a cook or baker might have a room to himself near his kitchen or bakery.

Fig. 1 The officers' quarters at Fort Larned, Kansas, exemplify the higher status that officers of the frontier Army enjoyed (Fort Larned National Historic Site photograph)



Married enlisted men had to fend for themselves until the end of the nineteenth century, when the government began providing some housing for married enlisted personnel.

Officers' quarters tended to be smaller structures divided into quantified space for officers of different rank. The enlisted barracks were generally large communal structures. While the building materials differed from fort to fort, the architectural style of the buildings reflected the current civilian architectural preferences. Officers' quarters tended to be built of better-quality materials and with better workmanship than most nonofficer-related structures. Staski and Reiter (1996) have demonstrated that the adobe used in the construction of the officers' quarters at Fort Fillmore, New Mexico, was of better quality than that used for construction of the enlisted men's barracks.

Generally, a post went through an evolution of building. First was the temporary camp. The camp, often designated officially as a cantonment, consisted of tents. If the camp was intended to be occupied for more than a few months, the soldier-laborers would construct more weather-proof, if not more permanent, structures. Quarters and storehouses would be constructed of available materials, which meant that a fort could be made up of dugouts, adobe, sod, picket buildings, logs, or frame buildings. Often they were laid out on a quadrangle plan. If the post became a permanent station, then the buildings were reconstructed of more durable materials. Stones or bricks were favored, but wooden frame buildings were less expensive, and therefore, predominate. While the architectural style of the temporary camps tended to be vernacular, the permanent stations reflected the prevalent popular architectural styles. The architecture was somewhat institutionalized, and archaeologically this will be seen in the building hardware and the arrangement of architectural features.

Lewis (1984) has noted that frontier military sites are arranged hierarchically around a quadrangle. The pattern is slightly more complex (Hoagland, 2004; Hoagland and O'Dell, 1997), but the quadrangle is the predominate pattern (Robinson, 1977). The primary structures, officers' quarters, enlisted men's barracks, offices, and primary storehouses are usually arranged around the quadrangle; however, ancillary structures, like carpenter shops,

blacksmith shops, stables, bakeries, occasionally a hospital, and at pre-1860 forts, pest or death houses, are located outside the ubiquitous quadrangle. Civilian structures, even those authorized by the military (sutlers stores and houses), are often situated away from the quadrangle. A review of 214 nineteenth-century posts located west of the Mississippi River, for which plans are readily available (Hart, 1980), indicated that 90.7 percent ($n = 194$) were arranged around the quadrangle plan. Seven (3.3 percent), which did not fit the plan, were major supply or recruit depots and thus could be considered a central place of supply for the other units. The other 13 forts (6 percent) that did not fit the pattern were, with one exception, fur-trading posts or stage stations pressed into military service. They were existing civilian features used temporarily by the Army. The single exception in this sample is the site of an Army coastal defense battery, which is a unique and specialized site.

The orientation of architectural features around a quadrangle should be the archaeological manifestations of a relatively permanent or stationary military site. Ancillary or support buildings or structures should be found outside the quadrangle. The archaeological evidence of architectural features and building hardware should be used a dating guide, as military architecture followed the architectural styles and trends of the civilian world. The majority of hardware, window fenestrations, and construction materials will represent those types readily available to that area, but they will also be found in quantities representing the institutionalized nature of the site. Archaeological sites containing military-related artifacts, but whose arrangement of architectural features does not follow the quadrangle pattern, should not be dismissed as nonmilitary.

If an archaeological site appears to be primarily civilian in nature, yet there are significant percentages of military artifacts, then the site should be considered a temporary military post. Sites without architectural features, but with a predominantly military artifact assemblage, are likely to be temporary camps or battlefields. The temporary camp will yield a diversity of artifacts related to messing and camping. The assemblage might include tin cups, plates, cutlery, bottles, tent pegs, tent pole ferrules, transportation-related items, and miscellaneous military

artifacts (DeRegnaucourt, 1995; Dimmick, 2004; Garrow and Holland, 2005; Geier et al., 2006; Legg and Smith, 1989; McBride and Sharp, 1991; Schack, 1987; Seidel, 1983; Whitehorne, 2006).

Field Fortifications

An all too common perception of the military on the western frontier is the well-mounted cavalry charging the unsuspecting Indian village, or the image of mounted Indians and cavalry chasing each other across the rolling grass-covered plains. Those scenarios did occur, but not often. As Dippe (1980:ix) notes,

officers and men spent most time in post on routine duty . . . expeditions or patrols into hostile country encountered few Indians and fought fewer. Despite the impression of contact, pounding action, ornate rescues, thrilling bugle calls, and desperate charges, on the whole campaigning was as frustrating as it was tiring, and there was more dust than glory to be had chasing Indians for Uncle Sam.

