Military Rank and the Origins of Agriculture

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Biography of Dr. Arther Ferrill

Arther Ferrill, now a professor emeritus of history at the University of Washington at Seattle, is also a respected expert on Ancient Rome and military history. He has written four books and is a regular contributor to *The Quarterly Journal of Military History* and other periodicals as an author and in review of other authors. He received his Ph.D. from the University of Illinois at Champaign-Urbana in 1964. In *The Fall of the Roman Empire: The Military Explanation*, Ferrill supports the claims of Vegetius, about increased "barbarisation" and "germanisation" helping to cause the collapse of the Western Roman Empire in the fifth century AD. He asserts that allowing barbarians to settle within Rome's borders, to act as a buffer zone against other barbarians, created friction and led to a decrease in the size of the Roman Empire's Borders. His other books include *The Origins of War*, *Roman Imperial Grand Strategy*, and *The Emperor Caligula*. 
As Jeffrey Rubinoff argues, the introduction of agriculture led to many new social organizations including an institutional warrior class. He calls this “the most dangerous necessity” of the new Age of Agriculture. We shall see that he was remarkably correct and that specialization of labor in military institutions was as developed as in other prehistoric social institutions. We know that in the early civilized states military rank was greatly advanced, and that discipline, which included the right to execute a member of one’s own society, was commonly imposed. As we shall see, rank and discipline had been highly developed in the Neolithic period. Associated with the evolution of rank and discipline were the creation of tactics in the deployment of military lines and other formations, the use of spies in warfare, siege warfare, and even flanking movements and other sophisticated military maneuvers requiring an officer class and common soldiers. Some Neolithic settlements even practiced naval warfare, an activity that requires a captain.

There is ample evidence to support the above statements. Cave paintings depict warriors in military uniform with differences in the uniforms of officers and privates. There is an execution scene that probably depicts a disciplinary execution though it could possibly represent the killing of an enemy soldier or spy. There are scenes of troops marching in formation. Neolithic walls and palisades provide impressive evidence of prehistoric siege warfare. Widespread use of the bow and the sling in organized attempts to take agricultural sites requires the leadership of commanding officers, and it is reasonable to assume the development of early strategic plans. The fortifications of Neolithic towns reflect a form of Neolithic strategy. The Neolithic period witnessed the earliest appearance of cavalry, a military force that requires its own strategic and tactical leadership and formations.

When I did the research for the first chapter of my book, *The Origins of War*, published in 1985, there was very little in print on prehistoric warfare. Anthropologists and archaeologists simply were not interested in early warfare and seemed to believe that prehistoric man was peaceful and unwarlike. There was a fascinating book by Hugh Turney-High entitled *Primitive Warfare: Its Practice and Concepts* (1949) from which I learned a great deal, but it was on primitive, not

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prehistoric, warfare. It dealt primarily with primitive societies in the historic period after the emergence of civilization and in most cases after contact with technologically advanced European and American cultures. An example would be the post-Columbian Native Americans of North America, about whom he wrote a great deal. For genuine prehistoric warfare I was forced to rely primarily on cave paintings and drawings that showed Neolithic man using weapons such as the bow and arrow and sling in obvious acts of war. Archaeology revealed numerous examples of military construction though archaeologists generally ignored the military implications and referred to defensive structures and palisades merely as walls.

I am happy to report that in the last twenty-five years that has changed dramatically. All one need do today is to check the internet under “Neolithic warfare” and he will be rewarded with a wealth of bibliographic material on the topic. Neolithic specialists have embraced the subject of warfare. Articles and monographs are now appearing every year. Perhaps the single most influential is a book, available in paperback, by Lawrence H. Keeley, War Before Civilization: The Myth of the Peaceful Savage (1996). A Professor of Anthropology at the University of Illinois at Chicago, Keeley argues that warfare in the Neolithic period was endemic. Deadlier and more ruthless even than modern war Neolithic man was a looter and trophy taker more brutal than his modern warrior counterparts. Recently one of Keeley’s students, Mark Louis Golitko completed a doctoral dissertation entitled Warfare and Alliance Building During the Belgian Early Neolithic, Late Sixth Millennium, BC (2010) in which he demonstrates that diplomatic and economic alliances developed as villages became linked in response to increasing levels of conflict. It is no longer necessary to prove that Neolithic man practiced warfare. It is an accepted fact.

