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A Methodological Framework for the Archaeology of Conflicts in the Southern Levant, and the Battle of Hattin (July 3–4, 1187)

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This article presents a research framework for the Archaeology of Conflicts/Battlefield Archaeology. This work was motivated by the methodological challenge posed by the very attempt to study material evidence of events of short duration in the landscape. Such events occurred outside the boundaries of conventional archaeological sites, in the landscape, which is generally subject to more frequent changes. The theoretical model is presented through an examination of the Battle of Hattin, a decisive event that took place on July 3–4, 1187, within the days of the Latin Kingdom of Jerusalem (1099–1291). This theoretical construct can be applied to the study of events related to different cultures and archaeological periods. In this paper, it is argued that the significance of short-durée historical events, such as battles, political assassinations, and even natural disasters, must be understood through the exploration of structural and circumstantial-cyclical categories by means of "total archaeology" fieldwork.

Keywords: Hattin, Landscape Archaeology, Battlefields, Conflicts, Methodological Framework

To Call Back Yesterday:[2] The Methodological Challenge[3]

In the Levant, numerous violent events occurred in different periods and on different scales. Many of these events have been examined archaeologically at various archaeological sites, such as military camps (Geva 1984:239–254; Hanel 2007:395–416; Tepper 2007:57–71; Lewis, Getzov and Milevski 2021:31–59), hiding complexes (for refuge and for asymmetric warfare; Kloner and Zissu 2009:9–28; Raviv et al. 2017:13–50; 2018:85–101; Gibson and

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[2] *"O, call back yesterday bid time return"* (Shakespeare, *Richard* II, 3, 2).

[3] The methodology of this study is based on that employed by the author in his Ph.D. dissertation (Lewis 2013), supervised by Prof. Adrian J. Boas.

Lewis 2019:18*–56*), fortifications and siege systems (such as siege camps, siege ramparts etc.; Fantalkin and Finkelstein 2006:21–22; Maeir, Ackermann and Bruins 2006; Eph'al 2009; Maeir and Gur-Arieh 2011:227–244; Paz 2011:4–22; Raviv 2018:56–76; Fulton 2021:300–327; Lewis 2020a:345–368).[4] All these studies share a common denominator: they are all related, in one way or another, to archaeological settlements of urban character. However, another very important type of battle arena has been, until recently, neglected and left almost completely unexplored archaeologically in the Southern Levant: scenes of violent conflicts that extended over large expanses of landscape on open battlefields (Lewis 2016; 2020a; Lewis, Avissar Lewis and Finkel 2020).

Archaeological study of such events presents a methodological challenge to "call back yesterday," as it traditionally aims at studying cultural and cyclical phenomena—long-term trends in occupation and human activity—focusing upon events of short duration only in the case of burials, or when a material signature is captured in a representative layer, commonly referred to as a "destruction level." Such strata can provide information on violent events resulting from natural causes, for example, earthquakes, tsunamis and volcanic eruptions, or human aggression (Marco et al. 2003; Dey, Goodman-Tchernov and Sharvit 2014; Ussishkin 2015:137–138; Hoffmann, Master and Goodman-Tchernov 2018; Amir et al. 2022; Vaknin et al. 2022). The excavation and study of destruction levels allow field archaeologists to "seize the moment" and study a specific event. But, can archaeologists find the material imprint of an event lacking a stratified destruction level? Such work requires looking beyond the boundaries of conventional archaeological field-survey and site-detection methods, necessitating a framework and field methods designed for dynamic and ever-changing landscapes (Lewis 2016:476; 2020a:352).

In the last three decades, there has been great improvement in archaeological excavation and survey methods, enabling archaeologists to locate and study the material signature of events of shorter duration in the landscape (Scott and McFeaters 2011; Lewis 2013:35–42). Archaeology of Conflicts, also known as Battlefield Archaeology,[5] observes the overall landscape where conflicts took place; it surveys and documents it, and then analyses the different archaeological features within a given area. The man-made changes to a landscape before, during and after a military campaign are the subjects of investigation.

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[4] The references provided here are only the very tip of the iceberg in a sea of publications related to violence and conflicts and should be regarded as an introduction to the subject matter rather than comprehensive summaries.

[5] During the fifth biennial Fields of Conflict Conference held in Ghent, Belgium, October 17–19, 2008 (attended by the author), the leading scholars of this discipline agreed that the term Battlefield Archaeology would be used specifically for the investigation of human violence that occurred in the open field, while Archaeology of Conflict would be a more general term for the investigation of other arenas, including forts, bankers, army camps, etc., but would also apply to the more holistic study of past human conflicts. The summary published by Bradley unfortunately does not include the important debate that led to this decision (Bradley 2008:30–33).

In light of the methodological issues and challenges raised here, the aim of this paper is to introduce a methodological framework to the archaeological study of battlefields in the Southern Levant. After introducing the methodological framework, it will be demonstrated through the case study of the Battle of Hattin (July 3–4, 1187).

History of the Methodological Construct for the Archaeology of Conflicts

Crawford, the "architect" of Landscape Archaeology, stressed that one cannot improve a technique without knowing how it was developed (Crawford 1953:43):

> I do not think you can make the fullest and best use of the technique of archaeology or of anything else unless you know something of how that technique has been developed; or, if that is a little too sweeping, I would say that without some such knowledge, which is historical, you will not be likely to improve a technique.

In light of this, the milestones achieved in the last three and a half decades in the archaeological study of conflicts, specifically to the research of battlefields, is presented below. The methodological challenges and the problems a research framework should overcome are discussed hereby through studies that present methodological constructs and fieldwork techniques.

A detailed survey (though North-American-oriented) by Scott and McFeaters (2011:105–110) introduces the discipline's history and its theoretical development. The Archaeology of Conflict emerged from a realization that archaeology can contribute to our understanding of warfare and historical conflicts when studied in conjunction with historical sources, as battlefields were not "cleaned" of evidence in the aftermath, as commonly thought in the past (Freeman 2001:2; Scott and McFeaters 2011:105; Lewis 2013:35–39).

The discipline can be divided into two branches, North American and European, each developing initially from different fields of research. The North American branch developed from Historical Archaeology (Scott and McFeaters 2011:104), while the European branch, influenced mainly by work in the United Kingdom and Germany, though it was never labeled officially as such, is a sub-discipline of Landscape Archaeology (Lewis 2013:35–37).

As a field of research, the history of the Archaeology of Conflict is fairly brief and can be attributed to a few specific case studies (Scott and McFeaters 2011:105; Lewis 2013:35). In effect, the mission to locate the Roman casualties from Varus' campaign against Rome in 9 CE, shortly after the three legions were lost in the Teutoburg Forest (Wilbers-Rost 1994; 2007; Rost 2007:50–57; Lewis 2013:38), or the attempt to retrieve the "True Cross" from the fields of Hattin in a mission led by a Templar knight and a sergeant for three nights and days during the Third Crusade (*Eracles* 11.3, 66), reflect a human urge to return to those bloody fields of conflict.

The first milestone in the development of the discipline is Edward Fitzgerald's study of the Battle of Naseby (June 14, 1645) in the English Civil War. Fitzgerald approached the matter in a way that resembles landscape studies today for locating battle sites. He based his work on historical records, such as names of fields, noting topographic features and

studying them in relation to the current landscape; recording the location of artifacts found randomly over the years; considering local traditions regarding the event; and opening test pits in which he successfully found a mass grave (Foard 1995:343–382; 2001:88; Sutherland 2005a:13; Scott and McFeaters 2011:105; Lewis 2013:35–36). Foard returned to the fields of Naseby to conduct his own research, where he was the first to systematically apply landscape archaeology techniques in the study of battlefields in England (Foard 1995: 19, 343–382; 2001:87–103; 2007:133–159). In 2003, Foard addressed the application of landscape techniques to the archaeological study of military history in the fourth issue of *Landscapes*, officially connecting between the two archaeological disciplines (Foard 2003:5–15).

Though the first works on battlefields were conducted in England, the most influential work was published by Douglas Scott concerning the Battle of the Little Bighorn (also known as General Custer's Last Stand, June 25, 1876) in Montana, U.S.A. (Scott et al. 1989:12–23). His work at Little Bighorn is considered one of the most comprehensive field studies. Scott and his research associates applied a systematic retrieval and recording of artifacts, including a spatial analysis, ballistic studies, forensic research (Scott, Willey and Connor 2002), physical anthropology, geomorphology and extensive archival research (Scott and Fox 1987:19–20; Scott et al. 1989:25–26). Though Scott is considered pioneer and one of the leading scholars in battlefield studies, it was Richard Allan Fox who presented the first research framework for the new archaeological discipline (Fox 1993). Fox traced changes in human behavior based on an analysis of bullets and cartridges which, following a detailed forensic study, were attributed to one of 215 firearms held by individuals during the battle. This allowed Fox to monitor the movement of a specific firearm in the battlefield and then study it comprehensively against ballistic evidence, tombstones (placed in Little Bighorn over the location of those fallen in action) and historical records. Fox brought evidence that forced historians to reconsider previously ignored testimonies of Native American scouts (Fox 1993:7; Freeman 1998:948–950). Scott and Fox's methodology applied for the study of Little Bighorn was later applied in the studies conducted at other battlefields (Babits 2001:117–126; Pratt 2007:5–38; Scott and McFeaters 2010:105–110). The Little Bighorn researchers reconstructed crucial events and their sequence in the battle by conducting Artifacts Distribution Analysis, including a consideration of geomorphological and post-depositional studies (Scott et al. 1989:25–35, 121–150, 224–242). Their three-stage retrieval and documentation system was named *Flag Tag and Bag System* (Scott et al. 1989:153–223). Trenches excavated in the battlefield enabled the understanding of the geomorphological arena (Scott et al. 1989:229–242). Trench burials were reopened and individual casualties were identified, allowing the researchers to associate dislocated tombstones with specific victims (Scott et al. 1989:243–282; Scott, Willey and Connor 2002). The methods devised for the study of Little Bighorn were also employed in other case studies, such as that of the massacre of the Southern Cheyenne and Arapaho people at Sand Creek (Green and Scott 2004).