Combat situations involved infantry as well as cavalry, and sometimes artillery played a significant role. Running skirmishes occurred and usually involved a few men traveling unescorted with attackers taking advantage of their superior numbers or arms. Very few fights occurred on horseback. The clear majority of the 1,000 or so battles, fights, and skirmishes of the “Indian Wars” were fought dismounted, by both sides, using the best available cover to their advantage.

Such combat actions did not always involve the construction of earthworks, but various types of entrenchments were used throughout the “Indian War” period, roughly 1866–1890. When entrenchments are mentioned in the literature, they are often referred to as hastily dug entrenchments with a mound of earth thrown up for protection, or a shallow rifle pit (Fig. 2). Such statements leave the impression of a haphazard construction excavated in order to meet an immediate and life-threatening need. These references also convey a feeling of unpreparedness on the part of those constructing the earthwork, and a lack of familiarity, training, or knowledge of the purpose or use of an earthwork beyond that of turning a few bullets in the immediate

engagement. None of this could be further from the truth, as a literature review of the era demonstrates.

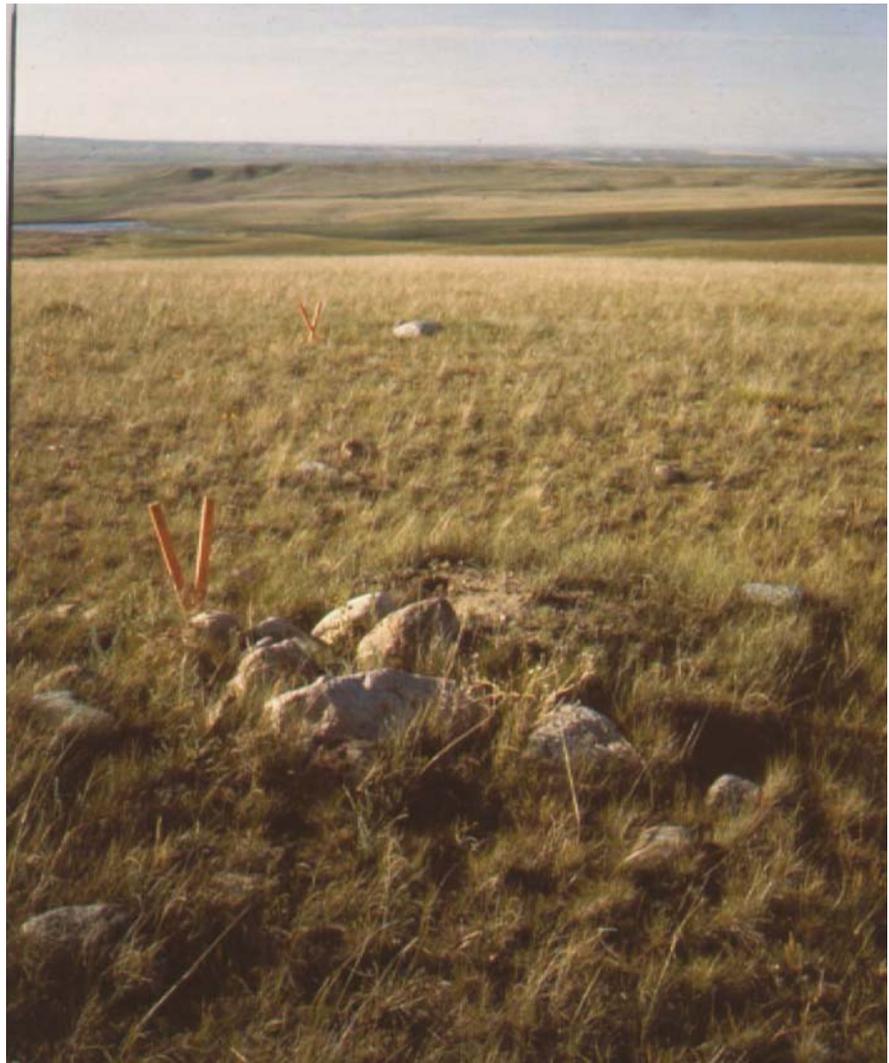
Earthworks are seldom mentioned in literature pertaining to the West prior to the Civil War; however, this should not be construed as a lack of knowledge of their use or construction. In general, there does not appear to have been a need for earthworks in the West after the Mexican–American War. They were used in the prehistoric period (Schaepe, 2006), during Roman times (Clunn, 1999; Shulter, 1999), in the Revolutionary War era (Cornelision and Cooper, 2002a), the War of 1812 (Cornelision and Cooper, 2002b), at the Alamo in 1836 (Fox et al., 1976), and during the Mexican–American War (Singletary, 1960) at Fort Brown, where a pentagonal earthwork with bastions was constructed.

