The Independently Fortified Tower:  
An International Type in Ottoman Military Architecture, 1452-1462  
Volume I  

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A Dissertation Presented to the Faculty of Princeton University in  
Candidacy for the Degree of Doctor of Philosophy  

Recommended for Acceptance by the Department of Art and Archaeology  
[Adviser: Thomas Leisten]  

January, 2012
Mehmed the Conqueror (r. 1451-1481) built four fortresses \textit{ex nihilo} in the years leading up to and immediately following the conquest of Constantinople. Two were located in the immediate vicinity of his new capital: RumeliHisarı (1452), placed opposite an existing Ottoman fortification on the Asian shore and intended to control the narrowest point in the Bosphorus just north of the city, and Yedikule (1457-1458), built against the interior side of the Byzantine land walls of the city itself immediately following the Conquest. The other two fortresses guarded the entrance to the Dardanelles, thereby controlling the southern access to the Sea of Marmara: Kilid-ül Bahr, on the European shore, and Kale-i Sultaniyye (also known as Çanakkale) on the Asian bank opposite (both 1461-1462). Although Mehmed II undertook other fortification projects during his reign, none compares in magnitude to these four. Taken as a whole, the group constitutes the pinnacle of early Ottoman military architecture.

The four fortresses are extremely challenging buildings in terms of interpretation. Although all were completed within a decade of one another, architecturally speaking the group is extremely diverse. Besides owing very little to each other, the four buildings also seem to draw very little upon existing local traditions. Markedly dissimilar to their predecessors in Western Anatolia and the Balkans, these four buildings are nevertheless in and of themselves puzzlingly accomplished, seeming to have emerged fully-formed from the mind of their architect(s) without, in each case, any sort of identifiable developmental trajectory.
However, this mid fifteenth-century flowering of Ottoman military architecture cannot have been entirely *sui generis*. Military architecture, shaped usually by soldier/engineers with direct experience of siege warfare, is by nature both adaptive and imitative; it is responsive to new threats and likewise heedful of successful precedents. The catalytic influences and heritage – both stylistic and technological – behind these mysteriously “new” monuments have nonetheless never been adequately identified in the limited scholarship on these buildings, and it is precisely this thread of investigation that this dissertation takes up.
To my mother and father, Suchada Tantongtavy and Henry Cobb Holmes, for their constant support in this and in all of life’s challenges

_Nomen Domini Turris Fortissima_

- Seventeenth-century inscription from a tower of the walls of Sighisoara, Romania
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Introduction

We have forgotten most of what we once knew about the art of fortification. Situated awkwardly between the study of military science, architectural history, and archaeology, our current scholarly interest in the subject of military architecture remains negligible, all the more so considering the former significance of the art of fortification as a practical discipline and the vast expenditures in manpower and money devoted to it until the very recent past. In their time, fortifications were arguably the most important buildings in each society in which they were built.

Our ignorance is highly regrettable. By its very nature, the study of military architecture provides an unusually privileged window into numerous aspects of the past. Far beyond being mute relics of past conflict, fortifications are a physical record of political history, of social and political organization, of technological innovation, of the history of empire and the geography of commerce and international trade. They are often architectural achievements of the highest merit. They are products of war, that “unfriendly interface”, the violent and unending cultural tradeshow through which ideas of every sort changed hands beyond the parameters set by political inclination or religious confession.1 Built to ensure the basic necessity of survival, they are essentially utilitarian, and thus in a sense very “honest”: more than any other type of building, fortifications frequently reflect the combined genius of neighbouring and mutually hostile states, in this sense often more truly reflecting the level of contact and exchange between

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inimical political entities than can be ascertained from other, more consciously partisan historical sources.

Although the subject of this dissertation is ostensibly Ottoman fortification of the fifteenth century, and specifically a group of four fortresses built by Mehmed II, called the Conqueror (r. 1451-1481), its scope must consequently be far wider. No longer can we limit ourselves to the artificial confines customary in the days of admittedly pioneering works like Creswell’s *Fortification in Islam*[^2], or Lawrence’s *Castles of the Crusaders*[^3]. For the very reasons stated above – the universality of conflict and its lack of cultural prejudice – any rigorous study of a particular military architecture must take stock of the entirety of the cultural environment beyond its immediate borders, often with particular reference to hostile neighbours with whom technological exchange, though unfriendly, may have been at its most vibrant. It is thus that we must address fifteenth-century Ottoman fortifications for what they are: products of the late-medieval European and Mediterranean cultural milieu as a whole.

It is an extraordinarily rich context. The fifteenth century might loosely be termed the last century of the Middle Ages, a time of profound changes in every category of human endeavour, changes with far-reaching implications for our study. One hundred years of war were concluded between England and France, the English decisively defeated in 1453 at Castillon with the help of rudimentary cannon. Profits made from loans to both sides during the conflict fuelled the political ambitions and cultural flowering of the Italian city-states, the twin factors that would make the Venetian

Republic one of the most significant presences in the Mediterranean for the next three hundred years. The establishment of the Ottoman Empire itself as the dominant force in the Balkans and the Near and Middle East – already a reality for more than a century - was symbolically achieved through the capture of Constantinople and the final destruction of the Byzantine Empire.

Ottoman fortifications of the period thus stand upon a cusp. It is one of the primary reasons that they remain so poorly understood. The fifteenth century saw Ottoman material culture – already profoundly synthetic, shaped by influences ranging from the Byzantine to the Persian to the classically Islamic – facing further exposure to that of the European West, through violent confrontations on the Danube, in Wallachia, and increasingly in the waters of the Eastern Mediterranean, but also through the presence of Western technicians and artists in the Ottoman capital and in Ottoman service. We must understand this variegated cultural background as an essential factor in the shaping of early Ottoman military architecture.

Militarily speaking, fifteenth-century Ottoman fortifications came into being at a time in which warfare was fundamentally changing, with the development of a large, professionalized Ottoman army – a process to some extent being replicated in the Western world - and the growing likelihood of a long-term naval confrontation with the merchant states of the Italian Peninsula and the Knights of St. John. Ottoman architects could not have been insensitive to the solutions pursued by their Western counterparts facing the selfsame issues: the Mediterranean and its cosmopolitan port cities, whether in peace or in war, remained a vast and constant network of technological interchange. Nor could Ottoman architects have ignored the rich and synthetic heritage of military
architecture – Roman, Byzantine, Saljuq, and Crusader – brought within the Ottoman domain as their state expanded in all directions. Finally, and significantly, fifteenth-century Ottoman fortifications were conceived at a time in which cannon were gradually becoming a crucial factor in siege warfare all over the Mediterranean, a fact amply demonstrated by Mehmed the Conqueror himself in his conquest of Constantinople in 1453.

Unfortunately, scholarship has yet to adequately explore these myriad dynamics and their consequences. The dialogue between Ottoman architecture and other traditions both precedent and contemporary with it remains largely obscure. The continuation of Byzantine modes of construction, particularly in the persistence of the dome as the preferred method of vaulting and the Ottoman adoption of mixed brick-and-stone masonry (often laid in alternating courses or “cloissoné” in the Byzantine manner) has sparked some recent scholarly debate, but discussion continues to be hampered by the considerable gulf between Byzantine and Ottoman architectural historians. The appearance of “westernizing” features in Ottoman architecture such as the corbel table frieze on the Hüdavendigâr mosque in Bursa of 1366-1385 has similarly inspired scholarly suggestions of early Ottoman relationships with the Italian Renaissance, but this possibility has yet to be borne out through further research (fig. 1).4 Such relationships as they pertain to military architecture remain vaguer still.

The same applies to the much-vaunted repercussions of the gunpowder revolution during the fifteenth century. Although irrefutably responsible for ultimately bringing to a close the medieval way of war, the processes and precise chronology of the diffusion of

what was still a largely experimental technology remain uncertain. Likewise ambiguous is its contemporary effect upon contemporary military architecture. Christopher Duffy has termed buildings altered to meet the new needs of the gunpowder age “reinforced castles”\(^5\), but the classification hardly captures the enormous variety of solutions adopted all over the fifteenth century Mediterranean world more or less in response to the new technology. Until the widespread proliferation of the Italian pointed-bastion system toward the middle of the sixteenth century, there is very little absolute to be said about the response of fortification to gunpowder. Furthermore, there is the related question of the conversion or construction of fortresses with the intent of *resisting* firepower versus those built with the purpose of *employing* firearms in their resistance to siege, two very different aims pursued, again, very differently across the Mediterranean spectrum.

This dissertation aims to be the first comprehensive treatment of fifteenth-century Ottoman fortifications in the light of these important issues. It is not an architectural monograph; that task has been successfully undertaken by others. It is rather an investigation of Ottoman military architecture going beyond the bounds of traditional Ottoman or Islamic architectural history. We have observed that the art of fortification knows no bounds imposed by culture and confession, and is shaped as much by historical precedent as by existing exigencies. This study consequently attempts a transregional, transcultural, and diachronic approach to Ottoman military architecture with the intent of achieving a more comprehensive understanding of the history of fortification in the Mediterranean as a whole.

Prelude:

Architecture and Warfare in the Fifteenth Century
Chapter One

Ottoman Fortifications, Gunpowder, and the Renaissance

The Scope of the Problem

Mehmed the Conqueror (r. 1451-1481) built four fortresses *ex nihilo* in the years leading up to and immediately following the conquest of Constantinople. Two were located in the immediate vicinity of his new capital: Rumeli Hisarı (1452), placed opposite an existing Ottoman fortification on the Asian shore and intended to control the narrowest point in the Bosphorus just north of the city, and Yedikule (1457-1458), built against the interior side of the Byzantine land walls of the city itself immediately following the conquest. The other two fortresses guarded the entrance to the Dardanelles, thereby controlling the southern access to the Sea of Marmara: Kilid-ül Bahr, on the European shore, and Kale-i Sultaniyye (also known as Çanakkale) on the Asian bank opposite (both 1461-1462). Although he undertook other fortification projects during his reign, none compares in magnitude to these four. Taken as a whole, the group constitutes the pinnacle of early Ottoman military architecture.

The four fortresses are extremely challenging buildings in terms of interpretation. Although all were completed within a decade of one another, architecturally speaking the group is extremely diverse. Unlike the Edward III’s Welsh castles, or Frederick II Hohenstaufen’s coastal defenses of southern Italy and Sicily – each a set of buildings espousing more or less common stylistic themes – the Conqueror’s works manifest very little sense of homogeneity. The cascading plan of Rumeli Hisari, following the natural contours of the land from the high ground down to the water, stands in stark contrast to
the rigid, five-sided formality of Yedikule. Although the rigidity of Yedikule is apparent
again in the two centrally planned fortifications at the Dardanelles, they themselves are
entirely different in plan, it being almost difficult to imagine the same authority
responsible for the innovative trefoil design of Kilid-ül Bahr as for the apparently
conservative castrum plan of Kal’a-i Sultaniye. This eclecticism and individuality is
especially remarkable given the identical chronology of the latter two buildings.