Today I would like to discuss some aspects of Neolithic warfare as it relates to Jeffrey Rubinoff’s perception about the Age of Agriculture. He has said that the Age of Agriculture was the most important development in the history of mankind. According to him it lasted until 1945 and the dropping of the Atomic Bomb. The discovery of agriculture enabled man to settle down to build villages and later cities, eventually to create civilization with all its manifestations including art, literature, architecture, science, philosophy, and mathematics. But it was also accompanied by an

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explosion of warfare that has ravaged humankind since the beginning of the Neolithic period. Indeed agriculture and warfare seem to have appeared simultaneously. To practice agriculture early man had to abandon his nomadic hunting and gathering lifestyle since agriculture required permanent residency in the chosen fields. Because it was no longer possible to move freely in the search for food, human beings became vulnerable in their new settlements. They had to stay where their productive land was, and they amassed stores of food to see them through the winter season. That food became a magnet attracting others to their sites. So they built fortifications consisting of walls, palisades and trenches. Another possibility is that weapons and their use escalated at the end of the Paleolithic Age, and the threat of warfare became so great that prehistoric man had to settle behind fortifications to protect himself. The need for defense led to permanent villages, and people were forced to discover agriculture in order to sustain themselves. At Jericho the walls seem to predate the practice of agriculture. In my opinion the evidence is not good enough to determine which came first in this classic case of the chicken and the egg.

The discovery of agriculture is usually and rightly associated with major human progress. It was a necessary step toward cities and civilization. It is worth noting, however, that agriculture was not an unmitigated blessing for early man. Farming is not easy or pleasant. Even in modern times we suffer famines, dust bowls and flooding. In good times a farmer’s job can be back-breaking, and the hours are long. Before mechanized farming the occupation could be especially tedious and difficult. Now that we realize that the discovery of agriculture came simultaneously with the emergence of organized warfare it should be obvious that the Neolithic Age was fraught with dangers that made the earlier prehistoric period look like a golden age. Human nutrition actually declined. One of the reasons almost certainly was that early Neolithic farmers had to devote substantial resources to defense. The cost of massive walls and the human forces to defend them was undoubtedly high. This put a premium on stealing from neighbors and on protecting one’s own property.

Before considering the specialization of labor in prehistoric military activity let us first examine the kinds of military conduct that prevailed at the time. Today armies usually meet in the field and clash along lines that are formed by the dispersal of troops on both sides. Sieges like Stalingrad in World War II between the Russians and the Germans sometimes occur, and occasionally there are naval sieges like the ones conducted by the U.S. Navy and Marines in the Pacific, for example, at Tarawa and Iwo Jima. Also the development of air power in the

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8 See the interesting discussion by Robert Rowthorn and Paul Seabright, “Property Rights, Warfare and the Neolithic Transition,” a publication of the Toulouse School of Economics, Nov., 2010.
Twentieth Century had a huge impact on how war is fought. The lack of a large air force by Germany in the last year of World War II made it virtually impossible to defend the homeland against the Allied and Russian advances. Japanese and American navies waged the war in the Pacific mainly with aircraft carriers. At the Battle of Midway the opposing fleets never even saw one another except from the air. Still, the clash of armies in the field remains the *sine qua non* of warfare. Near the end of the Twentieth Century American troops brought an end to the Gulf War in Kuwait with an attack from the center of their infantry line against the Iraqi line opposing them.

Unfortunately for the Neolithic period, since there were no writing and no literature, there is virtually no evidence of the deployment of troops against one another in a line in the open field. We know that was the standard form of fighting in the Ancient world. Two good examples are the Battle of Cannae between the Carthaginians and the Romans and the Battle of Gaugamela between Alexander the Great and the Persians. Even on the sea fleets were normally deployed in line. But in the Neolithic Age there is little archaeological evidence, like the trenches of World War I, for that kind of deployment on land and virtually none for naval warfare. Armies do sometimes leave traces of their presence in the field but usually not enough to reconstruct their lines without help from literary sources.  

For the Neolithic Age there are no literary sources at all. If armies clashed in the open field, and I assume they did, we remain ignorant of their battles and their strategy and tactics. Archaeological evidence for Neolithic walls and palisades, on the other hand, is widespread, and sometimes near those walls and palisades there are relics of siege warfare usually in the form of concentrations of arrowheads and sometimes in skeletal remains with arrowheads still embedded in the skeletons. There are some Neolithic cave paintings that illustrate prehistoric warriors engaged in siege warfare.

