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SKELETAL EVIDENCE FOR MILITARISM IN MYCENAEAN ATHENS

by *Susan Kirkpatrick Smith*

Militarism was a central concern to the people of the Mycenaean culture of Late Bronze Age Greece. The Mycenaeans left behind heavily fortified buildings; artwork with militaristic themes; Linear B references to chariots, weapons, and soldiers; and burials that contained weaponry and armaments.¹ While militarism in Mycenaean Greece appears to be an established fact, there has not yet been any in-depth study of the persons who lived this military life. Human remains from Mycenaean burials are an untapped reserve that can shed light on Mycenaean Greek military activity. We should expect to find skeletal remains from Mycenaean cemeteries with evidence of traumatic injuries caused by military activity. An analysis of the presence or absence of these injuries, coupled with an analysis of burial treatment, will let us begin to understand how warriors or soldiers may be recognized.²

Traumatic injuries in archaeological skeletons can be used to infer particulars of life experiences for individuals and for populations. Common patterns of trauma in a population may point to specific activities performed by group members. Age, sex, and skeletal location of wounds can help determine whether injuries were received from interpersonal conflict, large animals, or accidents.³ While it may be difficult to make specific inferences based on the analysis of trauma in one individual, patterns of trauma can be quite informative. Stirland, for example, found occupational markers consistent with activities practiced by men in the British navy.⁴ In a study of the skeletons from the *Mary Rose*, Henry VIII's flagship that sank in the 16th century, she determined that many of these men (primarily aged 15–25) exhibited arthropathies and enthesopathies that she related to their naval battle activities and weapon use.

Warriors in Mycenaean Greece cannot be found in a single repository as in the *Mary Rose*, but have been identified in Linear B tablets, on

1. See Vermeule 1972 and Dickinson 1994 for discussions of the role of militarism in Mycenaean Greece.

2. Funding for this work was provided by the Wiener Laboratory at the

American School of Classical Studies at Athens, a Sigma Xi Grant-in-Aid of Research, and the Ruth Hindman Foundation. I would like to thank James Whitley for sending me a copy of an interesting paper relevant to my

topic. My thanks also go to the anonymous reviewer who provided me with helpful comments.

3. Jurmain 2001.

4. Stirland 2000.

artwork, and by their burials with weaponry. The evidence points to at least two major classes of military personnel for Mycenaean culture: a “warrior aristocracy”⁵ based on weapons and other rich goods being found together in graves, and more ordinary soldiers⁶ who have been described in Linear B tablets. Linear B tablets also clearly indicate high-status leaders with likely military roles (*larwageetas* and possibly *e-qe-ta*⁷), and lower status soldiers, charioteers, and archers. To date, it seems that only the warrior aristocracy has been identified in burials. Driessen and MacDonald, discussing Mycenaean Knossian burials, state:

The graves furnished with swords at Knossos are not poor burials and none are likely to represent the lower echelons of society nor the rank and file of the Knossian military. *Whether the latter could be identified in other graves is a matter for further research.* (Emphasis mine)⁸

Existing evidence from many Mycenaean sources gives a picture of a society that was heavily invested in warfare, its preparations, and equipment. This study will present the information from the human skeletal remains from nine Mycenaean burials at the Athenian Agora, to show how military and combat activities can be documented in individual warriors and soldiers.

The skeleton is a rich source of information about military and conflict activity, and a source that has not been previously investigated in detail for Mycenaean culture. The Mycenaean burials from the Athenian Agora are an instructive sample of human remains that shows how we might further examine the evidence for warfare or interpersonal conflict activity on a population-wide basis in the context of the existing framework of archaeological interpretation. This kind of study has been undertaken in many other archaeological contexts and has proven to be informative and enlightening.⁹

MYCENAEAN ATHENS

Mycenaean Athens has the same kinds of evidence for social stratification and militaristic activity that are typical of Mycenaean centers in the Argolid.¹⁰ Stratification is suggested by the range of burial types (chamber tombs, cist graves, and pit graves) and the wide variation of the grave goods found in the burials.¹¹ There are traces of enclosure walls on the Acropolis similar to those at the citadels of Mycenae and Tiryns that would have surrounded a well and allowed for extended defense of the Acropolis.¹²

5. Fortenberry 1990, p. 304. A warrior aristocracy has also been proposed at Knossos. See, for example, Sandars 1963, pp. 127, 128, and Driessen and MacDonald 1984, pp. 56, 58.

