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CRUSADER MILITARY ORDER FORTIFICATIONS ALONG THE CARMEL COAST

KEYWORDS

archaeology; Middle Ages; Military Orders; Crusades; Frankish Carmel Coast; fortifications; architecture; settlement pattern

ABSTRACT

The Carmel Coast has historically functioned as a vital highway, and it did so during the Frankish period. This study focuses on the 12th–13th century castles along this coastal route, owned by the Military Orders, which played a pivotal role in the micro-region. We compare three of these strongholds using data from prior excavations and newly conducted surveys, including innovative aerial surveys that have generated unprecedented orthophotos and models of two of the sites. Our

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findings illuminate the architectural strategies employed by the Military Orders and enhance our understanding of the dynamics of this coastal micro-region during the Frankish period.

INTRODUCTION

The Frankish roads in Palestine were based on the pre-existing Roman infrastructure. Evidence suggests that the Franks did not implement significant large-scale enhancements to this system. Although some localized improvements were observed, there is no indication of an organized road network or systematic communication framework like that of the Roman period. Consequently, the condition and quality of the roads varied considerably across different regions of the Crusader Kingdom¹. The conditions of these roads varied from place to place; from Samaria to Jerusalem, “the road is all paved with stones” ([...] ἡ δίοδος πᾶσα λιθόστρωτος [...]),² whereas on the road to Jericho, there was “no stone pavement” (Ἐπὶ δὲ ταύτῃ οὐδὲ λίθος θεμελίου εὑρίσκεται) and it was a “long, narrow, and very rough road leading back to the wilderness” (ὑπάρχει στενοεπιμήκης καὶ τραχυτάτῃ ὁδὸς πρὸς τὸ κατόπιν ἀπιούσα τῆς ἐρήμου).³ Along the coast of the Mediterranean, from Caiphas to the south, “a great deal of the road had not been made up, and they found it considerably obstructed by thorns and many luxuriant green plants [...]” (*Ea die se solito cautius agebat exercitus, et magna conficienda restabat via, quam quidem plurimum praepeditam spinetis et herbarum luxuriantium copia reppererunt, vultus suos jugiter flagellantibus, et maxime facies peditum conterentibus [...]*).⁴ Travel along the roads during the Frankish period was often treacherous and difficult, with numerous historical accounts documenting incidents of robbery and ambush.⁵ This necessitated enhanced security measures along these routes.

¹ Meron Benvenisti, *The Crusaders in the Holy Land* (Jerusalem: Israel University Press, 1970), 309; Moshe L. Fisher, Benjamin H. Isaac, and Israel Roll, *Roman Roads in Judaea II: The Jaffa-Jerusalem Roads*, BAR International Series Lat (Oxford: Tempus Reparatum, 1996), 30–31.

² John Phocas, *The Pilgrimage of Joannes Phocas in the Holy Land: In the Year 1185 A.D.*, trans. Aubrey Stewart, Palestine Pilgrims' Text Society (London: Committee of the Palestine Exploration Fund, 1889), 17.

³ Ibid., 26.

⁴ *Itinerarium peregrinorum et gesta regis Ricardi*, ed. William Stubbs (London: Longman, 1864), 253; see English translation: Ricardus, *Chronicle of the Third Crusade: A Translation of the Itinerarium Peregrinorum et Gesta Regis Ricardi*, ed. Helen J. Nicholson (Aldershot: Ashgate, 1997), 240.

⁵ Benvenisti, *The Crusaders*, 312; Denys Pringle, “Templar Castles on the Road to the Jordan,” in *The Military Orders, Fighting for the Faith and Caring for the Sick*, ed. Malcolm C. Barber

One of the main duties assigned to the Knights Templar shortly after their establishment was the protection of roads and pilgrims: "[...] as far as their strength permitted, they should keep the roads and highways safe from the menace of robbers and highwaymen, with special regard for the protection of the pilgrims" (*Pri-ma autem eorum professio, [...] ut vias et itinera, maxime ad salutem peregrinorum, contra latronum et incursantium insidias pro viribus conservarent*).⁶ For example, in the twelfth century the Templar Order, fulfilling their duty, was commissioned to protect the pilgrims on their journey, as we can read it incorporated into the Templars' Rule (1165–1187): "The Commander of the City of Jerusalem should have ten knight brothers under his command to lead and guard the pilgrims who come to the river Jordan." (*Li Comandeor de la cité de Jerusalem doit avoir x freres chevaliers en son comandement por conduire et garder les pelerins qui vont au flum Jordan [...]*).⁷ This responsibility legitimized the Templar Order's construction and ownership of road stations, houses, and castles along critical routes within the Latin Kingdom of Jerusalem, thus allowing them to exert control over strategically significant areas. For example, the Templars owned Yazur, Latrun, and Yalu along the Jaffa-Jerusalem road in the twelfth century.⁸ Along the road to the Jordan, they possessed at least another three castles: Cisterna Rubea, Bait Jubr at-Tahtani, and Mount Quarantana. Although the Hospitaller Order was not formally tasked with protecting roadways, this did not prevent them from emerging as significant builders and competing with the Templar Order.⁹

Some of the original owners of the castles were not affiliated with the military orders, indicating that the construction of these fortifications along the roadways may not have been conceived as a cohesive system from the outset. The acquisition of castles along the roads of the Kingdom by the Knights Templar likely stemmed

(Aldershot: Routledge, 1994), 150–151; Adrian J. Boas, *Archaeology of the Military Orders: A Survey of the Urban Centres, Rural Settlement and Castles of the Military Orders in the Latin East (c. 1120–1291)* (London–New York: Routledge, 2006), 3 footnotes 8, 9; Oliverus Scholasticus, *Historia Damiatina*, ed. Hermann Hoogeweg, Bibliothek des Literarischen Vereins (Tübingen, 1894), 169.

⁶ William of Tyre, *Chronique*, ed. Robert B.C. Huygens, Hans E. Mayer, and Gerhard Rösch, Corpus Christianorum 63 (Turnholt: Brepols, 1986), 12.7.

⁷ *La Règle du Temple*, ed. Henri de Curzon (Paris: Librairie Renouard, 1886), 100 § 121; see English translation: *The Rule of the Templars. The French Text of the Rule of the Order of the Knights Templar*, transl. Judith M. Upton-Ward, Studies in the History of Medieval Religion 4 (Woodbridge–New York: Boydell Press, 1992, 1st ed.), § 121.

⁸ Denys Pringle, "Templar Castles between Jaffa and Jerusalem," in *The Military Orders*, vol. 2, *Welfare and Warfare*, ed. Helen J. Nicholson (London: Routledge, 1998), 89–109.

⁹ Pringle, "Templar Castles on the Road to Jordan", 148–166.

from their obligation to safeguard travelers.¹⁰ Additionally, several of these fortifications served functions beyond mere defense; they played significant roles in local administration and participated in agricultural and other economic activities.¹¹

In the late twelfth and thirteenth centuries, particularly after the Battle of Hattin, the Kingdom of Jerusalem's geopolitical landscape underwent a substantial transformation. Acre emerged as the capital, and power dynamics shifted as numerous castles fell into Muslim hands, altering territorial ownership within the Kingdom. After the Third Crusade, the coastal regions became more important. The military orders successfully reclaimed some of their former territories and fortifications while acquiring new ones. This period marked a peak in their construction activities, characterized by the restoration and expansion of existing sites and the establishment of new fortifications.¹²

THE FRANKISH COASTAL ROAD

The coastal road, known as the *Via Maris*, which extends from north to south along the Mediterranean coastline, served as a vital transportation artery for the Kingdom from the twelfth century onward, becoming increasingly significant after 1192. The *Via Maris* extended from Antioch to Egypt, tracing the coastline to Acre, then to Haifa, and continuing to Atlit, where it navigated a narrow passage through the kurkar ridge (local calcareous sandstone formation). The route subsequently reached Caesarea, a crucial junction point. At this city, multiple routes converged, including maritime trade routes, the coastal road, and an inland road directed towards the east and northeast, facilitating access to sites such as Qaqun, Nablus, Megiddo, and the Jezreel Valley, ultimately leading to Damascus.¹³

The *Via Maris* was a significant artery for trade and military activities and constituted one of the numerous pilgrimage routes traversing the Holy Land. Following the Frankish occupation of Acre in 1104, a substantial number of pilgrims

¹⁰ Ibid., 108.