Besides owing very little to each other, the four buildings also seem to draw very
little upon existing local traditions. The earlier history of Ottoman fortification will be
examined in greater detail below, but it should be observed here that in fortifying the
approaches to his new capital, Mehmed II seems to have broken definitively with the
Byzantine tradition – both in terms of style and scale - that exerted a considerable
influence upon his Ottoman forebears. These four buildings are markedly dissimilar to
their predecessors in Western Anatolia and the Balkans, and yet are each in and of
themselves puzzlingly accomplished, seeming to have emerged fully-formed from the
mind of their architect(s) without, in each case, any sort of identifiable developmental
trajectory.

The various exceptional characteristics of these buildings are somewhat
unsurprising, given the currents of the time. We have already noted the strong spirit of
experimentation and invention fuelled by technological advancements and increased
intercultural contact that characterized the fifteenth-century European and Mediterranean
worlds. Just as in the Italy of the turbulent early Renaissance and France of the
Burgundian Wars, the diversity of solutions employed in the Conqueror’s work is typical
of this contemporary pan-regional creative charge.
That said, this mid fifteenth-century flowering of Ottoman military architecture cannot have been entirely *sui generis*. Military architecture, shaped usually by soldier/engineers with direct experience of combat, is by nature both adaptive and imitative; it is responsive to new threats and likewise heedful of successful precedents. The catalytic influences and heritage – both stylistic and technological – behind these mysteriously “new” monuments have nonetheless never been adequately identified in the limited scholarship on these buildings, and it is precisely this thread of investigation that this dissertation proposes to take up.

**Existing Scholarship**

It is not an easy task. The study of Ottoman fortification is a neglected field within a neglected field, and one still suffering from an eighteenth and nineteenth-century European prejudice against the military architecture of an impoverished Ottoman Empire struggling to defend its shrinking frontiers. Oft-quoted statements like General von Valentini’s,

“With regard to the art of fortification among the Turks, little can be said in its praise. They have no idea of a regular system either of bastions or of lines, or outworks or covered ways, nor of conforming the height of the works to the nature of the ground in front. When we find anything of this kind in a Turkish fortress, we may be assured that it has been in the hands of some European power, by which it has been improved or originally constructed.”

made by the military men of a later era have had their effect upon scholars of medieval architecture like Andrews, who consistently identified good construction as Frankish and

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poor construction as Turkish in his seminal account of the fortifications of the Morea.\textsuperscript{7}

Even specialists like Duffy have roundly derided Ottoman work as having

\textit{“...high masonry ramparts in the medieval or Byzantine style, [and] their construction surrounded by age-old mumbo-jumbo: the architect himself had no authority of the works or the labourers until there arrived the Sultan’s bag of red satin, which contained an inner wrapping of gold-embroidered handkerchiefs and an ebony folding ruler with silver hinges. Even then the work could not being until the precise second of an hour appointed by an astrologer.”}\textsuperscript{8}

The consensus seems to have been, in Braudel’s words, that “the Turks built neither very many nor very effective fortifications”.\textsuperscript{9}

This is frankly inaccurate. The Ottomans built impressive military works – many overlooked and often misattributed - well beyond the Conqueror’s superlative fifteenth-century achievements. Characteristic of a geographical area continuously inhabited for millennia before their arrival, the Ottoman consistently added to existing Thracian, Hellenic, Roman, Byzantine, Saljuq, and Genoese works on their territory, just as their predecessors had done. In areas where frontiers became static, particularly on the Danube and in north-eastern and eastern Anatolia, Ottoman defenses became just as entrenched as those of the most frequently contested Western European borders.\textsuperscript{10} Even these examples

\begin{footnotesize}
\begin{enumerate}
\item Andrews, Kevin, \textit{Castles of the Morea}, Princeton, 1953
\item Duffy, p. 215
\item Braudel, Fernand, Reynolds, S., trans., \textit{The Mediterranean and the Mediterranean World in the Age of Philip II}, London, 1972, II: pp. 844-845
\end{enumerate}
\end{footnotesize}
notwithstanding, the Ottoman military pioneered wooden *palanka* and earthwork types of field fortification – famously well acquitted at the 1877 Russian siege of Plevna/Pleven - that presaged similar usages into the First World War.  

Braudel’s statement is also to some extent beside the point. Fortifications and fixed defense are ultimately but one component of a grander military strategy, and one that had little place in the hyper-expansionism of the Ottoman fifteenth and sixteenth centuries. It is an historical irony that it was left to the Venetians, defeated in the Aegean and in Crete and driven finally from the Greek mainland in 1718 by the Treaty of Passarowitz, to bequeath us a trail of distinguished military architecture stretching from Cyprus to the Adriatic; it is, after all, in the very nature of fortifications that they enable a lesser power to resist a greater one, if only for a time.  

Unfortunately, this perceived lack or inferiority of Ottoman fortifications has created a considerable lacuna even in exhaustive studies of Ottoman architecture. There has been a simple reluctance to come to grips with these important and problematic buildings. Albert Gabriel’s otherwise excellent monograph on the Ottoman defenses of Istanbul acknowledges the quality of the monuments but contents itself with a thorough physical examination of Yedikule and Rumeli Hisari, balking at contextualizing the buildings historically or stylistically. His exclusion of Kilid-ül Bahr and Kale-i Sultaniyye from his study – in many ways the more problematic of Mehmed’s buildings –

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12 A similar observation might be made about the castles of the Crusaders in the Holy Land.  
is a regrettable omission and prevents the otherwise classic work from truly furthering our understanding of fifteenth-century Ottoman military architecture as a whole.

Although Ayverdi’s treatment of all four fortresses is exhaustive and in some ways more authoritative than Gabriel’s (coming some thirty years after Gabriel did his research), it generally suffered from a basic lack of knowledge of architecture beyond the Ottoman; while his descriptions are minutely detailed, he generally has nothing to compare these four unusual buildings to, falling as they do outside of the strictly “Islamic” paradigm. Nevertheless, his two volumes on Fatih’s oeuvre remain a towering resource.

Goodwin, in the scant four pages of his magnum opus allotted to Mehmed’s military works, attempts some kind of interpretation of the four buildings but focuses again on Rumeli Hisari, briefly and breezily concluding it to be “no more an Ottoman building than the great Karaman-cum-Armenian fortress on the shore at Anamur; it belonged rather to the international style which had spread all over the Near East and Europe. Detached from its setting, it would be hard to find many details which were not universal.”

His statement manifests a considerable lack of understanding of the precise character of Rumeli Hisari and its associated buildings, ignoring the obvious and vital differences between Rumeli Hisari and its immediate successors in Mehmed’s oeuvre. Moreover, it displays a fundamental lack of awareness of the contemporary architectural environment. The “international” nature of Mehmed’s fortifications is unquestionable –

15 Goodwin, p. 104-105
the investigation of this very quality forms the core of the present study – but it is hardly in the way of being architecturally generic in the way that Goodwin suggests. Such a broad categorization, simply put, does not exist. In the fifteenth century alone it would be quite inaccurate to equate Antoine de Chabannes’ work at Saint Fargeau (1469-1480) (fig. 2) with Lorenzo de Medici’s Rocca Nuova in Volterra (1472) (fig. 3), or again with the Burj es-Sabaa (fig. 4), one of a series of elaborate square towers built by Mamluk Sultan Qayt-Bey in Lebanon in the same period, all of which should be considered major works of military architecture. Nor can Rumeli Hisar be accurately compared to the majority of the buildings Goodwin considers its forebears: in their defensive systems, intent, materials, scale, and proportions, Anamur (fig. 5), the two Cracs of the Crusaders (figs. 6, 7), and the Armenian castles at Pertek (fig. 8) and Bagras (fig. 9) are each of an entirely different character from that of the Conqueror’s fortress on the Bosphorus.16 As we have already observed, we are speaking of a century characterized by diverse and dynamic approaches to meeting the needs of a new age in warfare. The “internationalism” of Fatih’s works is rather one of eclecticism, of conscious choice and careful employment of source material from various Mediterranean and European traditions, combined and executed in a uniquely Ottoman manner.17

Attempts have been made more recently to thus “situate” Fatih’s fortresses within the wider history of Mediterranean architecture. The overwhelming scholarly tendency has been to relate their design directly to the emergence of gunpowder artillery and the corresponding advances made in fortification by the architects and engineers of the

16 Goodwin, p. 104
17 A notion seconded by Francis Guilmartin, who writes, “the Ottomans [ ] were adept at cultural borrowing, though they left their own unique stamp on each borrowed idea and institution in molding it to their own purposes.” Guilmartin, John Francis, *Gunpowder and Galleys: Changing Technology and Mediterranean Warfare at Sea in the Sixteenth Century*, Cambridge, 1971, p. 258
Italian Renaissance. The five-sided star plan of Yedikule has been repeatedly compared to that of Sforzinda, Filarete’s ideal city (fig. 10), and hailed as a forerunner of the “star” geometry that would characterize fixed fortification into the nineteenth century.  Much emphasis has likewise been placed upon the low outworks pierced with arched embrasures for cannon at Rumeli Hisarı and Kilid-ül Bahr (a similar feature existed at Kale-i Sultaniyye before the subsequent alteration of its seafront batteries). This feature has been used to demonstrate the “modern” and “offensive” qualities of these fortresses, and as evidence for an early Ottoman adoption of cannon for fixed defense as well as in siegeworks. Burcu Özgüven has described the fortress of Kilid-ül Bahr as “the crystallization of Renaissance military theories, from the point of[view of] its central plan, offensive character and extensive use of artillery”. She emphasizes its “modern attitude” and compares it to Deal (fig. 11), St. Mawes (fig. 12), and Walmer (fig. 13) castles, Henry VIII’s mid-sixteenth century coastal defenses built in part by the Bohemian architect Stevan von Haschenperg, possibly under the influence of Albrecht Dürer’s ideas concerning artillery fortification. Simon Pepper similarly highlights what he perceives as a general disposition towards gunpowder warfare in Fatih’s projects, but

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20 Pepper, in Tracy, ed., passim
21 Özgüven, in Ćurčić and Hadjitryphonos, eds., p. 170-171
rejects the possibility of a European connection, positing instead a native, but equally effective Ottoman contribution to the “Renaissance military architectural revolution”.  