Contra these methods, which are based on pure archaeological fieldwork, there are battlefield researchers who have taken a totally different approach to the subject matter. Patricia Carman and John Carman, for example, in their Bloody Meadows Project, attempted to find common denominators in 23 Western European battle arenas dating from the tenth to the nineteenth century CE. They regarded battlefields as archaeological-anthropological labs for the study of the origins of human violence (Carman and Carman 2001:275–281). Unlike the systematic recovery and documentation of the battlefield and its related finds at Little Bighorn, the Bloody Meadows Project focused on matters such as: the way an event taking place in a specific field affected its present state; the commemoration of the event; natural or man-made features that may have had an effect on the battlefield in the past and at present. In their own words (Carman and Carman 2006:24):

> The majority of archaeologists working on battlefields spend their time looking at the ground, trying to find the material left behind by the action. We instead spend time looking up and around us, at the shape of the space itself.

Carman and Carman's phenomenological, symbolic (and even spiritual) approach to battlefields has met considerable criticism (Davies 2006:54–55; Lewis 2013:62), though they were not alone in focusing upon the symbolism of battlefield features (Schofield 2005a:41–80).

A more traditional, multidisciplinary and holistic approach was adopted by Tim Sutherland in his study of battlefields: the Battle of Towton (Palm Sunday, March 29, 1461) and the Battle of Agincourt (October 25, 1415) (Sutherland 2005b; 2006). Sutherland is one of the leading scholars in this field, and in over thirty years of work, he has contributed significantly to Battlefield Archaeology. He is also the founder of the Conflict Archaeology International Research Network (CAIRN),[6] which brings together an international group of experts working within the discipline of the Archaeology of Conflict. In a field guide he composed for those interested in practicing the discipline, Sutherland stresses that though battlefields (as pointed out by Winston Churchill) are "the punctuation mark of history," their archaeological study was neglected until recently (Sutherland 2005a:12), as archaeologists traditionally remove topsoil levels, important in the study of battlefields, to reach the supposably more interesting layers of a given site (Sutherland 2004:15). Sutherland's all-inclusive approach was applied in the survey of the Towton Battlefield and in the excavations of a mass grave found during development work in the town's council parking lot (Sutherland and Schmidt 2003:15–25; Sutherland 2006; 2007a; 2007b; Fiorato et al. 2007; Sutherland and Richardson 2007).

In 1987, the accidental find of 160 Roman coins in a field near Clunn in Germany led to one of the most important studies in this discipline. Rost and Wilbers-Rost pointed to the vast area (about 50 sq km) in the Teutoburg Forest, in which three Roman Legions led by Publius Quintilius Varus were conclusively defeated by the Germanic forces in 9

[6] https://www.facebook.com/profile.php?id=100032396276737.

CE (Rost 2007; Wilbers-Rost 2009; Wilbers-Rost, Großkopf and Rost 2012; Moosbauer 2020:150–157). This study ended a long debate in which close to 700 different theories were posited for the location of the event (Wilbers-Rost 2007:121). Wilbers-Rost and Rost focused on the study of various battlefield features based on a detailed excavation and mapping, including the location of finds in relation to those features and post-residual forces influencing the present archaeological record. Interdisciplinary research has proven the existence of a military event in the bottleneck between the Kalkriese Hill, a foothill of the Wiehen Hills in the south, and the Great Bog in the north. The military remnants, unusual man-made features, point to a battlefield, while the numismatic finds linked the site to the Varian Disaster rather than the campaign led by Germanicus in the years 15 or 16 CE (Rost 2007:50; Wilbers-Rost, Großkopf and Rost 2012:93). As other battlefield studies tend to focus on the more recent past, the work on the Kalkriese Hill was successful both in locating the "lost" battlefield, as well as providing significant data allowing the reconstruction of events and features previously unknown in the archaeological record, such as the leading and trapping of the Romans into the bottleneck of the Oberesch Wall, which was part of the Germanic ambush laid for the Romans (Wilbers-Rost 2007:121–122; Wilbers-Rost, Großkopf and Rost 2012:94–97). Though overshadowed by American and British battlefield studies, the Wilbers-Rost and Rost contribution to the development of the field should not be overlooked (Lewis 2013:68).

Two other significant works were led by British archaeologist Glenn Foard: the Battle of Bosworth Fields (August 22, 1485), which ended the disagreement on the battlefield's location (Foard 2010), and more importantly, his abovementioned study of Naseby (June 14, 1645). In the study of Naseby, Foard employed a Landscape Archaeology-based method, which incorporated history, archaeology and geography. This research construct was influenced by the writings of landscape historian William George Hoskins, who revisualized heritage studies in his book, *The Making of the English Landscape*, first published in 1954 (Hoskins 1988). The fundamental parts of this research construct are as follow: locating the battlefield; reconstructing the landscape at the time of conflict; characterizing the forces, their weaponry and tactics; using written evidence to understand movement through the battlefield, position of forces and events; and finally, retrieving and mapping the archaeological evidence (Foard 2001:87–103; 2007:133–159). Foard's research construct was adapted for use in the Levant (Lewis 2013:69) and applied to the study of the Battle of Hattin (July 3–4, 1187), a decisive event from the days of the Latin Kingdom of Jerusalem (1099–1291), in which the forces of the Latin Kingdom were defeated by the Muslims led by Saladin.

CASE STUDY: THE BATTLE OF HATTIN

Theory: A Research Framework for the Archaeology of Conflicts

The British philosopher and archaeologist R.J. Collingwood wrote an intriguing statement in his autobiography: "History books begin and end, but the events they describe do not"

(Collingwood 1978:98). Whether or not so intended, we can understand Collingwood's words either historically (ripples in time) or archaeologically (relics in space). From a historical perspective, historical events may echo for hundreds of years, continuously influencing people's actions, whereas from an archaeological perspective, the material signature of those events, exposed to post-residual and taphonomic processes, is constantly changing.

The Historical Perspective: Ripples in Time

For the echo of events through time, the Battle of Hattin (July 3–4, 1187) provides some interesting examples. One of them is an eye-witness report of a member of the Arab village of Hattin, who on June 9, 1948 joined the 'Hattin regient' of the Arab Liberation Army to defend their village from the Hattin Mountain (Khalidi 1992:522–523):

> We joined our lookouts on the Horns of Hattin. Numerically, we were fewer; however, our position overlooked theirs… we saw every move they made. As they advanced towards us… we fought them fiercely for more than four hours and forced them to halt. A few of us went down the mountain and dug in behind the rocks; when they opened fire, the Jews thought that they were trapped and decided to retreat.

It seems that the Muslim success at this place in 1187 motivated the villagers of Hattin almost 800 years later to defend their homes from the strategic point at the top of the Horns. Until this day, the IDF is striving to locate the body of an Israeli soldier, Josef Margalit, who was lost in the military attempt to conquer the Horns from the Arab villagers in 1948. The remains of the 1948 battle were located by the author (Avissar Lewis and Lewis, in prep.).

In 1877, Horatio Kitchener reported that the name of the plain southeast of the Horns is locally known as Ard el-Burnus (Arabic: Land of the Prince), named after Count Renaud de Châtillon, Lord of Kerak, who was slain by Saladin at the end of the Battle of Hattin (Kitchener 1877:116–120). In addition, a field located today to the west of Kibbutz Lavi was named by the local Arabs (see also the 1:20.000 cadastral maps of Migdal and Tiberias from 1938) Ard maqtal en-Nasara, which translates: "land of the massacre of the Christians." Does this refer to the memory of the 1187 battle fought between the Franks and Saladin's men? or rather to the event known as the Battle of Nazareth between the French and Ottomans on the same field in April 1799? Interestingly, this field, and the important mountain crossing it, are overlooked by a number of underground hiding complexes in the Roman period. Not far from the entrance to one of those caves is an Arab gunner position from 1948, from which Fawzi al-Qawuqji's men of the Arab Liberation Army ambushed the road. This cave is still called Qawuqji's Cave by local kibbutz members.

The Archaeological Perspective: Relics

The material signature of a given battlefield undergoes constant change since the end of the conflict. This is due to environmental and human causes that begin operating from the moment the forces leave the field.