¹¹ Ronnie Ellenblum, *Crusader Castles and Modern Histories* (Cambridge University Press, 2007, 1st ed.), 174; Pringle, "Templar Castles between Jaffa and Jerusalem," 109.

¹² Ellenblum, *Crusader Castles*, 177–181, 299.

¹³ Rabei G. Khamisy, "Baybars' Strategy of War Against the Franks," *Journal of Medieval Military History* 16 (2018): 41–42.

began to arrive at this northern port city rather than at Jaffa.¹⁴ Numerous sites, fortifications, and towns were established along the coastal route, capitalizing on the influx of pilgrimage and commercial traffic, as well as the abundant natural resources provided by the sea and the fertile coastal plain. This route was also the site of numerous military campaigns, with detailed accounts documented in the *Chronicles of the First and Third Crusades*.¹⁵

A notable area along the coastal route is the Carmel Coast micro-region, extending from Haifa to Caesarea, which encompasses several significant Frankish sites (Fig. 1). This micro-region formed part of the Lordships of Haifa and Caesarea, within which both the Knights Templar and the Knights Hospitaller maintained substantial holdings. Many of these properties were either purchased or granted to the military orders by the Lords of Caesarea during the late twelfth to early thirteenth centuries.¹⁶ Historical sources indicate that the Templars had a more pronounced presence in the northern portion of the Lordship of Caesarea, while the Hospitallers held more properties in the southern regions.¹⁷

One of the most significant possessions of the Military Orders along the Carmel Coast was Chateau Pelerin (Atlit), the headquarters of the Knights Templar, established in 1217/1218. Although Chateau Pelerin was situated within the Lordship of Caesarea, it maintained a semi-independent status from its inception.¹⁸ At that time, numerous Templar and Hospitaller holdings already existed in the region. The establishment of this large Templar center further solidified their substantial presence in the northern part of the Lordship and expanded their influence along the coastal strip, extending at least from Haifa to areas south of Tantura.¹⁹

In addition to Atlit, the possessions with fortifications of the Military Orders along the Carmel coast included (Fig. 1) St. Margaret's Castle or Cava Templi at Haifa (Stella Mares),²⁰ a road station at Atlit, called

¹⁴ Denys Pringle, *The Churches of the Crusader Kingdom of Jerusalem: A Corpus*, vol. 4 (Cambridge: Cambridge University Press, 1993), 21; Fisher, Isaac, and Roll, *Roman Roads*, 39; Michael Ehrlich, "The Route of the First Crusade and the Frankish Roads to Jerusalem during the 12th Century," *Revue Biblique* 113, no. 2 (2006): 275.

¹⁵ Fisher, Isaac, and Roll, *Roman Roads*, 38; Ricardus, *Chronicle*, ed. Nicholson and Stubbs, 240–243; William of Tyre, *Chronique*, ed. Huygens, Mayer, and Rösch, 10.15 (26).

¹⁶ Steven Tibble, *Monarchy and Lordships in the Latin Kingdom of Jerusalem, 1099–1291* (Oxford–New York: Clarendon Press / Oxford University Press, 1989), 147–150.

¹⁷ *Ibid.*, 111, 147.

¹⁸ *Ibid.*, 147.

¹⁹ Ellenblum, *Crusader Castles*, 136, 143; Rabei Khamisy, "The Unratified Treaty between the Mamlūks and the Franks of Acre in 1268," *Al-Masāq* 26, no. 2 (2014): 162–164.

²⁰ Boas, *Archaeology of the Military Orders*, no. 67.

Destroit²¹, Cafarlet,²² Merle, Khirbat al-Mazra'a, and Turris Salinarum (for the last three, see below).

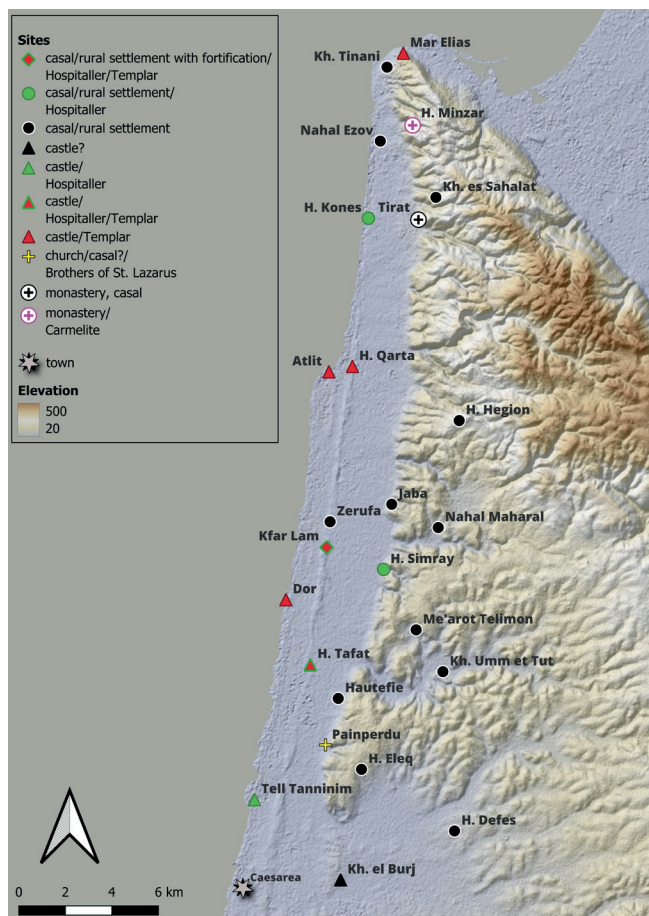


Fig. 1: Crusader (Frankish) sites along the Carmel Coast (© Sara Lantos).

²¹ Ibid., 108, 240; C. N. Johns and Denys Pringle, *Pilgrims' Castle (Atlit), David's Tower (Jerusalem), and Qal'atar-Rabad (Ajlun): Three Middle Eastern Castles from the Time of the Crusades*, Variorum Collected Studies Series 579 (Aldershot–Brookfield: Variorum, 1997), 94–98; Denys Pringle, *Secular Buildings in the Crusader Kingdom of Jerusalem: An Archaeological Gazetteer* (Cambridge–New York: Cambridge University Press, 1997), no. 90.

²² Hervé Barbé, Yoav Lehrer, and Miriam Avissar, "Ha-Bonim," *Hadashot Arkheologiyot: Excavations and Surveys in Israel* 114 (2002): 30–33; Itamar Taxel and Hervé Barbé, "Habonim-Kafr Lām: A Ribāt of the Levantine Coastal Defensive System in the First Centuries of Islam," in *The Art of Siege Warfare and Military Architecture from the Classical World to the Middle Ages*, ed. Rabei Khamisy and Michael Eisenberg (Oxford: Oxbow Books, 2021), 153–163.