**“Renaissance Military Architecture” and the Emergence of Gunpowder**

There are several difficult issues at hand here. First, a large measure of caution is necessary when attempting to relate the two quantities of “Renaissance military architecture” and the architectural response to the emergence of gunpowder. The two are associated, but not identical, entities. Nor are they exactly contemporary. Generally speaking, “Renaissance military architecture” remains an extremely problematic term even without attempting to apply it outside of the Italian Peninsula, and one made additionally troublesome by variant usages of “Renaissance” as an historical, rather than stylistic, designation. Although Sir John Hale has traced the roots of pointed-bastion artillery fortification to the Italian *quattrocento*\(^{23}\), it is nevertheless certain that the great bulk of Northern Italian military architecture of the fifteenth century was little different in character from that of the century before: brick, block-like *quadriburgia* with square towers at the corners. One has only to compare the Castello Estense in Ferrara of 1385 (fig. 14) to the practically identical Sforza castle at Galliate, near Novara, of 1476 (fig. 15), both built by acknowledged masters in their time (Bartolomeo da Novara and Ambrogio Ferrari/Danesio Mainerio, respectively) to appreciate that “Renaissance military architecture” had hardly kept pace with the leaps taken by the visual arts in the intervening century. Both are essentially medieval buildings, owing much more to the

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\(^{22}\) Pepper, in Tracy, ed., pp. 282-316  
Frederician castles at Trani (1233) (fig. 16) and Bari (1239) (fig. 17), both originally square-towered *quadriburgia*, than to the new geometric principles of Brunelleschi. Similarly, architects of the calibre of Bartolomeo Gadio, while creating religious buildings abreast with the new artistic modes of the Renaissance like the monastery and church of San Sigismondo, Cremona of the 1460’s (fig. 18), for example, were concurrently constructing fortifications of such decidedly medieval character as the Castello Sforzesco in Milan, of the 1450’s (fig. 19).

The above is obviously not intended as a criticism of said architects’ work; each of the buildings mentioned fulfilled, at the time, the purpose for which it was designed and built. It is to emphasize that fortification is a type of architecture quite apart from others, intended for a vastly different purpose and with a distinct developmental trajectory. Mesqui has put it succinctly: “…au risque de choquer les traditions historiques les plus fortement ancrées dans notre culture, l’architecture castrale ne fut jamais, au grand jamais, le parent pauvre de l’architecture religieuse.”24 Although gunpowder became a decisive factor in warfare at about the same time as the Italian Renaissance took place, the above examples demonstrate the caution necessary when dealing with the two very distinct quantities. Aspects of the so-called military revolution remain an area of extensive debate, but it is nevertheless certain that it was the exigencies created by the introduction of siege artillery, rather than the prevailing artistic and intellectual currents of the Renaissance that stimulated the rise of a new and distinct style in fortification.25


radical change in offensive weapons.”26 The scientific approach spawned by the cultural movement, however, was soon brought to bear on its development.

The Problematic Fifteenth Century: The “Transition Period”

This was a gradual process and one contingent upon the erratic proliferation of gunpowder technology over the course of the fifteenth century, the study of which is thus fraught with difficulties of dating and the proliferation of “dead-end” or ersatz solutions to the same problem of building walls capable of resisting gunfire. It is perhaps for this reason that military historians like Duffy shy away from the term “Renaissance” altogether with reference to fortifications, preferring to designate all examples of defensive works antecedent to the emergence of the pointed bastion system “late medieval” as a class (his “reinforced castles”).27 As characteristic of these he includes the various techniques of truncating the height of walls, reinforcing them with banks of earth behind (“rampiring”), and adding lines of defensive ditches. Along with the majority of scholars of Early Modern warfare, Duffy prefers to use Charles VIII’s march into Italy of 1494 as a starting point for the diffusion of “real” artillery fortification in the form of the trace italienne, the French king’s employment of new, mobile bronze cannon firing wrought-iron balls being the direct impetus behind the proliferation of the arrowhead bastions that would characterize fixed defense for the next four hundred years.

Although a convenient starting point, the Early Modernist tendency to focus on 1494 and the emergence of the pointed bastion glosses over the important process of mutation that took place across the fifteenth and early sixteenth-century Mediterranean

26 Hale, 1965, p. 471
27 Duffy, 1987, p. 2
through which such bastions developed out of the medieval tower. As Hale has demonstrated for Italian fortifications of what he usefully deems the “transition period” (1450-1530), there is no hard-and-fast system of classification for buildings of the time.\textsuperscript{28}

Measures taken against the use of massive early bombards like the Duke of Burgundy’s Mons Meg (fig. 20) often juxtaposed innovation with what could be termed “retrograde” or “old-fashioned” features.\textsuperscript{29} In simple terms, the experimentation with squat round towers with emphasized talus standing the same height as the adjacent curtains, both elements sunk behind a ditch and counterscarp, and their eventual reduction into simple semi-circular, open-gorged salients in the walls – round bastions, effectively – were vitally different from their high-medieval forebears, and direct predecessors of the rudimentary pointed structures built by Giuliano da Sangallo at Poggio Imperiale in 1487 and by the Genoese at the Sarzanello in 1497 (fig. 21).

It is unfortunate although typical of transition periods that this formative process tends to be overlooked by medievalists and Early Modernists alike; it could be argued that it was this progression, rather than the largely mid sixteenth-century (and later) phenomenon of the pointed bastion that constitutes “true” Renaissance fortification. It is in any case a vital chapter in the history of military architecture.\textsuperscript{30} Although by Duffy’s account perhaps nothing more than the dying throes of medieval architecture anticipating Sangallo’s great leap into the Early Modern, such (in his words) “late-medieval” solutions were nevertheless widely employed in the late fifteenth century and remained

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{28} Hale, 1965, p. 479
\item \textsuperscript{29} The meaning of such retardataire elements as having a symbolic function was addressed by Simon Pepper in Pepper, S., “The Meaning of the Renaissance Fortress”, in Architectural Association Quarterly 5, Chicago, 1973, pp. 22-27
\item \textsuperscript{30} The “long gestation” of the pointed bastion is an observation well made by Pepper in his discussion of the evolution of the defenses of Siena during the course of the sixteenth century. Pepper, S., Firearms and Fortifications: Military Architecture and Siege Warfare in Sixteenth-Century Siena, Chicago, 1986, p. 6
\end{itemize}
\end{footnotesize}
current well into the sixteenth, thus constituting a central component of the complex architectural history with which we deal.

**Contextualizing Ottoman Fortifications**

Any attempt to reconcile the Conqueror’s four fortresses with these transitional currents gives rise to a number of difficult questions. Should the marked contrasts between the buildings, especially given the very short span of their chronology, be seen as embodying the culmination of a recognizably “medieval” architecture and the beginning of an experimental phase? Put another way, is Rumeli Hisarı a “medieval” building and the three later fortresses palpably members of a later stylistic period (be that “Renaissance” or “Early Modern”)? Or does the group as a whole signal the advent of a new era in the history of fixed defense? Does this shift follow the contemporary European trajectory, or does it represent a uniquely Ottoman approach to the new way of war? And, either way, can Ottoman fortification in the age of Mehmed II be favourably compared to its European counterpart in terms of the speed and success of its adaptation to gunpowder technology?

We have noted how the extreme thickness of tower walls (in places 7 m. thick), the provision for cannon in the form of outworks featuring ground-level embrasures, and the innovative geometries of Yedikule and Kilid-ül Bahr have generally led modern scholars to classify Mehmed’s four fortresses as exponents of the new fortification of the gunpowder age.\(^{31}\) Certainly the significance of these features cannot be denied. As stated, Mehmed’s fortresses represent a clean break with inherited Byzantine and Ottoman

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\(^{31}\) Özgüven, Pepper, et al.
precedent and clearly exhibit features specifically designed for the use of gunpowder artillery.

This dissertation proposes, however, that these admittedly innovative features have been emphasized at the expense of a comprehensive assessment of the totality of the architecture of each individual building, among which there exists, as in Hale’s transitional Italian buildings, considerable and important deviation. In using provisions for artillery and/or “Renaissance” geometry to tie all four of Fatih’s fortresses together into a single, “Early Modern” or “Renaissance” school, various distinctive and telling aspects of each building have been largely ignored. These include features which might be disregarded as “retrograde” or “medievalizing” by modern eyes but nonetheless constituted integral, functional aspects of each structure at the time in which they were built.\footnote{A point made by Hale in his critique of Pepper’s “The Meaning of the Renaissance Fortress”, which proposed a symbolic intent in the retention of “old-fashioned” features such as machicolation during the Transition Period. Hale cherishes a more utilitarian approach to the interpretation of such elements, citing traditionalism, nostalgia, and the “desire to retain opportunities for complexity or display”, compounded with more basic “sloth, stinginess, and a lack of urgency [to modernize]”. Hale, J.R., \textit{Renaissance Fortification: Art or Engineering?}, London, 1977, p. 45. I would also add a continuing effectiveness of such features in a period in which the traditional arts of cold-steel warfare still very much applied.}

By the same token, I believe that such “modern” features, and their corresponding role in the totality of a defensive system, have been widely misread. In the case of both Rumeli Hisari and Kilid-ül Bahr the provisions made for the placement of firearms constitute an external, perhaps even subsequent consideration in their design.\footnote{In the case of Rumeli Hisari, differences in masonry strongly suggest that the forecourt equipped with embrasures is a later addition.} Both Rumeli Hisari and Kilid-ül Bahr are essentially fortresses featuring auxiliary shoreline batteries, which, placed at ground level and comprising open-arched embrasures could hardly be considered independently fortified or capable of resisting a concerted ground
attack. I would argue that there is little evidence for the use of firearms having constituted an integral part of either the defensive thinking behind the core design elements of each building. This is evident from

a) the absence of embrasures for firearms in the main defensive structures,

b) the narrowness of wall-walks and steepness of stairways leading to them being unlikely to have been intended to carry cannon,

c) the considerable overall height of all structures, being redundant in the face of bombardment by either flat-trajectory cannon or high-trajectory mortars, and

d) the thinness of their wall masonry relative to the “true” artillery fortification of a subsequent period.

This selective appraisal of architectural features in the service of the scholarly intention of “forcing” these four buildings into a Renaissance paradigm has prevented the individual assessment of each, obscuring what I believe is an identifiable developmental trajectory within the group itself. It will be demonstrated that firearms technology, rather than being *ab initio* an integral consideration in all four fortresses, was in fact gradually introduced into their architecture, a decade-long progression reflecting, in microform, the process taking place in the rest of Europe and the Mediterranean during that century and the next. To use our admittedly unsatisfactory categories, I believe the “architectural period” elapsed between Rumeli Hisarı and Kale-i Sultaniyye to represent the transition from “Medieval” to “Renaissance” or, more preferably, “Early Modern”, in the sense of
gunpowder becoming the exigent issue in both offensive and defensive aspects of fortress design.34

1452-1458: The Medieval Heritage

I propose therefore that despite the external allowances made for the use of cannon, the first two of Mehmed’s fortifications – Rumeli Hisarı and Yedikule – are, in their essence, incontrovertibly grounded in an established late-medieval koiné of military architecture. In addition to the general “medievalizing” characteristics enumerated above, this is most notably evidenced in the employment of the single, independently fortified tower-unit exteriorized to the curtain wall as anchors of the defensive system. In Rumeli Hisarı and Yedikule these are almost identically cylindrical or polygonal, massively built, and multiply employed in the primary defensive perimeter, linked together by practically featureless lengths of curtain wall.

