"Of Arms and Men": Siege and Battle Tactics in the Catalan Grand Chronicles (1208-1387)

by Paul Douglas Humphries

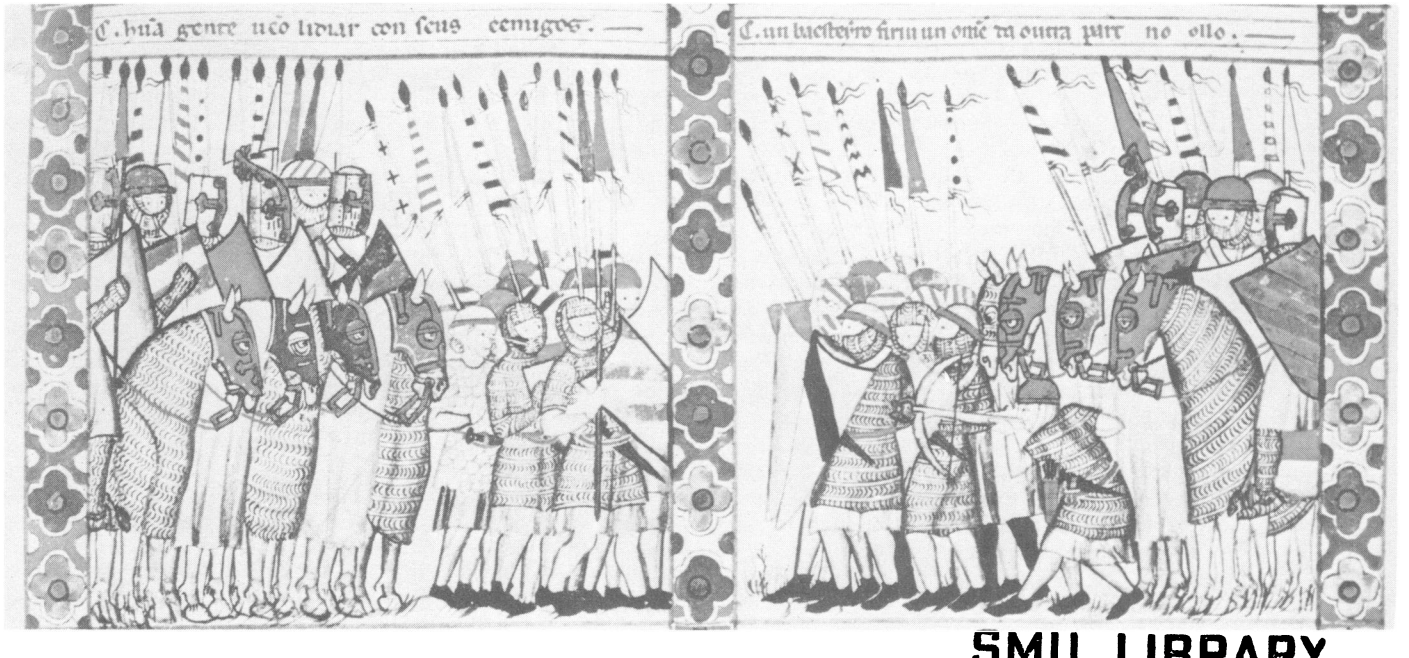
MENTION of warfare in 13th- and 14th-century Europe immediately conjures visions of crusaders, Mongols on horseback, and longbowmen in Lincoln green; rarely are areas outside the conventional examinations of northern and eastern Europe considered. It was during this time, however, on the significant southern frontier of Latin Christendom, that a strong and dynamic power was rising to predominance in the Iberian peninsula and to a commanding position in the Western Mediterranean, through the abilities, accomplishments, and aggressive use of its arms. This state was the vigorous and expanding realms of Aragon — a congeries of principalities and counties, notably Aragon and Catalonia, along the Mediterranean coast of southern France and Spain, with overseas conquests.

Any questions pertinent to the whole of European land warfare at the time would be valid for the Aragonese as well, but may not necessarily yield the same answers. What was the nature of combat as then practiced by the Aragonese? Who and what was involved? How were the practicalities of battle realized on the field? And if the answers to these questions are different for Aragon than for the rest of Europe, what is the significance?

Any examination that seeks to answer these questions must be firmly rooted in factual source material of the age and area, a bill that is neatly filled by what are known as the *Catalan Grand Chronicles*. Of course, other sources and works besides the chronicles certainly exist, but the information contained in these four memoirs is more than enough to provide an incisive, not to mention first hand, view of Aragonese warfare.[1]

Of these works, the autobiographies of James I and Ramon Muntaner are of most use in military matters. James, named "the Conqueror," personally commanded armies in the campaigns which added Majorca, Valencia, and Murcia to his crown and seems almost to delight in explaining many of the intricacies of his military operations. Muntaner served as a knight and quartermaster in the famous Catalan Grand Company and therefore brings a special insight not only to actions in which he himself fought, but also to a wide range of combat operations in his chronicle that spans the years 1208 to 1327, the period of six Aragonese kings. Regrettably, the chronicle of Bernard Desclot is both less militarily focused than those of James and Muntaner and covers only the relatively short reign of Peter III of Aragon (1276-1285). The last of the chronicles, that of Peter III of Catalonia (Peter IV of Aragon), is only a bit more useful than Desclot's; though spanning a later time frame, it actually adds little to what James and Muntaner have to say about Aragonese warfare.