MERLE

Merle functioned as a stronghold along the coastal road, strategically situated at the tip of Tel Dor. Excavations conducted in 2018 as part of the Tel Dor excavation expeditions (area M in Fig. 2) revealed remnants of the castle's tower.²³

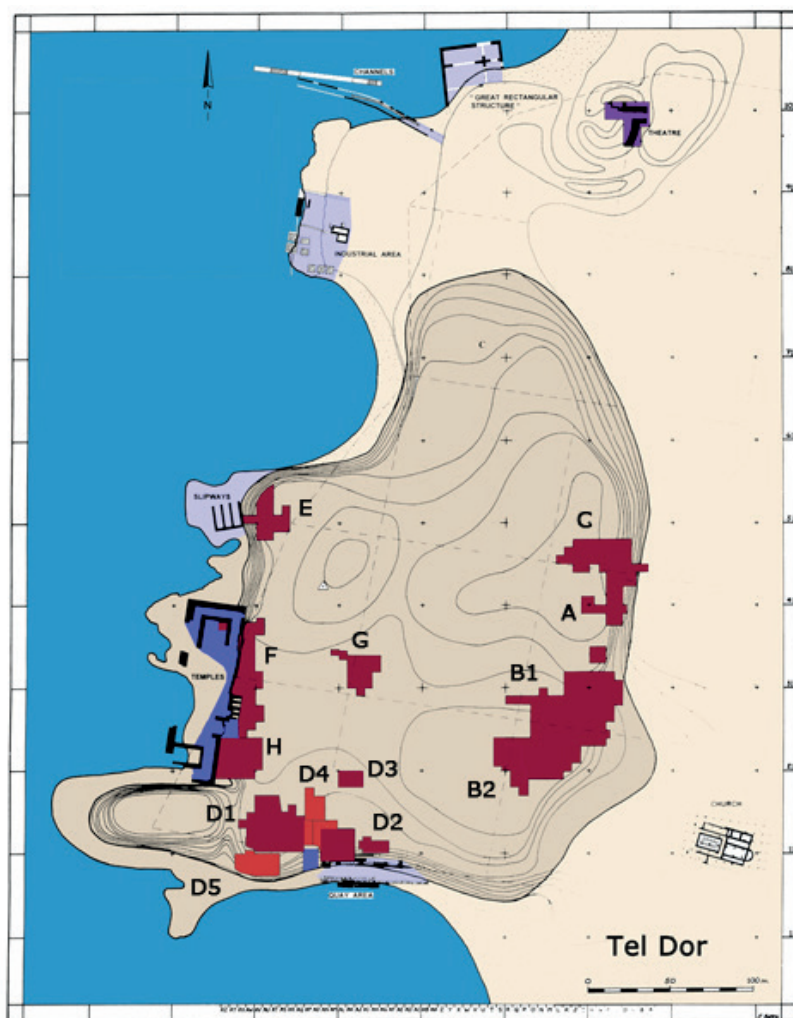


Fig. 2: Excavated areas of T el Dor (  Sara Lantos after Sveta Matskevich).

²³ S ara Lantos, Assaf Yasur-Landau, Gil Gambash, and Rabei Khamisy, "The Frankish Castle of Dor," *Levant* 53, no. 2 (2021): 217–235.

According to historical sources, the castle was initially owned by the Lords of Caesarea, with the Merle family serving as feudal tenants in the early twelfth century. The nomenclature of the site derives from its occupants, the Merle family, and it is possible that a small fortification was already built here at this time. Ownership transitioned to the Knights Templar sometime prior to 1187, and they maintained control of the castle until its destruction by the Mamluks sometime between 1265 and 1291. Archaeological evidence indicates multiple phases of construction for the tower, and a layer corresponding to the Mamluk destruction of the castle has also been uncovered.²⁴

Recent ground and aerial photographic surveys have been undertaken,²⁵ contributing to a better understanding of the Frankish castle's structural layout. Based on these findings, it is proposed that the castle encompasses an area of approximately 70 × 45 m. At the eastern boundary of the castle, a moat was dug as the first defense line of the castle (Fig. 3). The moat is still visible today, though it is filled with debris. During the 1996–1997 excavation seasons at Tel Dor, while investigating the Roman Temple in Area H, a small section of the moat was uncovered. The slope of the moat was reinforced with a glacis, constructed from round, closely packed field stones of fist- to head-sized dimensions, intermixed with earth.²⁶ Additionally, a pottery assemblage attributed to the Crusader period was recovered during this excavation.

During the recent survey of the site, segments of the Crusader curtain wall, which extended along the promontory, were identified (Fig. 3). These walls would have constituted the fortification's primary line of defense. Currently, only small sections of these walls remain standing, comprising one to two courses of ashlar. The segments examined were constructed from kurkar ashlar, cut to dimensions consistent with those of the tower excavated in 2018, and appeared to be bound with mortar between the stones. Additionally, some ashlar exhibited visible diagonal tooling, indicative of Frankish craftsmanship. At this stage, further details regarding the curtain walls of Dor remain undetermined; additional archaeological investigations are necessary to address this inquiry.

²⁴ Detailed discussion of the history and archaeology of the site in Lantos, Yasur-Landau, Gambash, and Khamisy, "The Frankish," *passim*. About the Merle family see Tibble, *Monarchy*, 144.

²⁵ The drone survey of the site was conducted in 2018 by Sara Lantos and Anthony Tamberino from UC San Diego. The ground survey was conducted by Sara Lantos, Rabei Khamisy, and Assaf Yasur-Landau in 2020.

²⁶ Field notes and documentation.

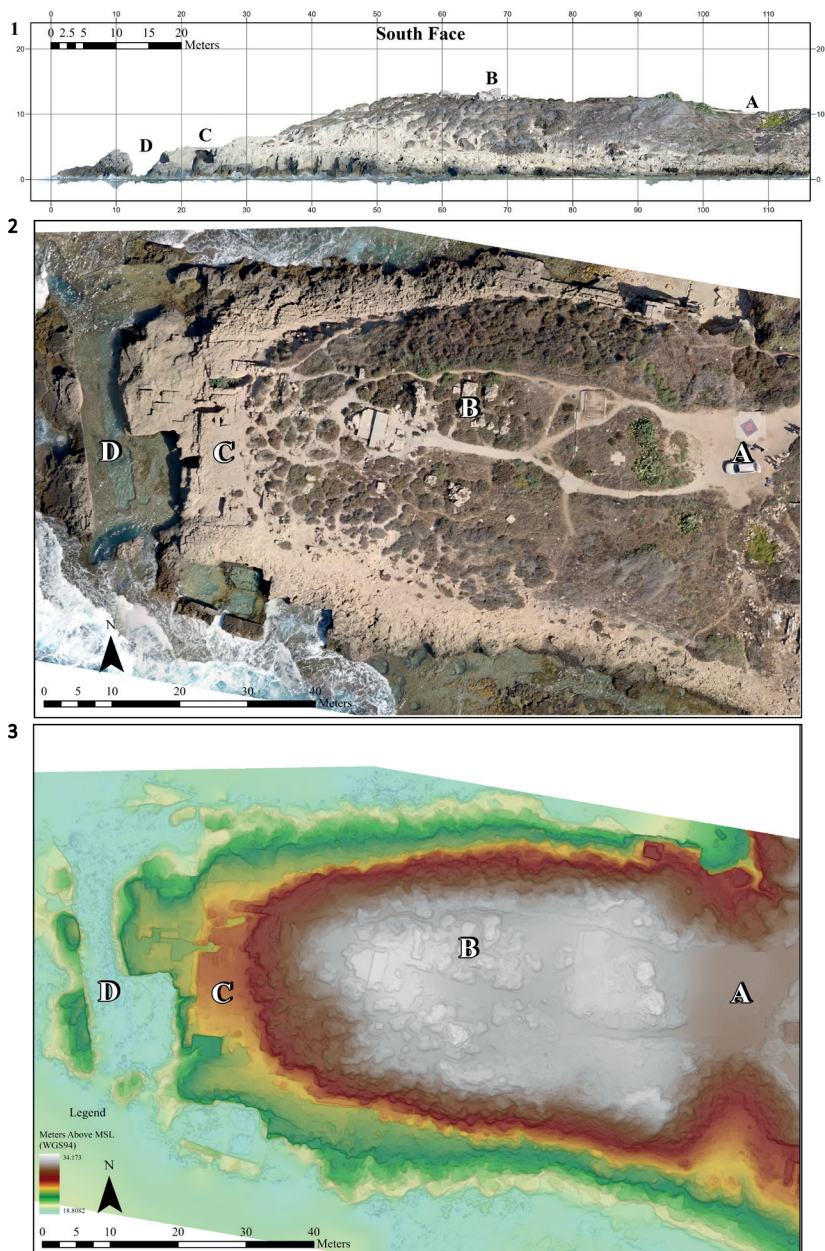


Fig. 3: Photos of the area of the castle of Merle (Tel Dor): 1; Southern face of the promontory, 2; Orthophoto, 3; Aerial photograph with hill-shade effect A: moat, B: place of the tower, C: rock-cut features and the level of the curtain wall, D: sea level (© Sara Lantos and Anthony Tamberino).

