Gap-Crossing Operations Medieval and Modern

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L inear obstacles are primary mobility concerns in modern land warfare and especially in offensive operations, whose characteristics of initiative and tempo are stymied by delays from natural or man-made obstacles. Accordingly, the U.S. Army has produced doctrinal manuals for overcoming them. These manuals have recently evolved from two separate (now obsolete) manuals for river crossings and breaching operations, Field Manual (FM) 90-13, *River Crossing Operations*, and FM 90-13-1, *Combined Arms Breaching Operations*; to a 2008 update (also now obsolete) on all types of gap crossings in FM 30-90.12, *Combined Arms Gap-Crossing*

Operations; and finally, in 2016, to Army Techniques Publication (ATP) 3-90.4, *Combined Arms Mobility*.¹ Doctrinal publications are not always the most exciting reads, but they do occasionally scratch itches by utilizing anecdotes in order to demonstrate continuing relevance of history. An overview of Napoleon's "Spanish

A Stryker Infantry Carrier Vehicle from 4th Squadron, 2nd Cavalry Regiment, completes an uncontested wet-gap crossing 2 June 2018 in the vicinity of Chełmno, Poland. Engineers from the German Bundeswehr and the British Royal Army combined amphibious assets in order to build three ferries to facilitate the crossing of nearly two hundred military vehicles. (Photo by 1st Lt. Ellen Brabo, U.S. Army)



Ulcer," for example, appeared in the original 2006 FM 3-24, *Counterinsurgency*. Moreover, the 2017 FM 3-0, *Operations*, is peppered with historical anecdotes ranging from Luzon to Desert Shield, as well as quotes from

leaders stretching back thousands of years.² The gap-crossing manuals, however, contain no historical references whatsoever, which is odd because—as historians well know armies have had to overcome linear obstacles for thousands of years.

My particular historical specialization is medieval warfare, and most of the primary military manuals from late antiquity through the Middle Ages discuss gap crossings. Flavius Vegetius Renatus, writing in Italy in either the fourth or fifth century, notes, "When crossing rivers careless armies often get into serious difficulties ... the enemy often launch rapid ambushes or raids [there]."³ Leo VI's ninth-century Taktika, which is built on a tradition of Byzantine military writings carried forward from the *Strategikon* of Emperor Maurice (d. 602), includes some methods for not only crossing wide gaps such as using fortified wooden bridges but also cautions that "if a crossing is found to be difficult at any point, especially on the side where the enemy are, you should abandon that river bank."4 In the

al-Kurūb fī Tadbīr al-Ḥurūb (The Dispelling of Woes in the Management of War), merely states that commanders ought to know "the positions of the fording-places and caves, of the pontoon and vaulted bridges which he



The city of Antioch in 1098 during the First Crusade. The map is oriented westward; on the edge of the city can be seen the Dog Gate and Bridge Gate, as well as the road to St. Symeon. (Photo from the Royal Armouries Museum via Alamy Stock Photo)

fifteenth century, Christine de Pizan, drawing heavily on the authority of Vegetius, cautions against hubris when crossing via technological means:

Although such devices may seem easy when heard about, those who have not learned how to do them, who might say that such things are merely imagined, would find them difficult. It is no joking matter.⁵

Other manuals, however, skip lightly past the details and fall into this trap of underestimating the difficulty of gap crossings. For example, 'Umar Ibn Ibrāhīm al-Awsī al-Anṣarī's fourteenth-century treatise, *Tafrīj* must cross to reach the place he chooses."⁶ Here, we see al-Anṣarī assuming that it is the crossing site alone that deserves attention, not the crossing method.

Along with such theorists, medieval chronicles also feature a rich assortment of gap-crossing examples from which we can draw pertinent lessons. Gap-crossing tactics and the operations that engender them have remained—in function, if not form—essentially the same since the Middle Ages (with the sole exception of the modern recourse to the aerial domain) and therefore retain utility to modern warfighting. Secondly, the examples provided here also suggest weaknesses in current doctrine, especially when maneuvering under fire. These are all from the high medieval period and are located in the Levant: the Siege of Antioch during the First Crusade (1097–1098), the Siege of Damascus during the Second Crusade (1148), the Siege of Acre during the Third Crusade (1190–1191), and the campaign to al-Mansourah during the Seventh Crusade (1249– 1250). Former Combined Arms Center commander Lt. Gen. Michael Lundy recently pressed for more attention to gap crossing in the Advanced Operations Course scenario at the Command and General Staff College; this, therefore, seems an opportune time for historians to directly engage on the issue.