The *Catalan Grand Chronicles* together build a single comprehensive window through which we can observe the nature of Aragonese warfare. Armor, weapons, fortifications, soldiers, sieges, and battles all appear. This information provides the base for an analysis which shows how the practical extensions of Aragonese combat, its tactics, were often determined by the relationship between tools and organization. Such information also yields illustrations of this relationship. To structure an understandable examination, the obvious differences between battle and siege prescribe that they be inspected separately. It will still be seen, however, that the tactical realities of each type of operation stem from the same association of tools and organization.



Two combined infantry and cavalry forces meet. Note both the variations in arms and armor and the crossbow. (Photograph by UCLA Research Library. Reprinted from ***Las Cantigas de Santa Maria*** *[Madrid: Edilan, 1979]. Permission to use ceded and authorized by Patrimonio Nacional, Madrid.)*

AN initial examination of the tools of battle immediately yields two general categories: what the soldier carried and what he wore or, more traditionally, his arms and armor. Both types of equipment are mentioned enough in the chronicles so that sub-categories also emerge. The individual soldiers' armor and weapons varied greatly in number and type, so their equipment could be both diverse and extensive.

Starting from the top: the Aragonese soldier could wear an iron cap or a more elaborate casque or barbuda, these latter types of helmets affording greater protection for his face and ears as well as his head. He could also wear a simple cerveliere, or skullcap, over which a camisol of mail could be placed to protect his head, neck, and shoulders. Gorgets were used to shield the front of the neck, while the shoulders could be further protected by epaulets. Body armor ranged from the simple purpunt, a close-fitting quilted coat of cotton or leather, to the large single-piece hauberk, a long coat of mail split front and back from the waist down and usually worn over the purpunt, which protected the body from blows to the hauberk. Elaborate ensembles of pieced armor could be worn as well, such as a cuirass for the torso, cuisses for the upper legs, and greaves for the lower legs with all of this possibly covered by a smock or robe. The soldier could also wear metal gauntlets on his hands and spurs on his feet, this latter item suggesting sturdy footwear.

Although this body armor may have been of metal construction, more probably much of it was made of boiled leather, since there are many instances in the chronicles of darts and spears passing through the soldier's armor and through his shield or his horse's armor in single thrusts. Horse armor is quite evident, but none of the chronicles provide very elaborate descriptions of it. Horses were also equipped with reins of either leather or metal, and saddles in which the mounted soldier was often chained. A shield often complemented the soldier's armor. With the exception of the hand-held bucklers of light troops, shields were imposing enough in size, weight, and construction to be worn instead of merely carried. There was also the paves, a much larger type of shield which is best discussed with siege equipment.[2]

Complementing the soldier's armor were his weapons, which fall into four categories. The type most frequently mentioned in the chronicles is the edged weapon or sword. Most of these swords seem to have been quite imposing, able to cleave shields, armor, and men in single blows. They could be of plain or ornamented design, although Peter III mentions in his chronicle an ornate jewel-encrusted sword so rusty that he could not draw it, an episode which tends to characterize ornamented swords as ceremonial rather than of practical military use. Also cited are smaller *coutels* and daggers.

The next most prevalent weapon type is transfixive, with the standard specimens being the lance and the lighter, hollow *bordó*. Spears were also used, which were smaller than the lance and could be hurled like the even smaller dart. Both lances and spears could be broken in half for close-quarter fighting of a special nature. The major projectile weapon of the day, the crossbow, appears in the chronicles, but an examination of its particulars and variations belongs more in the discussion of siege weaponry. Although not often mentioned, the sling was also used to great effect, which bespeaks a technical ability not common in European warfare but peculiar to this Arago-Catalan area from the time of the Caesars. Of least sophistication were concussive weapons such as the mace, cudgel, and crock — the latter two being little more than clubs. Lastly, the Aragonese soldier could and did fight with stones, pieces of his armor, and hand-to-hand as the situation dictated.[3]

The soldier wearing and carrying all of this equipment would obviously have been of little use on the battlefield, and probably would have endangered himself more than the enemy. Indeed, Desclot mentions how some mounted knights, encumbered and weighted by their full armor, drowned in a swollen river.[4] Exactly who carried what, how soldiers were distributed, and in what manner formations were arranged can best be seen in a larger review of military organization.