To locate a specific historical event within a given landscape, the most appropriate archaeological reconnaissance method—of several field survey techniques practiced in our region—is that of Landscape Archaeology. The important difference between this method and other survey methods is its focus on the Total Archaeology[7] of a landscape, with the "site" (i.e., the settlement) constituting only one of its diagnostic features. The dispute over the exact definition of an archaeological "site" is not relevant here, simply as in Landscape Archaeology all man-made features are equally examined (even modern elements are not excluded from the survey and are documented and studied). Hence, the mosaic of archaeological features that makes up the overall landscape is actually the "site" and not any one of its specific features. The underlying concept of this "site-less" approach is that a single find or a feature (e.g., an agricultural terrace; a fence wall; an arrowhead; a horseshoe; a potsherd, etc.) must be fully understood, including its contextual emplacement within an environment and the manner in which it relates to the other components. The manner in which objects are scattered over the landscape must then be examined stratigraphically. The surveyed area should be divided into several zones according to key topographic features. Following the survey and excavation, the different archaeological features (modern features included) are studied in relation to each other and also according to their discrete, expanded or focal nature and then put into related clusters within each zone. Only after creating a map that reconstructs the overall landscape on the eve of the battle, would it be possible to proceed to locate traces of its material imprint. Subsequently, primary written evidence should then be referred to and revisions may ultimately be made based on a comparative study of additional available source materials.

Continuity and Anomalies

Continuity is one of the most important elements in Landscape Archaeology and therefore, also in the study of the material culture of battlefields. Our basic assumption is that prior to the modern era, people respected traditional landscapes, modifying them only in rare cases. In periods before heavy machinery and dynamite were introduced, natural topography and traditional features in the landscape were maintained. "Repeating narrative" is a common concept in historical studies. In the study of ancient landscapes, this term may refer to a line of trees following an ancient road, or a terrace built along this "line" for structural or topographic reasons (Gibson 1995:220). Every landscape on earth is characterized by features that affect people's individual and cultural behavior, including where they settle, cultivate, bury their dead, build industries or, as we have seen above, chose to fight (Gibson 1995:224). A good field study will provide not only an understanding of landscape formation

[7] Total Archaeology is a landscape-based, multi-period and interdisciplinary approach to understating the past, drawing on the fullest possible range of sources, as field archaeology, the examination of historical sources, place names, early maps and plans, and, where appropriate, the integration of folklore and local tradition, as first defined by landscape archaeologist Christopher Taylor (Taylor 1975; Everson et al. 2021:82).

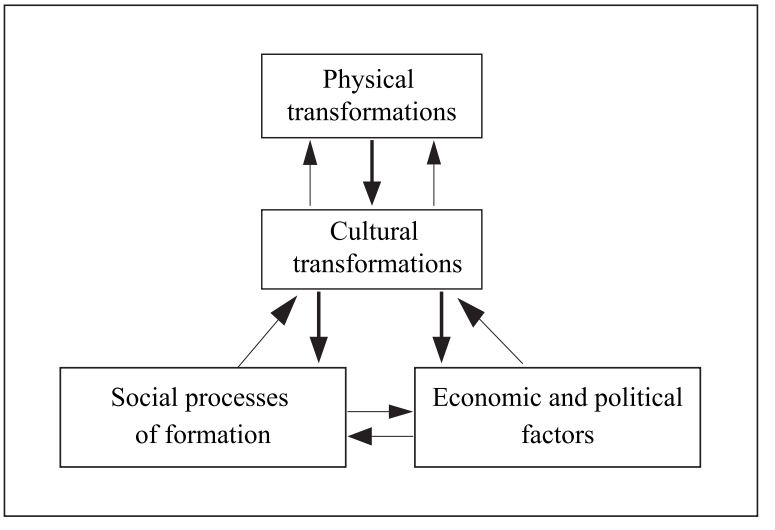

Fig. 1. The formation of landscapes (after Wilkinson 2003:8, Fig. 1.1).

and common patterns within it, but also of the "variable in the routine." Understanding the way anthropogenic features are laid in a given area will allow us to detect anomalies, which may be related to an event that left a mark on the land (Lewis 2013:80). A specific landscape formation may trigger people to act in similar ways on different occasions. The renowned landscape archaeologist John Wilkinson introduced a graphic model that explains the development of landscapes, a model that is largely influenced by Braudel's structuralist ideas (Wilkinson 2003:8, Fig. 1.1; Fig. 1). To study short-durée events taking place in the landscape, one must explore structural (i.e., long durée) and circumstantial-cyclical (i.e., medium durée) categories through Total Archaeology fieldwork. Events can only be fully understood by evaluating their broader perspective, the study moving from the macro (represented by the landscape) to the micro (represented by the specific artifact). In fact, the approach taken by the Annales School has been adopted here and is considered to be a positive avenue to broadening knowledge (Braudel 1980:6–9, 25–38; 1994:24–33).[8]

This workflow may be visualized as a pyramid-shaped diagram: to understand the event located at the peak of the pyramid, a researcher must start with the study of the structural and circumstantial-cyclical components in the investigated area. If we agree that every action has a cause, then we should also agree that every event has its environmental, topographic and cultural background. Adopting a research program that does not go from the macro to the micro will result in a failure to understand the event, which is only a fraction of time and one of many events of different character that occurred in the landscape (Lewis 2013:81; Fig. 2).

[8] This is in contrast to the Positivistic-Historical approach, introduced by the Prussian historian Leopold von Ranke, which attributes great importance to events of revolutionary significance and the roll call of leaders.

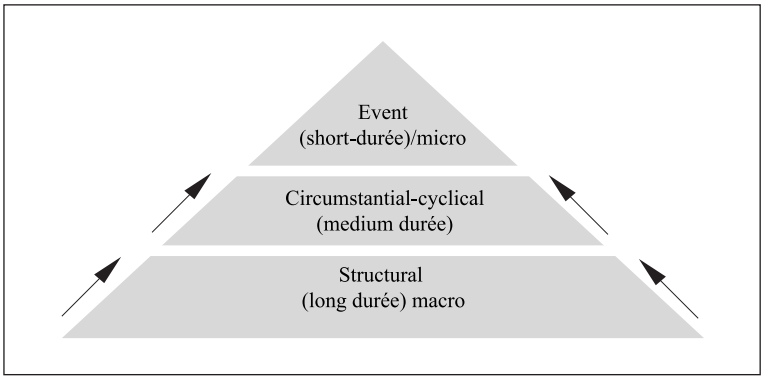

Fig. 2. Research program from the study of short durational events.

Categories of Collected Data

Different environmental and geographical elements have direct effect on humans and animals and therefore, also on the battlefield (Peltier and Pearcy 1966:64–66; Winters 1998; Baker 2003). This statement seems simple, but only rarely do we come across historical studies that sufficiently consider environmental issues. The Crusader historian John Pryor claimed that many historians wrote on conflicts as if they took place in a geographic, meteorological and oceanographic vacuum (Pryor 2006:275). We should remember that environmental elements not only affect the battle and its outcome but also have an effect on the preservation and location of artifacts (Lewis 2016:460–461). Topography is one element that prevails in historical studies as its effect on the movement of people is well-estimated; however, also rock formation types, soil types (their pH level), water sources (natural and man-made, such as wells and cisterns), vegetation, animal activity etc., should be considered. Meteorological conditions, for example, affect movement, visibility, sound, endurance, distance and accuracy. Solar conditions, such as sunlight, moonlight and albedo (radiation reflected from different surfaces) are just as important. Today we have tools to create maps and models that take into consideration all of these elements, providing a comprehensive representation of the battle arena (Lewis 2013:82; 2016:466–475; 2020b:358–362).

It is obvious that some landscapes can be traveled faster and with greater ease than others (Collins 2006:27–28). Man-made features, such as roads, walls, earthworks, ditches, trenches and plowed fields can influence the movement of men in a given landscape. Therefore, to understand an historical event, a reconstruction of the landscape in which the event took place should be the aim of such study. Archaeological features should be taken into account and considered together with the environmental and historical data to obtain a picture as close as possible of the studied arena. The dynamic nature of the landscape usually presents a fundamental problem in studies that are based only on written accounts and on preliminary observations of the battlefield's topography. The researcher should thus cross the boundaries of his discipline and examine the subject from the widest angle possible

(Arnold 1986:32; Bloch 2002:66:99–104), relating to three main categories of evidence: (1) environmental; (2) material culture; and (3) written sources.

Total Archaeology for the Study of the "Ultimate Experience"

Sir Basil H. Liddell Hart recognized that no natural hazard could compare to the obstacles people could impose on each other and that it is the military leaders' task to move their men forward, no matter what comes in their way (Liddell Hart 1989:92). Even if we do manage to recreate the arena of war with the tools available to us as researchers, we should give some thought to other matters that affect the battlefield and its record. Social, psychological and behavioral issues have a significant effect on the battlefield (on morale, fear, discipline etc.) and the way in which an event is documented and remembered. Yuval Harari has convincingly shown how from the eighteenth to the twenty-first century the experience of war (which he describes as "the ultimate experience"), once a collective experience, has become more and more personal (Harari 2008:301–306). As a direct consequence, we have more and more testimonies of events. The paradox here is that since individuals witness events in personal ways, the more witnesses we have the more difficult it becomes to trace the actual truth. The answer is to present all the available sources—environmental, historical and archaeological—comprehensively. This will enable the obtaining of a picture that is as close as possible to the historical truth, if such a truth ever existed (Bloch 2002:76–101; Kedar 2009:6–8; Lewis 2013:83).