One good example of Neolithic siege warfare is at Catal Huyuk in southeastern Turkey. The inhabitants there apparently did not build walls, which were common in the Neolithic Eastern Mediterranean. They lived in building complexes with contiguous walls. If an attacker managed to break through one wall, he found himself in a small room where it would be possible to deploy only a very few troops. The main offensive weapon at the site seems to have been the sling, far

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9 The site of many famous battles is unknown. The Battle of Zama between Scipio Africanus and Hannibal in 202 BC, the battle that ended the Hannibalic War, is a good example.

more effective than many today realize. Another example is at Crickely Creek in England. Neolithic man lived there inside an encirclement of palisades. The gates in the outer ring did not match those of the inner ring. If an attacker broke through an outer gate he could not simply rush straight on into the inner compound. Eventually this site did fall to an attack. Concentrated clusters of arrowheads have been found in the gates of the palisade and the settlement was destroyed by fire.\textsuperscript{11}

Cavalry appeared for the first time in the Neolithic Age probably in Southern Russia and spread into the Eastern Mediterranean and Eastern Europe and from there into Western Europe. Horse-mounted warriors were widespread by the end of the Neolithic Age. Horses became an important part of warfare down to the early Twentieth Century. Much about their role in warfare is totally misunderstood. Horses are difficult to train and they have a mind of their own. The earliest Neolithic warriors who rode them had to put much effort into using them reliably in the field. They bite. They kick. They will not charge anything they cannot jump. Sometimes loud noises, in abundance on most battlefields, scare them. They cannot gallop at full speed for great distances. A good cavalry horse has little in common with the Lone Ranger’s Silver. A horse that neighs and raises itself on its hind legs can get its rider killed. Horses cannot charge well held infantry lines or squares. Cavalry is used mainly for running gaps or for flanking movements where there is nothing in front of the horseman except open space. One danger on the field is in pursuing too far and too fast. It blows the horses. This happened at Waterloo where a British cavalry brigade under Ponsonby drove the French corps under Erlon off the field but chased them some distance at full gallop. The British blew their horses and, when they trudged back to the battlefield on mounts so exhausted they could hardly move, the French slaughtered them. Ponsonby was killed by a French lancer.\textsuperscript{12}

On the other hand, cavalry can be used for its shock effect against demoralized troops. A warrior of the line already frightened and exhausted can perhaps be forgiven for lack of courage to face a body of charging horses threatening to trample him into the ground. If he turns to run along with others beside him, he and they will almost surely be killed. Turning one’s back to the enemy is a nearly certain passport to that never-never land inhabited by fallen warriors. A line of well trained and highly motivated troops, however, as long as they remain in formation, can normally withstand a cavalry charge. Horses may be stubborn and difficult to train but they are not stupid. Rather than run at a full gallop into a line of well-trained men, horses will turn at the last moment

\textsuperscript{11} See above, n. 7.
\textsuperscript{12} There is an excellent discussion of cavalry in general and Ponsonby’s rout in particular in John Keegan, \textit{The Face of Battle} (New York, 1983).
to avoid the clash. Incidentally the riders will do the same. The trick is to convince the infantry that the horses will actually turn. No matter how often the commanding officer says that the only safety is in standing firm, a foot soldier facing the charging beast may momentarily doubt it.

It should be obvious that in some ways Neolithic warfare was highly developed, but the weapons were relatively primitive including javelins, spears, slings, scaling ladders, stone axes, warclubs, and the bow and arrow. All these weapons can be fatal. Effective use requires leadership, discipline and training. The U.S. army found in World War II that even with good weapons and the opportunity U.S. troops had limitations as killers. S.L.A. Marshall, the Army’s chief military historian, found in interviews after the war that only fifteen to twenty-five percent of American infantry riflemen ever fired their weapons. They were perhaps too scared, or they feared that by firing their weapon they would attract enemy fire. Some of them simply found it too difficult to shoot another human being. Riflemen do have to aim at a specific human target unlike artillermen. After World War II and before the outbreak of the Korean War the Army changed its way of training infantrymen by having them fire at targets that looked like human beings rather than targets merely having a bulls eye.

In Neolithic times there undoubtedly was greater use of offensive weapons by men of the line. Much of the fighting was man-to-man. In modern warfare man-to-man fighting has virtually disappeared from the battlefield. Bayonets are still issued to some troops but they are almost never used. Except for archers, slingers and javelin men Neolithic troops, relying on clubs, maces, and daggers, had to engage the enemy face-to-face, and it is very likely that archers, slingers and javelin men had backup weapons for use after they exhausted their ammunition and closed with the enemy. Great courage is required for man-to-man fighting and considerable training and discipline are needed to drive soldiers into that kind of combat. Most armies have a handful of men who are gung-ho, the commando types, who usually do most of the fighting. That was probably true even in Neolithic times but a far greater percentage of the prehistoric troops had to engage the enemy directly. The common belief that early warfare was ritualized in order to avoid casualties and fatalities is far from true.