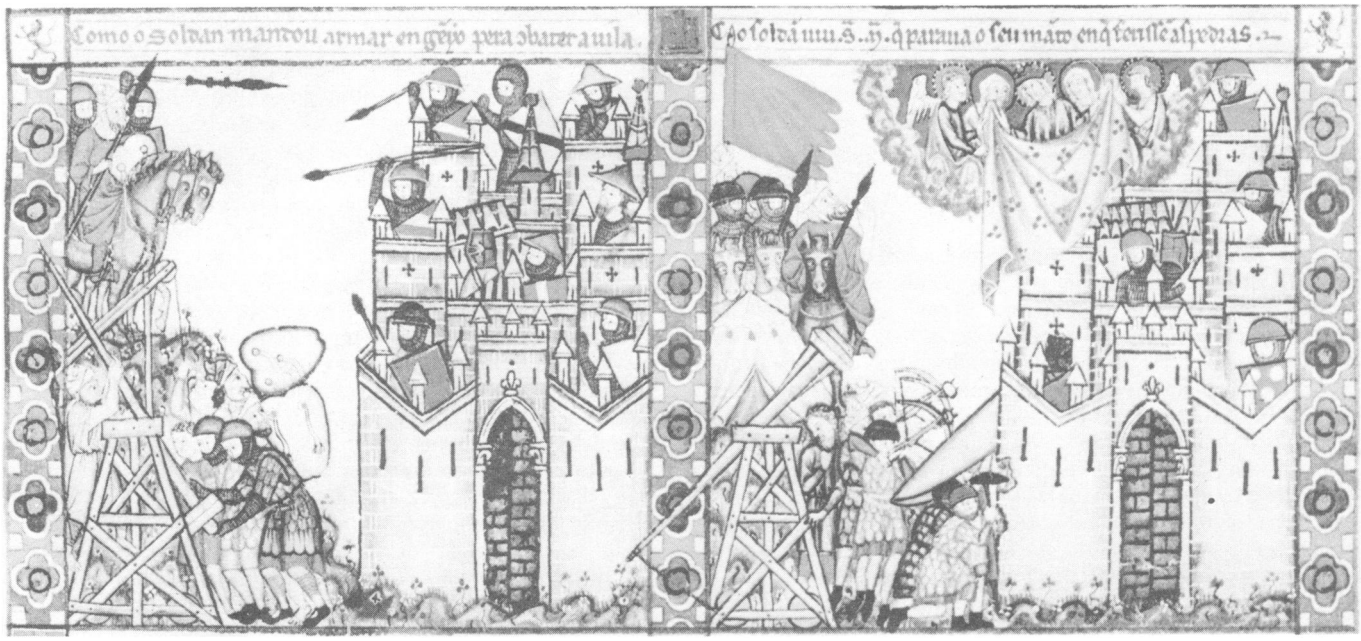
ORGANIZATION was the key to Aragonese warfare. James mentions that his father, Peter II, lost the Battle of Muret precisely because his army was not properly organized. The most obvious aspect of Aragonese military organization in the chronicles is the difference between the armed knight and the unarmed foot soldier. The word "armed" describes what a man wore rather than what he carried, and the armor previously detailed was virtually the exclusive accoutrement of the armed knight. When he was mounted, the knight's primary weapon was his lance, backed up by his sword, mace, and dagger. The sword predominated when the knight fought on foot. The squires who often accompanied the knight were armed to an extent as well, and together with him they formed a capable combat team. Formations of light horse were also organized, although the armed knight remained dominant in Aragonese cavalry formations.

Infantry could consist of armed knights fighting dismounted, but was more often organized in larger, looser formations of levies, other retainers, or even sailors armed with spears and perhaps other weapons according to circumstance. The mainstays of Aragonese foot soldiery were *almogavars* — rugged tribesmen from the Saracen hinterlands of the region and commonly retained by Christian lords. Both Muntaner and Desclot provide detailed descriptions of the *almogavar*. He wore only a shirt, breeches, and sandals and carried only a spear, a small number of darts, and perhaps a blade. The third type of soldier in Aragonese armies was the crossbowman, who could be lightly armed at times and was usually organized in separate formations owing to his weapon's special capabilities.[5]

Soldiers were summoned for campaign in different ways. In 1282, Peter III commanded every man in Sicily between the ages of 15 and 60 to report to Palermo with bread and arms for campaign. Most commonly, however, calls to arms were issued by the king to certain high barons (*rics homens*) who were requested to provide various numbers of knights, foot soldiers, and crossbowmen at specific mobilization centers. The distribution of call was determined first by the needs of the campaign, as the king decided, and then by the abilities and inclinations of the barons to provide what was requested. *Almogavars* came exclusively from the frontier regions, while crossbowmen were more likely to be ordered up from Catalonia; Tortosan bowmen enjoyed a remarkable reputation for their skills. Knights and general infantry levies could be and were called from virtually any crown province.[6]

The army's organization on the field itself was of course likely to be tailored to several variables, but some general tactical rules still emerge. In battle, Aragonese forces keyed off the van — the unit which was arrayed to the front and center of the rest of the army and which consisted of most, if not all, of the mounted knights. If both mounted and dismounted knights were present on the field, they were formed separate from each other as well as from the unarmed infantry, just as the armed horse was formed separate from the light horse. The army was controlled on the field through trumpets, drums, and flags by commanders and unit leaders. These officers included *almogatens*, or captains of *almogavar* formations, senior nobles, and the Aragonese kings themselves, who throughout the chronicles seem to exercise a remarkable degree of personal activity and control in battle. Of course, tactical direction became difficult at best after that point in battle when opposing sides clashed and the fight devolved upon small units and individuals.[7]

Aragonese soldiers are described in the chronicles as fighting in many actions from one end of the Mediterranean to the other, against forces ranging from Saracens to French, to Turks, and to Byzantines and their allies. Although terrain, weather, type of actions, opposing forces, and perhaps the personal and cultural



A besieging force with pavesses, crossbows, and, most importantly, trebuchets attack a castle. (Photograph by UCLA Research Library. Reprinted from ***Las Cantigas de Santa Maria*** *[Madrid: Edilan, 1979]. Permission to use ceded and authorized by Patrimonio Nacional, Madrid.)*

proclivities of the people involved could all influence tactics, the nature of Aragonese battle was ultimately a function of the weapons and organizations examined above. Not only do the practicalities of their relationship become evident after this examination, but they can also all be illustrated with examples from the chronicles.