The tower and possibly associated residential structures were situated at the highest point of the promontory. The excavated portions of the tower included a course of chamfered ashlars, a blocked doorway, a small entry hall leading to a spiral staircase, and an installation affixed to the exterior of the tower's walls (Fig. 4).²⁷

Topplan of the excavated areas of the fort of Dor

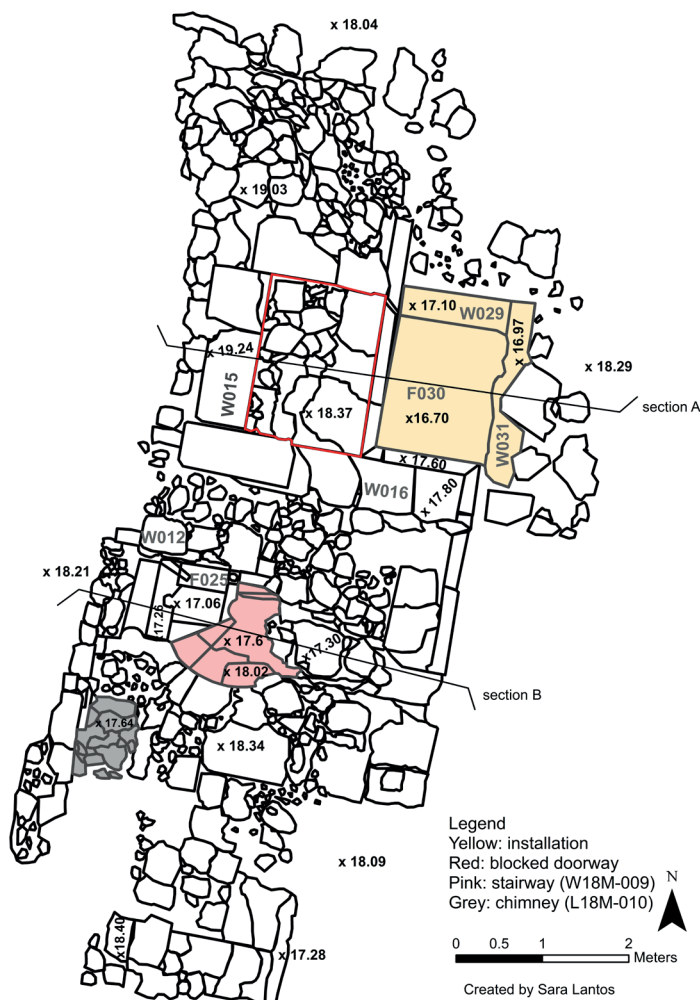


Fig. 4: Topplan of the excavated tower of Merle (© Sara Lantos).

²⁷ Lantos, Yasur-Landau, Gambash, and Khamisy, "The Frankish," *passim*.

Additional remains of collapsed structures are visible within the castle's walled area. Some of these, consisting of the foundational components of a building, remain in situ, while others have been displaced following the collapse.²⁸ The fallen elements exhibit the remnants of an arch, which likely belonged to the tower documented and illustrated by nineteenth-century travelers and by the Survey of Western Palestine (SWP) team. This tower was photographed by a Russian traveler before its collapse in 1894. Historical accounts indicate that the structure was at least two stories high, standing approximately 10 meters tall, and had a pointed arch opening, still standing during visits by Marie Rogers in 1865 and the aforementioned Russian traveler in 1894.²⁹

By combining the 1894 photograph with the newly developed photogrammetric model of the castle, an accurate reconstruction of the tower's location was achieved (Fig. 5). This reconstruction confirmed that the excavated tower corresponds to the one consistently described in nineteenth-century accounts. Furthermore, the reconstruction provided an expression of the tower's dimensions and height. Compared to the geological spur on which it is situated, the tower presents an imposing figure, dominating the surrounding landscape. The one-to-one reconstruction of the tower shows that it was 14 m high at the time the photo was taken. This may mean that originally there were several meters more to reach its top. Mainly because of the state of the collapse, there is no reason to argue that the only single small column's shape that remained until 1894 had reached the original top level. If so, it can be suggested that the tower originally reached almost 20 m in height, higher than the spur on which it stands (12–13 m), making it appear colossal.

²⁸ Further, research has been recently done on the well at Dor, dating its last phase of use to the Crusader period. Assaf Yasur-Landau and Ehud Arkin Shalev, "The Date of the Tel Dor Well and Its Contribution to the Study of Sea-Level Changes," in *Material, Method, and Meaning: Papers in Eastern Mediterranean Archaeology in Honor of Ilan Sharon*, eds. Uri Davidovich, Naama Yahalom-Mack, and Sveta Matskevich, Ägypten Und Altes Testament 110 (Münster: Zaphon Verlag, 2022), 177–182.

²⁹ Claude Reignier Conder, Horatio Herbert Kitchener, Edward Henry Palmer, and Walter Besant, *The Survey of Western Palestine: Memoirs of the Topography, Orography, Hydrography, and Archaeology*, vol. 2 (London: Committee of the Palestine Exploration Fund, 1881), 7–8; Victor Guérin, *Description géographique, historique et archéologique de la Palestine*, vol. 2 (Paris: Imprimé par autorisation de l'empereur à l'Impr. impériale, 1874), 314–5; Lantos, Yasur-Landau, Gambash, and Khamisy, "The Frankish," *passim*; Mary Eliza Rogers, *Domestic Life in Palestine* (Cincinnati: Poe & Hitchcock, 1865), 92.

Fortifications of this style, especially those of the thirteenth century, and particularly the ones that belonged to the military orders, did not usually stand freely without additional outer fortification.³⁰ In our case, the moat and the wall segments are very suitable locations on the spur, indicating that a curtain wall surrounded the tower of Dor; however, nothing further can be said about its design at present.

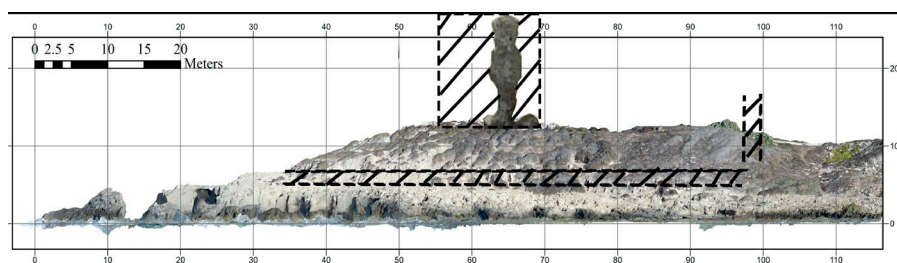


Fig. 5: Schematic drawing of the imagined size of the tower and the location of the outer wall (© Sara Lantos, Anthony Tamberino).

Two distinct pottery assemblages have been excavated and associated with the Crusader occupation of Tel Dor. The first assemblage was recovered from Area H, specifically in the context of the Crusader moat. Several complete vessels were recovered from this context (Fig. 6), which suggests that they belonged to the castle's last days and were deposited during the Mamluk siege of the site. They serve as evidence for a fast occupation and destruction of the fortification.