The Problem

ATP 3-90.4 is currently marked NOFORN (no foreign nationals), and thus cannot be quoted here, but the older FM 3-90.12 still provides useful definitions. Gaps are "linear obstacles or gaps ... natural and manmade, wet or dry" and variable in size.⁷ They are below grade and differ from above-ground complex obstacles like walls, which are not crossed but rather breached. A gap crossing is "projecting combat power across a linear obstacle."⁸ Such operations must address a threefold problem: first, to move combat power to the near side of the gap in safety; second, to cross the gap; and third, to reform combat power on the far side. There are two broad categories of crossings: to support movement (in which the force is not taking active fire) and to maneuver (in which it is taking fire).

Unless adequately considered in preplanning, such crossing and reforming can potentially interrupt operational flow. If a unit arrives before the crossing is prepared, it is forced to halt and break formation. This reduces the tempo of the operation and invites new or further enemy attacks. The danger remains once the crossing begins because the soldiers and equipment are necessarily squeezed through a narrow aperture, which reduces maneuverability. Reforming ranks on the far side are also vulnerable to assault. Moreover, if the crossing itself takes too long, the army risks losing the initiative.⁹ Medieval armies dealt with the same processes and faced the same risks as armies today.

Antioch, 1097

In 1096, the Western armies of the First Crusade marched to Constantinople (modern-day Istanbul)

on their quest to recover the city of Jerusalem from the Seljuk Turks. Trekking past the Byzantine capital and into Asia Minor, the crusaders encountered and defeated a number of Turkish armies, most notably at Dorylaeum (modern-day Şarhöyük, Turkey) in July 1097. Later that year, in October, soldiers arrived before the massive and extensive fortifications of Antioch (modern-day Antalya, Turkey). Situated astride the Orontes River, the city was a tough nut to crack: its fortifications climbed up the heights of Mount Silpius to an elevation of about 512 meters, and the entire circuit of walls incorporated at least scores and perhaps hundreds of towers.¹⁰ The craggy terrain protected the east and northeast of the city; to the south lay a dry gap, a deep gully that rendered an approach from that direction untenable. Investment therefore had to be accomplished on the northwestern and western sides, where walls, towers, streams, and the Orontes were key obstacles; all were defended by a Turkish garrison that numbered in the range of four thousand men.

Much of the early stages of the siege concerned the eastern side of Antioch and a particular aspect of wetgap crossings that Army doctrine calls "denial measures." Denial measures are inherently defensive, in that they seek to prevent the enemy from crossing a gap.¹¹Two of the city bridges enabled Turkish sallies against the besiegers: a small crossing outside the Dog Gate (near the northwest corner) and a larger one attached to the aptly named Bridge Gate (southwest corner). These

bridges had to be destroyed in order to protect the crusader flank. While taking fire from Antioch's walls, crusaders first tried destroying the bridge outside the Dog Gate with tools; when this failed, they sought to occupy it with a wooden penthouse, which the Turks immolated. At length, crusaders finally blockaded the bridge with timbers and stones, but similar measures to deny the Bridge Gate crossing were ultimately frustrated.¹²

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A month later, the crusaders also executed what doctrine calls a "deliberate" wet-gap crossing by building the so-called Bridge of Boats. Constructed of shallow vessels bound together with ropes and a wicker framework, the bridge allowed a crossing from the east to the west bank of the Orontes and access to the north-south road running to Saint Symeon, a port that served as the primary crusader link to seaborne resupply. The writer Albert of Aachen, who was not a witness but gained his information about events from later interviews with veterans, identifies the operational purpose to this work: because the Muslim garrison often sallied to intercept shipments coming north from Saint Symeon, the Bridge of Boats enabled the crusaders to "run hastily across this wooden bridge and help their men who were bringing food supplies from the seaport."¹³ In other words, the gap crossing had a dual function: it enabled army mobility while simultaneously protecting lines of sustainment.