THE first aspect of Aragonese warfare that becomes apparent is the shock value of the mounted knight. His armor provided him protection, and he was able to keep at hand a variety of weapons both on his horse as well as carried by his retainers. Most important, his mount provided the knight both mobility and an effective delivery system, which enhanced the killing power of these weapons. Many times the chronicles describe knights charging with their lances, drawing swords for close combat, and even fighting with daggers or maces if their swords were broken.[8] This shock value was recognized and exploited in the formation of the van, because that unit concentrated the shock at the right place on the field to deliver an initial and concentrated blow to the enemy. This blow could often decide the battle before the infantry clashed and the battle was fought to a bloody conclusion. Mounted knights most often fought other mounted knights, of course, given the almost unavoidable contact of opposing vans and the natural attempt to meet shock with shock. However, cavalry's effect on foot soldiers could be devastating owing to the impetus, position, and protection which the horse provided the knight.

As so often in matters of arms, it was precisely the strengths of the mounted knight which provided the keys to his weaknesses and ultimately to his defeat, quite often at the hands of the very foot soldiers over whom he must have enjoyed riding roughshod on so many other occasions. The benefits which the knight derived from his armor and mount could swiftly turn into exploitable vulnerabilities.

Cumbersome armor restricted mobility and could often help render the knight *hors de combat* if unseated in battle. Also, if the infantryman could survive the shock of the initial charge, the odds swung dramatically in his favor, since the knight's mount was quite vulnerable to a variety of weapons. Muntaner mentions several instances of *almogavars* breaking their lances short for easy handling in horse disemboweling, and Desclot provides two graphic cases of single *almogavars* defeating numbers of mounted French knights by using both their spears and darts. Muntaner specifically recommends chain rather than leather reins when describing how Peter III's reins were cut by an enemy knight's sword so that four soldiers had to come to his aid to control his mount. In another case, James II could not get the upper hand in personal combat with another knight, so he dispatched his adversary's horse with a swift mace blow.

Given these vulnerabilities and the right circumstances, it did not even take a great deal of sophistication to defeat the mounted knight. Muntaner dramatically illustrates this fact in describing an action involving a woman of Peralada who, armed with a spear, sword, and buckler, confronted a French knight in her garden. In close quarters, deprived of the charge and the resulting shock, the knight did not stand a chance; he promptly surrendered after he had been stabbed through the thigh with the woman's spear and his horse had been struck repeatedly over the head with her sword. This episode, in addition to being a telling statement on the nature and capabilities of Catalan women, pointedly characterizes the vulnerabilties of the mounted knight.[9]

Use of light horse addressed many of the weaknesses of armed chivalry. Although at a disadvantage against heavier armed horse, light cavalry maintained the ability to inflict shock through the charge while still retaining a higher degree of mobility and thus survivability in close action. Other Aragonese tactics that allowed for greater mobility and a wider scope of activity on the battlefield included the employment of crossbowmen, slingers, and dart-hurling *almogavars*. Obviously, casualties inflicted by projectile weapons were significant, because they were cheaply bought in terms of tactical effort, and they could favorably affect the battle's outcome before the clash of infantry. This was the ultimate episode of Aragonese battle. Maneuver only resumed on the field when one side ultimately broke and the action was won. Therefore, although combat for the Aragonese could be multifaceted, it hinged mainly upon the mounted knight. Defeat of the enemy's mounted knights, however, turned out to be potentially more important for the Aragonese than the success of their own. Since this defeat was often best accomplished by using properly organized and equipped foot soldiers, the role of the infantry cannot be overemphasized.

THE siege can be seen as a type of battle. It possessed some similarities in weaponry and, indeed, many similarities

when a garrison sortied for traditional combat. However, the differences between battle and siege are substantial, especially in tactical organization and specialized equipment, and help characterize the siege as an action quite distinct from the battle. These differences notwithstanding, the siege is best examined in the framework already used for analyzing the battle, namely that the action's tools and organization greatly control its tactics.

Sieges are described in varying detail throughout the chronicles, most particularly in James's; and all of these accounts provide a comprehensive view of siege and siegecraft practicalities. By far the most significant tools of siegecraft were the siege engines, which could be quite diverse in size and purpose. Individually-operated weapons consisted mainly of various types of crossbows. The smallest seems to have been a standard stirrup type, which required the soldier to anchor the weapon with one foot while drawing the bow. Larger two-footed crossbows were also used, as well as an even bigger crossbow that was drawn by means of a windlass. This latter type of crossbow was quite effective; James mentions how its bolt pierced two Saracens and their shields in one shot. Crossbows were mainly anti-personnel weapons, but in a few cases were used to hurl fire arrows onto the roofs of the enemy's structures.[10]

Larger engines were employed to defeat the walls of the castle; they included the *brigola, fonevol, almajanech, algarrada, mangonel,* and *trebuchet.* Though their particulars are obscure, all of these engines seem to be variations of a basic standard type of machine which employed a throwing arm drawn down against torsion tension. When released, this arm propelled a projectile, with direction and range of fire governed respectively by pointing the machine toward the target and by controlling the tension. The major exception to this general characterization is the trebuchet, a more sophisticated type of engine that employed counterweight tension. The trebuchet's throwing arm was drawn back against weights at its base, and when released could hurl objects. The counterweights provided substantial tension and thus power. They could also be lessened or increased by easily measurable and standard increments. Vector of fire was still controlled by directional aim; but the trebuchet's counterweight gave it a greater and more accurately controlled range than other machines. This accuracy of the trebuchet, the only siege engine of its day not also present in classical times, revolutionized siege warfare. The Aragonese employed it constantly.[11]