By the beginning of the Civil War, most Army officers serving in the West were U.S. Military Academy graduates. By virtue of their academy background, they were well trained as engineers and well versed in the concept of field fortification. They knew the principles and techniques of field fortification construction and were ready to apply them when the need arose.

With the onset of the Civil War, a perceived need arose to construct earthworks to protect towns, harbors, navigable rivers, and other strategically important locations. They were even present in the Trans-Mississippi West. At a number of western forts, notably Forts Sisseton, South Dakota; Kearny, Nebraska; Craig, New Mexico; Camp Nichols, Oklahoma (Ferris, 1971:252); Bent’s New Fort, Colorado (Ferris, 1971:102); Fort Hindman or the Post of Arkansas (Walker, 1971); and Union, New Mexico, formal earthworks were constructed and manned in anticipation of attacks by opposing troops or Indians.

The end of the Civil War did not eliminate the need or use of field entrenchments. They were constructed and used throughout the “Indian Wars,” including the 1868 Hayfield Fight at Fort C. F. Smith, Montana (Appleman, 1960:138); Beechers Island in 1868 (Forsyth, 1930:43; Hutchins, 1960); the Anadarko Affair of August 22 and 23, 1874 (Nye, 1962:209–210); the Battle of the Little Bighorn in 1876 (Godfrey, 1892; Upton, 1990); Big Hole and Bear Paw Battles of 1877 (Beal, 1971); and the final battle of the “Indian Wars,” the

Fig. 2 This subtle depression and rock feature is a rifle pit used by the Army during the 1877 Bear Paw Battle with the Nez Perce (photograph by the author)



Wounded Knee Massacre of December 1890. Earthworks were not just the domain of the U.S. Army. Various Native American groups used rifle pits, trenches, and rock-and-log breastworks (Lockwood, 1987; Nye, 1962; Patterson, 1960; Schaepe, 2006).

The impression left from studying historical documents is that rifle pits and trenches were constructed in the heat of battle and were hasty and expedient affairs. In a sense this is true, as they were temporary and hastily constructed. However, this does not mean they were haphazardly constructed. The Army trained their personnel in the construction of earthworks and rifle pits. Archaeological

investigation of earthworks and bomb proofs has focused primarily on Civil War (Babits et al., 1987; Hanson, 1968) and Revolutionary War sites (Hanson and Hsu, 1975), although other sites have been investigated (Cornelison and Cooper, 2002a; Stichelbaut, 2006). These investigations have demonstrated that patterns of construction and occupation are present in the archaeological record and can be interpreted as cultural phenomena.

The late 1870s were a period of experimentation and development for Army equipment, as a result of the extensive Indian fighting in the West. One experiment at Springfield Armory included testing belt knives, a hunting knife (later adopted as the

Model 1881 Hunting Knife), and an entrenching tool, for their reliability in digging hasty entrenchments. The October 15, 1879, test involved four soldiers digging rifle pits with the various tools to test their efficiency (Hardin and Hedden, 1973:4–8). The pits took from 8 to 11 minutes to construct. They were about 4 feet long, 32 inches wide, and 12 inches deep, with the spoil dirt mounded up at one end of the long axis, which was essentially the same as rifle pits employed during the Civil War.

In a guide for officers of the Indian fighting Army, a U.S. Military Academy instructor, Edward Farrow (1881:244–245) describes how to dig a rifle pit, or as he terms it a “shelter-pit”:

All soldiers, and especially recruits, should be frequently exercised in throwing up shelter-pits and shelter-trenches, on grounds of variable contours, and where there is no natural cover.

A very slight parapet of newly excavated earth is sufficient to protect men from the effects of rifle balls. Experiment shows that the penetration of the ball (service rifle) at a range of 10 yards is 20 inches, and only 10 inches at 200 yards.

After a little practice, each soldier will ascertain the form of pit that best suits and protects him. The depth need not be uniform, but should be at least ten inches where the body rests, and six inches elsewhere. With a view to lessening the effect of the enemy's fire, the soldier should lie down well under and behind the cover. . . . Many are the instances recorded where it was impossible to forward the intrenching tools to the front until after the exigency for their use had passed, and the men were compelled to use tin plates, tin cans, fragments of canteens, knives, sticks, etc., in order to get temporary shelter from the enemy's most galling fire. . . . I am an advocate of Colonel Rice's trowel bayonet, after several practical tests of its merit.