Damascus, 1148

Two generations later, in 1145, Pope Eugene III promulgated the Second Crusade in response to 'Imād ad-Dīn Zengī's conquest of one of the Crusader States, the county of Edessa (modern-day Urfa, Turkey). The crusade was an unmitigated disaster: the imperial contingent (led by King Conrad III of Germany) was largely destroyed at the Second Battle of Dorylaeum in October 1147, and the French contingent (under King Louis VII) met a similar fate at Mount Cadmus (near Laodicea) in January of the following year. The combined remnants ruminated and ultimately elected to attack Damascus as a secondary course of action.¹⁴

The Siege of Damascus commenced 24 July 1148. The crusaders' initial approach to the city was on its north and northwestern side, for it was believed that the northern walls were weak, and therefore the best place to attempt a breach. However, the approach was through dense orchards studded with low garden walls and watchtowers, from which tenders could observe their plots, and the paths between them were narrow. This forced the crusaders into tight, predicable lines of advance that were ably defended by Muslim skirmishers and missile troops. It made for difficult progress.

King Baldwin III of Jerusalem's men moved slowly forward as they tried to get to the Barada River, which flowed across the northern side of the city.¹⁵ This wet gap had to be crossed before Damascus's walls could be invested. Three principal sources for accounts of the Second Crusade, Odo of Deuil (a Cistercian monk and the king's biographer), Ibn al-Athīr (a Muslim historian writing in Mosul), and Ibn al-Qalānsi (a Muslim witness living in Damascus itself), speak of significant crusader difficulties but unfortunately skip lightly over the details. A fourth source, English clerk John of Salisbury, claims an easy operation: the crusaders "who had crossed the rivers … were checked by neither fortifications nor by armed resistance."¹⁶ He was certainly wrong here, because the best source, the well-informed William, archbishop of Tyre, writes in detail about the attack and contradicts him.

In particular, William outlines difficulties that make perfect sense in light of gap-crossing principles. First, the Muslim defenders used mounted archers and mobile frame crossbows to prevent the crusader approach to the near side of the river.¹⁷ Christian reinforcements continued to arrive, but because no crossing had yet been effected, all this combat power merely built up in a massed and vulnerable state in the "staging area" on the near side:¹⁸

Once and then again they strove to get to the water, but in vain. While the king of Jerusalem and his men struggled vainly, the Emperor, who commanded the formations in the rear, demanded to know why the army was not moving forward. He was told that the enemy had seized the river and that they were blocking the progress of our men.¹⁹

The stalemate continued until reinforcements led personally by Conrad III arrived. He ordered the knights to dismount and fight hand-to-hand, and the Muslims eventually "relinquished the river bank and fled at full speed to the city."²⁰ This retrograde enabled the crusaders to finally cross to the far side, reform their combat power, and invest Damascus's walls. It was, however, what the U.S. Army calls a "hasty" crossing against entrenched enemies, done in the heat of the moment and with little preplanning. And in the end it was a fruitless effort; soon after, the crusade leaders abruptly shifted their attack to Damascus's southeastern wall, and their defeat there meant an end to the entire Second Crusade.²¹

Acre, 1190-1191

Jerusalem had been famously taken by the armies of the First Crusade in 1099 and remained in

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Christian hands until 1187, a year that shook Western Christendom. The Ayyubid sultan, Ṣalāḥ al-Dīn (Saladin), had spent the 1170s and 1180s consolidating his power in Egypt and Syria, and in 1187, he moved on the Crusader States. On 4 July, he crushed the army of the Kingdom of Jerusalem at the Battle of Hattin, killing over ten thousand Christian soldiers and capturing their king, Guy of Lusignan. Everyone recognized that without an army to prevent it, Jerusalem's fall to Saladin was inevitable. Pope Urban III reputedly dropped dead on the spot upon learning of Hattin, so it was left to his successor, Pope Gregory VIII, to launch what became known as the Third Crusade.²² The various armies of the Third Crusade, coming from a dozen locales across Western and Eastern Europe, first converged on the Muslim-held port city of Acre in 1189.

The crusaders had great difficulty taking Acre. The siege occupied their attention for nearly two years and cost them, through attrition at the walls and frequent engagements with Saladin's relief army, as many as thirty thousand casualties. Siege operations were many and diverse: blockade, direct and indirect fires, sapping, escalade, siege towers, and battering rams. The latter two, designed to either overtop the fortifications or create a breach through them, respectively, A map of Damascus from J. L. Porter's travel book *Five Years in Damascus* (1855), which shows the flow of the Barada River on the north side of the city and part of the groves that frustrated the crusaders' approach during the Second Crusade in 1148. (Photo courtesy of Wikimedia Commons)

were all immolated with jars of Greek fire (an incendiary liquid) once they reached the city walls.