In addition to these various bows and engines, other tools of siegecraft turn up in the chronicles. Besieging armies at times constructed towers that could be moved up to the castle walls to provide platforms from which weapons could be trained on the defending forces. *Paveses,* large shields, protected crossbowmen firing from unprotected positions. Mantlets and hurdles likewise protected besieging soldiers as they attacked the walls with mattocks and pickaxes. A more elaborate type of protective construction was the cat, a sort of moveable, reinforced roof that could be rolled into position to protect groups of soldiers involved in tunnelling or mining. Also available to the besieger were battering rams, scaling ladders, and grappling hooks, all normally reserved for the assault.[12]

Weapons of castle defense varied little from those of attacking forces. Crossbowmen and slingers were ideal to man the walls of a besieged castle. Defenders often had larger engines as well, which they used to fire upon the besieging soldiers and, significantly, upon their siege pieces. Desclot mentions particular constructions called *hares,* which the Aragonese defenders of Gerona built when besieged by the French in 1285. These hares are described as made of heavy beams, weighted at the base by stones; upon these beams crossbows were fixed and similarly weighted for greater firmness. This device presumably allowed better positions and greater ranges for crossbow firing. Also available for castle defense were the standard pitch, liquid tar, fire, and stones. Except in cases of sortie or successful assault, all the tools of siege were generally projectile and in keeping with the relative positions of opposing forces in such actions.[13]

The organization of siege warfare hinged upon the object of the struggle, the castle. Although used extensively throughout the chronicles, the term "castle" is probably misleading. For instance, the castle at Majorca is described as being among the strongest in the world; other castles as well were formidable enough to have moats, towers, stockades, keeps, barbicans, and other outworks. "Castle" is used at the same time, however, to describe fortifications of much smaller towns. These were unlikely to have been very extensive. Such "castles," or fortified towns, were often taken with minimum expenditure of time and effort; James seized more than 50 of them during his Murcian campaign of 1238. They were even at times retaken by the local populace, who presumably possessed lesser sophistication in arms than did James's army. Such actions tend to characterize these fortifications as often little more than towers of similar structures designed more for enhancing a town's security than for providing bases for actual defensive operations. Regardless of size, the castle generally allowed protection for some of the neighboring population, safe assemblage of the defending force's soldiers, and platforms from which some of these defenders could use certain of the previously mentioned weapons against the attackers.[14]

While the defenders organized to take advantage of the castle's strengths, the attackers naturally enough organized to exploit its weaknesses. Although at times imposing, castles were stationary and therefore susceptible to being isolated and besieged, if an initial assault did not succeed. The besieging force would construct lines of circumvallation facing the castle, to deploy securely those troops and weapons actively engaged in siege operations, as well as lines of contravallation facing outward from the castle, where some forces could be arrayed to protect the investing army from any relieving force. These lines were quite simple for most sieges but notably elaborate for more involved operations. *Tapiadores* often accompanied Aragonese siege trains — engineers specially trained and prepared to build mud barricades for the attacking army's siege lines. These mud walls were at times augmented by ditches, ravels, stakes, chains, and ropes passed through iron rings. During the siege of Cagliari in 1322, Prince Alfonso actually constructed his own castle and town, christened Bonaire, from which his army conducted operations.[15]

THIS examination of the tools and organization of the siege helps illustrate its tactical realities. The options of the attacker were either assault or attrition, while those of the defender were either steadfastness or sortie. No matter how the action developed, however, the burden of operations was clearly on the attacker. Especially in actions involving light fortifications, assault could often carry the action. If not, the enterprise was either abandoned or siege was initiated. Roger de Lloria gave up the siege of Malta in 1283 because assault was impractical and he had no engines with which to demolish the walls. Ferran Ximén d'Arenós, on the other hand, seized the castle of Maditos after an eight-month siege with no engines, because he was able to catch the garrison napping on a hot afternoon and surprised it with a quick, well-planned assault. Once the siege was initiated, however, the attacker generally succeeded only when the garrison surrendered, or when he could force a breach in the wall through which to carry the attack with traditional force of arms. These breaches were made either through sustained fire from siege engines or through tunnelling or mining. A besieging force could attempt to bypass a moat or a wall through tunnelling, or to breach the wall itself by mines. These mines were dug down beneath the foundations of the castle walls and enlarged with wooden supports, which could then be torn out with cables or, more usually, burned. Either of these methods could easily collapse a portion of the wall.[16]

By far the most exercised option of defending garrisons in the chronicles was outlasting the attacker. Sieges could go on for months; but the besieged force, unless it ran out of provisions, could generally watch the attacker tire of the siege and withdraw, often in the face of famine or sickness. In more elaborate operations, defenders engaged in counter-mining and tunnelling. During the siege of Majorca city in 1228, James had blocked off the water supply to the city's moat, drained the moat, and filled it in with bundles of straw and sticks. He also initiated extensive tunnelling and mining. The Saracen defenders dug counter tunnels, allowing them actually to fight with and attempt to defeat the Aragonese underground, and to set fire to the filled-in moat from underneath.[17]