A drawing accompanying the discussion illustrates an L-shaped pit with a lunate mound of earth thrown up at its front. The drawing and profile indicate that the pit should be 6 inches deep on the long axis and about 4 feet long. The narrow width should be a foot, and the wider section should be 2 feet 3 inches. The depth of the smaller section should be 5 inches to the front and 10 inches sloping at the rear. The dirt mound should be thrown up toward the enemy, and a space of 6 inches should be left between the pit and the mound. The mound should have a height of 14 inches and a basal width of 18 inches. This description is similar to the rifle pits dug during the 1879 Springfield Armory trials, although

there are some differences in dimension. Farrow (1881:244–245) also describes a shelter-trench:

Having arrived on the line (not necessarily straight, but determined by the features of the ground, so as to secure all natural cover), the men either stack or ground arms, and begin to throw the earth to the front (using both hands if necessary) so as to form a parapet from 16 to 20 inches high. All available turf, logs or rocks should be used as a revetment to the interior slope of the parapet.

The main object of these trenches is to afford cover from the fire of the enemy until the proper moment for advancing against him.

When the trench has been made 2 feet wide and 15 inches deep, it will afford excellent cover for one rank kneeling in it, and file-closers lying down in rear. If the trench be made 4 1/2 feet wide, it will afford cover for two ranks kneeling inside of it; if it be 7 feet wide, it will allow the men to lie down in it.

The Model 1881 hunting knife officially replaced the trowel bayonet in 1890. Major J. P. Sanger developed an entrenching method utilizing the hunting knife as the digging implement (Hardin and Hedden, 1973:71–75). He noted that the individual rifle-pit construction technique was ignored in most texts of the day. He suggested that the method of individual entrenchment be a pit constructed under fire for the protection of the head and trunk of the soldier, thus leaving the legs exposed.

Sanger indicated that the pit should slope upward from front to rear. He believed the upward slope was an important feature, so that if the pit were abandoned it could not easily be used by the enemy without alteration. Sanger indicated that a pit 33 inches long, 18 inches wide, 9 inches deep, with a 9-inch-high mound to the front could be constructed, under fire, in about 3 minutes. A photograph of regulars training in Florida during the 1898 Spanish–American War illustrates the actual practice of the Sanger entrenching technique (Urwin, 1988:138–139).

Few field entrenchments have been investigated archaeologically, although at least three trenches in the Trans-Mississippi West have been excavated or tested. One is at the site of the 1836 Battle of the Alamo (Fox et al., 1976), another at Fort Larned, Kansas (Scott, 1974:303), and the third is at Fort Dilts, North Dakota (Haury, 1989). Rifle pits have also been investigated archaeologically at Big Hole

battlefield (Scott, 1987, 1994), Little Bighorn battlefield (Bray, 1958), and Fort Dilts (Haury, 1989:16–25).

It can be expected that the archaeological remains of rifle pits and other earthworks that were constructed by troops trained in U.S. Army techniques, found in the Trans-Mississippi West, will be similar. They may be difficult to define unless they were dug through two or more soil strata or left artifacts behind in the bottom of the entrenchment. Due to the high probability of a rifle pit's subtle surface manifestation, caused by short-term usage and the lack of depth, it may be very difficult to find during site survey or inventory. Rifle pits and field trenches will not necessarily be found spaced at regular intervals on battlefields. The essence of a hasty entrenchment was that it was meant to take advantage of any cover the terrain might offer.

Indian rifle pits, mentioned so prominently in historical documents, are not well identified. It may be assumed that Native American rifle pits will demonstrate less formality and structure than those constructed by formally trained troops. This assumption is based on the understanding that Native Americans in the Trans-Mississippi West followed less-structured tactics and rules of engagement. This assumption requires formal archaeological testing to confirm or revise its basis.

In summary, entrenchments are not always clearly mentioned in the historical record. Many battle sites may have trenches or rifle pits that are not mentioned in historical documents, or are only referred to in the most casual way. Archaeologists inventorying battle sites should be aware that entrenchments may be present regardless of the statements found in the historical source material. Trenches and rifle pits were ephemeral and hastily constructed, and thus may not be mentioned in historical sources.

Hastily dug trenches and rifle pits are likely to exhibit minimal surface manifestations. Close examination of depressions and surface irregularities is warranted to locate these shallow features. Limited excavation suggests that their shallow nature will make their discovery and documentation difficult, but not impossible.

Historical and archaeological evidence indicates that earthworks constructed by organized military forces will be based on a preconceived pattern,

which was ingrained during recruit training. The type and size of a trench, rifle pit, or other hastily dug feature will likely be consistent. The spacing of these entrenchments will take advantage of the protection or cover offered by the site's terrain. Spacing will be irregular, but size and shape will be similar between and among entrenchments.