The key point here, however, is that the engines did indeed reach the walls, which were fronted with a dry moat, and this happened because the crusaders made gap crossing a priority. Unlike at Damascus, due attention to the need to bring combat power across the gap enabled them to attack Acre according to their own designs. In April 1190, they filled in portions of the moat with stones, to such an effective extent that they were able to push three large siege towers across it and flush against the city wall.²³ Into October, those gaps were still filled, and two rather expensive battering rams, owned respectively by Count Henry of Champagne and Archbishop Thierry of Besançon, were pushed across and struck blows against the walls before eventually being torched.²⁴

The arrival of France's King Philip II Augustus in April 1191 brought renewed efforts to fill the gap in



other sectors. Muslim writer Bahā al-Dīn Ibn Shaddād, a judge who was on-site and at Saladin's side, claims that crusaders used the bodies of their own dead people and horses to fill up the moat. The Norman poet Ambroise, another witness, offers a corresponding anecdote: a pious Christian woman who, upon being fatally struck by a crossbow bolt, asked her husband with her dying breath to put her body in the moat to speed the process!²⁵ For its part, the Muslim garrison in Acre sent men into the moat at nighttime for a macabre denial measure: to dismember those crusader corpses, to drag them out in carts, and to thereby restore the integrity of the gap.²⁶ In July 1191, Acre finally fell and King Richard the Lionheart of England led the remnants of the crusading armies south in a continuing (albeit unsuccessful) quest to recover Jerusalem from Saladin.

Al-Mansourah, 1249-1250

Efforts to recover Jerusalem anew were still going strong in the later thirteenth century, and the most famous of these efforts were led by the only king of France to be canonized a Catholic saint, Louis IX. Louis led two crusades, the Seventh and the Eighth, and both were disasters. On the former, he caught dysentery and was captured by the Mamluks, and on the latter, he died soon after his force landed in

The medieval city of Acre as illustrated by the artist Pietro Vesconte from *Liber secretorum fidelium crucis super Terrae Sanctae* (The book of the secrets of the faithful of the cross) by Marino Sanudo. (Photo courtesy of Wikimedia Commons)

Tunisia. The operational elements of the king's first effort, however, deserve some attention.

In late 1249, the Seventh Crusade army of some fifteen thousand soldiers, accompanied by 240 ships, left its camp outside the Egyptian city of Damietta and marched toward Cairo. The pace was slow they took thirty-one days to advance only fifty-four miles—partially due to headwinds stymieing the fleet but also due to a wet-gap crossing. Jean de Joinville, the seneschal of Champagne, personal friend and attendee of the king and eyewitness to most of the crusade, notes that the first deliberate crossing was in late November over a small tributary of the Nile. The army halted and dammed up the stream, then the soldiers crossed over the now-drained, shallow bed.²⁷

In January 1250, the French arrived at the juncture of the Nile and Tanis Rivers and camped on a peninsula created by the two flows. The Muslims attacked them twice but were both times driven off, taking perhaps two thousand casualties. In the aftermath, the new Muslim commander, the vizier Fahkr al-Dīn Ibn al-Shaykh (in charge following the death of the Egyptian sultan, al-Ṣāliḥ Najm al-Dīn Ayyūb), elected to cease his raiding and instead create a fortified camp on the easternmost length of the Tanis where it broke from the Nile, close to the town of al-Mansourah.²⁸ To properly engage and defeat the Muslims, which was necessary to move past al-Mansourah and reach Cairo, Louis had to cross the Tanis. This meant a deliberate wet-gap crossing against an extremely well-entrenched opposing army.