Practice: The Battle of Hattin

After laying out the challenges presented in the study of battlefields, presenting the main theoretical approaches to the subject and offering a research framework with a methodological construct, we shall examine a specific case study in which these methods have been applied in the field. It will be demonstrated below how, using different research tools, the research framework contributed to our understanding of the Battle of Hattin on July 3–4, 1187.

The landscape reconstruction in this study was assisted by tools, such as Landscape Archaeology survey; excavations of key features in the landscape; geophysical survey (GPR and metal detecting); travelers' accounts; cartographic information, including maps and taphonomy (place names); historical and aerial photography (image interpretation survey); multispectral photography; historic drawings; geomorphological survey; geotactic and geostrategic analysis of the landscape; viewshed analysis; a survey of arms and armor characteristics, as well as combat tactics used by the forces; historical study of all written sources; independent wargame; study of historical war manuals; and experimental archaeology. Only some of those research tools are presented hereby, as the main goal of this article is to highlight the contribution of archaeology to our understanding of the Battle of Hattin.

The Battle of Hattin and its written sources (Ibn Shaddād; Ibn al-Athir; Eracles; Chronique d'Ernoul; Libellus) have been studied extensively (Smail 1956; Prawer 1980; Lyons and Jackson 1982; Kedar 1992; Nicolle 1993; Herde 2002; Ehrlich 2007; Lewis

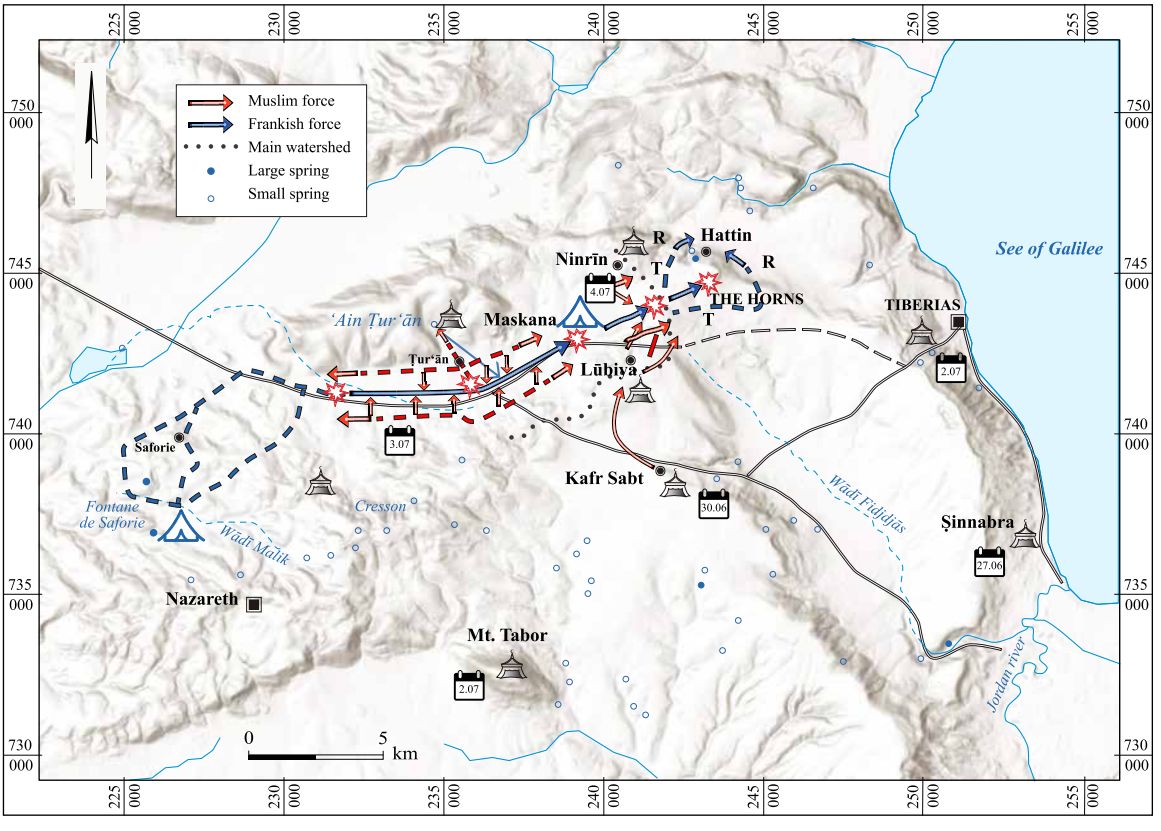

Fig. 3. Hattin Battle plan: T—possible location for Taqi al- Din's position; R—Raymond's possible retreat from the Plain of Hattin.

2013; 2016; France 2015; Lewis, Avissar Lewis and Finkel 2020) and therefore, will not be discussed in detail here. To demonstrate the main points in which Battlefield Archaeology contributed to our understanding of the event, we will "follow" the Frankish forces from their encampment at the Springs of Saforie (Ẓippori); their march toward Tiberias (July 3, 1187); the night encampment; the crossing of the watershed; the horse charge by Raymond of Tripoli; and their decisive defeat by the Hattin volcano on midday July 4 (Fig. 3).

The Springs of Saforie

Shortly after the Battle of Cresson (May 1, 1187), the Frankish forces gathered in their traditional assembly point at the Springs of Saforie (Ibn al-Athir:320; Libellus VII:135; Ibn Shaddād:73). A joint study by the author and researchers of the Israel Antiquities Authority's prehistoric division and the Nelson Glueck School of Biblical Archaeology at the Springs of Saforie, led to some significant discoveries related to the Frankish encampment at the site (Lewis, Getzov and Milevski 2021; Lewis 2022). The study was part of a series of salvage excavations undertaken prior to the expansion of Road 79 and the construction of a new road to the Ẓippori National Park. The Springs of Saforie are a key to understanding the Hattin campaign, as according to the written evidence, the springs served an assembly point

for troops in the two months before the Battle of Hattin, between May 1 and July 3, 1187, as they did on at least five other occasions during the Latin Kingdom of Jerusalem (Lewis, Getzov and Milevski 2021:36–37).

The fact that the Landscape Archaeology study and the geophysical study were conducted in conjunction with a large-scale excavation project, allowed us to connect different features and artifacts found on topsoil levels with the site's stratigraphy. The reconstruction of the agricultural system in the encampments' area showed that though the area was reformed in the Ottoman period and cultivated till the very recent past, the layout of the fields took shape in the second century CE following what is known as a coaxial field system (Gibson and Lewis 2023). The geomorphological study showed that though some plowing was conducted in the fields near the springs, the topsoil layers from which much of the medieval artifacts were retrieved had not undergone significant changes since the Byzantine period and the current surface level had remained stable for the last 1000 years (Lewis 2021:35; Roskin 2022:201). In addition, we learned that Naḥal Ẓippori has not changed its course since the Neolithic period (Roskin 2022:201). This was significant since all the remains of the Frankish encampment were located to the south of the riverbed, which was understood to have served as the northern border of the medieval encampment (Lewis, Getzov and Milevski 2021:45). The distribution analysis of the artifacts found at the site showed a few interesting behaviors that may be characteristic of such encampments. Clusters of different types of horseshoe nails attest that the forces camped in different groups, probably in a fighting-march position, as main force, a rearguard and a front guard. In addition, it was evident that the concentration of artifacts grows as one approaches the source of water (an Early Roman spring house, still standing), and that the artifacts in the assemblage appeared to belong to individuals of a higher social background and of European origin (Lewis, Getzov and Milevski 2021:38–46). The large number of broken horseshoe nails indicated that one of the main activities in the encampment was that of farriers who prepared the warhorses for battle, replacing horseshoe nails. Several needles were also found, perhaps suggesting that mending equipment was another common activity in the camp (Lewis, Getzov and Milevski 2021:38–46, Figs. 3.8–3.14). A few arrowheads may point to target practice, or possibly that the Springs of Saforie was the much-disputed location of the Battle of Cresson (May 1, 1187), one of the events leading to the decisive Battle of Hattin (Lewis, Getzov and Milevski 2021:46). Finally, the archaeological record allowed us to further explore the nature of a Frankish encampment through the comprehensive study of the material culture against written sources, such as the rule of the Templars, which provides information on Frankish camps and the activity therein (Fig. 4; Lewis, Getzov and Milevski 2021:37–38).