The second assemblage was unearthed in Area M during the excavation of the tower, with one portion retrieved from within an installation and the other from the destruction layer of the castle. Both assemblages, from Areas H and M, date back to the thirteenth century, corresponding to the castle's Templar occupation. The assemblages from both areas share similar categories of cooking and tableware, including Beirut Cooking Ware, Acre Plain Ware, Cypriot Glazed Ware, Proto-Maiolica, Port St. Symeon Ware, and additional types (Tab. 1). Local table- and cooking wares are the dominant finds, typical to dwelling occupations of this period. Imported table wares are also found in relatively high quantities – all

³⁰ Pringle, "Templar Castles on the Road to Jordan," 159–162; id., "Templar Castles between Jaffa and Jerusalem," 96–102.

elements of the “Mediterranean mix”.³¹ The vessel types observed are consistent with those found at other sites of the Latin Kingdom of Jerusalem, both urban and rural. However, quantitative analysis suggests that the nature of the assemblages is more closely aligned with that found in sites along the Mediterranean coast, like in Acre,³² rather than those from inland, rural sites like Horbat Uza.³³

Tab. 1: Quantities of different types of Crusader period sherds from Area H and Area M (©Sara Lantos).

POTTERY TYPE	AMOUNT (%)
Beirut Cooking Ware	48%
Acre Plain Ware	23%
Cyprus Glazed Ware	12%
Proto-Maiolica	9%
Port St. Symeon Ware	3%
Beirut Glazed Ware	3%
Aegean Ware	1%
Handmade Wares	1%

³¹ Edna J. Stern, *Akko I: the 1991–1998 excavations. The Crusader-period pottery*, Israel Antiquities Authority Reports 51 (Jerusalem, Israel Antiquities Authority, 2012), 133–135.

³² Ibid.

³³ Nimrod Getzov, Ronny Lieberman-Wander, Howard Smithline, and Danny Syon, *Horbat Uza: The 1991 Excavations*, Israel Antiquities Authority Reports 41–42 (Jerusalem: Israel Antiquities Authority, 2009), 118–122; Edna J. Stern, “Continuity and Change: A Survey of Medieval Ceramic Assemblages from Northern Israel,” in *Actas del VIII Congreso Internacional de Cerámica Medieval en El Mediterráneo*, ed. Juan Zozaya Stabel-Hansen (Ciudad Real: Asociación Española de Arqueología Medieval, 2009), 225–234.

1



2



3



Fig. 6: Some of the intact jars found in Area H: 1. Port St Symeon bowl (IAA nos. 1998–2282), 2. Cypriot jugs (IAA nos. 1998–2283, 1998–2284, 1998–2287), 3. Cypriot bowls (IAA no. 1998–2289, 1998–2285) (© of the IAA and Mizgaga Museum).

KH. AL-MAZRA'A

The ruins of Khirbat al-Mazra'a (le Meseraa/casale Rogerii de Chasteillon/casal de Châtillon/H. Tafat) are situated along Highway 2, near the Zichron Yakov interchange (on the kurkar ridge, about 2 km from the Mediterranean). Historical sources indicate that the site's first owners were Walter and Roger of Châtillon, from whom the site derived its name, similar to the case of Merle. In April 1255, the property was sold to the Hospitallers. Additionally, it is noted that the site was referred to by the *Saracenes* as *le Meseraa* which aided in its identification.³⁴ Later the ownership may have transferred to the Templars, as is suggested by parallels with the case of Cafarlet and as it was located in the territory of 'Atlit.³⁵

The early surveys of the site only mention a square vaulted tower in ruins at the place.³⁶ The site has been partially excavated by Dr. G. Larue and his UCS team in 1968.³⁷ A salvage excavation was conducted in 1995 to the southwest of the site, headed by S. Nudel.³⁸

Recent ground and drone surveys of the site have revealed a complex of buildings situated on a kurkar ridge running parallel to the coast, covering a maximum area of 57 by 100 meters (Fig. 7). The buildings are oriented along a north-south axis and appear to have been enclosed by a curtain wall. The bedrock served as the foundation for this wall, and in some areas, tool marks on the rock surface are still visible. In other sections, the bedrock appears to have been deliberately flattened to facilitate construction atop it. This method of utilizing and modifying the bedrock is consistent with practices observed at other sites, such as Destroit. A tower was located in the southwestern corner of the complex, with an entrance positioned on the southern side (Fig. 8). The tower was vaulted, with the spring of the vault still preserved (Fig. 9). The tower's walls were constructed with large ashlar and filled with mortar including small field stones – a common technique

³⁴ *Cartulaire général de l'Ordre des Hospitaliers*, vol. IV, ed. Joseph Delaville Le Roulx (Paris: Leroux, 1894), no. 2725; *Regesta Regni Hierosolymitani, 1097–1291. Comp. Additamentum 1904*, ed. Reinhold Röhrich (Innsbruck, 1893), 1233.

³⁵ Khamisy, "The Unratified Treaty," 163.

³⁶ Conder, Kitchener, Palmer, and Besant, *The Survey of Western Palestine*, 33; Pringle, *Secular Buildings*, no. 151.

³⁷ G. Larue, "H. Tafat," *Hadashot Arkheologiyot: Excavations and Surveys in Israel* 28–29 (1969): 14–15.

³⁸ Saar Nudel, "H. Tafat," *Hadashot Arkheologiyot* (1997): 36–37.

used during the Frankish period.³⁹ The remaining southern wall measures 1.2 meters in thickness, while the entrance in it is approximately 2 meters wide. The ash-lars, likely quarried from nearby sources, were cut from kurkar stone. Additional rooms were attached to the eastern side of the tower, though only single courses of ashlar masonry remain. As a result, the precise dimensions and functions of these rooms cannot be determined without further extensive fieldwork and excavation. It should be noted that the springing course of the vault from the south to north was preserved and its stones are the same size as the other building ash-lars of the wall, reaching $100 \times 50 \times 90$ cm, quite large and reminding of the stones of Merle.



Fig. 7: Drone photo of Khirbat al-Mazra'a. Yellow square: approximate area of the site, Red lines: Visible Crusader walls (© Rabei Khamisy and Sara Lantos).

³⁹ Adrian J. Boas, *Crusader Archaeology: The Material Culture of the Latin East* (New York: Routledge, 1999), 217.



Fig. 8: The lines of the Crusader walls at Mezra'a. On the bottom left: springer of the vault of the tower, Bottom right: Second entrance (© Rabei Khamisy and Sara Lantos).



Fig. 9: Profile of the wall with the haunch of the vault (© Rabei Khamisy and Sara Lantos).

During the 1995 excavation, a Crusader pottery assemblage was unearthed, comprising both local and imported tableware from Cyprus, Syria, and Italy and dated to the twelfth-thirteenth centuries.⁴⁰ Among the finds was an almost complete Crusader sugar pot. This discovery suggests the possibility that the site may have been used for sugar production, potentially serving to supply the Hospitallers with sugar for their hospitals.⁴¹ The presence of a stream, called Nahal Dalya, passing to the south of the site supports this theory since sugar production requires the supply of flowing water. The sugar pot is currently housed in the Israel Antiquities Authority (IAA) storage facilities and was reexamined by the first author. Upon this examination, it was found that the sherds of the vessel fit together and then were reassembled by a conservator. This allowed the creation of a 3D model of the pot (Fig. 10). Unfortunately, the remaining pottery assemblage from the excavations could not be located for further analysis.

In Frankish sources, Meseraa or Chasteillon is referred to as a *casale*, a term that typically does not imply but does not reject the presence of a stronghold. However, the site survey has confirmed the existence of a tower at this location. It is plausible that, similar to sites such as al-Biram, ar-Ram, and Destroit, the tower at Meseraa fulfilled both defensive and domestic or administrative functions. This dual-purpose structure likely included vaulted buildings and rooms attached to the tower, integrating various functional spaces within the same architectural complex.⁴²

⁴⁰ Nudel, "H. Tāfat," *passim*.