Defending garrisons could also fire back at the attackers with engines, providing they had them, with potentially devastating effect. James specifically recommends placing siege engines in covered locations, or otherwise protecting them with mantlets and palisades from sorties and counter-battery fire. The accuracy of counterweight artillery allowed this counter-battery fire to be quite effective; but these machines were very complex and needed well-trained operators. James mentions how the cord of one of his *brigolas* became wrapped around the throwing beam, rendering the engine useless. In Peter's chronicle is the case of a defending garrison's trebuchet crew supplying too much counterweight to their piece, which caused the stone to fly straight up and back down again, destroying the engine.[18]

If defeat seemed imminent to the besieged garrison, it could attempt a sortie. Sorties were made in some cases in connection with a relieving force's attack on the besieging army, or they could be more subtle. During James's siege of Amador in 1220, the garrison sortied with a small surprise force one night, equipped with grease-soaked bundles of wood, specifically to burn the besieger's *fonevol*. Generally, however, sorties were last-ditch attempts which rarely succeeded. If the sortie did not break the siege, surrender or total defeat swiftly followed.[19]

THE above analyses of battle and siege reveal answers to the questions asked in this article's second paragraph. It may not be remarkable that the tools and organization of Aragonese warfare by and large determined its tactics, but the wealth of evidence in the chronicles bearing upon this relationship proves illuminating in the extreme and stresses the significance of this relationship.

Aragonese warfare was characterized in battle by actions which sought the defeat of the mounted, armed knight. In siege, tactics were tailored either to the swift reduction or the tenacious possession of fortifications which could thwart the designs of an aggressive armed force in a relatively urbanized society. In what ways did this differ from warfare as practiced in the rest of Europe at this time? Do these differences lend any significance to Aragonese warfare?

The Aragonese employed flexible formations of light cavalry and crossbowmen to a relatively greater degree than did many of their neighbors; but the one tactical characteristic that distinguished them most from other combatants of their time was reliance on the infantry as the mainstay of battle. Brief calculation based on the troop numbers in Muntaner's chronicle shows that, while the ratio of cavalry to infantry for the Aragonese was approximately 1 to 18, it was closer to 4 to 2 for the French. The Saracen, Byzantine, and Turkish armies in the chronicles more closely approximate the Aragonese distribution of foot over horse; but the vast sizes of their forces comment on the quality as well as the quantity of their arms. The great number of sieges characteristic of Aragonese warfare was also unique in the contemporary larger European experience. In addition, the frequency of these operations, along with the Aragonese sophistication in them, provides a statement not only on the technical abilities of the society but also on its increasingly urban, and hence more modern, nature.[20]

Aragonese tactical mastery and overall sophistication in military operations is the most significant item in this study. The overturning of the verdict of Adrianople, and the recognition that properly armed and organized infantry could rule the battlefield, was fully embraced by the Aragonese. It would take the rest of Europe a while longer to learn this lesson. The French, edified in this at first hand by their southern neighbors, did not begin to decrease the role of heavy cavalry for more than 100 years — after the bloody episodes of Crecy, Poitiers, and Agincourt. It is no secret that the Mediterranean, with its greater population, cities, economic interdependencies, and other aspects of emerging culture in the modern sense was more of a heartland for evolution toward our present world than were other areas of Europe more traditional for the Western historian. The impact of this study lies within that context. The nature of Aragonese warfare is best seen as another example of the over-all sophistication and cosmopolitan status of the medieval Mediterranean world.

REFERENCES

1. Readers wishing general information on the larger subject of medieval Catalan military affairs should consult standard works such as Martí de Riquer's *L'Arnès del Cavaller Armes i armadures catalanes medievals* (Barcelona, 1968) or Ambrosio Huici's *Las grandes batallas de la reconquista durante las invasiones africanas* (Madrid, 1956). I have chosen to concentrate solely on the *Catalan Grand Chronicles* because I feel they provide the best primary sources on the specific subject of medieval Catalan siege and battle tactics. Ferran Soldevila's edition, *Les Quatre Grans Cròniques* (Barcelona, 1971), is the best single-volume work currently in print that contains all four chronicles, namely *Crònica O Llibre dels feits* by Jaume I, el Conqueridor, *Llibre del Rei En Pere* by Bernat Desclot, *Crònica* by Ramon Muntaner, and *Crònica* by Pere el Ceremonios. Although they do not examine precisely the same subject as this article, other studies on military contexts of the chronicles and other contemporary sources include Wilhelm Giese's "Waffen nach den katalanischen Chroniken des XIII. Jahrhunderts," *Volksturm und Kultur der Romanen*, 1 (1928), 140-142, and "Waffen der Araber und Türken in katalanischen Texten des XIII. bis XV. Jahrhunderts," *Estudis universitaris catalans* [=*Miscellània Arimon i Serra*], 23 (1979), 237-241; Roger Sablonier's *Krieg und Kriegertum in der Crònica des Ramon Muntaner: eine Studie zum spätmittelalterlichen Kriegswesen aufgrund katalanischer Quellen* (Bern/Frankfurt, 1971); Jordi Bruguera's "Vocabulari militar de la Crònica de Jaume I," *Homenatge a Josep M. de Casacuberta* [=*Estudis de llengua i literatura catalanes*], I (1980-1981), 39-64; and Edwin Clair Munro's *An Etymological Vocabulary of Military Terms in the Works of Alfonso X* (Ph. D. thesis, University of Wisconsin-Madison, 1949).