The March through the Turʿan Valley

On July 3, 1187, the forces of the Latin Kingdom of Jerusalem marched from their assembly point at the Springs of Saforie toward the city of Tiberias, located 30 km to the east, which had been captured by Saladin's men a day earlier (Ibn Shaddād:73). Estimates regarding the number of people who fought at the Battle of Hattin vary, but even the lowest estimate

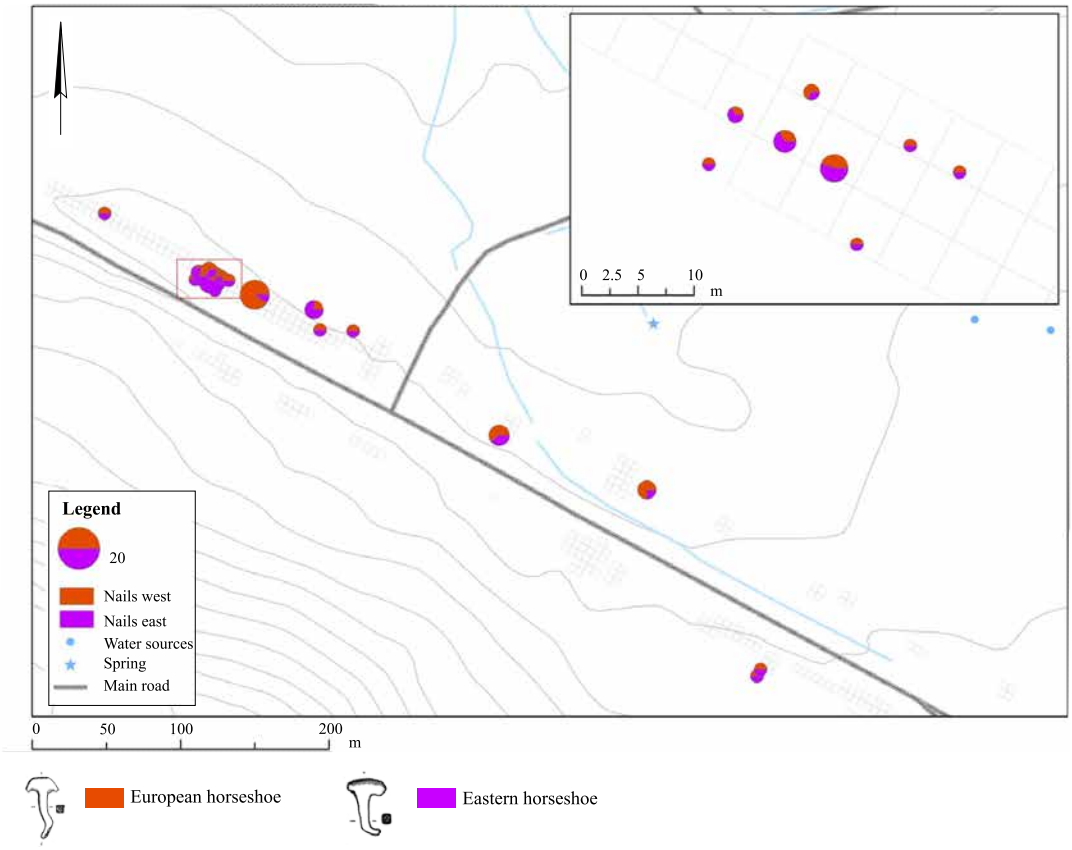

Fig. 4. Distribution of horseshoe nails in the excavated areas according to different types (drafting: Michal Birkenfeld, after Lewis, Getzov and Milevski 2021:41, Fig. 3.9).

suggests 1200 Frankish cavalry and turcopoles (mounted archers fighting under Latin forces), and 7000 foot soldiers. Lowest estimates for the Muslim forces are at least 12,000 mounted archers and 20,000 foot soldiers (Ibn al-Athir:319; Libellus VII:135; Nicolle 1993:58–61; Harari 1997:80–81; Lewis 2013:12, n. 12). One suggestion is that the Muslim forces numbered around 40,000 (France 2015:82).

As long as the chaos of battle does not break their lines, the movement of armed troops within a given landscape relies on their fighting techniques, their numbers, and the limits of the topography and man-made features (terraces, boundary walls, stone piles, etc.). When the forces of the Latin Kingdom of Jerusalem maneuvered in a fighting march formation, the main body of mounted knights was usually divided into three forces, each encircled by rings of defensive lines of foot soldiers to protect the knights and their horses from ballistic weapons, mainly arrows. The number of defensive lines depended on the way the main body was arranged in relation to the position of the enemy. For most of the march, the pace of the force depended upon the infantry, but when an order to charge was given, horses and riders would break through the lines of defense that opened up for them. The

efficiency of the charge was connected with the number of horses falling upon the enemy; the more horses linked together, the more destructive the results (Smail 1956:164; Nicolle 1993:48–49; Bennett 2001:10–12, 16).

After a day of intensive fighting in the Tur'an Valley in extremely hot weather, the Franks lost their rearguard, which scattered after a strong Muslim attack (Libellus XI.146–147). At sunset, the Latin forces camped for the night around the small village of Maskana (Kh. el-Maskana), known for the seasonal pool to its east, while the Muslims brought convoys with provisions to the front line and skirmished the Frankish encampment (Libellus XII.150–151; Prawer 1980:493; Kedar 1992:199–200; Herde 2002:121; Lewis, Avissar Lewis and Finkel 2020:16–17). The landscape reconstruction of the Battle of Hattin included a meticulous study of the road and field systems between the encampment in the Springs of Saforie and the volcanic hill of Hattin, about 26 km east of Saforie. The analysis included the study of written evidence, aerial photography, cartographic information and excavation in key locations, such as road junctions and agricultural-related features, as well as a geophysical survey. Only in the area between the Maskana pool and the Horns of Hattin (6.0 × 4.5 km) 18 ancient roads of different characteristics and levels and 19 road junctions were mapped and excavated. We can now reconstruct where the Franks marched through most of their fighting march, but more importantly, how landscape and man-made features influenced their movement on the way to Tiberias and how those contributed to the Frankish decisive defeat in this battle. For example, for most of the first day of the battle the Franks marched on the second-century CE Roman road, crossing the Tur'an Valley from west to east. Though this road is significantly wide (10.4 m) and well-constructed, the relict coaxial field system of stone walls used as field boundaries and terraces laid against the road—and dated to the second century CE as well—confined their movement to the road. Therefore, we can say with reasonable certainty that the Franks had to extend their marching column for a great distance, allowing the Muslims to skirmish, block and manipulate their movement with relative ease (Fig. 5; Lewis 2013:348; Gibson and Lewis 2023).

The survey and dating of water sources showed that there were very few potential water sources in the area where the Frankish forces marched on both days of the battle. This is due to their movement across alluvial soils in the Tur'an Valley or over basalt soils after crossing the watershed and climbing onto the Plain of Hattin. In contrast, the Muslim positions, following the Franks on the hills overlooking the enemy bellow, not only controlled the high ground but held almost all available water sources. Aside from the Muslim forces' access to the Sea of Galilee, their positions on the northern slopes of the Nazareth mountains, Tur'an Mountain, the two hills of Lubia and Mount Nimra, allowed them access to numerous rock-cut cisterns. At the present location of the abandoned Arab village of Lubia alone—inhabited continuously from the Early Roman period until 1948, and where some of Saladin's men were located during the second day of the battle—there are more than 200 ancient cisterns (Lewis 2013:296, Fig. 86). The Franks, on the other hand, would have had access only to the Spring of Tur'an on the first day of the march. It was difficult to reach and, as Kedar has shown, an unreliable water source (Kedar 1992:196).

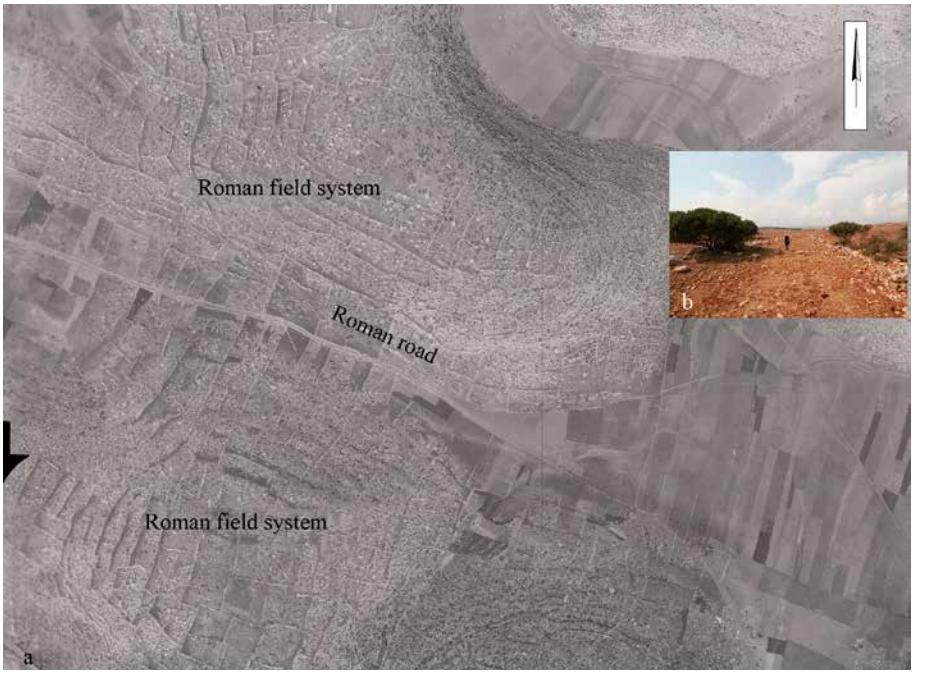

Fig. 5. (a) An arial photograph from 1945 of the Tur'an Valley (680 PS 11 4 Jan 1945, F12), showing the coaxial field system joining the Roman road crossing it from west to east; (b) the Roman road west of the modern village of Rumat al-Heib, looking west (photography Rafael Y. Lewis).