This dissertation will demonstrate that defensive systems featuring independently fortified cylindrical towers, exteriorized to the primary line of defense and acting as tactical foci within the enceinte constitute an identifiably late-medieval phenomenon with its roots in the military architecture of the early thirteenth-century Crusades. The type was introduced to France after the return of King Philip II Augustus (1180-1223) from his participation in the Third Crusade (1190-1191), where it was extensively employed in both castles and urban fortification projects, becoming one of the most influential schools

34 A crucial point missed by Özgüven in her statement about the “offensive character” of Kilid-ül Bahr indicating its embodiment of “Renaissance military theories”. The placement of guns below the walls of a fortress for offensive use against ships, while innovative, did not permanently and irrevocably change the face of fortification in the way that incorporation of guns into a fortress for both defensive and offensive purposes did. Özgüven, in in Ćurčić and Hadjitryphonos, eds., p. 170
of high-medieval fortification in Western Europe.\textsuperscript{35} This dissertation argues that this so-called Philippian system was subsequently re-exported to the Near East during the fourteenth and fifteenth centuries through the agency of the Italian merchant-cities, specifically Genoa. Plainly expressed in the mid-fourteenth-century Genoese fortifications of Pera/Galata in the dominant position of the cylindrical Galata Tower, as well as other cities of the Genoese Black Sea colonies, I believe the type to have fundamentally informed the designs of both Rumeli Hisarı and Yedikule, and by extension, the high central tower at Kilid-ül Bahr, albeit in a new, uniquely Ottoman interpretation. Thus represented geographically full-circle throughout the late-medieval Mediterranean, I would argue that the system constitutes a demonstrably “International Style” quite distinct from Goodwin’s vague formulation.

1461-1462: A New Chapter in Ottoman Fortification?

The unusual trefoil pattern of Kilid-ül Bahr and the withdrawal of its tower into the center of the enceinte represent a break with this inherited tradition. Its uniqueness signals a new direction in Ottoman military architecture and one upon which scholars have posited the influence of Renaissance geometry. The curved corners were arguably intended to deflect cannon shot, lending credence to this idea. That said, the “medieval” quality of the earlier two fortresses persists in the continuing employment of the independently fortified tower unit, its pronounced height (almost 30 m.) more typical of the era of cold-steel warfare than that of the new gunpowder age. As at Rumeli Hisarı and Yedikule, there is similarly no provision for the interior mounting of artillery.

\textsuperscript{35} See Mesqui, “Philippe Auguste”, in Mesqui, p. 290-291
Furthermore, the tower’s trilobate chemise bespeaks a close and continuing relationship with the similarly defended Galata Tower, as well as other Genoese fortifications of the Black Sea area, albeit interpreted in a uniquely Ottoman manner. The repositioning of the tower at the center of the enceinte rather than in the perimeter – a tendency repeated in Kale-i Sultaniyye in rectangular plan – is a striking divergence with the pattern of Fatih’s earlier fortress and could be seen as a reversion to the early medieval Western European type of the centrally-located Norman keep. This possibility cannot be ignored: the centrally positioned square tower, likely a Western import of the late Byzantine period, had seen Ottoman interpretations in the fourteenth century. However, I believe this repositioning to be less a retrogression than to do with the changing role of the independently-fortified tower, from defensive bulwark and fighting platform to barracks, armoury, and powder magazine.36

Moreover, the persistence of similarly located, specifically polygonal towers in Ottoman fortifications of the sixteenth century – by then certainly not intended to perform a primarily military role – suggests that the highly visible dodecagonal towers built by Fatih at Rumeli Hisarı, Yedikule, and Kale-i Sultaniyye had attained a symbolic status evoking the Imperial Ottoman presence and thus continued to enjoy a privileged status in the architectural repertoires of Mehmed’s successors on the Ottoman throne.

An Ambiguous Legacy

Kale-i Sultaniyye remains a problematic building, the more so for having been off-limits and unphotographable in a military compound for much of the last half-

36 This last role in particular would completely preclude such towers from being located in the primary line of defense.
century. It is discussed in detail below for the first time since 1953. Of the four fortresses built by Mehmed II, it displays the most convincing evidence of having been designed explicitly with artillery in mind, both offensively and defensively speaking. The tops of the curtain towers are of an equal height to the wall itself, the wall-walk is continuous and is of adequate width and sufficiently low parapet-height to accommodate guns along its length. The whole is low and thick in the manner of true artillery fortification. The central tower is a squat oblong rectangle just barely exceeding the height of the surrounding curtain, and, with only three internal storeys, has much more the character of a barracks or armoury than that of an independent element of fortification. Set lengthwise parallel to the sea, its flat, wide roof is nevertheless of an ideal disposition to accommodate an elevated battery firing over the outer walls.

It is tempting to describe Kale-i Sultaniyye as the Conqueror’s successful last experiment in the series, a final break with the Middle Ages and the prototype for the first generation of “true” Ottoman artillery fortification. Such a sweeping conclusion is unfortunately problematic, for the subsequent development of Ottoman fortification seems to have owed very little to this unusual monument. In an overview of a number of late fifteenth- and early sixteenth-century monuments that forms the epilogue of this study, it is demonstrated that the ultimate “failing” of Ottoman military architecture, certainly from a Western European perspective, was the inability or disinclination to standardize designs, thus limiting progressive development.37 Thus the construction of Anavarin-i Cedid (Niokastro) in the last quarter of the sixteenth century in archetypal

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37 In another area of military practice, a similar observation has been made by Gábor Ágoston regarding Ottoman artillery production, which remained eclectic and diffuse in the same period. Ágoston, G., Guns for the Sultan: Military Power and the Weapons Industry in the Ottoman Empire, Cambridge, 2005
trace italienne style (fig. 22) might be followed almost one hundred years later by Seddülbahir (1657-1659), reverting to cylindrical towers of a manner more closely resembling Kale-i Sultaniyye of two hundred years before (fig. 23). Such recrudescence would have been simply unthinkable in Western Europe in the age of Vauban.
Chapter Two
Fortification and Policy in the Early Ottoman Empire

The Ottoman Empire is unusual among the great empires of the earth for having been a distant latecomer to the art of fixed defense; it is practically unthinkable that a society which came to enjoy such geographical breadth, military strength, and political clout in the European and Mediterranean worlds could have built its first permanent fortifications in but the fourteenth century. This unfamiliarity with what had for millennia been a basic occupation for the majority of its neighbouring states was a factor that deeply influenced the Ottoman approach to attacking, building, and preserving fortifications.

The early Ottoman community was one without walls, the first Ottoman “capital”, at Söğüt, bearing no trace of a fixed enceinte. The nascent, tribal incarnation of the state relied purely on the security and mobility of the camp, the tents of warriors arrayed concentrically around that of the chief, with the animals outermost, the whole perhaps protected at most by a wooden palisade. Ibn Khaldun observed of such nomad encampments that

“They have no walls and gates (around the settlements). Therefore they provide their own defense and do not entrust it to, or rely upon others for it.”

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Mobility in life and war was perhaps the defining characteristic of the early Ottoman conquests. Invincible in the open field, the Ottoman way of life similarly did not lend itself to the Western European and Byzantine cycle of siege and capture, where victory was defined by the possession of certain fixed fortified loci. Like the Mongols, the fluid, confederative quality of the nomadic Ottoman state forced confrontation along its own terms in the field, where its more heavily armoured adversaries were at a distinct disadvantage against lightly armed, highly mobile horsemen.

By the same token, the techniques of siegecraft were foreign to the early Ottomans, and it is highly telling, in view of the speed of their later conquests, that the siege of Bursa/Prousa lasted ten years and ended only through blockade. Orhan, too, relied on starvation to take İzmit/Nicomedia in 1337. Indeed, the first successful Ottoman “sieges” were in fact a process of starving out cities through the absorption of the hinterland, Osman’s reign ending with Ottoman possession of effectively all the countryside in the Sakarya and Göksu valleys outside of the walled cities that remained beyond Ottoman military capability to reduce. The Ottomans still preferred a semi-nomadic existence: Pachymeres tells us that the few fortified places that had fallen to Osman like Bilecik/Belakoma were used primarily as storehouses for accumulated plunder rather than as settlements.² Ottoman occupation, both on the part of the military elite (askeriye) in conquered or sensitive frontier zones (the uç) and subject populaces (Christian and Muslim re’aya) deported through the process of sürgün (population relocation) to engineer the demographic of a colonized area,

² Pachymeres, in Imber, C., The Ottoman Empire, 1300-1481, Istanbul, 1990, p. 18
tended to be in unwalled villages: this was fundamental to the Ottoman policy of expansion of cultivated land, in order to maximize tax revenues.³

Natural phenomena, like the earthquake that levelled the walls of Gelibolu/Gallipoli in 1354 allowing its occupation by Süleyman Pasha continued to play a part in Ottoman successes against walled settlements. Sieges, like that of Tzympe by Süleyman Pasha earlier the same year, seemed to be largely a matter of capitulation by fortress captains in the face of blockade with little hope of relief by a far superior force rather than of storm.⁴

However, the role that the early Ottomans played in Byzantine conflicts as allies and mercenaries must have been singularly instructive in the techniques of Byzantine siege warfare. In the 1340’s they were employed as mercenaries in the campaigns of John Kantakouzenos against Alexius Apokaukos and the Empress Anna which resulted in the fall of most of the Balkan Black Sea coastal cities. It is a testament to Ottoman adaptability that by the reign of Beyazid I (1389-1402) they were masters of the science of fortress investment, capable of constructing “platforms” in preparation for their siege of Konya in 1397 and employing “innumerable engines of war” in their eight-year blockade of Constantinople between 1394 and 1402.⁵ It was knowledge likely catalyzed by the shrewd employment of Byzantine and other foreign military men and technicians who by this time dotted the upper ranks of the Ottoman military apparatus. Experienced, probably Greek renegades like Gazi Evrenos Bey had no problem subduing towns like Komotini or

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⁴ Capitulation being made a far more attractive option for fortress captains and lesser nobility by the early Ottoman policy of absorption of enemy military apparatus into the Ottoman system of timariots. See İnalcık, 1954, pp. 112-122.