6. Driessen and MacDonald 1984, p. 56.

7. Ventris and Chadwick 1973, pp. 122, 408.

8. Driessen and MacDonald 1984, p. 58.

9. See, for example, Jurmain 2001; Kilgore, Jurmain, and Van Gerven 1997; Milner 1995.

10. See Smith 1998 for a discussion

of the social status divisions in Mycenaean Athens.

11. *Agora XIII* is a catalog and extensive description of all finds from the Mycenaean period at the Athenian Agora.

12. Iakovidis 1983, p. 90.

While the remains at Athens from the Mycenaean period are relatively few, the remains from the Acropolis suggest that Athens was an important site during this time.¹³ We can assume, therefore, that Athenian social structure would have been similar to that from Mycenaean centers for which we have more archaeological evidence. We should expect there to have been high and low status individuals,¹⁴ and, in particular, military personnel of various ranks.¹⁵

Mycenaean Athens in the area of the Agora is primarily represented by burials (see Fig. 6.1).¹⁶ Forty-four separate tombs or graves, 34 of which contained human skeletal remains, have been excavated. The majority of the tombs date to the LH III period (1400–1125 B.C.), with three tombs dating perhaps into the LH I–LH II (1550–1450 B.C.). Three burials are not datable using current methods.

The burials vary in style, size, and contents. The pit and cist graves and chamber tombs each have examples of single and multiple burials. Some are barely large enough for one person. Others have room for multiple individuals to be laid out at once. The grave goods vary from simple pots to gold ornaments and bronze weapons. It is clear that social distinctions were being made in the burial treatment of Mycenaean Athenians.¹⁷ The question for this study is whether we can determine if military activity is one of the social dimensions reflected in the burials.

THE SAMPLE

Burials or skeletons with evidence of military activity are considered in this study (see Fig. 6.1 and Table 6.1). Six Mycenaean Athenian burials contain weapons, which include bronze rapiers, swords, razors,¹⁸ arrowheads, knives, spears, and obsidian arrowheads (Table 6.2). It is not currently possible to determine how these weapons were used, whether for hunting, warfare, or as status symbols. The knives may have been used as offensive weapons¹⁹ or as hunting weapons or razors. There is disagreement about the use of a large spear found in tomb XL. It may have been a weapon for offensive use against another person or it may have been used for hunting.²⁰

13. McDonald and Thomas 1990, p. 342; *Agora XIII*, p. 153.

14. Smith 1998, 1999.

15. Smith 1995.

16. The graves are published in *Agora XIII* and the skeletons in Smith 1995, 1998, 1999. The skeletons were aged and sexed by the author according to standard osteological protocols, and without reference to Angel's previous reports. Likewise, all pathologies were described and analyzed by the author, other than AA 28 (see note 29). Two additional Mycenaean chamber tombs were excavated at the Athenian

Agora during the summers of 1998 and 1999 (preliminarily published by Camp 2003, p. 254). These tombs each contain several bronze weapons. The skeletal remains have not been published in detail, but Maria Liston has conducted a preliminary analysis. This indicates that tomb J–K 2:2 contained three adults (two males and one female) and one child. Tomb K 2:5 contained at least four adults and three children. One of the adults, a male, survived injuries to a collarbone and rib. Final publication of the human remains will show whether the burials in tombs J–K

2:2 and K 2:5, which appear to have been from a different cemetery than the burials in this study, will exhibit the same patterns of trauma.

17. Smith 1998 has a complete discussion of the nature of the social statuses that were present in Mycenaean Athens.

18. There is some disagreement about whether the items identified as “razors” were in fact knives or other offensive weapons. *Agora XIII*, p. 106 and Blegen 1937 pp. 347–348.

19. Blegen 1937, pp. 347–348.

20. *Agora XIII*, pp. 103, 245.