The Night Encampment in Maskana

Toward the end of the first day of battle, the Frankish rearguard was attacked with such force that many of its men, including its leader, Balian of Ibelin, left the field (Libellus XII.150–151; Kedar 1992:197–198; Lewis 2013:350–351). At sunset, the Latin forces camped for the night around the small village of Maskana (Kh. el-Maskana). Through the night, the Muslims brought convoys with provisions to the front line and kept skirmishing the Frankish encampment (Prawer 1980:493; Kedar 1992:199–200; Herde 2002:121; Lewis 2013:352–354; Lewis, Avissar Lewis and Finkel 2020:17). Six cisterns can be seen today in the ruins of Maskana, but more important is the small seasonal pool located to its southwest. Based upon a calculation of the amount of water in this pool during the summers of 2010–2013, it could have potentially supported a large number of horses;[9] however, it may have been completely dry on July 3, 1187 or its water undrinkable (Kedar 1992:200–201, n. 36; Lewis 2013:293–295). Three additional pools, one in very close proximity to this one, and two on the Plain of Hattin, are on their route, but these are of much smaller potential as water sources in the summer months (Lewis 2013:295–296).

[9] On July 3, 2010, it held approximately 1,200,000 liters of water (Lewis 2013:295).

According to cosmological data,[10] on July 3, 1187, the Frankish forces had more than fourteen hours of daylight to reach Tiberias from Saforie. This means they had to cover a distance of about 30 km at a pace of slightly more than 2 km per hour. While not an impossible challenge for a healthy group of people, in war conditions it becomes virtually impossible, especially when considering that the Franks marched facing the sun on both July 3 and 4. According to the cosmological data, on July 3 the sun rose at 04:37 and set at 18:50. At sunset on July 3, 1187, the fighting did not cease. It is noteworthy that given those conditions, the Muslims were still able to bring convoys of provision from the east while continuing to harass the Frankish encampment at Maskana. The moon, however, rose only fourteen minutes after midnight, five hours and twenty-four minutes after sunset. Upon rising, it reached only 28.2% of moonlight capacity, thus there were five hours of complete darkness on that night. These are definitely not ideal conditions for horseback riding, but on the other hand, would provide coverage.

Crossing the Watershed

At sunrise (04:37), the Franks were probably on the move again.[11] By this time, the men and their horses would have been exhausted. Some scholars argue that the Franks took a northern route toward the Springs of Hattin to quench their thirst (Prawer 1980:493), while others argue that on July 4, the Franks were still heading toward Tiberias (Kedar 1992:202–203). The archaeological evidence shows that having reached the watershed (the hills of Lubia, i.e., the area of today's Kibbutz Lavi) located 2 km to the east, the Latin forces left the main road, which ran directly to Tiberias, and climbed up to the Plain of Hattin. Four cisterns are located in close proximity to the main road, but artifact distribution analysis showed that the Franks were forced to leave the main road, climbing to the Plain of Hattin at a point further to the north of the cisterns (where present-day Hodayot school is located). Archaeological remains, including fragments of weaponry, armor and dress accessories (which tend to be lost in close physical combat), suggest that there was hand-to-hand fighting at the watershed just north of the main road to Tiberias. As abovementioned, it is noteworthy that the field from which the Franks ascended northeastward on July 4, 1187, and where the Battle of Nazareth of April 1799 was fought, was named by the local Arab villagers and on British mandatory maps Ard maqtal en-Nasara (Lewis 2013:358).

The heavy fighting during the crossing of the watershed could mean that the Frankish forces were fighting their way to the Springs of Hattin, located to the north of the Plain of Hattin, or that they were trying to reach Tiberias via the narrow road, bypassing the Hattin Mountain from the south and through the narrow road running through the coaxial field

[10] According to the Wise Observatory Center in Mitzpe Ramon (http://wise-obs.tau.ac.il/~eran/Wise/wise_calen.html).

[11] Alternatively, the order to continue the march eastward was given only after the sun was high in the sky and out of the eyes of the Frankish archers facing east.

system of el-Kasair (Lewis, Avissar Lewis and Finkel 2020:17–18; Lewis 2013:356–358, 371–373; 2016:477).

The Plain of Hattin

Regardless of their intention, by midday, the Franks were on the Plain of Hattin. At a certain point, the Frankish movement was blocked by a Muslim force led by Taqi al-Din. An order to charge against Taqi's men was given to the vanguard led by Raymond of Tripoli, Prince of Galilee. At the climax of this event, instead of the Frankish and Muslim forces colliding, the charging Muslim force opened its line, allowing Raymond and his men to pass through. The failed Frankish charge led to the vanguard abandoning the battlefield (Ibn Shaddād:74; Ibn al-Athir:322; Libellus XIII.154–155). An analysis of the terrain and war manuals gives us an idea of how and where such a maneuver is possible. It is very likely that the center of the Muslim charging force slowed its pace while moving left or right, joining from their rear the riders at the two flanks of the charging line. The break at the center created a gap through which the Frankish force could pass. The space required for such maneuver places it in the field located just east of Mount Nimra, where the eastern slopes of the mountain meet the Plain of Hattin. The field is 1.2 km wide and 1.7 km long, and its gentle drop to the northeast makes it an optimal point for a horse charge (Lewis 2013:360–365).

Once the Franks reached the Plain of Hattin, they marched on basalt soil. Those closer to the ground were more influenced by the albedo effect—heat radiated from the dark and heavy soil. At some point, the fields around the remaining Frankish army were set on fire (Ibn al-Athir:322). Ideally, Saladin's men could set the fields on fire only while the Franks were located east of the Muslim forces, hence, in the later part of the battle, when the Muslims were pushing the remains of the Frankish force against the Hattin Mountain. Considering that from midmorning in the summer the winds on the Plain of Hattin blow from the west, fire and smoke would be carried eastward. If the fields would have been set on fire before the Franks were to the east of the Muslims, the fire would have been driven toward Saladin's men or created a smoke screen between the two forces. The western winds would provide further advantage to those shooting arrows eastward (Figs. 6, 7; Lewis 2013:365–367).

The Walls of Hattin

The final stages of the battle took place in the area to the west of the volcano. This area can be described in military terms as "closed country," with many natural and man-made obstacles. The northern edge of the plain was bordered by the steep slopes descending to the Arbel Valley, posing a real obstacle to men travelling on horseback. Consequently, the only way to descend to the valley below was via a narrow path located at the northwestern part of the plain, where Raymond's horse charge may have taken place. After Raymond's failed charge, the infantry climbed the Horns of Hattin, leaving the mounted knights unprotected on the plain (Libellus XII.150–151).

