

## An Arrowhead and Javelin Head in the Ancient world

### Innovations of Late Bronze Age Warfare



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This essay focuses on two archeological artifacts found in the Kelsey Museum at the University of Michigan. The first object is a small, bronze arrowhead typical of the Later Bronze Age. The second object is a rather large blade with a long tang also typical of the Late Bronze Age.<sup>1</sup> This essay will first seek to understand each object individually and then will bring the two together just as they might have on the ancient battlefields of the Late Bronze Age. Along the way details of the objects history such as who made it, when it was made, how it was made, and what its purpose was will be discussed wherever evidence is available. While each object on its own has a story to tell, in juxtaposition they represent a vivid picture of the Late Bronze Age battlefield. They are representative of colliding peoples and technologies in a time of conflict and instability.

Before any discussion of particular artifacts can be undertaken there must be an understanding of the broader historical setting of the pieces. As noted above, both pieces are from the Bronze Age. More accurately, they are from the Late Bronze Age. While it is not known where exactly these artifacts were found they are certainly of Near Eastern or Greek origin. This fact is deduced simply as a result of the Kelsey museum's collections being comprised of artifacts exclusively from the Mediterranean and Near Eastern regions.<sup>2</sup> The Bronze Age in this part of the world stretches from about 3000 BCE to 1200 BCE. The year 3000 marks the beginning of written human history while the year 1200 marks the arrival of a new technology, iron, to the region. Throughout the Bronze Age three powers dominated the region of the Mediterranean and Near East. On the southeastern shores of the Mediterranean stretched along the banks of the Nile River sat the mighty Egyptians whose empire at its peak

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<sup>1</sup> The time period of these objects at this point in the paper will go unsubstantiated but will later be proven in the discussion of each object.

<sup>2</sup> This information is readily available on the website of the Kelsey Museum under the "history" tab.

stretched from the head of the Nile in the south to modern day Syria in the north brushing up against Asia Minor.<sup>3</sup> Located mainly between the other two great rivers of the region, the Tigris and Euphrates, sat the Mesopotamian empire of Sumer. Their territory, at its height, spanned from modern day Kuwait and southern Iraq northward comprising most of modern day Iraq and Syria stretching into Asia Minor.<sup>4</sup> The last major power of the era in the region were the Mycenaean's around the Aegean Sea. While the land they directly controlled was not as impressive as the Egyptian or Sumer empires, their sphere of influence was on equal footing. The archeological record demonstrates Mycenaean influence across Asia Minor and south throughout the eastern shore of the Mediterranean Sea by the Late Bronze Age.<sup>5</sup>

The two objects that this essay will discuss are from the Late Bronze Age so it is particularly important to understand the state of the region at the time. The Late Bronze Age can be defined as the period immediately preceding the Iron Age beginning in about 1500 BCE and ending in 1200 BCE. Over the course of the Bronze Age Egyptian influence fluctuated but, by the Late Bronze Age was in a period of decline. The Hittite Empire was in a state of withdrawal from its northern territories retreating to the region immediately surrounding the Nile.<sup>6</sup> The vast territories of Mesopotamia were by this time dominated by the Assyrians. Their area of control was comprised of territory from modern day Syria south between the Tigris and Euphrates ending in modern day Kuwait. The Mycenaean Empire was also in a state of decline however, its territory remained under Greek control. With the Hittites relegated to the Nile Delta, the Mycenaean's to the Greek mainland and islands, and the Assyrian empire sitting between the Tigris and Euphrates, a power vacuum along the eastern shores of the Mediterranean was

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<sup>3</sup> Eliav, Yaron. "Conquering of the Land Pre-1200 BCE." Near East 207: The Land of Israel/Palestine Through the Ages. 26 September 2016, University of Michigan. Lecture.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

<sup>6</sup> Eliav, Yaron. "Conquering of the Land Pre-1200 BCE."