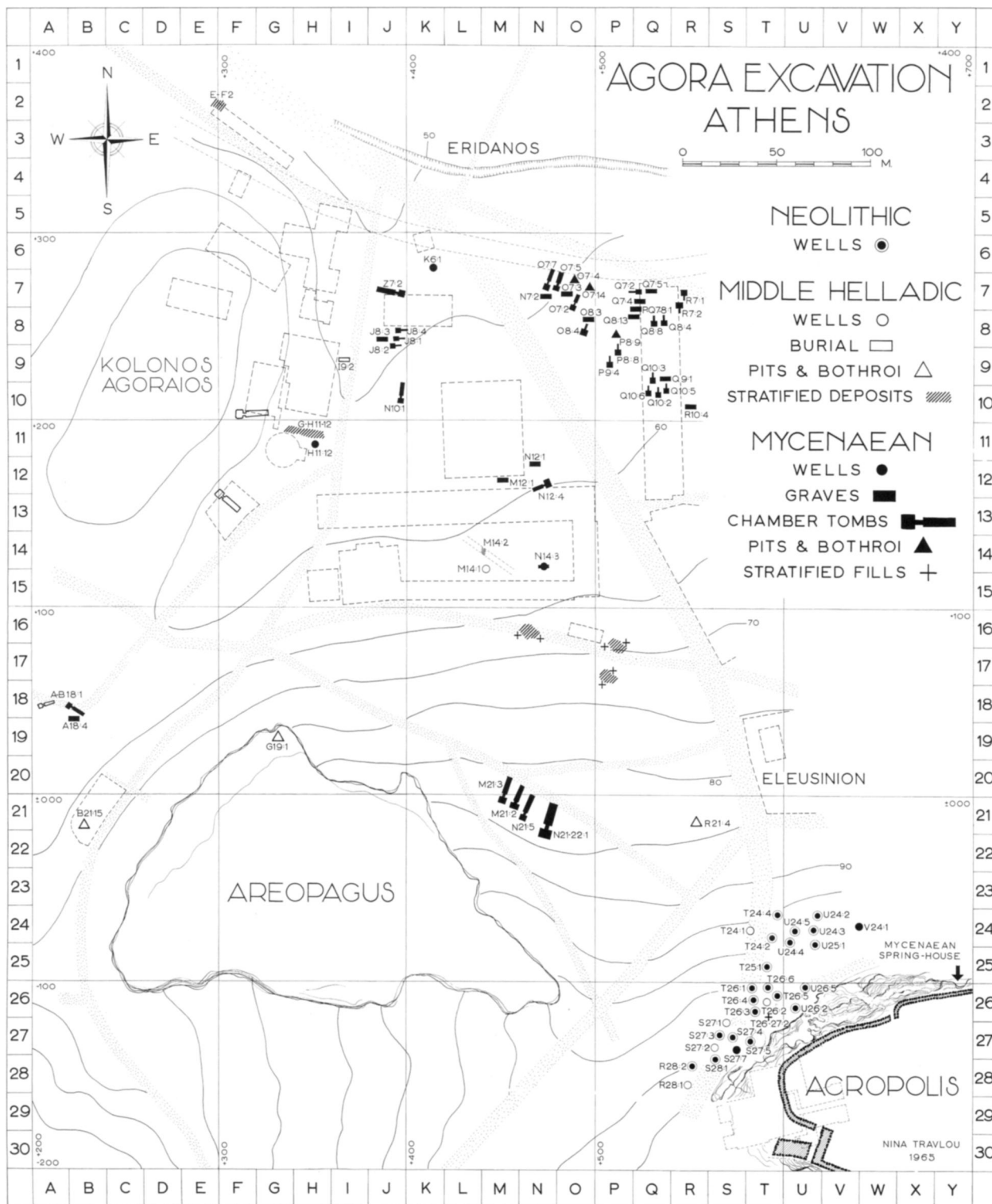


Figure 6.1. Plan of the prehistoric deposits from the Agora excavations in Athens. *Agora XIII*, pl. 91. Courtesy Trustees of the American School of Classical Studies at Athens