King Louis ordered a causeway built into its waters, a massive wooden structure filled with earth. The so-called Rothelin Continuator of William of Tyre, a Christian writer who was probably at al-Mansourah with the king's army, notes that the hope was to both bridge and dam the Tanis simultaneously, effecting easy access to the opposite bank.²⁹ As we often say at Command and General Staff College, however, the enemy always gets a vote; the work was complicated by the effects of coordinated Muslim direct fires, shot from sixteen artillery pieces upriver and a single, frame-mounted crossbow.³⁰ Protection and preservation of the French causeway workers became paramount. Two "Welsh cats" were built to hide them: these were movable wooden houses, in which the workers could dig and build in stages. To guard these cats, Louis ordered two wooden towers erected, from which projectiles could be directed at the Muslims upriver; to these towers were attached additional cats that housed missile troops who worked in shifts. The Arabic account of Ibn Wasil, who was first in Cairo and then al-Mansourah during the crusade, claims that the French also built and shot catapults against the Muslim camp.³¹

French counterbattery fire apparently had little effect, while the Muslim fires consistently struck French fortifications up and down the line: stones, sharps, antipersonnel missiles, and quantities of Greek fire slowed the engineering works, and periodic cavalry incursions from the direction of Damietta caused more problems.³² As the Greek fire set ablaze the landscape around the cats, crusaders rushed to douse them with water, only to immediately receive clouds of arrows shot by the Muslims on the opposite bank. The Muslims did not seem to have range overmatch because both sides utilized direct fires aimed at each other's camps, but they shot with extremely high accuracy.

Moreover, the Muslims had a cunning denial measure up their sleeves: they dug trenches on the southern bank of the Tanis. Water flowed into these channels and broke away the soil, which had the effect of increasing the width of the river. It must have been a maddening sight: as the causeway advanced, the opposite shore retreated, frustrating Louis's entire effort.³³ When the incendiary shot finally immolated Louis's cats, the French tried a different tactic: a massive timber cat that could be pushed into the Tanis as a dam. It was also inflamed, and at that point Louis gave up all hope of crossing the river.³⁴

Fortuitously, soon afterward another crossing option presented itself. A local Bedouin appeared, offering to show the French a nearby ford over the Tanis—in exchange for five hundred bezants. This would be a "covert" gap crossing: undetected, Louis and several hundred knights crossed the ford on 8 February 1250. The results were not pleasant: Louis's brother Robert, the count of Artois, led first a massacre of the encamped Muslim families gathered on the far bank of the Tanis. Then, he led a foolish cavalry charge of his own men and the Knights Templar into the streets of al-Mansourah itself. Unaccompanied by infantry support, the western cavalry was quickly dispatched in the narrow city streets. Muslim cavalry, however, could now range freely and it eventually trapped and crushed Louis's main army, which led Louis to surrender and enter into captivity. Several years later (sometime after 1297), a Divine Office was read in honor of the now-Saint Louis, and its text claims that his army at al-Mansourah was reduced from "thirty-two thousand fighters to just six thousand"; clearly inflated numbers that nonetheless cement the point that constraints on maneuver can have deadly consequences.³⁵

Conclusion

It is a weakness that Army gap-crossing doctrine excludes useful historical examples. Any number of modern anecdotes could easily be incorporated to facilitate a better grasp of operational concepts and dangers (e.g., the 307th Engineering Battalion during Operation Market Garden, or perhaps Operation Peach during the 2003 Battle of the Karbala Gap).³⁶ But there is no need to limit the scope to only the last one or two centuries. All of the medieval gap-crossing operations surveyed here in support of mobility or maneuver feature methods that are still utilized in modern doctrine and practice: swimming, fording, float and support bridges, and the use of fill material.³⁷

Importantly, medieval warfare is also peculiar because it speaks to certain problematic assumptions in the doctrine. One such assumption is the notion that a lodgment area on the far side either exists or can be created. This is not always the case, however, when dealing with a complex obstacle astride a waterway that occupies appreciable space on the far side. Marines in G Company, 2nd Battalion, 5th Marine Regiment, discovered this in 1968 while crossing the Perfume River to assault the Imperial City of Hue, Vietnam. The company took heavy fire while crossing the Nguyen Hoang Bridge, got jammed in the tight buildings fronting the city walls, and ultimately had to withdraw, just like the Western soldiers at Antioch during the First Crusade.³⁸

A second current assumption relates to this latter point: that complex obstacles will be breached either prior to or during the gap crossing, presumably with aerial assets or direct fires. According to doctrine,

Since the primary focus of planning and preparation is on the breaching operation, they [gap crossings] are typically discussed as a part of the breaching operation rather than as a separate gap-crossing operation in that context ... assault forces seize the far side objective to eliminate direct fire on the crossing sites.³⁹

In other words, the breach will be cleared before friendly forces arrive at it, which is fantastic if it can be done. But clearing the forward breach in advance cannot always be accomplished. Kristen Dahle has explained the problems experienced by the American VI Corps in January 1944 while trying to cross the Rapido River in the face of German bunkers and pits.⁴⁰ Much like at al-Mansourah, enemy fires rained down and stymied the operation.