2. These citations are not meant to be all-inclusive, but are mainly to substantiate the text and provide a few of the more standard or illustrative examples of the subjects at hand. When standard English exists for any terms, names, or items, I have used the English in preference to the Catalan. Unless otherwise stated, all technical military definitions are from George Cameron Stone's *A Glossary of the Construction, Decoration and Use of Arms and Armor in All Countries and in All Times* (Portland, ME, 1934). Iron cap: Jaume, chs. 15, 60, 161, *passim;* Desclot, chs. 74, 75, 98, *passim;* Muntaner, chs. 89, 134, 272, *passim;* Pere, ch. III-46. Casque: Muntaner, ch. 144; Pere, ch. III-46. Barbuda: Jaume, ch. 126. Cerveliere: Muntaner, chs. 89, 276. Camisol: Jaume, chs. 25, 31, 512; Muntaner, chs. 89, 188. Gorget: Pere, chs. I-29, III-46. Epaulets: Muntaner, chs. 89, 276. Purpunt: Jaume, chs. 25, 26, 67, *passim;* Desclot, ch. 102; Muntaner, ch. 227. Hauberk: Jaume, chs. 14, 15, 31, *passim;* Desclot, chs. 76, 102; Muntaner, chs. 89, 124, 227, *passim;* Pere, ch. III-27. Cuirass: Desclot, chs. 98, 114, 118, *passim;* Muntaner, chs. 44, 221, 227. Cuisses: Muntaner, ch. 44. Greaves: Muntaner, chs. 44, 192. Smock: Muntaner, ch. 89. Robe: Jaume, chs. 26, 126. Gauntlets: Desclot, ch. 106. Spurs: Jaume, chs. 46, 228. Weapons passing through armor: Muntaner, chs. 107, 124, 191, *passim.* Horse armor: Jaume, chs. 256, 260, 265, *passim;* Muntaner, chs. 55, 107, 227; Pere, ch. III-28. Reins: Muntaner, ch. 134. Saddle: Jaume, chs. 239, 259, 260, *passim;* Muntaner, chs. 124, 176. Shield: Jaume, chs. 15, 21, 29, *passim;* Desclot,

chs. 74, 89, 162, *passim;* Muntaner, chs. 107, 195, 276, *passim;* Pere, ch. III-46. Buckler: Jaume, chs. 85, 337; Desclot, ch. 159; Muntaner, chs. 64, 124. Paves: Muntaner, ch. 45.

3. Sword: Jaume, chs. 15, 25, 26, *passim;* Desclot, ch. 106; Muntaner, chs. 7, 134, 188, *passim;* Pere, ch. I-29. Jewelled sword: Pere, ch. II-37. *Coutels* and daggers: Muntaner, chs. 192, 221, 227, *passim;* Pere, ch. III-46. Lance: Jaume, chs. 15, 21, 29, *passim;* Desclot, chs. 89, 102, 106, *passim;* Muntaner, chs. 44, 123, 124, *passim;* Pere, chs. III-26, III-126. *Bordó*: Muntaner, chs. 124, 159, 227, *passim*. Spears and darts: Jaume, ch. 26; Desclot, chs. 89, 107, 188, *passim;* Pere, ch. III-26. Spears broken: Muntaner, chs. 134, 159, 191, *passim*. Crossbow: Jaume, chs. 15, 16, 69, *passim;* Desclot, chs. 75, 89, 116, *passim;* Muntaner, chs. 44, 46, 130, *passim;* Pere, chs. I-22, III-26. Sling: Jaume, chs. 163, 435; Desclot, chs. 116, 138; Pere, ch. III-26. Mace, cudgel, and crock: Desclot, chs. 135, 159; Muntaner, chs. 44, 134, 172, *passim*. Stones, pieces of armor, and hand-to-hand: Jaume, chs. 65, 268; Desclot, chs. 102, 106, 159, *passim;* Muntaner, chs. 107, 130, 275, *passim*.

4. Desclot, ch. 75.

5. Battle of Muret: Jaume, ch. 9. Weapons of mounted combat: Muntaner, chs. 134, 172, 192, *passim*. Weapons of dismounted combat: Muntaner, chs. 7, 27, 188, *passim*. Squires: Jaume, chs. 44, 135, 156, *passim;* Desclot, ch. 76; Muntaner, chs. 134, 188. Light horse: Jaume, chs. 69, 338, 424, *passim;* Muntaner, chs. 116, 128, 156, *passim;* Pere, chs. I-29, III-115. Dismounted knights: Muntaner, chs. 7, 27, 188, *passim*. Levies, retainers, and sailors: Muntaner, chs. 13, 55, 139, *passim;* Pere, ch. I-19. *Almogavars:* Jaume, chs. 103, 188, 225, *passim;* Desclot, chs. 74, 79, 83, *passim;* Muntaner, chs. 10, 64, 221, *passim;* Pere, chs. III-26, III-28, III-32, *passim*. Description of *almogavars:* Desclot, ch. 79; Muntaner, ch. 64. Crossbowmen: Jaume, chs. 43, 129, 158, *passim;* Desclot, chs. 116, 118, 153, *passim;* Muntaner, chs. 43, 130, 152, *passim*.

6. Peter III in Sicily: Muntaner, ch. 62. *Rics homens* and distribution of call: Jaume, chs. 25, 37, 61, *passim;* Desclot, ch. 76, Muntaner, ch. 46.