TABLE 6.1. TOMB LOCATIONS

<i>Tomb</i>	<i>Burial</i>	<i>Period</i>	<i>Map Location</i>
III	AA 41	LH IIIA2	M 21:2
IV	AA 45	LH IIIA1–LH IIIA2	M 21:3
VII	AA 113	LH IIB–LH IIIA1, LH IIIA2	J 7:2
XIV	AA 118	LH IIIA1–LH IIIA2 early	O 7:5
XV	AA 132	LH IIIA2	O 7:2
XVII	AA 124	LH IIIA–LH IIIB	O 7:3
XVIII	AA 134	LH IIIA2	O 8:4
XXXVII	AA 28	LH IIIA1	M 12:1
XL	AA 300	LH IIIA1	N 12:4

TABLE 6.2. TYPES OF WEAPONRY

<i>Tomb</i>	<i>Burial</i>	<i>Period</i>	<i>Disturbed in Antiquity</i>	<i>Grave Goods, Weaponry</i>	<i>Grave Goods, Other</i>	<i>Age</i>	<i>Sex</i>	<i>Additional Skeletons</i>
III	AA 41	LH IIIA2	no	rapier, short sword	painted pottery, bronze bowl, ivory and gold rosettes, stone buttons	35+	M	none
VII	AA 113	LH IIB– LH IIA1, LH IIIA2	slight	razor, thrusting weapon, obsidian and bronze arrowheads	painted pottery, ivory comb, bone pin, necklace of quartz and glass paste, steatite bead, buttons	35+	M	juvenile
XIV	AA 118	LH IIIA1– LH IIIA2 early	no	knife or razor (or offensive weapon per Blegen)*	painted pottery, gold bead, paste bead, stone buttons	40+	M	2 adult females
XXVII	AA 124	LH IIIA– LH IIIB	no	bronze knife	painted pottery	15	M	none
XL	AA 300	LH IIIA1	no	thrusting spear	painted pottery, buttons, grave marker, amber bead, carnelian sealstone, scrap of ivory	17–20	M	none
XV**	AA 132	LH IIIA2	extensive	dagger/razor	painted pottery	40+	F	juvenile

* Immerwahr in *Agora XIII*, 1971, has suggested that this tool is a razor, but Blegen (1937) suggested it was a knife.

** This tomb has been eliminated from the analysis because it was extensively disturbed in antiquity and no skeletal remains from a male were found in the tomb.

All but one of the tombs that held weapons contained at least one teenage or adult male burial.²¹ The six tombs with weapons date from the same time period, LH IIIA (1400–1325 B.C.). Tomb VII might be from slightly earlier, from LH IIB (1450 B.C.), but the dating on that tomb is not secure.²²

Three of the skeletons from this cemetery have evidence of trauma that might have been the result of military activity (Table 6.3). An adult male of 35+ years (inv. no. AA 28) was buried in tomb XXXVII. This tomb contained painted pottery when it was excavated, but it had been disturbed in antiquity. Tomb XVIII contained a teenage male (AA 134) along with two adult females. This tomb was also disturbed in antiquity, and

21. Tomb XV, which was disturbed extensively in antiquity, contained the remains of an adult female of at least 40 years and a juvenile of 5–9 years. Because it was disturbed, it is certainly possible that an adult male had been buried in the tomb as well.

22. *Agora XIII*, pp. 183–184.