On the flip side, as at Acre, with proper planning a crossing-into-breaching sequence is possible. On 6 October 1973, the Egyptian army began the Yom Kippur War by crossing the Suez Canal. It crossed 220 meters of water with Soviet-made tank rafts and floating bridges but then encountered a defensive sand embankment up to twenty-five meters high with a sixty-five-degree pitch. The difference was the Egyptians had good operational planning: while engineers used British-made water pumps to cut through the sand, mobile SAM-6 launchers held off the Israeli air force's counterattack.⁴¹ In other words, they crossed a gap and *then* created a breach through a defensive barrier while taking active fire, a very medieval operation not unlike Damascus in 1148 or Acre in 1190.

Crossing and breaching remain critical in warfighting. The Army appreciates the challenge: the Center for Army Lessons Learned admitted in a 2018 bulletin that "units struggle with the synchronization of gap crossing events" and "institutional knowledge of gap crossing has atrophied."⁴² History can help officers think critically about dilemmas posed by complicated gap scenarios. And for historical anecdotes in which a far side breach or lodgment cannot be assured, the premodern period is replete with lessons because of the central role of fortifications as primary defensive measures. This seems a situation, then, in which military historians can make real contributions to improve Army movement and maneuver.

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Notes

1. For a review of doctrinal progression and studies thereof, see Kristen N. Dahle, "Gap Crossings: Not Just a Tactical Problem" (master's thesis, School of Advanced Military Studies, 2012), 2–7. 2. Field Manual (FM) 3-24, *Counterinsurgency* (Washington, DC: U.S. Government Printing Office, 2006 [obsolete]), 4-1; FM 3-0, *Operations* (Washington, DC: U.S. Government Publishing Office, 2017), 4-2, 8-8.

3. N. P. Milner, trans., *Vegetius: Epitome of Military Science* (Liverpool, UK: Liverpool University Press, 1993), 3.7.

4. G. T. Dennis, trans., *The Taktika of Leo VI* (Washington, DC: Dumbarton Oaks, 2014), 17.7–9.

5. Christine de Pizan, *The Book of Deeds of Arms and of Chivalry*, trans. S. Willard, ed. C. C. Willard (University Park, PA: Penn State University Press, 1999), 1.17.

6. G. T. Scanlon, ed. and trans., *A Muslim Manual of War* (Cairo: American University in Cairo Press, 1961), 19.3.

7. FM 3-90.12, Combined Arms Gap-Crossing Operations (Washington, DC: U.S. Government Printing Office, 2008 [obsolete]).

8. lbid., 1-1.

9. lbid., 2-3.

10. John France, Victory in the East: A Military History of the First Crusade (Cambridge, UK: Cambridge University Press, 1994), 222.

11. FM 3-90.12, Combined Arms Gap-Crossing Operations, F-7. 12. France, Victory in the East, 227–28.

13. Albert of Aachen, *Historia lerosolimitana: History of the Journey to Jerusalem*, ed. and trans. S. Edgington (Oxford, UK: Oxford University Press, 2007), 3.42–43.

14. On the crusade in general, see Jonathan Phillips, *The Second Crusade: Extending the Frontiers of Christendom* (New Haven, CT: Yale University Press, 2007).

15. Ibid., 220.

16. Odo of Deuil, De Profectione Ludovici VII in Orientem: The Journey of Louis VII to the East, ed. and trans. Virginia Gingerick Berry (New York: W. W. Norton, 1948), 118–19; D. S. Richards, trans., The Chronicle of Ibn al-Athir for the Crusading Period from al-Kamil fi'l-Ta'rikh, 3 vols. (Farnham, UK: Ashgate, 2007), 2:21–22; Francesco Gabrieli, trans., "The Second Crusade: The Siege of Damascus," in Arab Historians of the Crusades (Berkeley, CA: University of California Press, 1957), 56–59; John of Salisbury, The Historia Pontificalis of John of Salisbury, ed. and trans. Marjorie Chibnall (London: T. Nelson & Sons, 1956), 56–57.