Hasty entrenchments utilized by irregular forces or other cultures are likely to be less formalized in size and shape. It is expected that spatial distribution is likely to be similar to that of organized forces in that the topography will dictate entrenchment placement in order to maximize the protection of the occupants.

Field entrenchments, specifically hasty entrenchments, are seldom-encountered, or at least seldom-recognized archaeological features on battle sites in the Trans-Mississippi West. They do occur, and from historical sources and archaeological examples there appears to be a pattern to their construction and concomitant use. Archaeologists should make themselves aware of the potential for finding these features at battle sites, and they should be alert to their subtlety of form and depth. Additional investigation of other U.S. Army hasty entrenchments and those of opposing forces will likely change some of the precepts presented here; however, until additional investigations occur, these data can be used as a model for the archaeological study of hasty field entrenchments.

The Battlefield Pattern

Battlefields may seem to be a simple type of archaeological site; however, like any other archaeological endeavor the site is often more complex below the surface. Noël Hume (1968) once considered battlefield sites to be a poor place for archaeological investigations. He considered them to be good places to find cannon positions or war relics for museum displays, but not sites worthy of serious archaeological investigation. Recent battlefield archaeology at the Revolutionary War sites of Saratoga, New York (Snow, 1981), Monmouth, New Jersey (Silivich, 1995), and Cowpens (Cornelison and Cooper, 2002b); the Mexican–American War site of Palo Alto Battlefield, Texas (Haecker 1994;

Haecker and Mauck, 1997); the early “Indian Wars” site of Fallen Timbers, Ohio (Pratt, 1995); the Civil War battlefields of Mine Creek, Kansas (Lees, 1994), and Monroe’s Crossroads, North Carolina (Scott and Hunt, 1996); the late “Indian Wars” sites of Little Bighorn battlefield, Montana (Fox, 1993; Scott and Connor, 1986; Scott and Fox, 1987; Scott et al., 1989), Big Hole battlefield, Montana (Scott, 1994); the 1868 Washita battle (Lees et al., 2001); and the Red River campaign of 1874 (Cruse 2008); and Apache campaign sites (Adams et al., 2000; Laumbach, 2001; Ludwig and Stute, 1993) has shed an entirely different light on the viability of battlefield archaeological studies.

A battlefield might be expected to be the last place to find archaeologically definable behavioral patterns, but those who engage in combat fight using the established manners and patterns in which they have been trained (Dyer, 1985; Fox and Scott, 1991; Pollard and Oliver, 2002; Rose, 2005; Smith, 2006; Sutherland, 2005). It is precisely this training in proper battlefield behavior that results in the deposition of artifacts that can be recovered by archaeological means and interpreted using an anthropological perspective (Sutherland, 2005). Gould (1983) has pointed out that shipwreck sites are documents of behavior, and as warfare-related wrecks are documents, land battlefields are also archaeological documents of past behavior. Battlefields are no less an expression of culture, albeit a violent one, than are architectural elements.

Clearly battlefield studies can yield information on combatant positions during the course of the battle. They can also provide details of dress, equipment, and, in some cases, individual movements. Archaeological data can provide information on troop deployment, firing positions, fields of fire, and weapon types. Studies of artifact patterning can also reveal unit or individual movement during the battle, weapon trajectory, and range of firing by determining forces of impact. Battlefields viewed in an anthropological context should be seen as the physical and violent expression of a culture, or cultures, in conflict (Conlin and Russell, 2006; Fox and Scott, 1991; Smith, 2006).

Wars are not fought by any party without some explicit or implicit goal. Different cultures have different goals, although the United States has always had clear military goals. At the simplest

level, U.S. military policy is clearly stated in today’s field manual FM100-5: Operations. These tenets of operations and tactics provide fertile ground for archaeological inquiry. The basic tenets of modern warfare are simply stated in the operations manual: whenever Army forces are called to fight, they fight to win. Army forces in combat seek to impose their will on the enemy. Victory is the objective, no matter the mission, and nothing short of victory is acceptable. The fundamental tenets of the Army operational doctrine describe the characteristics of successful operations. In and of themselves they do not guarantee victory, but their absence makes it difficult and costly to achieve.