It is often assumed that the organization of command and logistics was a major weakness of Neolithic warfare. Keeley and Turney-High agree on that. Lacking the political and social

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organization of the state Neolithic settlements could not train men in unit as opposed to individual
disciple and had no ability to transport ammunition and supplies over long distances and for a
long period of time. It is probably true that early Neolithic political and military leadership was
relatively weak. But the Neolithic period in the Eastern Mediterranean lasted several thousand
years from 12,000 to 3500 BC. By the end of that time Neolithic villages were on the verge of
becoming cities and states. It is reasonable to assume that political and military organization
developed substantially throughout the period. To judge from the Narmer Palette the earliest
Egyptian army immediately after the end of the Neolithic Age in Egypt was one of some
sophistication in command and in logistics.

Both Keeley and Turney-High ignore one important facet of logistics. The simplest system is
called “living off the land.” It has been used frequently even by modern armies and is
characterized by some logical necessities. Armies that live off the land must stay on the move.
They must always march toward food supplies either in the field or in villages and cities. Modern
armies because of their size consume enormous quantities of food but smaller Neolithic armies
could be fed much more easily. As time went by Neolithic armies surely learned how to transport
at least some of their food because early civilized armies had reasonably sophisticated logistical
support systems.

It has been said that early Neolithic commanders could not have had any command of strategy
since their objective was normally a single battle against a neighboring foe. I agree that military
strategy cannot have been very highly advanced. There were no military academies and no
recognized science of generalship. Still it is fair to assume that the earliest Neolithic commanders
learned some simple strategic lessons. Deny the enemy food by destroying his fields. Employ
surprise when possible in launching an attack. Amass a larger force than the enemy has. Use
scouts to gather intelligence. Some of these simple strategic facts often verge on tactics, but
tactical considerations in early warfare often have some strategic value as well. We should not
look for a Von Schlieffen plan in Neolithic warfare. A common strategy was probably the
interdiction of unoccupied territory so that others could not utilize its resources. Related to that
would be the maintenance of the no-man’s lands between villages. Another strategy was to
plunder a weak neighbor’s territory since it was easier to do that than to work for the resources.
Finally there was the strategy of unconditional surrender, the defeat of the enemy and the seizure
of his territory. In the ancient world this often involved the killing of the men and the
enslavement of the women. It was always a brutal and violent act.
On the tactical level most authorities agree that prehistoric warfare almost certainly saw some ingenious practices. Both Keeley and Turney-High deal with several of them.\textsuperscript{14} The tactic of surprise, sometimes in an ambush, was probably a feature of Neolithic war. A Neolithic cave painting from Spain appears to show a double envelopment by troops attacking the center of a line while others attack both flanks. Siege tactics were almost certainly practiced with some skill since the fortification of villages with walls or palisades was common in the Neolithic Age. There are indications of military architecture in some of those fortifications. Troops were almost certainly trained to man the walls for defense and to attack them in offense. One common practice in ancient warfare during a siege was to place an agent inside the city, or to entice a defector, who could at some point open the gates to the forces on the outside. Since the villages attacked in the Neolithic Age were almost certainly near the village of the attacker, there were probably some persons from one village familiar with some of the enemy villagers. If there were economic contacts between the two villages, it might have been possible to have had an inside agent.

This brief survey of certain features of warfare in Neolithic times may serve as the backdrop for a discussion of rank in Neolithic armies. From ancient to modern times stratification by rank in armies has been universally practiced. Even in non-military segments of society Americans generally know that there are high ranking officers, sergeants, and privates in the U.S. Army. Many people, however, do not know the difference between a Lieutenant General and a Major General or between a Sergeant Major and a Master Sergeant. Military rank has become a bit of a mystery, and rank in the Navy even more so. The history of military rank is even less well known. Who is the highest ranking American officer ever, when was the rank of General first awarded, and who was the first person to serve as Lieutenant General are questions that would stump even many men and women in active service today.\textsuperscript{15}

We can assume that military rank in Neolithic armies was much less complicated, but we can also safely assume that it did exist. The Age of Agriculture led to social stratification and specialization. Division of labor intensified as the Age progressed. Though there are no literary sources, we can assume that there were potters, priests or shamans, farmers, chiefs, tools and weapons makers, warriors and traders. By the end of the Neolithic and the beginning of Civilization these and others were firmly attested. Some had undergone considerable development over the long period of the Neolithic. Political leaders, who also usually served as

\textsuperscript{14} See Keeley, pp. 42-58.
\textsuperscript{15} The highest ranking officer in the history of the U.S. Army was WWI General Pershing, who was awarded the rank of General of the Armies. Ulysses S. Grant was the first to hold the four star rank of General, and Winfield Scott was the first to be named Lieutenant General although George Washington may have held that rank in the Revolutionary War. Several WWII generals held the five star rank of General of the Army.
military leaders, were on the verge of becoming kings, and their villages or towns were becoming city-states.