⁴¹ Boas, *Archaeology of the Military Orders*, 93; Edna J. Stern, "The Sugar Industry in Palestine during the Crusader, Ayyubid and Mamluk Periods in Light of the Archaeological Finds," vol. 1, Text (M.A. thesis, Hebrew University Jerusalem, 1999), 77.

⁴² Denys Pringle, "Towers in Crusader Palestine," in *Fortification and Settlement in Crusader Palestine*, ed. Denys Pringle (Aldershot: Routledge, 2000), 5–6; id., "Hospitaller Castles and Fortifications in the Kingdom of Jerusalem, 1136–1291," *Medievalista On-Line* 33 (2023): 9, 12–3.

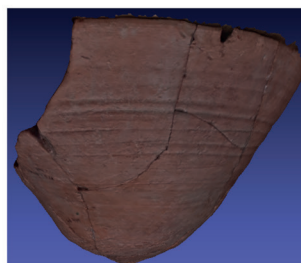
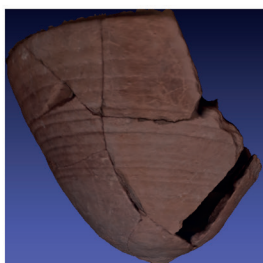


Fig. 10: Sugar pot from Kh. al- Mazra'a (© Sara Lantos).

TURRIS SALINARUM

Turris Salinarum, located at Tel Tanninim on the Carmel Coast, approximately 12 km south of Dor, was constructed on a small mound along the coastal strip at the estuary of the Crocodile River. It represents the southernmost castle held by the Military Orders along the Carmel Coast, before reaching Caesarea.

This region fell under the jurisdiction of the lords of Caesarea. A document dated between 25 December 1165 and 29 April 1166 records Hugo of Caesarea⁴³ giving the place to the Hospitaller Order:

*I also add to this donation of mine a certain curtilage that formerly belonged to Ulricus Tendilla (Tentula) and the salt works of the tower of Gervaise, with as much land as may be needed for salt to be fully produced on it and for a house (or houses) to be built for the people living there' (Addo etiam huic mee donatione quoddam curtile, quod fuit olim Urrici Tendille, et salinam turris Gervasii cum tantumdem terre in qua sal plenarie possit fieri, et domus incolarum hedificari).*⁴⁴

From this we learn that the original tenant in chief was a certain Gervaise, and an Ulricus Tendilla held some houses here. This passage also suggests the existence of a tower at the site before the Hospitallers received it – possibly similar to the case of Dor.

A document, dated between 25 December 1181 and 23 September 1182, records Galterius, lord of Caesarea, confirming to the Hospitallers the possession of the site:

*Moreover, to the same house [the Hospital] [...] I [Walter, lord of Caesarea] grant, concede and confirm the Tower of the Saltings (Turris Salinarum), sited beside the sea, with the whole mound/tell (toron) on which it is set, along with rights of access and egress. Which tower my father Lord Hugh, of blessed memory, gave to the same house. (Ad hoc autem eidem domui [...] dono, concedo et confirmo Turrim Salinarum, juxta mare sitam, cum toto torone quo fundata est, cum libero ingressu et egressu. Quam etiam turrim pater meus, pie recordationis, dominus Hugo, predicta domui commodavit).*⁴⁵

As will be demonstrated, excavations conducted at the site by Stieglitz in the 1990s revealed substantial Crusader-era structures, one of which is notable for its elegant architectural design. The construction of such buildings would have

⁴³ For Hugo of Caesarea see Tibble, *Monarchy*, 112–117.

⁴⁴ *Cartulaire général de l'Ordre des Hospitaliers*, vol. I, ed. Joseph Delaville Le Roulx (Paris: Leroux, 1894), 243–244 no. 350.

⁴⁵ “RRR – The Crusader Regesta,” accessed 19 September 2024, <http://crusades-regesta.com/>, 619, 1107; *Cartulaire général*, ed. Delaville Le Roulx, I: 421–432 no. 621.

required significant financial resources, suggesting that they were unlikely to have been funded by a private individual; therefore, it possibly belonged to the Hospitaller occupation of the site.

Ibn Shaddād, a biographer of Saladin and eyewitness of the events of the Third Crusade, reported that the Muslims arrived at al-Mallāḥa to assess its suitability for battle, as it would serve as a camp for the Franks following their departure from Haifa.⁴⁶ He further noted that later the Franks camped at al-Mallāḥa,⁴⁷ a claim that aligns with Ambrois' account, which states that after departing from their camp at Merle, the Franks arrived near Caesarea and encamped close to the Crocodile River.⁴⁸ Additionally, the biographer of Baybars, Ibn 'Abd al-Zāhir, documented the destruction of al-Mallāḥa in 1265 during the invasions and occupation of Caesarea and Arsuf.⁴⁹ He characterized it as a strong and fortified castle, underscoring its strategic significance during this period.

Between 1996 and 1999, portions of the Crusader complex at Turris Salinarum were excavated by Robert Stieglitz and his team. These excavations revealed remnants of multiple structures dating to the Crusader period. In Area A, a structure consisting of at least two interconnected rooms, linked by a threshold and supported by a barrel vault substructure, was uncovered. This structure was constructed using large, well-dressed ashlar, with its foundation set into kabbara clay. Notably, some of the walls were integrated into the foundation of the earlier Byzantine church apse. The floors of the rooms were only partially preserved, featuring a beaten earth surface, which yielded glazed Crusader pottery, as well as animal and fish bones. The barrel vault substructure was well-preserved, constructed from dressed kurkar, and measured internally approximately 3 by 3.5 meters.⁵⁰

The other building excavated at Turris Salinarum, located in Area A2, consisted of a massive, well-constructed square tower (Fig. 11). Only the northwest corner of the tower was excavated, revealing a square projection, the walls, and the floor of an adjoining room. The projecting section measures approximately 3.1 by 2.8 meters. Notably, on the northern side, the remaining upper course of kurkar

⁴⁶ Bahā' al-Dīn Yūsuf ibn Rāfi' Ibn Shaddād, *The Rare and Excellent History of Saladin or Al-Nawādir al-Sultāniyya Wa'l-Maḥāsin al-Yūsufiyya*, ed. Donald S. Richards, Crusade Texts in Translation 7 (Aldershot: Ashgate, 2001), 265.

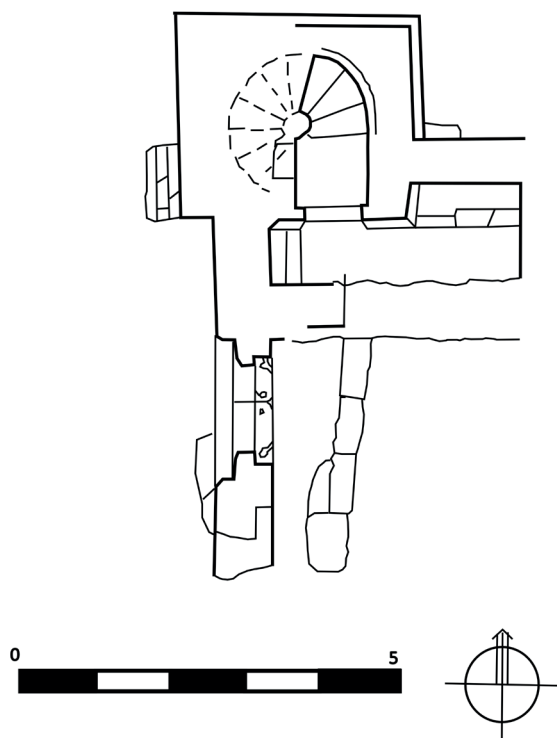
⁴⁷ Ibn Shaddād, *The Rare*, ed. Richards, 267.