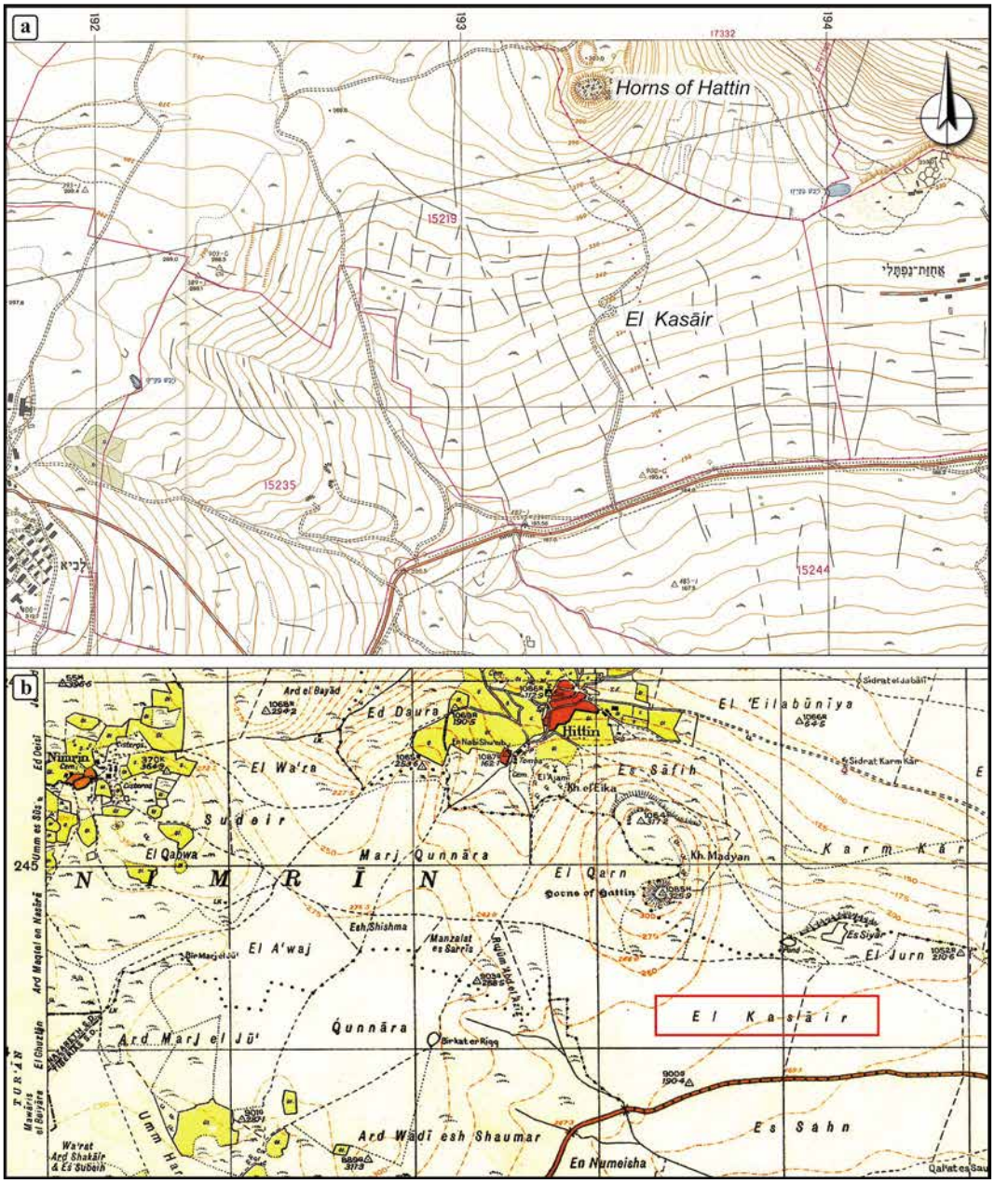

Fig. 6. The coaxial field system of el-Kasair as seen on (a) Survey of Israel maps from the mid-1960s (scale 1:10,000) and (b) the British mandatory cadastral map of Tiberias from 1941 (scale 1:20,000) (after Lewis, Avissar Lewis and Finkel 2020:4, Fig. 2).

On the Mandatory cadastral map of Tiberias (scale 1:20,000) from 1941, the area south of the Horns of Hattin is called el-Kasair, which translates as "the divided" or "the fragmented" area (Fig. 6). This name derived from the many natural steps of the Timrat geological

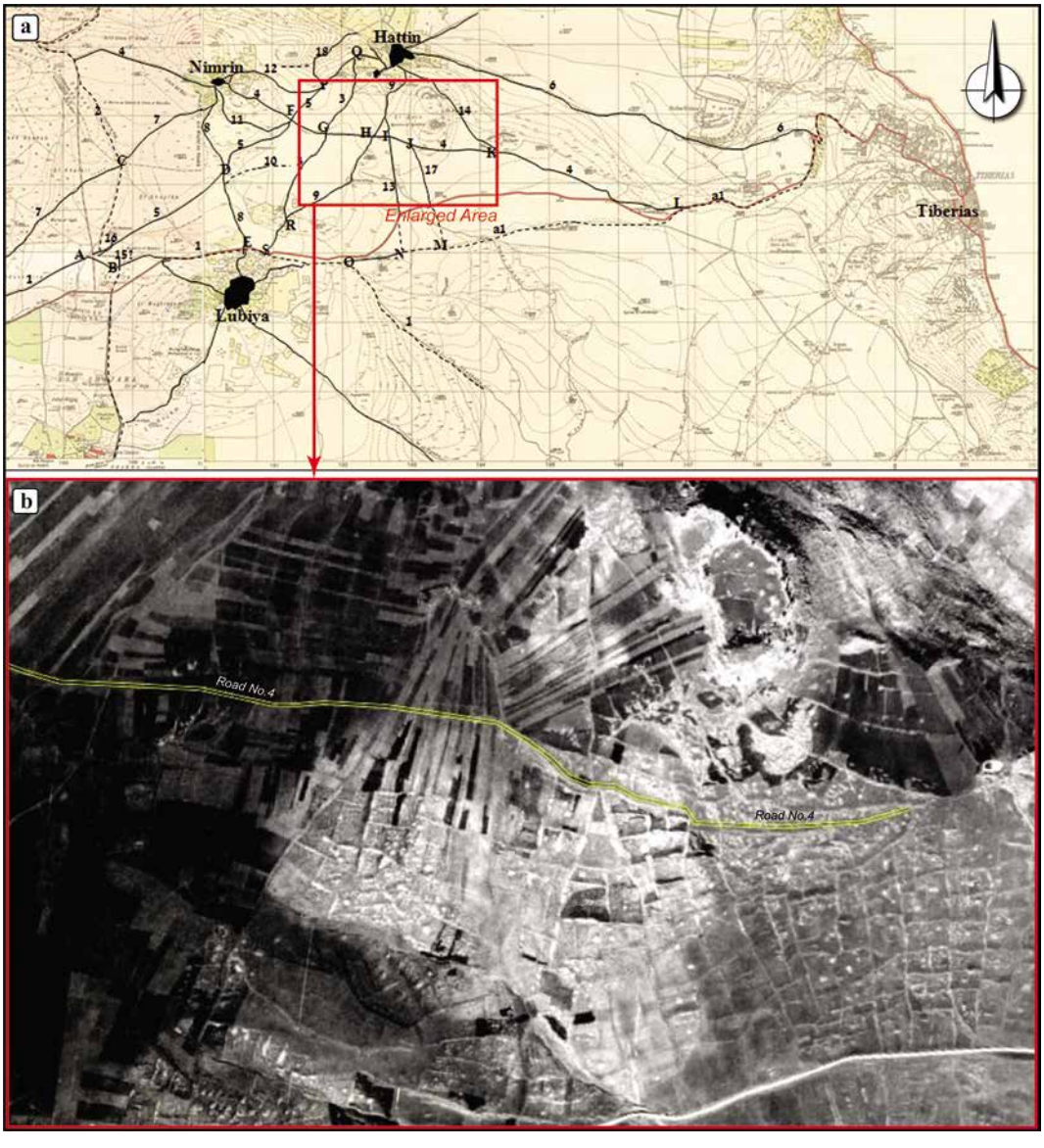

Figure 7. (a) The landscape of the Hattin road systems as shown on the British mandatory maps of Tur'an, from 1938, and Tiberias, from 1921 (scale 1:20,000); (b) an enlargement of the el-Kasair field system from an aerial photo from January 1945 (courtesy of the University of Haifa; after Lewis, Avissar Lewis and Finkel 2020:6, Fig. 4).

formation, stone piles and walls that formed part of an extensive relict field system, which was dated in the study to the second century CE. However, the formation of the Hattin landscape did not start with Roman landscaping. The influence of human activity on the Hattin landscape began much earlier, with Lower and Middle Palaeolithic flint extraction and reduction sites. These tailing piles were the structural base for the second-century CE

Fig. 8. Looking east on the eastern end of the Plain of Hattin; the Hattin volcano and the relict field system are to their left (photography: courtesy of David Silverman).

Roman landscaping in the area. Thus, the Lower and Middle Palaeolithic stone piles, and the wall boundaries and terraces of the Roman field system, had a significant influence on the outcome of the Battle of Hattin in 1187, making the area to the south of the Plain of Hattin almost unfit for those traveling in large groups on horseback (Fig. 8).

Another serious obstacle was detected on the eastern side of the plain: the Horns of Hattin volcano. Although the western slopes of the mountain are quite moderate (max. incline 17.7%) and would appear to allow riders to climb to the main volcanic crater at the center of the two mountaintops, the Late Bronze Age (fourteenth century BCE) walls enclosing the southern peak, and the Iron Age IIA–B (tenth century BCE) wall surrounding the crater, would have made this impossible (Gal 1992:213). These earlier walls would have made the mountain almost unapproachable for horses and riders. Unlike the southern peak of the mountain, the northern Horn could be reached on horseback, while the eastern tip of the northern Horn is the most protected area on the mountain, with cliffs to its east, and a high natural step to the west. Two walls, one natural at the north and a man-made one at the south, run along the two sides of a basin climbing to this high point. A small flat area (8 × 8 m) at the peak of the Horn would make a perfect position for the Frankish king during the final stages of the battle, as the area leading to the peak of the Horn is within the range of any type of bow, making it a perfect killing zone (Fig. 9; Lewis 2016:480–482).

A viewshed analysis conducted from the flat area on the peak of the northern Horn and from Saladin's possible position at the western edge of the el-Kasair field system, shows us how the Frankish king on the one hand and the Muslim leader on the other could observe their men while remaining protected from the enemy in the final stages of the battle (Fig. 10; Lewis 2013:369, Fig. 126; 2016:482, Fig. 27.11).