TABLE 6.3. SKELETAL PATHOLOGIES

<i>Tomb</i>	<i>Burial</i>	<i>Age</i>	<i>Sex</i>	<i>Weapons Present</i>	<i>Skeletal Pathologies and Anomalies</i>
III	AA 41	35+	M	Y	Several robust muscle attachments (medial head of right gastrocnemius; patellar ligament exostoses on both patellae; humerus, clavicle); disk herniation on many thoracic vertebrae; possible fusion of C4 and C5 at articular facets; body expansion on C5–7, T1–5, S1
VII	AA 113	35+	M	Y	Eburnation on superior articular facet (right) of right C4; some disk herniation
XIV	AA 118	40+	M	Y	Ligamentous ossification of trapezoid ligament on right clavicle, not present on left
XVII	AA 124	mid-teens	M?	Y	Probable healed cribra orbitalia
XL	AA 300	17–20	M	Y	Healed cribra orbitalia
IV	AA 45	adult	M	N	Healed fractures to left metacarpals I and IV
XVIII	AA 134	17–19	M	N	Healed sharp trauma to left frontal; healed sharp trauma to left pterion area; perimortem blunt trauma to right parietal; robust muscle attachments on upper body
XXXVII	AA 28	35+	M	N	Weapon wound to left shoulder; healed fracture of left radius; heavily muscled humeri, scapulae, innomimates, and femora

Note: The individuals discussed in the table are from tombs with weapons or who have evidence of possible combat-related trauma.

contained painted pottery and a stone button. Tomb IV, containing an adult male (AA 45), was extensively disturbed in antiquity. There were multiple adult male and female burials in the tomb, and the only grave goods present in the tomb were pottery fragments. All three of these burials with skeletal pathologies date to LH IIIA (1400–1325 B.C.).

RESULTS

The skeletons from the burials with weapons are alike in that none has any evidence of trauma or injury. Four out of the five males from these burials are older adults (35+ years old). The fifth is in his middle teens. Two of the five have fairly robust muscle attachment areas, but there is no consistency in location. Also, because both of these individuals are over 35 years old, it is likely that age is the primary reason for this robusticity.²³

AA 41 is the only skeleton from a burial with weapons that had an injury that might have resulted from combat. He has a healed fracture of one of the middle ribs on the left side. An injury to the left side of the body is consistent with an injury from a right-handed assailant. However, most rib fractures are the result of falls.²⁴ At this point, the more parsimonious explanation is a fall.

The remaining four males from tombs with weapons have no evidence of any kind of trauma or pathology that would suggest any form of injury. AA 113 has some eburnation on his fourth cervical vertebra (C4) and some disk herniation, but this is most likely a result of age. AA 118 has

23. Jurmain 1999.

24. Sirmali et al. (2003) examined 548 cases of rib fracture in a modern population. Three hundred seventy-two cases were the result of either auto or industrial accidents. Of the remaining, 122 fractured ribs were caused by falls and only 54 by assault.

TABLE 6.4. BURIALS WITH POSSIBLE COMBAT-RELATED INJURIES

<i>Tomb</i>	<i>Burial</i>	<i>Period</i>	<i>Disturbed in Antiquity</i>	<i>Grave Goods, Weaponry</i>	<i>Grave Goods, Other</i>	<i>Age</i>	<i>Sex</i>	<i>Additional Skeletons</i>
IV	AA 45	LH IIIA1–LH IIIA2	Extensive	None	Pottery fragments	adult	M	multiple adult males and females
XVIII	AA 134	LH IIIA2	Yes	None	Painted pottery, stone button	17–19	M	2 adult females
XXXVII	AA 28	LH IIIA1	Yes	None	Painted pottery	35+	M	no

extensive ligamentous ossification of the trapezoid ligament of the right clavicle, and a lesion on the inferior surface of the right clavicle at the costoclavicular ligament attachment. Neither of these conditions is present on the left. While the presence of heavy use of the right arm is obvious, the specific nature of his activity cannot be determined.²⁵ Most people are right handed, so it is not surprising that heavy use of the right arm would be present in a male skeleton.

AA 124 and AA 300 are younger than the other three males buried with weapons and have no pathologies at all, except for some possible healed cribra orbitalia (both) and dental caries (AA 124). The cribra orbitalia, which is not extensive, is not prevalent in this population.²⁶ The cribra orbitalia in this population is most likely the result of childhood illnesses or parasitic infections,²⁷ or the result of iron sequestering by the body to combat viral and/or bacterial infections²⁸ and would not have had any effect on his adult functioning. The dental carries on AA 124 were not extensive and did not produce abscesses or antemortem tooth loss. It is unlikely that they contributed to his death or even to much discomfort.