⁴⁸ Ricardus, *Chronicle of the Third Crusade*, Nicholson and Stubbs, 242.

⁴⁹ Muḥyī al-Dīn Ibn 'Abd al-Zāhir, *Al-Rawd al-Zahir* (s.n.: 1976), 234.

⁵⁰ Robert R. Stieglitz, *Tel Tanninim: Excavations at Krokodeilon Polis, 1996–1999*, American Schools of Oriental Research Archeological Reports 10 (Boston: American Schools of Oriental Research, 2006), 39–43.

ashlars was chamfered at a 45-degree angle. Within the corner projection, a well-preserved spiral staircase was uncovered, with the three bottom steps remaining in situ. At the base of the staircase, a small hallway concluded at a raised threshold, leading into a larger room. This hallway was plastered, and the larger room likely featured a vaulted ceiling. The floor of the room consisted of a pitted plaster surface. On the western side of the room, there was a small installation comprising a row of stones, which formed a narrow niche that may have been utilized for storage or as a shaft. An entranceway was identified on the western wall of the tower, where the threshold and doorposts for bolting and locking mechanisms were still intact. The remainder of the tower remains unexcavated.⁵¹



Plan of the crusader tower in Area A2, Tel Tannanim
(Created by Sara Lantos after Stieglitz et al. 2006, Fig. 40)

Fig. 11: Crusader tower at Tel Tannanim, Area A2 (after Stieglitz et al. 2006, Fig. 40, © Sara Lantos).

⁵¹ Ibid., 49–52.

The excavation also revealed a destruction layer of the castle. In area A2 a black ash/burned layer was excavated. This destruction layer included Crusader and some Mamluk sherds, collapsed building elements, fish bones, and more.⁵² During the first author's research, the metal finds from the excavations currently hosted at the IAA storage facilities were examined. The metal assemblage included a large amount of iron nails from the loci of the destruction layer (Fig. 12). These nails were very similar in size (from 2 to 12 cm) and type (round head with square shafts) to the ones excavated in the destruction layer of the tower of Merle.⁵³ Some of the nails were bent at a 90-degree angle, like at Dor, which was used to attach metal plating to doors, or in other carpentry works, like wooden beams.



Fig. 12: Nails from Tel Tanninim (© Sara Lantos).

The pottery assemblage associated with the Crusader structures comprised 44.5% table wares, 33.5% cooking wares, and 22% containers. Within the category of glazed table wares, the assemblage included Beirut glazed bowls, Byzantine ware,

⁵² Ibid., 53–4.

⁵³ Lantos, Yasur-Landau, Gambash, and Khamisy, "The Frankish," 228, Fig. 12.

and Proto-Maiolica, all dated to the twelfth and thirteenth centuries, along with a few fragments of Chinese porcelain. Additionally, plain vessels of Sassanian/Iranian origin were identified at the site. The cooking wares predominantly consisted of Beirut-type cooking pots and frying pans, reflecting the culinary practices of the period.⁵⁴ Part of the assemblage (not all the sherds) was found by the first author at the University of Haifa. Upon reexamination of these sherds, a few further details were noted, in addition to the text of the final report. Some of the Beirut cooking vessels⁵⁵ belonged to the twelfth-century types.⁵⁶ One sherd of yellow-glazed Beirut Glazed ware was also recognized.⁵⁷ Further, the amphora⁵⁸ was identified as 'Turkey and Greece plain ware', dated to the thirteenth century in Israel.⁵⁹ Without the exact number of Crusader sherds in the whole assemblage it is hard to provide accurate statistical analysis or draw further conclusions. The assemblage has been reliably dated to the twelfth–thirteenth centuries and predominantly comprises tableware and cooking wares, which aligns with the expected material culture for a site of this nature. Notably, the majority of the assemblage appears to date to the twelfth century. Furthermore, the assemblage exhibits a relatively low proportion of imported vessels, unlike the assemblages from Dor.

DISCUSSION

The castles of Merle, al-Mazra'a, and Turris Salinarum have a strikingly similar history. At the beginning of the twelfth century, the lands on which the forts were located in the Lordship of Caesarea and belonged to the Lords of Caesarea. The first feudal tenants of the castles in the twelfth century held the places from the lords of Caesarea: the Merle family at Dor, the Geraise family at Tel Tanninim, and Walter and Roger of Châtillon at Mazra'a. It seems likely that the first phase of the castles, or towers, was built during this time. In the second half of the twelfth century, the latest by 1187, the ownership of the sites shifted to the Military Orders, who then rebuilt/renovated and added to the existing towers and fortifications. This pattern can be seen in the southern part of the Lordship of Caesarea, where

⁵⁴ Stieglitz, *Tel Tanninim*, 149–154.

⁵⁵ Ibid., Fig. 125/1, 5; and another three unpublished sherds.

⁵⁶ Ibid., Pl. 4.14, 3; 4.15, 8.

⁵⁷ Stern, *Akko*, Pl. 4.19, 11, 23.

⁵⁸ Stieglitz, *Tel Tanninim*, Fig. 123, 8.

⁵⁹ Stern, *Akko*, Pl. 4.51, 5.

Burj al-Ahmar (Turris Rubea), Madd al-Dayr (Mondidier), and Qalansuwa had similar histories.⁶⁰ All three places were destroyed by Baybars in 1265, but it seems likely that Merle and Mazra'a continued to be held by the Franks until 1291 but without rebuilding.⁶¹

The architectural and landscape features of the fortifications exhibit notable similarities. All were strategically positioned along the *Via Maris*, a key maritime route that followed the Mediterranean coastline. Merle and Turris Salinarum were constructed on coastal mounds, providing a commanding view of the sea and capitalizing on the natural topography for defensive purposes. In contrast, Mazra'a was built further inland, situated on the kurkar ridge, a geological formation running parallel to the coast, several kilometers away – as part of a second line of fortifications.

Based on the dimensions of the mounds and the estimated size of the excavated towers, it is inferred that these fortifications were of comparable scale, likely mid-sized, and larger than single-tower structures. Their functions appear to have been similar, likely supporting small garrisons and serving as secure, defensible locations. It is not by chance that Tanninim is mentioned as a Frankish base during Saladin's campaigns and later mentioned as a strong site by Ibn 'Abd al-Zāhir, Baybar's biographer, something that he did not bother to do with weaker places.⁶² Merle was used as the refuge of Templar Knights in 1265.⁶³ These castles may have functioned as road stations along the maritime route, offering shelter and protection to pilgrims, traders, and travelers. They most likely fulfilled some domestic, administrative, and industrial functions as well. Given their proximity to the sea, it is plausible that they engaged in maritime-related activities such as trade, fishing, and salt production. Turris Salinarum, as its name suggests, had an established salt-production industry, and archaeological evidence indicates that sugar was produced at Mazra'a. Although no direct evidence of industrial activity has been found at Merle, it is reasonable to assume that similar enterprises may have been present, contributing to the local economy and the site's strategic significance. It is

⁶⁰ Denys Pringle, *The Red Tower (al-Burj al Ahmar): Settlement in the Plain of Sharon at the Time of the Crusaders and Mamluks, A.D. 1099–1516*, Monograph Series (British School of Archaeology in Jerusalem) Lat (London: British School of Archaeology in Jerusalem, 1986), 124–127.

⁶¹ Khamisy, "The Unratified Treaty," *passim*; Lantos, Yasur-Landau, Gambash, and Khamisy, "The Frankish," *passim*.

⁶² Rabei G. Khamisy, "The History and Architectural Design of Castellum Regis and Some Other Finds in the Village of Mi'ilya," *Crusades* 12, no. 1 (2013): 18.