created. Out of this vacuum rose a network of powerful Canaanite city states situated in modern day Israel and Palestine. The first mention of Canaanites appears in the Egyptian papyrus “The Tale of Sinuhe” which dates to around the 19<sup>th</sup> century BCE. The Egyptian author recognizes these people living in the northeastern Egyptian territory Rattanu (modern day Israel/Palestine) as a racially separate people from the Egyptians.<sup>7</sup> It is these same people, previously subjugated for a millennium to Egyptian rule, that build the Canaanite city states. The largest and most powerful of these states, Dan, Hazor, Megiddo, Shechem, and Acre enter the history books as important entities during the Late Bronze Age and continue to play a role in history to this day through the archeological record. The power and wealth of these cities was a result of their geographic location at the so called “bottleneck” of the ancient world. These cities played an important role in the ancient global economy as they sat along the Via Maris, a trade route connecting Egypt to Mesopotamia. At the confluence of the region’s major powers, the Canaanite city states were built on some of the most valuable land in the ancient world and thus, were fiercely contested. During the Late Bronze Age, the city states maintained local governance but were forced to pay taxes to various powers as the region bounced between Egyptian and Assyrian dominion.<sup>8</sup> The Late Bronze Age was marked by relatively rapid oscillations of power especially on the eastern shores of the Mediterranean. This led to military conflict as evidenced by extensive military fortification of the Canaanite city states as well as the presence of various weaponry at archeological sites in the area.<sup>9</sup> Now, with a clear understanding of the historical backdrop relevant to this paper’s two objects, the artifacts can be discussed.

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<sup>7</sup> Eliav, Yaron. “The Conquering of the Land Pre-1200 BCE.”

<sup>8</sup> Ibid.

<sup>9</sup> Near East 207 course website. “The Land of Israel/Palestine through the ages.” Yellow questions #8. <https://www.lrc.lsa.umich.edu/eliav/israel-palestine/readings/5-10/>

Object number one is an arrow head consisting of a tang connected to a barbed triangular arrow point. It measures 7 cm. from the arrow point to the tip of the tang. At its widest point, it measures 1.5 cm. and is no more than ¼ of a cm. thick at its thickest point. As a result of oxidation, it is covered in varying shades of verdigris. The arrow's green patina reveals the metallurgical composition to be bronze. A prominent rib running the length of the arrow head on either side as a continuation along the line of the tang suggests the arrow to have been manufactured using cast molding technology.

The material used and the way it was manufactured reveal a great deal as to when the arrowhead was made and by whom. The appearance of the arrowhead suggests it is made of bronze, a theory which is further corroborated by the prevalence of tin and copper in the Mediterranean and Near East.<sup>10</sup> While the raw metals necessary for the production of such a bronze arrowhead were readily available in the region they were still rather expensive. Thus, only those with a certain amount of wealth were capable of purchasing the materials necessary to produce such an object.<sup>11</sup> Additionally, the fact that it was manufactured using a mold suggests a certain level of expertise or specialization.<sup>12</sup> These two pieces of evidence point to the arrowhead being created by a powerful person or organization that also had the means for specialized craftsmanship. The only entities capable of this sort of manufacturing would be the three aforementioned Mediterranean and Near Eastern powers or wealthy city states. In other words, the arrowhead is not the creation of an individual. Rather, it is indicative of the mass production of weaponry by wealthy and powerful organizations during the Bronze Age.

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<sup>10</sup> Muhly, James D. "Sources of Tin and the Beginnings of Bronze Metallurgy." *American Journal of Archaeology*, vol. 89, no. 2, 1985, pp. 275–291. [www.jstor.org/stable/504330](http://www.jstor.org/stable/504330).

<sup>11</sup> Ibid.

<sup>12</sup> Professor Eliav's comments. "Kelsey Experience Lab Sheet." 13 November 2016.

Perhaps the most notable feature of the arrowhead are the barbs protruding from either side of the main triangular point. The barbs denote the intention to inflict massive damage to anyone on the receiving end of the arrow. The arrow was designed to penetrate smoothly but, upon removal, to inflict massive damage to the victim. The arrowhead was designed to cause maximum damage and thus is certainly a tool of war rather than an implement used in hunting where it might be desirable to keep as much of the animal intact as possible. While the barbs demonstrate a clear purpose they also reveal more precisely who made the arrowhead and that it is, in fact, an artifact from the Late Bronze Age.