17. William of Tyre, "History of Deeds Done Beyond the Sea," in *The Crusades: A Documentary History*, ed. James A. Brundage (Mil-waukee: Marquette University Press, 1962), 117; Phillips, *The Second Crusade*, 220.

18. Waiting areas are of different types: staging (zone for gathering precrossing), holding (for ordered dispersal), and call forward (final preparations prior to crossing—this is probably better served by modern history because such is typically not discussed in the medieval sources); see FM 3-90.12, *Combined Arms Gap-Crossing Operations*, 4-20.

19. William of Tyre, "History of Deeds Done Beyond the Sea," 118.

20. lbid.

21. Christopher Tyerman, *God's War: A New History of the Crusades* (Cambridge, MA: Belknap, 2006), 335.

22. On Hattin and its context, see John France, *Great Battles: Hattin* (Oxford, UK: Oxford University Press, 2015).

23. John D. Hosler, *The Siege of Acre, 1189-1191: Saladin, Richard the Lionheart, and the Battle that Decided the Third Crusade* (London: Yale University Press, 2018), 57.

24 Ibid., 82–83.

25. lbid., 110–11.

26. lbid.

27. Jean de Joinville and Geoffrey de Villehardouin, *Chronicles of the Crusades*, trans. Caroline Smith (London: Penguin, 2008), 191.

28. Janet Shirley, ed. and trans., *Crusader Syria in the Thirteenth Century: The Rothelin Continuation of the History of William of Tyre with Part of the Eracles or Acre Text* (Aldershot, UK: Ashgate, 1999), 91–92.

29. Ibid., 92; Joinville and Villehardouin, *Chronicles of the Crusades*, 194.

30. Joinville and Villehardouin, *Chronicles of the Crusades*, 193, 197.

31. Peter Jackson, trans., "Events in the Muslim Camp, and the Mamluk Coup d'Etat," in The Seventh Crusade, 1244–1254: Sources and Documents (Farnham, UK: Ashgate, 2009), 142.

32. Shirley, Crusader Syria in the Thirteenth Century, 93; Joinville and Villehardouin, Chronicles of the Crusades, 194.

Joinville and Villehardouin, *Chronicles of the Crusades*, 194.
Ibid., 197–98.

35. M. Cecilia Gaposchkin, "Ludovicus decus regnantium: Office in Honour of Saint Louis," in *Blessed Louis, the Most Glorious of Kings: Texts Relating to the Cult of Saint Louis of France*, trans. P. B. Katz (South Bend, IN: University of Notre Dame Press, 2012), 179.

36. For more on Operation Market Garden, the Allies' failed attempt to cross the Rhine in 1944, see David Bennett, *A Magnificent Disaster: the Failure of Market Garden, the Arnhem Operation September 1944* (Philadelphia: Casemate, 2008); a personal and powerful account can be found in Brian Urquhart, "The Last Disaster of the War," *The New York Review of Books* (24 September 1987): 27–30; for more on Operation Peach, the crossing of the Euphrates near Hindiyah on 2 April, see Shawn Livingston and Spencer C. Tucker, "Karbala Gap," in U.S. Conflicts in the 21st Century: Afghanistan War, Iraq War, and the War on Terror, 3 vols. (Santa Barbara, CA: ABC-CLIO, 2015), 481.

37. Wet-gap means discussed in FM 3-90.12, *Combined Arms Gap-Crossing Operations*, 2-17.

38. Louis A. DiMarco, Concrete Hell: Urban Warfare from Stalingrad to Iraq (Oxford, UK: Osprey, 2012), 88–89.

39. FM 3-90.12, Combined Arms Gap-Crossing Operations, 1-10, 4-4.

40. Dahle, "Gap Crossings," 16–23.

41. George W. Gawrych, *The 1973 Arab-Israeli War: The Albatross of Victory*, Leavenworth Papers 21 (Fort Leavenworth, KS: Combat Studies Institute, 1996), 16, 18–19, 28, 33.

42. Center for Army Lessons Learned (CALL), "Mission Command Training in Unified Land Operations: FY 18 Key Observations," *CALL Bulletin* 19-13, March 2019, 2.1.12.