The final burial with weapons, tomb XV, contained an adult female and a juvenile. This burial was heavily disturbed in antiquity and could have had additional bodies buried in it. There is no archaeological, written, or artistic evidence to suggest that women engaged in military activity during this time, so this tomb will be excluded from further analysis.

Two males from the cemetery, AA 28 and AA 134 (Table 6.4), do have evidence of weapon wounds, though they are buried in tombs that contained no weapons. Both of these males were found in burials disturbed in antiquity, so we do not know if their lack of weaponry is the result of plundering or original absence. AA 28 is a middle-aged male from tomb XXXVI who has a healed “rounded wound depression in the right posterior rim of the joint socket of the right shoulder-blade [that] might easily result from arrow or spear thrust from behind.”²⁹ In addition, this male has a healed fracture of the right radius, which Angel³⁰ suggests might be the result of a direct force being applied during a fight.

While the scapula injury is most likely the result of a weapon wound, the radius injury may have been caused by a fall with an outstretched arm. Injury to the radius from a fall usually occurs more distally on the radius than it did on this man (11 cm from the distal end of the radius), but defensive

25. Jurmain 1999.

26. Smith 1998, p. 154.

27. Kent 1991; Stuart-Macadam 1982.

28. Weinberg 1984 and Kent, Weinberg, and Stuart-Macadam 1990.

29. Angel 1945, p. 297. This skeleton is no longer housed at the Agora Museum. It was lost several decades ago. The only evidence for it now is Angel's thorough description in this article.

30. Angel 1945, p. 297.

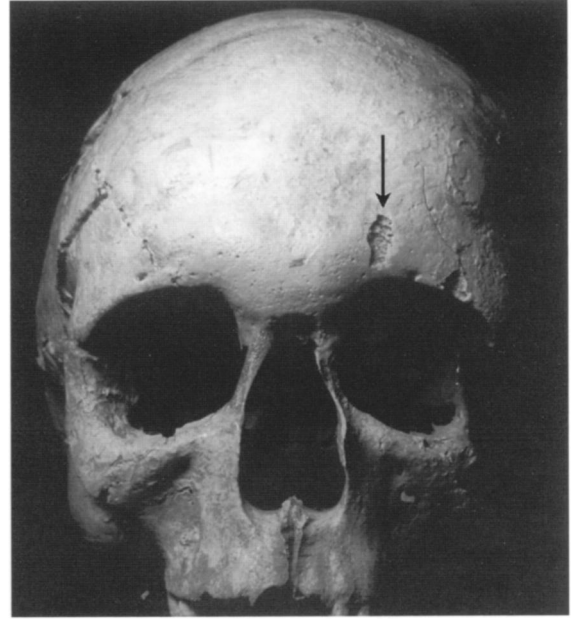
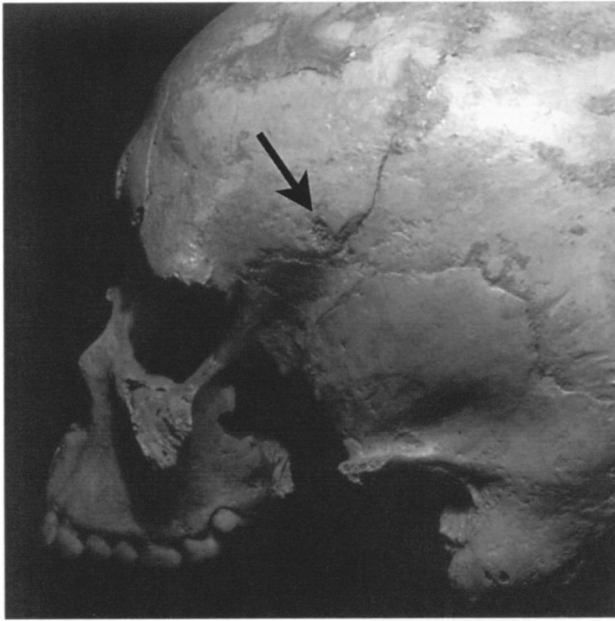


Figure 6.2 (left). Agora skeleton AA 134: healed wound at left pterion. Photo S. K. Smith