The barbed design of the arrowhead, per the archeological record, is unequivocally a unique design belonging to, or influenced by, Mycenaean culture of the Late Bronze Age. Barbed arrowheads are exceedingly rare in the Near East Late Bronze Age archeological record.<sup>13</sup> Furthermore, across multiple sites, the prevailing design is ob lanceolate and devoid of barbs.<sup>14</sup><sup>15</sup><sup>16</sup> While a barbed design is rare in the Near East, it is the dominant design found in the Mycenaean and European archeological record. Indeed, barbed arrowhead technology dates to the Neolithic period in Europe.<sup>17</sup> Early Mycenaean arrowheads were flint, barbed blades. With the arrival of the Bronze Age the design of Mycenaean arrowheads incorporated the original barbed design into the new cast mold designs. Cast mold bronze arrowheads do not seem to

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<sup>13</sup> James, Frances W., Patrick E. McGovern, and Anne G. Bonn. *The Late Bronze Egyptian Garrison at Beth Shan: A Study of Levels VII and VIII*. Philadelphia: U Museum, U of Pennsylvania, 1993. Print. Page 210, see entry “Barbed Blade.”

<sup>14</sup> Ibid. See entry “Oblanceolate Blades.”

<sup>15</sup> Martin, M. F. “A TWELFTH CENTURY BRONZE PALIMPSEST.” *Rivista Degli Studi Orientali*, vol. 37, no. 3/4, 1962, pp. 175–197. [www.jstor.org/stable/41879434](http://www.jstor.org/stable/41879434). Page 182, description of arrowhead BM5. Arrowhead BM5 of the El Khadr Hoard is particularly convincing in proving a barbed design is not Near Eastern. BM5 bears an inscription in Ugarit, the language of a Canaanite people (see Tubb page 72) and BM5 is leaf shaped.

<sup>16</sup> Gonen, Rivka. *Burial Patterns and Cultural Diversity in Late Bronze Age Canaan*. Winona Lake, IN: Eisenbrauns, 1992. Print. Page 45, “Weapons.”

<sup>17</sup> Darvill, Timothy. *The Concise Oxford Dictionary of Archaeology*. New York: Oxford UP, 2008. Print. See entry “Barbed and Tanged Arrowhead.”

appear until the 16<sup>th</sup> century BCE or, at the start of the Late Bronze Age.<sup>18</sup> With this in mind, it is possible to trace the arrowhead to no earlier than the Late Bronze Age. This does not exclude the possibility that some other group manufactured the arrowhead having been influenced by Mycenaean culture however, these people are readily identifiable. The only other entity capable of producing such an arrowhead lying within the Mycenaean sphere of influence were the Canaanite city states. There is a clear connection between Canaanite and Mycenaean culture<sup>19</sup> and the Canaanite city states certainly created bronze weapons as shown in the archeological record.<sup>20</sup> In summary, the arrowhead cannot be any older than the Late Bronze Age and was made by either Mycenaean or Canaanites having been influenced by Mycenaean culture.

Object number two is a blade of some sort, either a spearhead javelin head, or dagger. It is about 30 cm. long and about 3 cm. wide at its widest point. It is mostly a rusted brown-orange color but some areas of green patina are clearly visible which suggests it too is made of bronze. The object is composed of two parts, the blade and a long, thin tang. The blade itself is triangular in shape tapering to a point at the tip of the blade. The tang extends off the base of the triangular blade and finishes in a small hook which forms a right angle with the tang. A rib runs the length of the blade and thus suggests a cast mold manufacturing process. The edges of the blade are somewhat jagged and uneven. This could be a result of aging or could suggest heavy use to the point that the edges wore down and become uneven.