In the Eastern Mediterranean as early as the seventh millennium BC 5,000 to 6,000 people may have lived at Catal Huyuk in modern Turkey, and the population of Jericho at about 8,000 BC has been estimated at 2,000 with a possible defending force of 500 to 600 men. At the beginning of the Neolithic period in the Near East some armies may have numbered up to 1000 or so, and by the end of the period somewhere between 5,000 to 10,000 men. Armies of that size compare with full scale historic armies of a much later period. If size alone is a consideration, prehistoric armies were capable of practicing warfare in a highly sophisticated fashion. In fact men can be organized effectively for war in groups of less than 500.

It is possible that there was only individual discipline in the earliest armies. As time went by, however, and Neolithic populations grew, warfare became more sophisticated, and unit discipline emerged. Every unit that was trained to fight in a line and to march in a column needed its own commander, and a cadre of early officers appeared as villages grew to 500 or so occupants. Such villages could probably have fielded an army of 150 warriors. Squads of 10 men would have been assigned to larger companies of 50, each with its own captain. As we have seen, there was a population explosion at some point in the Neolithic period, and by the end some Neolithic towns and villages numbered in the thousands. By then Neolithic armies were likely at least a thousand strong. Armies in the early civilized period were rather sophisticated and some of that, particularly in the Near East, must have appeared in the Late Neolithic.

We can assume that by the time Civilization emerged Neolithic armies had a range of officers and warriors with several ranks. Egyptians at an early period had armies of tens of thousands and a system of rank that became standard. Late Neolithic armies would have had fewer ranks, but we must assume that they had several. The armies probably were not standing armies. In all likelihood men were called up on a voluntary or mandatory basis as needed. Most ancient warfare was conducted in the summertime, and that was probably true in the Neolithic period as well. Armies normally began their campaigns in the Spring when it was possible to harvest some enemy crops. Living off the land in the wintertime could lead to starvation.

If we can assume an army of 1500 men, such a force would probably have been divided into three main groups of 500 each. There would have been two companies of 250 men, each having five platoons of 50, and each platoon five squads of 10. This, of course, is speculation, but based on the organization of the early Egyptian army, it seems not unreasonable. Remember that these
estimates are for late Neolithic sites in the Eastern Mediterranean. There would have been an overall commander, the village or town chieftain or king, three captains in command of 500, fifteen lieutenants in command of the platoons, and 75 sergeants in command of the squads. We cannot know what titles these officers and non-coms were given, and the titles probably varied from site to site. The captains and lieutenants may have been chosen from the local aristocracy, but the sergeants were probably selected for their fighting ability. In sites that fielded cavalry, only those wealthy enough to have horses would have fought.

In any event, if we think of the “beginning of the age of agriculture” as the entire Neolithic period, we can see that Jeffrey Rubinoff was certainly correct in assuming a relationship between the origins of agriculture and the emergence of an institutional warrior class. The wandering nomadic tribes of the Paleolithic Age may sometimes have clashed with other bands of hunters and gatherers, but the scuffles and melees that resulted cannot be called war. By the end of the Paleolithic the rapid increase in the use of bows and arrows and slings and the need to settle down to grow crops led to the outbreak of organized warfare, and organized warfare required an officer class to impose the rigid discipline and training necessary for success in war. As I have said in another publication, when Neolithic man first emerged from civilization and learned how to write, he had wars to write about.
Appendix to Military Rank and the Origins of Agriculture

GEORGE NASH: ASSESSING RANK AND WARFARE-STRATEGY IN PREHISTORIC HUNTER-GATHERER SOCIETY

Figure 2. Cueva Remegia, Gasulla, Castellón, panel IX (after Ripoll Perello 1963).

Figure 3. Les Dogues, Castellón (after Ripoll Perello 1963).
WARFARE, VIOLENCE AND SLAVERY IN PREHISTORY

FIGURE 4. Cuevas del El Civil, Castellón, panel III (A) (after Mateu 2002).

FIGURE 5. Minateda, Albacete (after Mateu 2002).
FIGURE 1. a. Execution scene from the El Cingle de la Mola Remegia, Gasulla, Castellón (after Beltrán 1982).
Slinger at Catal Huyuk, Turkey
Neolithic site at Catal Huyuk, Turkey