The tenets of modern military operation as set forth in FM 100-5 provide a ready-made set of testable hypotheses for anthropological and archaeological inquiries. FM 100-5 lists the tenets as follows:

1. Initiative: the ability to set or change the terms of battle. In the attack, initiative implies never allowing the enemy to recover from the initial shock of the attack. In the defense, initiative implies quickly turning the tables on the attacker. In battle, initiative requires the decentralization of decision authority to the lowest practical level.
2. Agility: the ability of friendly forces to react faster than the enemy. A mental and physical quality, it is a prerequisite for seizing and holding the initiative. The accumulation of chance errors, unexpected difficulties, and confusion of battle creates friction that impedes both sides.
3. Depth: the extension of operations in time, space, resources, and purpose. Operations are conducted throughout the depth of the battlefield with the aim of defeating the enemy more rapidly by denying freedom of action and disrupting or destroying the coherence and tempo of its operations.
4. Synchronization: the ability to focus resources and activities in time and space to provide maximum relative combat power at the decisive point.
5. Versatility: the ability of units to meet diverse challenges, shift focus, tailor forces, and move from one role or mission to another rapidly and efficiently.

Beyond the tenets of operations, there are four primary elements to successful combat: maneuver,

firepower, protection, and leadership, which combine to create combat power—the ability to fight. Again these have significant potential for developing models for anthropological and archaeological investigation of battlefields and warfare in general.

1. Maneuver: the movement of combat forces to gain positional advantage, usually in order to deliver either direct or indirect fire upon the enemy. Maneuver is the means of positioning forces at decisive points to achieve surprise, psychological shock, physical momentum, massed effects, and moral dominance.
2. Firepower: the destructive force essential to defeating the enemy's ability and will to fight. It is the amount of fire that may be delivered by a position, unit, or weapon system.
3. Protection: conserving the fighting potential of a force so that commanders can apply it at the decisive time and place. Protection has four components: operational security, conservation of soldiers' health, morale, and equipment readiness, safety, and avoidance of fratricide.
4. Leadership: the most essential dynamic of combat power is competent and confident officer and noncommissioned officer leadership.

Finally, within Army operations and tactics, there are the nearly sacred Nine Principles of War, which can be used as addressable questions in looking at archaeological/anthropological conflict situations in the United States:

1. Objective: direct every military operation toward a clearly defined, decisive, and attainable objective. The ultimate military purpose of war is the destruction of the enemies' armed forces and will to fight.
2. Offensive: seize, retain, and exploit the initiative. Offensive action is the most effective and decisive way to attain a clearly defined common objective. Offensive operations are the means by which a military force seizes and holds the initiative, while maintaining freedom of action and achieving decisive results.
3. Mass: the effects of overwhelming combat power at the decisive place and time. To mass is to hit the enemy with a closed fist, not poke at him with the fingers of an open hand.
4. Economy of Force: the judicious employment and distribution of forces. No part of the force should ever be left without purpose.
5. Maneuver: place the enemy in a position of disadvantage through flexible application of combat power.
6. Unity of Command: for every objective, seek unity of command and unity of effort. Unity of command means that all forces are under one responsible commander.
7. Security: never permit the enemy to acquire unexpected advantage. Security enhances freedom of action by reducing vulnerability to hostile acts, influence, or surprise. Security results from the measures taken by a commander to protect his forces.
8. Surprise: strike the enemy at a time or place or in a manner for which he is unprepared. Surprise can decisively shift the balance of combat power.
9. Simplicity: prepare clear, uncomplicated plans and concise orders to ensure thorough understanding. Everything in war is very simple, but the simple thing is difficult.

U.S. Army tactical doctrine during the early years of the nineteenth century, while not as clearly or concisely laid out as the material summarized from FM 100-5, did exist. Army doctrine and operations were heavily influenced by military experiences during the American Revolution, observing the Napoleonic Wars, and experiences growing out of the Mexican–American War (1846–1848). The first half of the nineteenth century generally saw close-order infantry assaults with bayonets gleaming, cavalry charges with sabers flashing, and direct fire by smoothbore artillery placed in the front of the line, as the appropriate manner of giving battle and achieving victory. These proscriptions were followed during the first 2 years of the Civil War (1861–1865) with devastating casualties. The tactics of 1861 slowly gave way to more discrete tactics by 1863 (Griffith, 1989). Both Union and Confederate commanders saw appalling casualty rates using the older tactics against the commonly used and technologically superior rifled musket. Smoothbore artillery was no longer able to mass in the front of an infantry line and pound the enemy. The range of the rifled musket was equal to that of the smoothbore

artillery, allowing the infantryman to pick off gun crews at will. The time-honored cavalry charge to break the infantry line was no longer feasible due to the long range and accuracy of the rifled musket. The infantrymen could easily decimate a cavalry charge before it was well underway. Finally, an infantryman armed with the rifled musket could destroy a close-order infantry charge well beyond the traditional 100 yard firing range of the old smoothbore musket.