The blade itself is characteristic of either a spearhead, javelin head, or a dagger. One would think the presence of the tang and hook would suggest that the blade was somehow

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<sup>18</sup> Salimbeti, Andrea, and Raffaele D'Amato. "The Greek Age of Bronze - Weapons." *The Greek Age of Bronze*. N.p., 28 Aug. 2015. Web. 01 Dec. 2016. This page offers a multitude of photographs tracing Mycenaean arrow heads from Neolithic flint arrowheads up to the cast mold bronze arrow heads of the Late Bronze Age.

<sup>19</sup> Eliav, Yaron. "Conquering of the Land Pre-1200 BCE."

<sup>20</sup> Yellow Question #8

attached to something such as the pole of a spear. However, the archeological record complicates that assumption. Archeologist Vassilios Tzaferis unearthed what he readily identified as daggers in a Middle Bronze Age tomb in Tiberias. He concluded they were daggers because they had been placed directly in the hands of the men buried in the tomb. These daggers bear a tremendous resemblance to the tanged blade that is the subject of this paper. All three daggers are comprised of triangular blades and tangs.<sup>21</sup> However, there is a discrepancy in the lengths of all the objects. More specifically, the proportion of blade to tang is different between the daggers and our blade. The daggers have long, elongated, triangular blades with relatively short tangs extending off the end. The tanged blade of this paper has a stouter, shorter blade and a tang that is visibly about equal to the length of the blade itself. The blade belonging to this paper has a more robust tang relative to the length of the blade than the daggers do. This would suggest that the tang of a dagger did not have to be especially strong. The long tang of our blade suggests a sturdier construction was required. This is evidence that the blade was attached to something else. A longer tang provided more points or more surface area from which the blade could be attached. As the blade is far too large to be an arrowhead, it must have been attached to a pole creating a spear or javelin.

With the blade's use as a dagger eliminated, it could still be either a spearhead or a javelin head. Fortunately, google images and logic can help to easily solve this dilemma. If one is to do a cursory image search for "bronze spearhead" a pattern of design becomes clear. Spearheads that are clearly made of bronze consists of a blade connected to a hollowed-out tang. The design allows the blade to be fitted over the end of pole. An image search for "bronze javelin head" also reveals a clear pattern of design. These blades are far thinner and elongated in

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<sup>21</sup> TZAFERIS, V. "A Middle Bronze Age I Cemetery in Tiberias." *Israel Exploration Journal*, vol. 18, no. 1, 1968, pp. 15–19. [www.jstor.org/stable/27925119](http://www.jstor.org/stable/27925119).



comparison to the spearheads and, of tremendous importance, are almost all tanged in a similar way to the blade that this paper discusses. Just from these two image searches it is rather clear that the blade belonging to this paper is a javelin head rather than a spearhead. Indeed, logically the differing designs make sense. A spear is designed for skirmishes and thus requires a sturdy design.<sup>22</sup> In contrast, a javelin is a handheld projectile meaning a lighter design would be more desirable.<sup>23</sup> Thus, it makes perfect sense that a blade with a small profile with a long, thin tang would fit the design of a javelin rather than a spear. The identification of the blade as belonging to a javelin rather than a spear is significant in that we can better understand its use however, it also helps us in dating the artifact. In the archeological record, javelins are more common in Late Bronze Age layers of a dig than in Middle and Early Bronze Age layers where spears are more common.<sup>24</sup> This trend makes it more likely than not that the javelin head of this paper is from the Late Bronze Age, the same time period that the arrow head is from.

The high probability that the arrowhead and javelin head are both from the Late Bronze Age is a significant fact. As both are weapons, they certainly would have been used on the battlefield at the same time and from this, a great deal can be deduced. What is especially important to note is the decline of skirmish weapons in the archeological record as the Bronze Age progresses. By the Late Bronze Age, close quarter weapons such as daggers and spears have been replaced with arrows and javelins.<sup>25</sup> In other words, there is an obvious change in military tactics over the course of the Bronze Age. By the Late Bronze Age projectiles were clearly the preferred weapon of warfare. The reason for this change has to do entirely with the technologies available to armies at the time. The invention of the composite bow is responsible for the

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<sup>22</sup> Gonen, Rivkah. P. 48.