⁵ Imber, 1990, p. 40, 51, quoting, in the latter case, an anonymous Greek chronicle composed in praise of the Virgin Mary for delivering the city.
strong defences as those of the Hexamilion, across the Isthmus of Corinth.\(^6\) While seasonal raiding of the unwalled countryside in search of plunder and captives remained an important Ottoman occupation, particularly for client frontier chieftains\(^7\), in his grand design for permanent conquest Mehmed II and his administration had fully acclimatized to a geopolitical environment in which, in the words of Smail, “the true end of military activity became the capture and defence of fortified places.”\(^8\)

**Military architecture before the reign of Mehmed II**

Perhaps in tune with their revolutionary destructive approach to existing fortification, there was very little fortress building on the part of the early Ottomans. Simply put, the hyper-expansionism of the early Ottoman state meant that there was little need for the establishment of a fixed frontier beyond the brief winter breaks from campaigning; confederate tribes left in the area were quite sufficient to preserve the gains made in the previous season and keep local resistance in check until the thaw. Without an elite tradition of building fortifications in the way of the feudal European nobilities, it was left entirely to the sultans to build the first Ottoman palaces and fortified residences. Even then, the earliest royal compounds, like the collection of pavilions and garden courts at Edirne remained unwalled until the time of Mehmed II.\(^9\) The walls of the first palace he built in Istanbul, the so-called Eski Saray, were entirely featureless, more intended for enclosure than military defense.\(^10\) What little purpose-built military work there was has been subsequently obscured by destruction:

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\(^6\) For the career of Evrenos Bey, see Lowry, H., *The Shaping of the Ottoman Balkans*, Istanbul, 2008, pp. 16-64

\(^7\) See, for example, the activities of Işak Bey, Governor (*Sancak Beyi*) of Skopje, in Bosnia during the years 1415-1439, in which Ottoman frontier raiding was directed in support of various Christian factions with whom the local frontier chiefs (*uç beys*) were aligned, usually without the acquisition of fortified towns or cities. Fine Jr., John V. A., *The Late Medieval Balkans*, Michigan, 1987, pp. 453-481

\(^8\) Smail, R.C., *Crusading Warfare, 1097-1193*, Cambridge, 1956, p. 24

\(^9\) See Ayverdi, *III*, pp. 234-267, and Goodwin, p. 140

\(^10\) See Ayverdi, *IV*, pp. 678-681 and Goodwin, p. 107 and 132. The walls of the Eski Saray had no towers and no ditch, but apparently rose to a height of more than 13 m.
we have little idea of the very earliest documented Ottoman acts of fortification, like the refortification of Gallipoli and the construction of the fortress of Çardak by Süleyman Pasha (son of Orhan) after the destruction of the former by earthquake in 1354.\footnote{See İnalcık, “Gelibolu”, p. 983}

**The Byzantine Heritage**

What the Ottomans knew of fortress-building they were accordingly required to learn or co-opt from their neighbours, opponents, and subjects, most of whom had had far longer experience of fortification. There can be no doubt that the ancient Roman-Byzantine architectural continuum was by far the most influential of these traditions, manifest as it was in the defenses of practically every settled place in the Anatolian and Balkan regions. This tradition exerted its influence upon the Ottomans in two main ways. First, it was preserved in the many town and city walls of the urban centers that the Ottomans captured, and thus was a standing and highly instructive palimpsest demonstrating one thousand years of expertise in military engineering. Second, it was a living tradition in the sense that Byzantine masons, architects, and engineers trained in the tradition were very much alive and practicing their trade as the Ottoman came into being and began to absorb them into their administrative system either forcibly through its conquests, as renegade clients and vassals, or as paid, skilled labour. We shall address each of these avenues of transmission in turn.

*Bursa/Prusa*

Although the Ottomans must have been familiar with the appearance of Byzantine fortifications from the moment of their arrival in Anatolia, it is only after
the capture of the major Byzantine city of Prusa in 1326 that this knowledge, particularly of large-scale works, could be said to have become intimate. We know from an inscription of Mehmed I (1413-1421) dated 1418 that the Ottomans made a conscious effort to maintain the walls, and thus we may deduce an incipient Ottoman commitment to permanent fortification and the civic life that stemmed from them.\(^\text{12}\)

These are both important points. Architecturally speaking, and as we might expect, there is nothing distinctly “Ottoman” about the walls of Bursa (fig. 24).\(^\text{13}\) This is despite its status as a capital city and the plenitude of early Ottoman architecture within its walls. The city having fallen by capitulation and not by storm, Ottoman construction consisted almost entirely of repairs to the standing, largely Middle-Byzantine curtain wall and proteichisma, the original mixed brick and stone construction in many places being closely replicated by Ottoman-period additions at the upper levels. Indeed, these Ottoman emendations are effectively indistinguishable from their multiple Byzantine predecessors, although it is clear from the state of preservation of the enceinte and Mehmed I’s inscription that a concerted and long-term Ottoman effort was made to preserve the original Byzantine appearance intact.\(^\text{14}\) This is further reinforced by the former presence of an individually walled Ottoman citadel within the city preserving the disposition of the original Byzantine citadel.\(^\text{15}\)

The Ottoman preservation of the Byzantine walls of Bursa and other captured towns, and thus, their absorption of Byzantine techniques of fortification was a vital

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\(^\text{13}\) A very large amount of atrocious restoration work has recently been carried out on the walls of Bursa in recent years, rendering them even more unreadable than they were before.


\(^\text{15}\) Destroyed by fire at the beginning of the eighteenth century, once the location of Orhan’s palace and now preserving only his tomb and that of his father, both of which were located in a Byzantine chapel. Gabriel’s diagrammatic rendering of the lost citadel on his plan (p.) has a square precinct defended by a series of semi-circular towers, although the evidence for this reconstruction is not clear. The disappearance of Orhan’s palace, and that of Beyazid situated on a cliff next to his külliye to the east of the city, represents a great loss for our knowledge of early Ottoman secular architecture.
factor in the later development of the Ottomans’ own military architecture. It is extremely relevant that many of the fortifications they were exposed to at Bursa and elsewhere were Middle Byzantine or earlier; the early Ottoman experience of such archetypal Byzantine features as the bent entrance, the proteichisma, and pentagonal flanking towers was highly formative and especially remarkable for having hardly been produced by actual Byzantine masons in the impoverished Late Byzantine Empire for several centuries. Such elements repeated in the ab origine Ottoman works we examine in this study represent the resurrection of these classic characteristics of the great periods in Byzantine military architecture.

The symbolic dimension of preservation

Such preservation is also a factor with implications beyond the strictly architectural. It is interesting to note that in 1390 Yıldırım Beyazid (Beyazid I) chose to build his palace and mosque/külliye complex on a cliff to the east of the city, quite removed from the “safety” of the preserved Byzantine walls. In the relative security of the Western Anatolia, long Islamized and largely subdued by the 1370’s there would hardly have been a need for the protection of city walls in this, the very heart of the Ottoman domain. Beyazit’s decision to build extra muros suggests that the Ottoman preservation of the existing Byzantine walls had a strong, perhaps even primarily symbolic dimension. In the capture of Bursa the nascent Ottoman state was making its first coordinated attempt at settlement and the establishment of a definite physical centre for its expansion. Although Ottoman rulers would continue to move peripatetically between various royal seats, the decision to concentrate a significant number of public works in the newly captured city indicates a desire to adopt the civic life of their urbanized subjects. As a model for their first metropolis the Ottomans
naturally turned to the established Byzantine tradition: the preservation of city walls, the primary symbol of *civitas* throughout the Mediterranean world, would have been a natural first step. In the same vein was the Orhan’s preservation of the existing Byzantine citadel of Prusa as the site for his palace (the first Ottoman palace to be of permanent bricks-and-mortar), and the burial of their fallen founder/leader, Osman, in a former Byzantine church within it. More than a century later, Mehmed the Conqueror’s decision to repair the Theodosian walls of Constantinople following the capture of *his* new capital likely owed to similar motives.

**The Living Tradition**

There was a second dimension of the Byzantine tradition that exerted itself upon early Ottoman building: the continuing tradition of late Byzantine Palaeologan architecture. This was quite a different tradition than that of the great ages in Byzantine building, on a much smaller scale and characterized by a high degree of eclecticism and parochialism. In religious architecture in particular new modes of decoration had emerged espousing extremely colourful and highly articulated facades, a phenomenon well represented by certain of the Late Byzantine monasteries of

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Constantinople (figs. 25, 26) and the not absolutely identified but probably early fourteenth-century palace known as the Tekfur Saray (fig. 27).\textsuperscript{17}

Byzantine military architecture in the fourteenth and fifteenth centuries

In terms specifically of military architecture, the Late Byzantine period was characterized chiefly by the withdrawal of settlements where possible to naturally defended hilltop sites.\textsuperscript{18} Although plans became largely ad-hoc given the steep terrain, a certain amount of uniformity is found in the construction of citadels, many of which also performed a palatial function in a time in which the Byzantine state and its Christian clients and neighbours in the Balkans were uniformly undergoing fragmentation into small feudal entities. The buildings generated by the strategic and social change have been incisively analyzed by Ćurčić, who identified as the outstanding feature of such palace/citadels the square, independently fortified tower built as a refuge for the inhabitants of the complex (fig. 28).\textsuperscript{19} It is an element also typical of monastic compounds, constituting a category particular to the period of upheaval in the Balkans immediately preceding the Ottoman conquest and one possibly with roots in the Western European tradition of the donjon/keep (fig. 29).\textsuperscript{20}

\textsuperscript{17} For general introductions to the late Byzantine architecture of Constantinople and neighboring regions see Ousterhout, Robert, “Constantinople, Bithynia, and Regional Developments in Later Palaeologan Architecture”, in Ćurčić, Slobodan, and Mouriki, Doula, eds., The Twilight of Byzantium, Princeton, 1991, pp. 75-110; Ćurčić, Slobodan, “Architecture in the Byzantine Sphere of Influence around the Middle of the Fourteenth Century”, in Dečani I vizantijska umetnost sredinom XIV veka/Dečani et l’art byzantin au milieu du XIV siècle, Belgrade, 1989, pp. 56-68; Bouras, Ch., “Byzantine Architecture in the Middle of the 14th Century”, in idem., pp. 49-54

\textsuperscript{18} See Bouras, 1981, p. 616 and Ćurčić, S., in Ćurčić and Hadjitryphonos, eds., particularly p. 29-30


\textsuperscript{20} Ćurčić, S., “Pyrgos – Stl’p – Donjon. A Western Fortification Concept on Mount Athos and its Sources”, in Seventh Annual Byzantine Studies Conference, Abstracts, Boston, 1981, pp. 21-22. It should be noted that A.W. Lawrence has correctly indicated the existence of independently fortified towers in Byzantium before the increasingly Western-influenced Palaeologan period, as at Philippi in the tenth century. Lawrence draws a distinction between such “native” Byzantine towers and what he
The practicality of the type was not lost on the early Ottomans. In the captured towns of the Balkans, where there was a threat from the captive Christian populace and hence a need for a garrison-type presence, the tower offered an easily and cheaply built node of fundamental security. Beyazid I may have added just such a tower to the Heptapyrgion, the citadel of Thessaloniki/Selanik after the first capture of that city in 1387, a structure later destroyed by Manuel II Palaeologus after the Byzantine reacquisition of the city following the Treaty of Gallipoli in 1403. The large central tower that stands today may be a rebuilding of Beyazid’s original work by Murad II after the reconquest of the city in 1430 (fig. 30).  