By the last years of the war, tactics had adapted to the effectiveness of modern rifled arms. Infantry tactics were modified to open-order skirmish lines with available cover used whenever possible. Defensive positions were usually fortified with extensive entrenchments. Even short-term camps were usually protected by prepared rifle pits, picket posts, and videttes.

Although used extensively throughout the war, artillery, by 1863, became a defensive weapon, rather than the offensive weapon it had been in 1861. Artillery was required to move behind the line of defense to be effective because of the increased range of the rifled musket. Artillery tactics of the Civil War always used direct fire. Indirect fire would not be developed for another 40 years. The direct fire concept relegated the artillery to a defensive role throughout the Civil War and for many years to come, even though long-range accurate rifled artillery was common in the later years of the Civil War and into third quarter of the nineteenth century.

Of the three combat branches, cavalry made the greatest adaptation during the latter part of the Civil War, continuing these tactics during the "Indian Wars." In battle it moved from the close-order charge meant to break or outflank a line to a mobile unit that could move quickly to the scene of action and dismount to fight as light infantry. With the advent of breech-loading single-shot and repeating carbines, cavalry firepower increased dramatically. Increased firepower and mobility allowed the cavalry to regain a usefulness on the battlefield that it had lost with the introduction of the rifled musket. Cavalry was also used extensively throughout the Civil War and "Indian Wars" as a fast and efficient scouting and intelligence gathering arm. Its mobility allowed units to range far and wide around larger

columns to protect the marching columns and scout opponents' movements.

The U.S. Army was downsized and reorganized in 1866 to reflect a change in mission at the end of the Civil War. During the late 1860s and the early 1870s, the Army began to assess and develop a new tactical doctrine in response to their role as a frontier protector. One officer, Emory Upton, is credited with developing a new system of tactics for the Army during this era. However, Upton only headed a board of officers that, for the first time, studied all three combat branches and developed a compatible system of tactics for them (Jamieson, 1994). This system, an outgrowth of both experiences in the Civil War and a study of European armies, focused on two major changes in the way the Army went into battle. First, companies were reorganized so that the men marched and maneuvered in columns of fours. That is, groups of four men marched and moved together, which was the forerunner of our modern squad system. Groups of fours could then be combined into units of 8, 12, or larger numbers for specific tasks. Again this was a forerunner of the squad and platoon system used by today's Army units. Upton and his board also introduced the concept of open-order skirmishing. A direct result of their Civil War experiences of facing rifled musket fire in massed lines that resulted in large casualty and wounded rates, the board recognized the necessity of opening the line to minimize casualties caused by the more effective range and greater firepower of the breech-loading firearm.

Two other tactics were developed as a direct result of Indian fighting. First was the recognition that the most effective time to score a victory over the mobile Plains warrior was during his least mobile moments. The Army high command, building on its frontier experiences in the years preceding the Civil War, saw that the Plains Indians were the most vulnerable during the winter, when the lack of good forage and raw weather prevented the movement of the various bands. Second was the concept of a multipronged attack on a band or village. This concept involved splitting commands, whether wings of battalions, battalions of regiments, or even whole regiments of larger forces, into elements that would maneuver to encircle the subject of the action. For the most part, the tactic was successfully

employed in numerous instances. It failed on occasion, particularly at the Little Bighorn.

There are essentially two types of battlefields: siege and transitory. The archaeological evidence of warfare will be similar between the two in some respects. The siege site can be expected to be associated with towns or fortifications where one of the combatant parties fortified themselves and where the other party was attempting to acquire that locale. The defensive side of a siege battlefield should be associated with some type of relatively permanent fortification, or a town with defenses thrown up around it. Civil War sites like Vicksburg or Petersburg are examples of siege sites. The archaeological features associated with a siege site would be fortifications, artillery positions, long-term camps for both combatants, and extensive trash deposits. Normally large bodies of men were employed in a siege; therefore, the camp and trash-related artifacts should be extensive. The possibility of a formal burial ground should not be overlooked in a siege situation.

The transitory battlefield, which is the most common, is more ephemeral in nature. Normally these involve a limited engagement of opposing forces in both time and space. This battlefield type should not be associated with permanent fortifications; rather, temporary breastworks may be found. Camps and burial areas may be found near the battle site. The primary archaeological deposits associated with a transitory battlefield are parts of uniforms, equipage, and especially spent cartridges, bullets, artillery shells, and other weapons, such as arrows or spears.