Figure 6.3 (right). Agora skeleton AA 134: healed wound on left frontal. Photo S. K. Smith

wounds of the arm usually result in the fracture of the ulna rather than the radius as the arm is held up in a defensive posture.³¹

AA 134 is a 17–19 year old male.³² The skeleton is fairly complete. He exhibits three head wounds, two with evidence of healing (Figs. 6.2, 6.3) and one that is perimortem and likely the cause of death (Fig. 6.4). The healed fractures, on the left frontal superior to the superior margin of the orbit, and at the left pterion region, have smooth margins with no evidence of infection. The third fracture on the right parietal at the coronal suture is a circular depression with no evidence of healing. Small bone fragments remain in place indicating the fracture occurred while soft tissue was still intact.³³ Lime concretions are adhering to the bone, but this was deposited after the body skeletonized and is therefore not responsible for the small bones being held in place.

The skeletal evidence indicates that this young man engaged in combat at least twice in his life. The healed wounds are consistent with sword or dagger wounds, both weapons that are found at the Agora from this time. His third wound, the circular depression, is consistent with an injury from a sling stone.³⁴ Sling stones have not been found at the Agora, but there are representations of them in artwork from the period.³⁵

One other skeleton exhibits signs of trauma that might be combat related. A commingled collection of adult males and females (designated AA 45) from tomb IV has healed fractures to left metacarpals I and IV. It is probable that these are both from the same male individual, but this is not definite. Angel attributed fractures of the hand in the Mediterranean to hand-to-hand combat.³⁶ These injuries do not have any evidence of a weapon wound, so it is not possible to say that is how they were broken and hand fractures are among the most common fractures.³⁷ These metacarpals could not be firmly grouped with other skeletal elements. However, no other trauma is present in any of the other bones in this tomb.

31. Ortner and Putschar 1985, p. 76.

32. Smith 1995.

33. Ortner and Putschar 1985, p. 72.

34. Merbs 1994, p. 174.

35. Vermeule 1972, p. 101, pl. XIV.

36. Angel 1974, p. 17.

37. Landin (1983) analyzed 8,682 fractures in children aged 0–16 years. He found that the bones of the hand (carpals, metacarpals, and phalanges) were the second most common to be broken, after the distal forearm bones. Playing and sports were the most common causes of the fractures. The metacarpals of AA 45 were completely healed and could have been broken in childhood or adulthood. Due to the frequency of fractures in this area caused by accidents, it is not possible to say with any certainty how the injuries of AA 45 were sustained.

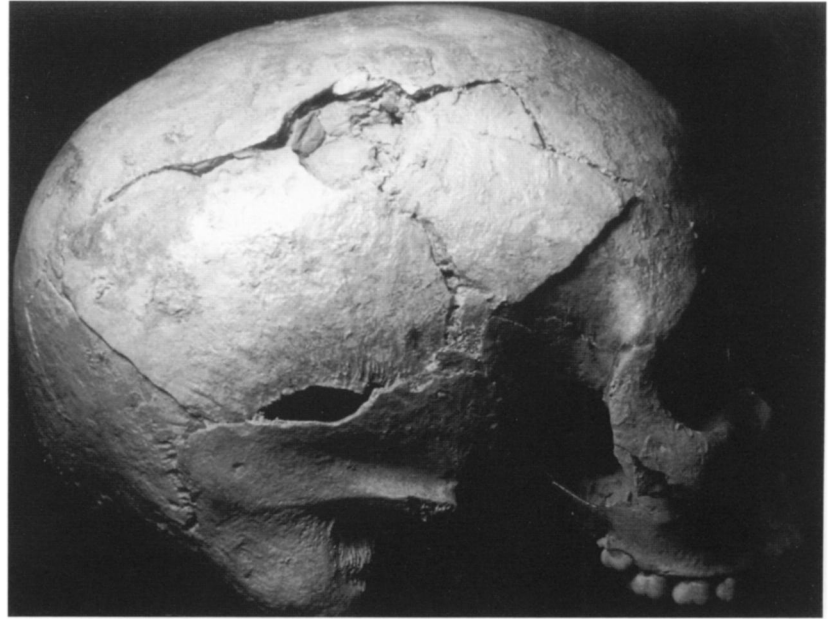


Figure 6.4. Agora skeleton AA 134: perimortem blunt trauma to right parietal. Photo S. K. Smith