The tower that stands today in the harbour of Gallipoli/Gelibolu may be the original tower built by Beyazid to defend the harbour (fig. 31). Although its role is slightly different from the towers of Ćurčić’s palace/citadels, as a basic unit of security with its own garrison the harbour tower was a direct inheritor of the Late Byzantine tradition. The tower built at Lapseki/Lampsakos on the opposite shore by Süleyman Çelebi (Emir Süleyman) in 1409 and later destroyed by Murad II was seen as later, specifically Western influenced buildings like the fourteenth-century “keep” at Gynaikokastro, using as an (arguably specious) benchmark the presence of a cistern, indicating the influence of the archetypal Norman keep, and hence a primary function as residence rather than pure refuge. See Lawrence, A.W., “A Skeletal History of Byzantine Fortification”, in The Annual of the British School at Athens, No. 78, London, 1983, pp. 213-215, 224-225. Pyrgo-castella or tower-forts are mentioned by Procopius as early as the fifth century, although the precise aspect of these is unclear; the mixed Greek and Latin term for such buildings may suggest the adoption of a Roman concept, complicating the matter still further: “And he also built covered approaches (anodoi) to the towers, and made them three-storied (triorophoi) by adding courses of stones curved in the form of vaults (tholoi); thus he made each one of them a pyrgo-castellum, as its was called and as it actually was. For they call forts castella in the Latin tongue.” Procopius, Dewing, H.B., trans., Buildings, II, v. 8-9, Cambridge, 1971, p. 135  

We will return to this convoluted history in our discussion of Yedikule and its relationship with the Heptapyrgion. Beyazid’s construction of a tower in the citadel is attested to by the chronicle of Constantine the Philosopher – see Kissas, Sotiris, “Ochryomatika erga tou soultanou Bayazid A sti Thessaloniki. Istorika proseggisi [“Fortification Work Carried Out by Sultan Bayezid I in Thessaloniki: A Historical Approach”], in Armos: Timitikos tomos ston kathig M. K. Moutsopoulos, Thessaloniki, 1991, pp. 903-907, title and translation taken from Lowry, Heath, The Shaping of the Ottoman Balkans, p. 132, f.n. 95. Ćurčić believes the Heptapyrgion to have been an existing Byzantine structure of the same palace/citadel type. Ćurčić, 2000, pp. 37-39  

Inalçık, Halil, “Gelibolu”, p. 984. In 1472 the Burgaz-i Gelibolu, as the tower was called, had a garrison of forty-two men, distinct from the garrison of the town itself, Kale-i Gelibolu.
probably in the same vein.\textsuperscript{23} Lowry has recently argued that the smaller tower of the fortress at Python, the so-called Hacı İlbe Kulesi, may be a very early example of this type of building, possibly dating from as early as 1358 when the fortress was captured (fig. 32).\textsuperscript{24}

\textit{Anadolu Hisarı}

The type was certainly represented in the small fortress Beyazit I built in the 1390’s on the Anatolian shore of the Bosphorus in order to facilitate troop movements across the Straits. Anadolu Hisarı (the castle of Anatolia) stands at their narrowest point, at the mouth of the Gök Su, eleven miles up from the Golden Horn, and thus directly opposite the future site of Rumeli Hisarı which it predates by more than half a century (fig. 33). It should be noted that Anadolu Hisarı was not intended to control shipping through the Straits as such; the provision for ground level cannon in the form of an enclosure stretching to the north of the original building (now mostly destroyed) was an addition of Mehmed II’s. Although it is possible that firearms were already known to the Ottomans by this time there is no evidence for their usage of cannon against shipping as yet.\textsuperscript{25} The major feature of the fort is a large, relatively featureless square tower, centrally located behind a high, irregularly polygonal chemise which the tower abuts to the north (fig. 34). Entrance is through a gate in the chemise to the


\textsuperscript{24} Lowry, 2008, p. 18-19, and ibid., “Travels in No-Man’s Land”, in \textit{Cornucopia} 39, Edinburgh, 2008, p. 34. The latter is a review of Bakirtzis, Ch., and Ousterhout, R., \textit{The Byzantine Monuments of the Evros/Merić River Valley}, Thessaloniki, 2007. Lowry has suggested that this may the earliest known Ottoman fortification, predating Anadolu Hisarı by perhaps a half century.

east, requiring a half-circuit of the tower to its gate in the west, the entire passage overlooked by the wall-walk of the chemise and the parapet of the tower itself (fig. 35). The tower originally featured three wooden interior floors and a pointed wooden roof.

There are, however, vital differences between Anadolu Hisarı and comparable Byzantine and Byzantine-related towers. Unlike Ćurčić’s citadel/palaces, Anadolu Hisarı is a utilitarian building, created for an expressly military function and likely housing what was a small permanent garrison for the defense of the landing; it is highly doubtful that the tower ever served as an Imperial residence. Although this fundamental difference in role is largely unreflected in the simple architecture of the tower, it is important for our awareness of the Ottoman ability to adapt existing modes of architecture to suit their own needs. At the same time, it portends the point at which the Ottoman system would outgrow such inherited models, its size and organization demanding new solutions to the problems of a new, differently structured state.

Architecturally speaking, the chemise, in this case studded with four turrets, is atypical of Byzantine towers of the type\(^26\), and it is tempting to suggest Western influence upon the feature: the demi-chemise of the Genoese-built Galata Tower of the 1330’s would certainly have been familiar to Ottoman builders by this time. It might also be argued that the aspect created by the typical Byzantine *proteichisma* – a lower, outer wall defending the base of the main wall of a fortification, examples of which were plentiful in the Balkans and Anatolia – was, in effect, the same, and in the case of Anadolu Hisarı, simply writ small. Gabriel in the 1940’s also observed a short

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\(^{26}\) Some of the *arsanas* or seaside landing-towers of Mt. Athos might be considered exceptions to this rule, like that of St. Basil, surrounded as it is by a small walled precinct. These precincts, however, are often large enough to contain chapels and living spaces, running contrary to Mesqui’s rather austere prescription that a chemise should only be large enough to contain the tower itself (Mesqui, p. 123). The presence of auxiliary buildings does in any case suggest that such walled precincts developed as dependencies of the tower rather than as an element of fortification *per se.*
talus of earth and rubble construction, covered with a stone facing and inclining at forty-five degrees that once existed at the foot of the tower, a feature which he correctly points out as being distinctly un-Byzantine.27 Taluses of any type are practically unknown among the Byzantine and related tower group.28 Although this has since been destroyed, such a talus may also suggest non-Byzantine influence; taluses are of course well-known in the Crusader architecture of the Holy Land although not, for the most part (and as Gabriel asserts), in the corresponding Islamic buildings. That said, the subsequent disappearance of the feature would suggest a structural discreteness that may indicate a later addition, possibly intended to shore up a weak or leaning face of the tower and not an expressly military feature – such a talus appears at Kilid-ül Bahr where it is almost certainly a later addition. Finally, the decorative bands that once ran along the upper registers of the tower (now obscured by restoration) are typical of late Byzantine work and should be taken as evidence of the involvement of Greek masons in its construction, an issue on which we will have more to say below (fig. 36).

Cihannümâ Kasrı

The Ottomans acquired their second major city, Adrianople/Edirne in 1361. Blown up in 1877 by the forces of Abdül Aziz in order to prevent stored munitions from falling into Russian hands, very little remains today of the once-luxurious palace complex on an island in the Tunca, that which remained a favourite residence of the

27 Gabriel, p. 36-37
28 A few possible exceptions exist. The unique, irregularly polygonal tower at Tsepina, near Dorkovo, in Bulgaria, loosely dated to the fourteenth century, has a rough splayed foot and is also equipped with a cistern. See Balabanov, R., Boiadzhiev, S., Tuleshkov, N., Kprepostno Stroitelstvo po Bulgarskite Zemi, Sofia, 2000, p. 58. Unfortunately the history of the tower remains almost entirely unknown, and I believe it could also be an Ottoman work. Similarly, the rectangular seaside tower at Ouranopolis, the last town before Mount Athos, has a massive talus on all sides although this too is probably a later addition.
Sultans into the nineteenth century. Archaeological excavations of the 1970’s on the site uncovered the remains of the kiosk-complex known as the Cihannûmâ Kasrı (literally, “the palace that shows the whole world”) which may have represented a more gracious example of the independently fortified square tower (fig. 37). Built by Murad II in the 1450’s, the building was one of several palace pavilions on the island later enclosed with a wall by Mehmed II. It consisted of a large square tower flanked by lower residential or recreational buildings (fig. 38). In what was probably a security measure, access was from the first floor only, this later reached, judging from a nineteenth-century photograph, by two curving flights of Baroque stairs (fig. 39). Lord Albemarle records that the tower consisted of four floors, linked internally by a narrow stone staircase. The body of the tower was of mixed brick and stone construction laid in alternating courses in the Byzantine fashion and the whole was crowned by an unusual polygonal wooden turret, likely serving as a belvedere.

An element in a larger palatial/residential environment, the large square tower likely served a purpose closer to that of its Byzantine and Byzantine-related antecedents than that at Anadolu Hisarı: a defensive refuge for a threatened ruler within his larger residence. The Cihannûmâ Kasrı was a distinctly Ottomanized version, performing, as its appearance and name suggest, an additional function as an elevated lookout or pleasure-pavilion within the bucolic confines of a Persian-style palace/garden. This latter purpose would have echoed earlier Turkish usages in Anatolia like the tiled pavilion built by the Seljuq Sultan Kılıç Arslan II atop an older

30 Keppel, G., Narrative of a Journey Across the Balkan, London, 1831, p.159
Byzantine curtain-tower of the citadel at Konya (fig. 40). The phenomenon of towers serving both defensive and recreational functions would continue to obtain after the conquest of Istanbul, with several of the towers in walls surrounding the Topkapi Palace (both the original Byzantine sea-walls and the landward segment built by Mehmed II) serving as both fortifications as well as belvederes for the enjoyment of boat-races and parades (fig. 41). Mehmed II’s Tower of Justice (or the Divan Tower) above the Divan of Topkapi Palace is an exceedingly fine example of this heritage, its body similarly of banded brick and stone masonry (fig. 42).