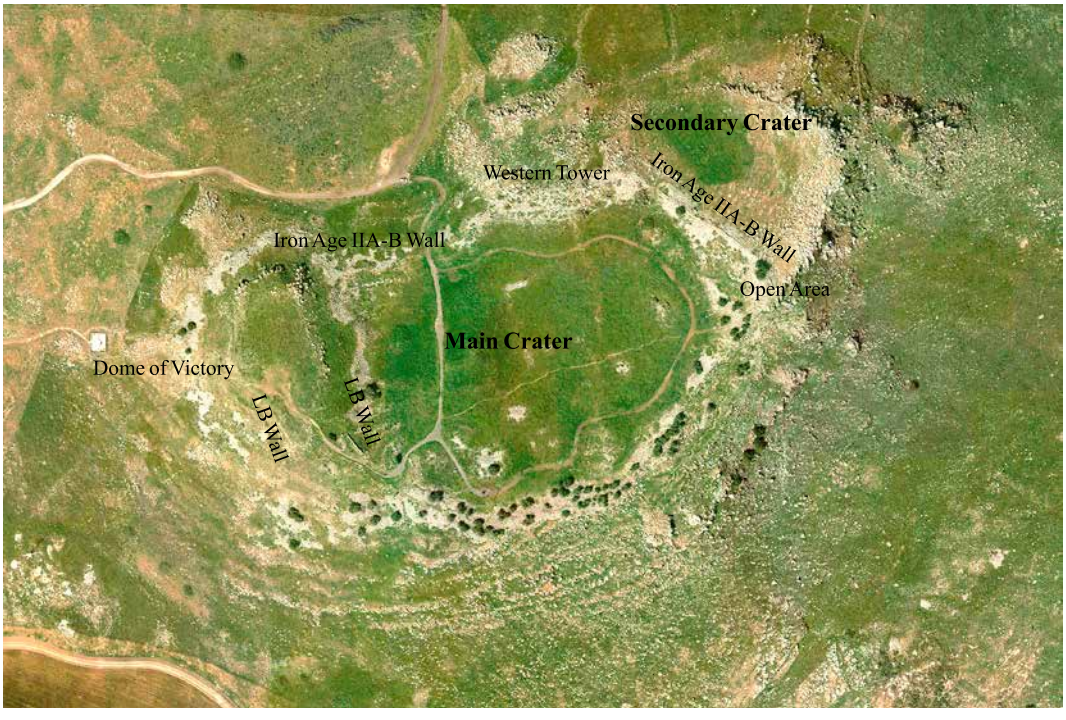

Fig. 9. Main features on the Hattin Mountain as seen in an aerial photograph from 2014.

Fig. 10. Viewshed analysis from the northern Horn and to it for the possible locations of the two leaders at the final stages of the battle (SOCET GXP, BAE Systems).

Whether or not Saladin planned ahead, it seems that the topography and the environmental conditions of the harsh, basaltic land played directly into Muslim hands; these are further reflected in the distribution of archaeological features. Firstly, the head of the Muslim forces could stand a little more than an arrow-range away from the enemy while remaining protected on three sides by the stone fences and terraces overlooking the basin between the watershed and the Horns (Ibn al-Athir:323). Consequently, the landscape to the east

of the watershed worked as a perfect trap. The basin located east of the watershed and bordered by the relict field system to the south, and the narrow and deep gorges to the north, could be used as a big hunter's net. While the Muslims were pushing them from the west, the headless (Raymond) and tailless (Balian of Ibelin), together with the lack of decisive leadership, meant that the stray Frankish flock could do nothing but head east and attempt to take refuge at the highest point possible. This led them to a dead end. The Latin forces were pressed from the west by Saladin's men against the Hattin volcano and suffered their final and decisive loss, marked by the capture of the "True Cross," the king, as well as most of the Latin nobles, and the massacre of the knights of the military orders (Ibn Shaddād:74; Ibn al-Athir:324; Prawer 1980:500; Kedar 1992:204; Nicolle 1993:76–79; Herde 2002:139–141; Lewis 2013:335–377; 2016:463, 482; Lewis, Avissar Lewis and Finkel 2020:20). It is not known whether the turn of events—trapping the Latin forces on the Hattin Plain—was down to chance or tactical genius on the part of Saladin, but there can be no doubt that the landscape and its man-made Palaeolithic and Roman features played into Saladin's hands on that decisive day (Figs. 11, 12).

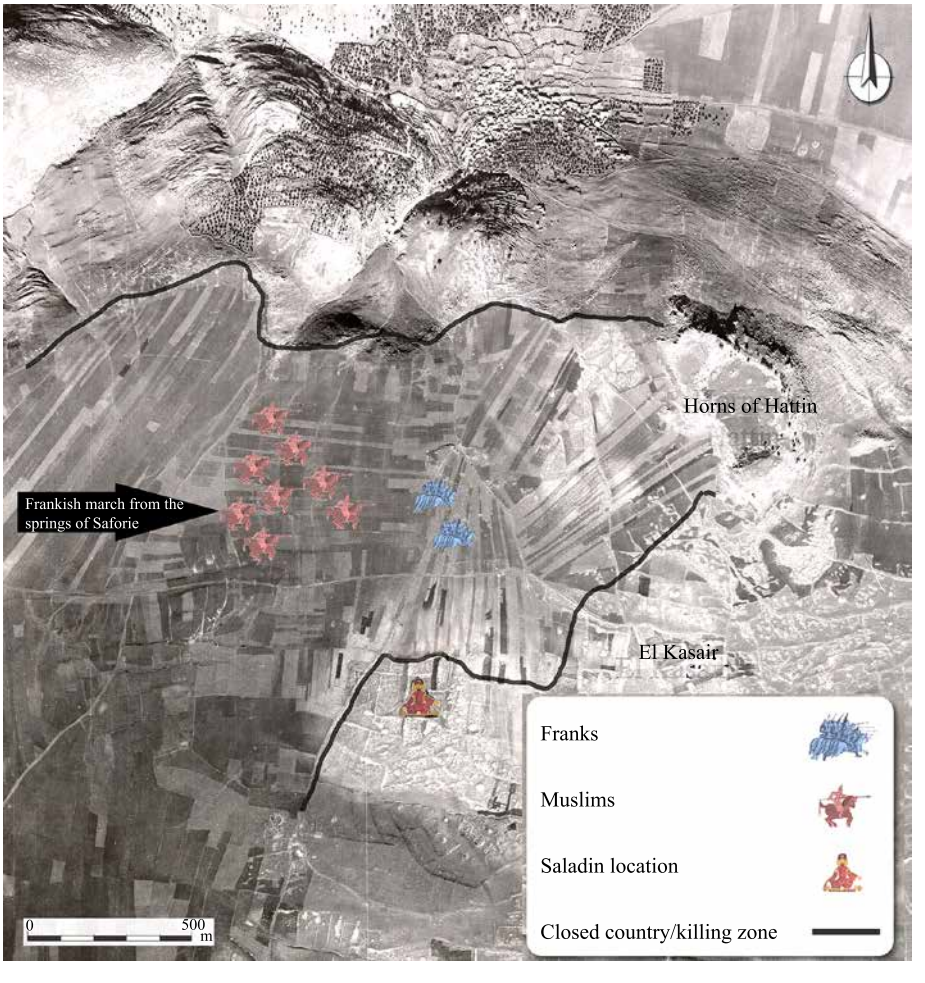

Fig. 11. The Plain of Hattin as a 'closed country' allowing Muslim forces to manipulate the movement of the Franks and trap them, based on an aerial photograph from January 1945 (courtesy of the University of Haifa; after Lewis, Avissar Lewis and Finkel 2020:17, Fig. 9).

Fig. 12. Saladin's coin found south of the Hattin volcano: Al-Nasir Salah al-Din, Yusuf b. Ayyub, H 570–589/1174–1183 CE.

CONCLUSIONS

A very ambitious attempt was made in this article to present a methodological framework for the Archaeology of Conflict through its application in the study of the Battle of Hattin. The work at Hattin continues, as this fascinating landscape first manipulated by men in the Lower and Middle Palaeolithic, conveys many finds and intriguing questions on the reciprocity between humans and landscapes (Avissar Lewis and Lewis, in prep.). The research framework presented here has also been applied to other case studies. It allowed us, for example, to locate the arena of the battle of Arsuf (September 7, 1191) on the basis of environmental, historical and archaeological data, contributing to our understanding of why the battle took place in this specific location and what were the reasons of its outcome. Moreover, the knowledge of the location of the 1191 events enabled us to pinpoint the location of the western edge of the long-gone relict forest of Arsuf, stressing that all disciplines can benefit from a multidisciplinary study (Lewis 2016:483–484; 2020b:360–363). The landscape approach employed at Hattin and at Arsuf was also helpful in understanding the sieges of Ashqelon in 1153 and 1187, and in the study of the two Mamluk sieges of the Castle of Montfort in 1266 and 1271. The landscape reconstruction proved helpful in the study of those urban sites as it disclosed the position of the different forces, encampments, artillery and siege ramparts (Lewis 2017:284–286; 2020a:360–364). At present, the research framework is being applied to a case study from the more recent past and appears to be very helpful in understanding events that took place on January 15–16, 1948 that led to the killing of the Mountain Platoon/Lamed-Heh (Lewis and Marco, 2023).

Finally, the study of short-duration events in the landscape is clearly feasible. A flexible approach to the use of a variety of tools on the one hand, and Total Archaeology on the other, can bring us closer to understanding violent events that, unfortunately, continue to be part of our present-day culture.

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