<sup>23</sup> Ibid.

<sup>24</sup> Ibid.

<sup>25</sup> Ibid.

increased presence of arrowheads. Composite bows became the preferred weapon of large armies as they allowed force to be projected from distance dealing massive damage while avoiding casualties of their own.<sup>26</sup> Armies possessing arches had a distinct advantage when engaging with an opponent who only had skirmish infantry as the army with archers could attack without having to directly engage the enemy. Thus, the role of the archer was of vital importance in decreasing the effectiveness of infantry possibly leading to the observed increase in archers (arrowheads) and decrease in infantrymen (spears and daggers). The advent of the composite bow explains the prevalence of arrowheads but does not explain the rise of javelins. Quite possibly, the rise in javelins has to do with the arrival of another new technology to the ancient battlefield, the horse drawn battle chariot. The chariot arrived in the Mediterranean sometime between 2000 BCE and 1500 BCE and by the end of the Late Bronze Age was the dominant force on the battlefield.<sup>27</sup> Some have described it as the ancient version of the modern tank however, that description is rather inaccurate. While a tank dominates the battlefield because of its sheer size and impregnability, the chariot dominated because of its quickness and agility. When combined with skilled archers using composite bows a much smaller force of chariots could decimate a larger force of massed infantry. This was because of the combined fire power of archers and the speed and agility that the horses provided. If an army massed together its infantry to create a strong single unit designed to repel a chariot charge, the chariots could simply sit out of range of the infantry while the archers reigned down a barrage of deadly arrows. On the other hand, a commander might decide to spread his infantry to reduce the effectiveness of archers. In this case the speedy chariots could easily overrun a thin line of infantry. Regardless

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<sup>26</sup> Moorey, P. R. S. "The Emergence of the Light, Horse-Drawn Chariot in the Near-East c. 2000-1500 B.C." *World Archaeology*, vol. 18, no. 2, 1986, pp. 196–215. [www.jstor.org/stable/124615](http://www.jstor.org/stable/124615).

<sup>27</sup> *Ibid.*

of the approach an opponent took, the chariot had a way of defeating the defensive scheme.<sup>28</sup> Enter the javelin, the infantryman's defense against the chariot. The javelin is a projectile weapon which allows any individual the ability to project force out from themselves. This was especially necessary when fending off attacking chariots. An army in possession of javelins could spread themselves out thus negating the effectiveness of archers while keeping chariots at bay as infantrymen could project force out to oncoming chariots. The javelin importantly somewhat negated the chariots ability to overrun a thinly spread defensive line.<sup>29</sup> The arrival of the chariot around the time of the Late Bronze Age can be understood as the direct cause of the increase of both arrowheads and javelin heads in the archeological record as the importance and prevalence was increased and javelins became a military necessity in opposition to archers mounted on chariots.

This essay focused on two objects from the Late Bronze Age, an arrowhead and a javelin head. By discussing and juxtaposing the objects it is possible to learn a great deal about the nature of Late Bronze Age warfare. From this paper, we glean that the Late Bronze Age was a tumultuous time as powers collided in the ancient Near East and new technologies emerged.

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<sup>28</sup> Ibid.

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With origins dating back to prehistory, the empire of ancient Iran was one of the world's first superpower civilizations by the time it had taken form in the second millennium B.C.. The various cultures that can be included in the former ancient Iranian Empire stretched across an enormous geographical region extending beyond what is called the Iranian Plateau. In medieval times it was normal to stab the head into rotten meat, shit or anything full of nasty bacteria. They were employed in large formations to make an arrow - storm as a few single arrows would be ineffective. The archers sheltered behind the infantry, and would pass through the infantry to let go their volleys.  
I am a bowman with two recurve bows. I agree with the other responders, I have arrowheads that cannot be removed without surgery, and would fester. In medieval times it was normal to stab the head into rotten meat, shit or anything full of nasty bacteria. They were employed in large formations to make an arrow - storm as a few single arrows would be ineffective. The archers sheltered behind the infantry, and would pass through the infantry to let go their volleys.