Where similar cultural groups or a cultural group in conflict has fought a battle, the artifact patterns may be more difficult to identify. Yet combatant pattern differences should be discernable. The Revolutionary War battlefield of Saratoga is one example. Here Snow (1981) was able to identify British and American areas even though the cultural parentage of both groups was similar. Using musket ball finds at Monmouth, New Jersey, Silivich (1995) was also able to sort out British and American lines. Haecker and Mauck (1997) used artifact patterning to identify and define American and Mexican attack lines at the Mexican–American War site, Palo Alto. The Civil War pitted elements of the same culture against one another, but opposing combatant

camps and positions can be fairly easily identified through the material culture remains (Ripley, 1970). The same can be said for military forts and encampments. The material culture remains can often be associated with specific occupations, even though they may have been different cultural groups (Maxwell and Binford, 1961; Miller and Stone, 1970; Pollard and Oliver, 2002; Rose, 2005).

Battlefields of the “Indian Wars” have yielded interpretable artifact patterns. The cultural differences in the manner and practice of warfare by U.S. Army trained personnel versus various Native American groups are clearly delineated in the artifact dispersal patterns at Indian Army battle sites. Archaeological investigations of the site of the Battle of the Little Bighorn provide the most completely documented example (Scott et al., 1989; Fig. 3). Other investigations have shown that the battlefield pattern (Fox and Scott, 1991) holds up well in both earlier and later Indian versus Army battle sites. Pratt (1995) has demonstrated this at the Battle of Fallen Timbers, while others (Adams et al., 2000; Cruse, 2008; de Meyer and Pype, 2004) have also shown the pattern’s reliability in the archaeological record of battlefields worldwide. Archaeological investigation of aircraft wrecks and naval battle shipwrecks (Cantelas, 1993; Holyoak and Schofield, 2002; Jeffery, 2004; Legendre, 2001) is demonstrating the potential for recovery of information related to site formation and is expanding our definition of the study of conflict sites (Conlin and Russell, 2006).

The Soldier’s Lifestyle

Occasionally, archaeological investigations of military sites yield the physical remains of those who soldiered for their country or culture. Human remains are as much a part of the archaeological record of the military past as weapons, uniform buttons, or mess ceramics. Only a few studies have been undertaken on human remains, primarily because they are so rarely encountered in military sites. The majority of the remains that have been studied are those burials associated with battles (Legg and Smith, 1989; Pfeiffer and Williamson, 1991; Scott et al., 1998; Starbuck, 2002). These

Fig. 3 A metal detector team sweeps a part of the Little Bighorn Battlefield National Monument, Montana, to record the patterns of artifacts associated with the 1876 iconic confrontation between the 7th Cavalry and the Lakota and Cheyenne (photograph by the author)



studies, often of only one or two skeletons, are beginning to flesh out, so to speak, our understanding of the rough and tough lifestyle of the bygone soldiers and unequivocally demonstrate they died of violent and sometimes horrific trauma. The osteological studies illustrate that most of these young men suffered from poor dental health, dietary stress, bad backs, numerous antemortem diseases, injuries, and trauma before their lives were snuffed out in a violent moment on a field of battle (Dailey and Cockrell, 1972; Jacobs and Owsley, 1991; Legg and Smith, 1989; Owsley 1994; Owsley et al., 1988; Sledzik and Moore-Jansen, 1991; Willey, 1996; Willey et al., 1996; Willey and Scott, 1996).

Conclusions

The focus of this chapter is on the behavior of a subcultural unit, the Army, and how the Army leaves behind an interpretable archaeological record at various sites. The emphasis here is primarily on the Civil War and post-Civil War American-Victorian military, but the approach is applicable to investigations of military sites from around the world and at different time periods. Historical and

archaeological studies of military sites of the American-Victorian era have demonstrated that they will differ from the parent culture in the presence of institutionalized architecture at permanent habitation sites. The structures will be hierarchically organized and defined. Structural artifacts will be present and there will be limited variation in their types. Artifacts of clothing and equipment will reflect the site's military nature and will show the stratified and ranked nature of the military.

Officers' personal artifacts will be of better quality than other military personnel. Their artifacts will show greater social and economic status, and because of that status and relative wealth, they should show more diversity. Other ranks will show less diversity than the officers. They will show greater conformity to regulation, and personal goods should be of lesser quality than the officers' goods.

Sites exhibiting evidence of conflict will have patterns of artifact deposition coincident with the training provided to the participants. Combatants fight as they are trained and under the rules of that cultures' perception of warfare behavior. Opposing combatant positions, movement, armament, and methods of warfare should be discernable in the artifact deposition pattern.

In essence, military sites will be revealed in the archaeological record by their institutionalized architecture, equipment, and patterns of artifact deposition. They will also reflect the tenets of the parent culture in the artifactual record. Personal goods will reflect social and economic status within the military community and the culture at large. Artifacts and patterns of deposition will also reflect the role of the military in society—the making of or prevention of war.

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