7. The van: Jaume, chs. 46, 85, 218, *passim;* Muntaner, chs. 55, 121, 149, *passim;* Pere, ch. III-33. Separation of forces: Jaume, chs. 63, 84, 85, *passim;* Muntaner, chs. 158, 205, 254, *passim*. Trumpets, drums, and flags: Jaume, chs. 175, 385; Desclot, chs. 89, 115; Muntaner, chs. 55, 139, 220, *passim;* Pere, ch. I-81. Leaders: Jaume, chs. 175, 434; Muntaner, chs. 7, 27, 272, *passim;* Pere, ch. III-30.

8. Muntaner, chs. 134, 172, 192, *passim*.

9. *Almogavars* breaking spears: Muntaner, chs. 134, 159, 191, *passim*. *Almogavars* against mounted knights: Desclot, 102, 103. Chain and leather reins: Muntaner, ch. 134. James II and his mace: Muntaner, ch. 192. Woman of Peralada: Muntaner, ch. 124.

10. Stirrup crossbow: Muntaner, ch. 282. Two-footed crossbow: Jaume, chs. 129, 172; Desclot, ch. 163. Windlass crossbow: Jaume, ch. 73; Muntaner, chs. 272, 282. Fire arrows: Jaume, ch. 203.

11. That these words all describe siege engines is clear; but their exact meanings, which would accurately classify these machines, remain obscure. The trebuchet is the only engine mentioned in the chronicles that I am certain employed counterweight. *Brigola:* Jaume, chs. 401, 459; Desclot, ch. 151. *Fonevol:* Jaume, chs. 16, 41, 69, *passim*. *Almajanech:* Jaume, chs. 69, 200, 311, *passim*. *Algarrada:* Jaume, chs. 69, 370. Mangonel: Jaume, chs. 16, 29, 60, *passim;* Desclot, ch. 74; Muntaner, chs. 45, 247, 259, *passim*. Trebuchet: Jaume, chs. 69, 125, 194, *passim;* Muntaner, chs. 45, 93, 107, *passim;* Pere, chs. I-11, I-16, VI-23, *passim*.

12. Towers: Jaume, chs. 163, 401. Paves: Muntaner, ch. 44. Mantlets and hurdles: Jaume, chs. 69, 159, 174, *passim;* Desclot, ch. 106; Pere, chs. III-77, III-116, VI-23, *passim*. Mattocks and pick-axes: Jaume, chs. 72, 262; Desclot, ch. 135; Pere, chs. III-77, III-136. Cat: Desclot, ch. 162. Rams, scaling ladders, and grappling hooks: Jaume, ch. 315; Desclot, chs. 118, 153; Muntaner, chs. 159, 223, 227, *passim;* Pere, ch. III-136.

13. Crossbowmen on walls: Jaume, chs. 69, 172, 266, *passim;* Desclot, ch. 138; Muntaner, chs. 227, 282. Siege engines in defense: Jaume, chs. 69, 159, 401, *passim;* Desclot, ch. 157; Muntaner, chs. 169, 258, 259, *passim;* Pere, chs. I-31, III-114. Hares: Desclot, ch. 164. Pitch, liquid tar, fire, and stones: Jaume, chs. 65, 174; Desclot, chs. 102, 138, 159, *passim;* Muntaner, chs. 227, 282; Pere, ch. III-26.

14. Majorca castle: Muntaner, ch. 7. Moats, towers, stockades, keeps, barbicans, and other outworks: Jaume, chs. 39, 73, 200, *passim;* Desclot, chs. 73, 106, 157, *passim;* Pere, chs. I-31, III-136, VI-60, *passim*. Castles in James's Murcian campaign: Muntaner, ch. 9. Castles retaken by local populace: Muntaner, ch. 10.

15. Tapiadores: Jaume, ch. 208; Muntaner, chs. 51, 272, Barricades, walls, ditches, ravels, stakes, chains, and ropes: Jaume, chs. 31, 69; Muntaner, chs. 51, 108, 215, *passim;* Pere, chs. I-31, VI-60. Bonaire: Muntaner, ch. 272; Pere, ch. I-21.

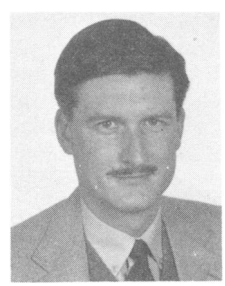
16. Roger de Lloria: Muntaner, ch. 84. Ferran Ximèn d'Arenós: Muntaner, ch. 223; Tunelling and mining: Jaume, chs. 69, 72, 83, *passim;* Desclot, chs. 106, 161.

17. These citations do not begin to list all of the siege operations described in the chronicles, but are given instead as representative actions. Withdrawal: Jaume, chs. 16, 21; Muntaner, chs. 138, 159; Pere, ch. I-22. Mining and tunelling at Majorca: Jaume, ch. 73.

18. Counter-battery fire: Jaume, chs. 41, 401, 461, *passim;* Desclot, ch. 162; Pere, ch. III-134. *Brigola:* Jaume, ch. 460. Trebuchet: Pere, ch. III-114.

19. Sortie in conjunction with relief: Muntaner, ch. 123. Sortie at Anador: Jaume, ch. 16. Sorties: Jaume, chs. 174, 315, 435, *passim;* Desclot, ch. 165; Muntaner, chs. 13, 128, 247, *passim*.

20. Forces in Muntaner: Muntaner, chs. 26, 46, 93, *passim*. Saracen, Byzantine, and Turkish armies: Muntaner, chs. 51, 203, 215, *passim*.



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