⁶³ Lantos, Yasur-Landau, Gambash, and Khamisy, "The Frankish," 222.

known that there were several salt production facilities in the territory of Atlit, also near Dor.⁶⁴

In addition to their general characteristics and historical-functional similarities, the towers' architectural features exhibit striking uniformity (Fig. 13). The construction of these towers utilized large ashlar blocks, expertly cut from local kurkar stone. A notable architectural element shared by Merle and Turrus Salinarum is the use of spiral staircases, which were integrated into the projecting sections of the towers. These staircases, approximately 1 meter in diameter, were constructed similarly. At the base of each staircase, a small hallway led to a raised threshold that, in turn, opened into a larger room. The walls of both the hallways and staircases were plastered, indicating a degree of sophistication in their construction. Both towers also featured an additional entrance situated in the same position relative to the staircases, further underscoring the architectural coherence between the two sites. Excavations at Tel Tanninim revealed another substantial structure, suggesting that the castle likely included additional buildings or rooms, like those found at Merle.

The occurrence of spiral staircases within the architectural corpus of the Latin Kingdom of Jerusalem is exceptionally rare, particularly in the context of their integration within towers.⁶⁵ These features are predominantly associated with thirteenth-century constructions. The limited known examples of this architectural feature from the Kingdom of Jerusalem originate from Monfort,⁶⁶ the Church of the Sea Castle in Sidon,⁶⁷ the monastery of St. Mary of Carmel (located near the coast in the Carmel region),⁶⁸ two instances from the Cathedral of Tyre,⁶⁹ and an isolated example from the twelfth century has also been identified in the castle of Yalu,⁷⁰ and a small number of additional churches in the Latin East. Importantly,

⁶⁴ Ehud Galili and Sarah Arenson, *The Ancient and Modern Salt Industry on the Mediterranean Coast of Israel* (Haifa: Salt of the Earth Company, 2017), 24–60.

⁶⁵ Pringle, "Templar Castles on the Road to the Jordan," *passim*; Pringle, "Templar Castles between Jaffa and Jerusalem," *passim*; Pringle, *Secular Buildings*, *passim*.

⁶⁶ Daniel Burger and Timm Radt, *Monfort und der frühe Burgenbau des Deutschen Ordens*, ed. Thomas Biller (Petersberg: Michael Imhof Verlag, 2015), 124, Fig. 57. The spiral stairs are presented by Biller at the correct location, but not accurately. They will be published by the excavator soon (Khamisy, personal correspondence).

⁶⁷ Denys Pringle, *The Churches of the Crusader Kingdom of Jerusalem: A Corpus*, vol. 2 (Cambridge: Cambridge University Press, 1993), 326, plan 89.

⁶⁸ *Ibid.*, 253, plan 68.

⁶⁹ Pringle, *The Churches*, 4: 192, plan 13.

⁷⁰ Pringle, *Secular Buildings*, no. 231, CIX

none of these instances involves standalone towers; the majority are associated with ecclesiastical structures and large castles.



Top: Spiral staircase in the tower at Merle, Tel Dor

Middle: Spiral staircase in the tower at Turris Salinarum, Tel Tannim

Bottom left: Chamfering at Merle, Bottom right: Chamfering at Turris Salinarum

Created by Sara Lantos

Fig. 13: Comparison of the features from Tel Tannim and Tel Dor (© Sara Lantos).

Recently, two additional examples have been documented in towers along the Carmel Coast, presented in the comparative analysis discussed herein. These discoveries were made during relatively small-scale excavations of Crusader-era tower remains. The proximity of these two unique features, located within a few kilometers of each other in the towers of modest castles, raises intriguing questions about their distribution and significance. This suggests the existence of a unique architectural phenomenon localized within this specific micro-region.

We propose a few possibilities here: 1) the structures under discussion represent components of the churches of the fortifications, 2) modifications introduced by the Military Orders during the thirteenth century – if dated to the twelfth century, they constitute unique architectural adaptations specific to the Carmel coast, reflecting their remarkable singularity.

Unfortunately, no detailed architectural features have been uncovered at Mazra'a, as the Crusader-era remains there have not yet undergone a comprehensive archaeological investigation.

Merle was built on the coast, in an area which is known for its salt production. Salt pans and other rock-cut features are also known from the area of Dor, so it is highly possible that salt production was active here in the Crusader period as well. Although the Crusader anchorage at Dor is unknown, it is suspected, based on waterlogged finds, to have been located in the Tantura lagoon and to have served as an active hub during this period.⁷¹ *Turris Salinarum* was also built on the coast, near the estuary of the Crocodile River. As its name and the charters quoted above suggest, salt production was also taking place here. It may also have had an active anchorage, although its exact location is unknown. Mazra'a was built on the kurkar ridge, a few km inland. It was located near a stream, which meant access to running water. It is also located in the middle of possible agricultural fields. This may have contributed to the existence of sugar production at this site. It can be suggested that each site was adapted to the natural resources around it and took the ecological and economic niches most fitting to it, and altogether contributed to the development of Caesarea's lordship, and later to the smaller areas they belonged to, under the Templars and Hospitallers.

⁷¹ Lantos, Yasur-Landau, Gambash, and Khamisy, "The Frankish," *passim*; Sean A. Kingsley and Kurt Raveh, *The Ancient Harbour and Anchorage at Dor, Israel: Results of the Underwater Surveys 1976–1991. Dor Maritime Archaeology Project*, British Archaeological Reports International Series 626 (Oxford: Tempus Reparatum, 1996); Sára Lantos, Yoav Bornstein, Rabei Khamisy, and Tzilla Eshel, "Crusader Military Activities on the Carmel Coast: the typology, imaging, and metallography of three swords," *Palestine Exploration Quarterly* (2025): 1–25.

CONCLUSION

The fortifications examined here are three castles that exemplify the roles of mid-sized twelfth-century castles controlled by the Military Orders. Their similarities in scale, function, and architectural features (of two of the three) suggest a unique, common pattern in castle design and operation during this period on the Carmel coast, especially because of their difference from other known towers. Their locations and roles within the landscape highlight the uniformity in how these military structures served their purpose, regardless of who controlled them.

A pattern emerges when examining the Frankish settlements in the Carmel Coast micro-region (Fig. 1). It is possible to differentiate between three areas in this micro-region: the coast, the kurkar ridge running parallel to the coast (a few kilometers inland), and the foothills and western slope of the Carmel Mountain. The coastal strip was not only strategically significant but also agriculturally fertile and rich in resources due to its proximity to the sea, and streams running down from the Carmel Mountain to the coast.

Castles were built predominantly on the coast. On the kurkar ridge, fortifications, towers, and fortified rural settlements can be found. These sites create two lines of fortifications, controlling the maritime road along the coast, and sometimes crossing the narrow passages of the kurkar ridge. These intersections were possible places for ambushes and robberies, the reason why the need for protected places emerged, like in the case of Destroit, a Templar tower on the kurkar ridge at Atlit, predating Chateau Pelerin.⁷²

Castles in the region are examples of the multifunctionality of the fortresses within the Kingdom of Jerusalem. Their roles were diverse, serving defensive functions, as well as central hubs. It can be assumed that they adapted to the nature around them and conducted economic activities according to it. They also served as nuclei for surrounding settlements, as focal points for industrial activities, and as road stations. Furthermore, these fortifications fulfilled defensive functions, safeguarding the transportation and communication networks integral to the region's political and economic stability.

On the other hand, the slopes of the Carmel were primarily occupied by rural settlements. These possibly served as a hinterland for the castles and coastal towns (Caesarea and Haifa). This strengthens the role of the castles in contributing to

⁷² William of Tyre, *Chronique*, ed. Huygens, Mayer, and Rösch, 10.15 (26), 485; Ricardus, *Chronicle of the Third Crusade*, Nicholson and Stubbs, 240.

the placement of rural settlements in their regions. This pattern is not unique to the Carmel coast micro-region but can be seen in other areas of the Kingdom of Jerusalem as well (like the area of Ascalon and Jaffa),⁷³ which ties our region into the broader network of the Crusader Kingdom of Jerusalem.

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