DISCUSSION AND CONCLUSIONS

The evidence from burials at the Mycenaean Athenian Agora points to two very different potential pictures of military or combat activity. The archaeological data point to a scenario of five males ranging in age from middle teens to over 40 years, all of whom had evidence of military or fighting weaponry.³⁸ In contrast, skeletal data present three completely different males ranging in age from late teens to over 35 years of age with evidence for wounds consistent with combat or interpersonal violence. How are we to reconcile these two data sets?

Angel says of skeleton AA 28 that “without much doubt this Athenian was a warrior.”³⁹ This statement is at first glance problematic, but on second glance provocative. The initial problematic issue is that it is impossible to verify that the shoulder and arm injuries were sustained during combat. The other, more provocative, issue is whether we agree with Angel that a man buried without the weapons signifying a warrior status might be considered a “warrior.”

“Warriors buried without weapons” is perhaps not as outlandish as it seems. While “‘warrior graves’ and a ‘warrior aristocracy’ have . . . become an integral part of the furniture of Aegean archaeology,”⁴⁰ it is important to differentiate between who was doing the fighting and who was being lauded in death as a warrior, whether he participated in any fighting or not. It may be that those men buried with weapons at the Mycenaean Athenian Agora were not the soldiers. They may have had the weapons as signs of their high status or leadership roles, rather than as signs of their role as soldiers.

The inverse relationship between presence of weapons in burials and presence of injuries consistent with weapon wounds has been documented at other archaeological sites. Early Anglo-Saxon burials in England have

38. *Agora XIII* lists only tomb III as containing materials similar to a warrior aristocracy. However, Deger-Jalkotzy 2006, has suggested that the presence of weaponry alone may be indicative of warrior burials.

39. Angel 1945, p. 296.

40. Whitley 2002, p. 208.

shown this pattern of large, elaborate metal weapons being buried with adolescents, too young to be the rightful users of the weapons, while skeletal analysis has documented warfare trauma in individuals buried without these trappings of warriorhood.⁴¹

In such cases, where weapons do not evince warrior status, evidence of who the soldiers themselves were needs to come from their skeletons. If this was true at Athens, then what we may be seeing with AA 28 and AA 134 (Table 6.4) are examples of the rank and file of the Mycenaean military, the men who did the actual fighting.

This fits with the observation that Mycenaean culture may have been characterized by a simple structure rather than a hierarchical system.⁴² There would have been an elite group, but otherwise the population would not have been differentiated in terms of their social standing.

Mee and Cavanagh⁴³ have also suggested that tomb size and grave goods (not burial type) are the important indicators for social status. In the case at Athens, then, the bronze and obsidian tools may be meaningful status differentiators only among high social and/or military ranks. This might reveal some divisions in the elite group itself, which is in fact what is observed. The only Mycenaean burial in the Athenian Agora to be described as belonging to a member of the “warrior aristocracy”⁴⁴ is tomb III, which contained a bronze rapier, a short bronze sword, ivory and gold rosettes, a bronze bowl, stone buttons, and painted pottery. The other burials with bronze or obsidian weapons may represent a lower segment of the elite group, or other interpretations of how to bury a “warrior.”

Greek prehistorians have many questions in common with the interests of physical anthropologists. These questions can be answered by analysis of the skeletons in conjunction with the artifacts and features of the archaeological record. Due to the small number of “warrior graves” that have been found to date in Mycenaean cemeteries, it is clear that we must look for the men engaged in warfare in burials other than these “warrior graves.”⁴⁵ We must work with the archaeological and physical remains in conjunction with each other in order to document who the warriors of Mycenaean Greece were.

41. Härke 1990.

42. Mee and Cavanaugh 1984, p. 56.

43. Mee and Cavanaugh 1984.

44. *Agora* XIII, p. 105.

45. Deger-Jalkotzy 2006, p. 152.

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