From this brief overview of the very little Ottoman fortification remaining to us from the period before the Conqueror, we may observe that the early Ottomans were readily inclined to preserve existing Byzantine structures or model their own closely after Byzantine examples, to some extent perhaps regardless of the actual functionality of the existing defenses. The preservation Byzantine city walls and the emulation of Byzantine towers typical of palatial contexts likely served symbolic functions in the creation of the idea of an Ottoman polis and the creation of a royal identity. Such existing Byzantine types also saw distinctly Ottoman interpretations adapting earlier models to suit specifically Ottoman Imperial and military needs. At the same time, these Ottoman requirements, coupled with the substantial wealth of the dynamic new Empire, set the stage for the development of a fundamentally different, uniquely Ottoman architecture by the time of Mehmed II.

**Early Ottoman Architects**

“We have no knowledge whatever of the names and works of the architects and builders of fortifications, chiefly Italian, it may be presumed, whom Mehmed employed. Equally unknown are the bridge

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31 Popularly attributed to his grandson Alaeddin Keyqubad. See Sarre, Friedrich, *Der Kiosk von Konya*, Berlin, 1936
32 The lantern is a work of Mahmud II of 1825. See Necipoğlu, 1991, pp. 84-86
builders, whose works often suggest Italian influence although they are usually attributed to Greeks or Bulgarians. Their resemblance to Italian bridges of the same period leaves no doubt that Italian architects were involved.”

Two generations of scholars after Babinger, the issue of the ethnic or religious extraction of Ottoman architects has become in some sense beside the point, or can at least be said to form part of another wider discourse on the nature of the early Ottoman state. From what we know today of the devşirme system and the extensive employment of renegades and converts in the very highest ranks of the Ottoman administration, “foreign” involvement in the construction of Ottoman public buildings can hardly be unexpected. Nor was such involvement limited to Fatih’s reign: from the overtly Byzantine architecture of the Rum Mehmed Pasha (himself a Byzantine convert) mosque in Üsküdar of 1462 (fig. 43) to the Armenian Balyan family’s masterpieces of the nineteenth century, the employment of non-Muslims or ethnic non-Muslims might be said to be among the defining characteristics of Ottoman architecture. The members of the Hass Mimarlık Ocağı, or Corps of Imperial Architects, responsible for all imperial projects including fortifications, were drawn originally from the pool of devşirme recruits; thus Sinan, the greatest of Ottoman architects, was certainly not of native Muslim stock and has been variously identified as Greek, Albanian, Slav, or possibly even Austrian by extraction. It is indicative of the continuingly cosmopolitan quality of the Corps that by 1604 about half of its

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34 The debate concerning the origins of the Ottoman state and its recruitment of conquered and neighboring Christian populations remains a lively one. For the most recent summary of the various scholarly views on the problem, see Lowry, Heath, *The Nature of the Early Ottoman State*, New York, 2003, pp. 5-13
35 Egli, Hans G., *Sinan, der Baumeister osmanischer Glanzzeit*, Zurich, 1954. It has been subsequently fairly well established that Sinan was a devşirme from Ağırnas, a village near Kayseri, and was of probably Armenian or Greek origin. See Necipoğlu, Gülru, *The Age of Sinan: Architectural Culture in the Ottoman Empire*, London, 2005, pp. 129-131
membership was composed of non-Muslims.36 By the end of that century Meremetçi (“Mender”) Bali Kalfa, the forebear and namesake of the Balyan dynasty, succeeded yet another Armenian in the service of Mehmed IV (1648–1687).

The exceedingly cosmopolitan nature, in all periods, of this branch of Ottoman artistic endeavour challenges our definition of “Ottoman architecture” and indeed, the very term “Ottoman” itself. To what extent these “foreigners” brought into the service of the Sultan experience of their native architectures, and to what extent this experience was put it into practice in the creation of a distinctly “Ottoman style” is a vast and complex debate, especially for the formative period in question.37 The longstanding anonymity of Ottoman architects even into the modern period is particularly true of the fifteenth century, in which we are confronted with an almost complete dearth of sources identifying architects by name.38 In all periods buildings were far more likely to be identified with their patrons – in our case the sultan – and the officials deputed to their supervision.39 Even into the seventeenth century Thys-Şenocak has remarked the tendency to identify the bina emini, or Superintendent of Buildings, responsible for the finances of a particular project, more commonly than

37 Obviously distinctions must be drawn too between the converts or renegades of the early period – adults educated in their native cultures – and devşirme boys brought up within the Ottoman system. The same is true again for the likes of Nikoğos, Sarkis, and Agop Balyan, all three educated at the College de St. Barbe in Paris.
38 There is the occasional exception, known through vakfiyyes, inscriptions, or tradition: Atik Sinan (Old Sinan, to distinguish him from his illustrious successor) is credited with the original building of Mehmed II’s imperial mosque, later destroyed by earthquake. He has also been identified as a Greek, Christodoulos, in the sometimes dubious history of Prince Demetrius Cantemir; his other nisba, Azadlı Sinan, “freed” Sinan, does nevertheless suggest that he may have been of devşirme origin. His tombstone at his Kumrulu Mescidi merely states that he was an architect and was executed in 1471, the year after the completion of the mosque, of which it makes no mention. See Konya hac, I. H., Azadlı Sinan (Sinan-I Atik) vakfiyeleri, eserleri, hayatı, mezarı, Istanbul, 1953
39 The sixteenth-century life and career of Mimar Sinan Pasha, celebrated by his friend and biographer Nakkaş Saî Mustafa Çelebi, is the first great exception. See Tezkireté-ül Ebniye and the Tezkireté-ül Bunyan, also attributed to Saî. See Meriç, Rıfkı Merül, Mimar Sinan Hayatı, Eseri I, Mimar Sinan’ın Hayatına Dair Metinler, Ankara, 1965
the architect, who is often simply known by his title, Mimar Ağa, or Lord Architect. Unfortunately, such sixteenth-century and later organizational hierarchies are poorly understood for the fifteenth century. We have very little idea of the organization and provenance of workshops and building crews beyond the sweeping – and often exaggerated – statements that are made in the sources referring to the corvée for a particular project.

We are left, then, with architectural and stylistic analysis as our principal tools in pinpointing the identities of the builders of such early works. It is by dint of these methods that I believe there can be very little further doubt that Byzantine Greek architects were intimately involved with the construction of early Ottoman buildings. Although the divide between Byzantine and Ottoman architectural historians has been traditionally wide and sometimes characterized by a marked unwillingness in each to acknowledge the presence or influence of the other, it is narrowing, and more recent work has demonstrated the high degree of continuity between the two periods. The Byzantinist Robert Ousterhout has done pioneering work on the early Turkish monuments of Bithynia, clearly illustrating the close links between later Palaeologan architecture and early Ottoman work. It is clear from early mosques, with their mixed brick and stone construction and the decoration of façades with blind arcading, dogtooth friezes, herringbone patterning, and sunbursts that all of the techniques of the Byzantine canon were alive and well in early Ottoman building (figs. 44, 45).

On a practical level, the repair and maintenance of city walls like those of Bursa must

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40 Thys-Şenocak, Lucienne, *Ottoman Women Builders: The Architectural Patronage of Hadice Turhan Sultan*, Aldershot, 2006, pp. 163-164, with reference particularly to Evliya Çelebi’s usage in his *Seyahatname*. See also Turan, Şerefettin, “Mimarbaşı”, in *Türkiye Diyanet Vakfı İslam Ansiklopedisi*, vol. 30, p. 90 (hereafter *İA*). It should of course be remembered that without an identifying nisba or some reliable biographical information, there is generally very little to be learned from the name of an Ottoman individual, especially in the case of *devşirme* recruits given Muslim names after their formal conversion to Islam. The name “Sinan Pasha”, for instance, gives no information about the birth name or homeland of this most famous of Ottoman architects. Exceptions include early figures who retained their birth names, like Gazi Evrenos Bey, and, relevant to our study, Zağanos Pasha.

41 Ousterhout, 1991, pp. 75-110, especially pp. 84-91
have required the services of a sizeable group of skilled labourers, likely on a semi-
permanent basis. Given the relative Ottoman inexperience with construction
techniques, particularly on so grand a scale, in the fourteenth century, it is likely that a
significant amount of local, presumably Christian Greek talent would have been
employed in what must have been a continuing municipal project. This would seem
to be corroborated by the recognizably “Byzantine” mixed brick and stone
construction of the uppermost registers of the walls of Bursa that are nevertheless
undoubtedly Ottoman in date.

Examples like the Rum Mehmed Pasha mosque demonstrate that such obvious
Greek involvement persisted into the fifteenth century, and beyond. Without
documentary evidence, of course, the case can always be made for mere Ottoman
imitation of Byzantine work, but the point is frankly moot. With the well-known
presence of converted Greeks and other non-Turks in the highest ranks of the
Ottoman administration throughout all the periods of the Empire, there is no reason to
doubt such a presence in the precursor to the Corps of Imperial Architects, and even
less in the general body of masons employed in Ottoman imperial projects. Given all
of the evidence both architectural and systemic there can be no further doubt of Greek
and other Christian involvement with the construction of the Conqueror’s fortresses
from the lowest ranks of masons to the highest executive level.

42 See Ayverdi, E.H., Osmanlı Mimârîsinin İlk Devri, Istanbul, 1966. Lowry has observed a group of
fifty-two men known as the cema’at-i bennâyân, or community of builders, in a 1519 tahrir defter (tax
register) concerning the island of Limnos. These were local Greek Christian masons entrusted with the
maintenance of the fortress of Palaiokastron. Such an arrangement very likely reflected the situation in
Bursa and other newly-conquered areas in the fourteenth century. It should also be noted that the
fortress of Kasri (probably Greek Kotzinos) on Limnos disappears from the island’s tax registers
between 1490 and 1519, probably indicating its intentional destruction by Beyazid II for want of
adequate reliable manpower; in 1490 it had been garrisoned by Christian auxiliary troops alone, who
considerably outnumbered Muslim Ottoman troops on the island. Lowry, H., Fifteenth Century
43 Certainly the use of brick and stone, particularly laid in alternating bands or cloisonné, dogtoothed,
and banded voussoirs remain standard particularly in regional work and secular architecture into the
Ottoman eighteenth century. Banded voussoirs and rosettes continue to appear on the stone facades of
the classical mosques of the sixteenth and seventeenth centuries, and even into the Baroque. This is not
to mention the persistence of the dome as the preferred Ottoman system of vaulting in all periods.
Chapter Three
Military Technology in the Age of Mehmed II

An insufficient or fragmentary knowledge of the technological issues at hand on the part of architectural historians has often hampered their analysis of military buildings, built, as we have observed, in response to the very specific threats posed by military engineering and hardware. The very complex and rapidly changing technical issues at hand in the fifteenth century make this particularly true of studies on the fortifications built by Mehmed the Conqueror, which most conspicuously have often relied on a preconception of contemporary “gunpowder artillery” without understanding the true state of development, capability, and employment of such weapons. At the same time, they tend to overlook the continuing use and efficacy of established conventional weaponry and methods of combat. As Guilmartin succinctly puts it, “[c]annon began by influencing the way in which the hand-to-hand encounter took place; they did not render it instantly obsolete”.¹ When considering the architectural history of military buildings – perhaps the most markedly reactive branch of that discipline – it is absolutely imperative that we have a thorough comprehension of the relevant technical issues. Crucially, this would include antipersonnel weapons, artillery both conventional and gunpowder-fired, siegecraft, and fortress defense.

¹ Guilmartin, p. 67. His analysis of a woodcut depicting the naval encounter at Zonchio between Venetians and Ottomans in 1499 clearly demonstrates the continuing importance of conventional weaponry: of the twenty-one Venetians involved, only four are using “primitive arquebusses”. Of the twenty-one Ottomans, only one is using a “crude hand cannon” (p. 88). The woodcut is reproduced in Soucek, Svat, Piri Reis and Turkish Mapmaking after Columbus: The Khalili Portolan Atlas, Oxford, 1996, p. 46-47
Antipersonnel Weapons

The Janissary Bow

It is often in discussions of the mid-fifteenth-century warfare that the emphasis placed upon the emergence of firearms comes to overshadow the continuing presence, and importance of, the bow. Despite the introduction of firearms into the infantry arsenals of both European armies and the Ottoman Empire during that century, Rhoads Murphey has pointed out the continuing unreliability of muskets well into the seventeenth.² This was true from both from a technical standpoint and a tactical one: at close range, and particularly during the hand-to-hand combat that commonly ensued at a breach in a fortress’ walls, the weapon could simply not be fired and reloaded quickly enough to deter massed and determined defenders. During the late seventeenth-century siege of Cehrin, muskets were only good for providing an initial volley following a breach, under the cover of which the vanguard advanced to engage the defenders with conventional edged weapons.³ The most deadly long-range antipersonnel weapon in the Ottoman arsenal in the fifteenth and sixteenth centuries remained the composite recurved short bow, composed of wood, sinew, and horn (fig. 46).⁴

This was a formidable weapon indeed. A competent archer could loose six to ten arrows a minute, commanding a range in a good wind of up to 200 m. Direct hits could pierce plate armor. By contrast, the contemporary arquebus took several minutes to reload and was only reliable up to 100 m.⁵ Thus we should regard the bow as the primary long-range antipersonnel weapon in fortress warfare of the fifteenth century. Its

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² Murphey, Rhoads, Ottoman Warfare 1500-1700, New Brunswick, 1999, p. 121.
³ Silahdar, in Murphey, p. 121
⁴ For the construction of the Turkish bow, see Klopsteg, P. E., Turkish Archery and the Composite Bow, Evanston, 1947, pp. 50-51
⁵ Parker, p. 17
effectiveness of course was directly related to the skill of its user, skill that required a lifetime of constant cultivation, and the Ottomans may be regarded as preeminent among the Mediterranean nations in their assiduous nurturing of fine archers.\(^6\) The physical parameters of the bow and its use of course had a profound effect on fortifications, the designs of slit embrasures and crenellation being directly informed by the environment needed to effectively draw, aim, and release a meter-long weapon from an upright position.

**The Crossbow**

The crossbow never achieved the widespread appeal in the Ottoman world that it enjoyed in Western Europe, where it was a cheap and deadly long-range weapon that required very little skill to operate effectively and was a great equalizer when employed against plate armor.\(^7\) As a weapon widely used by the enemies of the Ottoman Empire, however, it deserves a brief mention here. By the fifteenth century the crossbow usually consisted of a short steel crosspiece, drawn with the help of a detachable windlass (fig. 47). This was a lengthy process: even a well-trained crossbowman would have been hard-pressed to release more than a single bolt per minute, although once in flight the bolt was devastatingly effective against everything except solid masonry.\(^8\) It was gradually supplanted by the rapidly improving arquebus towards the beginning of the sixteenth century, a weapon with which it had much in common, being difficult and slow to load.


\(^7\) Such was the deadliness of the crossbow, and so grave its social repercussions, that its use was frequently banned or limited to use against non-Christians by the Church. See Payne-Gallwey, Ralph, *The Crossbow*, London, 1903, p. 3

\(^8\) Ibid., p. 154
and most effective at close range. The crossbow occasionally saw service again during wet weather, as at the siege of Malta in 1565.

**The Arquebus**

It should be remembered that the bulk of early firearms, both in the Ottoman Empire and in Western Europe, consisted of handguns. In Western Europe it was these small infantry weapons that had the first real effect upon architecture, producing the round-bottomed “keyhole” embrasure and its variations found in castles and town fortifications of the late fourteenth century.

By the middle of the fifteenth century, weapons known as *tufenk* appear on the armament registers of a number of fortresses in the Balkans. Although equally applied to the larger and more powerful Janissary musket of the sixteenth century, in the period in question the term refers to the arquebus, of either serpentine or more advanced matchlock varieties. Ottoman types varied (as Ottoman ordnance tended to for most of the history of the Empire), but generally speaking the weapon consisted of a barrel mounted on a wooden stock, the whole fired from a forked rest. The early form of the firing mechanism consisted of an S-shaped lever (the “serpentine” lock) attached to the stock by a pivot at its central point, the bottom half of which acted as a trigger. When depressed this lowered a smoldering match-cord attached to the top half of the lever into the priming powder in the flash pan, which, via a touch-hole, in turn ignited the charge within the breech (fig. 48).

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9 A transition pioneered by the Spanish. See Guilmartin, p. 148
10 Showers towards the end of August prevented the use of arquebuses. Guilmartin, p. 190
Being heavy, slow to load, and notoriously unreliable, as we have observed, it is likely that the arquebus was of more use to the defenders of fortresses with the benefit of permanent cover than to their attackers, and of only limited use at the most critical junctures in a siege. Initially held in the middle of the chest against the breastbone, sometime during the late fifteenth or early sixteenth century it was discovered that far greater recoil could be absorbed by the body if the weapon were held against the shoulder, and this paved the way for the exponential growth in the velocity of these weapons and the eventual emergence of the musket.\textsuperscript{13} For the period in question, however, the arquebus should continue to be considered a primitive weapon indeed.

Artillery

\textit{The Counterweight Trebuchet}

As with the Janissary bow, the continuing deadliness of the counterweight trebuchet is often overlooked in discussions of Early Modern warfare. It was the most devastating artillery weapon of the Middle Ages and was not superseded by gunpowder artillery until well in to the sixteenth century. Paul Chevedden has treated the convoluted history of the weapon’s dissemination at some length. Although its origins are uncertain, it is likely that the technology first emerged in China. Arguments have also been made for a Byzantine provenance, it perhaps even being an invention of Alexius Comnenus himself.\textsuperscript{14} By the reign of Mehmed II the technology was well known throughout the Mediterranean world.

\textsuperscript{13} Both the new shouldered stance and the musket probably emerged in Spain. Guimartin, p. 274
\textsuperscript{14} Chevedden, P. E., “The Invention of the Counterweight Trebuchet”, in \textit{Dumbarton Oaks Papers}, 54, 2000, pp. 71-116, with extensive bibliography. Two classic accounts of the weapon are Oman, Charles, \textit{A
Broadly speaking, the trebuchet consisted of a beam attached to a fulcrum, dividing the beam into a longer end and a shorter end (fig. 49). Missiles – usually round stone shot – were placed in a basket or some other sling device at the longer end, and the depression of the shorter end launched the projectile. The traction trebuchet, the earliest incarnation of the weapon (and also probably a Chinese invention) was operated by crews of men pulling on a bundle of ropes attached to the shorter end. The largest early Chinese examples required crews of 250 men and could fling a 60 kg projectile 77 m.\textsuperscript{15} The hybrid trebuchet, a later development, used a pulling crew in tandem with the force of gravity.\textsuperscript{16}

The counterweight trebuchet, introduced in the thirteenth century, obviated the difficulties of coordination and lack of velocity inherent in these earlier systems by attaching a large counterweight, typically a box filled with stones or sand, to the shorter end, which, when hoisted up and let fall, used solely the force of gravity to propel the missile. Far greater range and far greater velocity were thus achieved: by the fourteenth century counterweight trebuchets were routinely launching shot of 300 kg.\textsuperscript{17} Optimal destructive ranges of up to 275 m. could be achieved without the massive expense in manpower inherent in the earlier systems.\textsuperscript{18} In addition to simple battery, the high trajectory of the weapon could also be employed to fling any number of incendiaries or plague-ridden carcasses over the walls. As we will discuss below in greater detail, the

\textsuperscript{17} Chevedden, 1999, p. 37
\textsuperscript{18} Hogg, p. 97
trebuchet had a pronounced effect on the construction of walls, affecting not only the thickness but the verticality of defenses intended to oppose it.

**Mangonels**

A similar but smaller and far less powerful weapon was the torsion-powered mangonel, in Roman usage known as an onager, which traditionally had a spoon-shaped arm from which could be thrown any number of projectiles. The base of the spoon was twisted in a coil of ropes to create the adequate tension. At the 1480 siege of Rhodes the Ottoman besiegers used a mangonel to launch burning “carcasses” — a clay bomb, effectively, filled with a burning mixture of pitch, pinewood, charcoal, and loose fibers — at the walls (fig. 50).

**Bombards**

The primary gunpowder artillery weapon in the Ottoman arsenal during the fifteenth century was the stone-throwing bombard, a weapon quite different from the smaller but more efficient cast-iron ball firing bronze cannon that came into use in the early sixteenth century. A rudimentary device initially made of wrought iron bars bound together by iron hoops, and later of cast bronze, the bombard fired a laboriously handmade and custom-fitted stone ball loaded at the breech, or in some later versions, at

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20 A weapon also known by the generic term “basilisk” (with many Turkish variants; generally bacaluška) into the early 1500’s, as well as balyemez, in Turkish. See Guilmartin, f. n. 3 p. 11 and p. 159, as well as Ágoston, pp. 78-80. Terms for artillery particularly in the fifteenth and sixteenth centuries are so numerous and used with such generality as to be almost impossible to firmly categorize. For the earliest mentions of bombards in Balkan sources see Petrović, D., “Fire-arms in the Balkans on the Eve of and After the Ottoman Conquests of the Fourteenth and Fifteenth Centuries”, in Parry, V.J., and Yapp, M.E., eds., *War, Technology and Society in the Middle East*, London, 1975, pp. 170-172
21 Ágoston, p. 73
the barrel. Early Ottoman versions tended to be very large: the famous bronze example cast by the renegade gunner Urban at the siege of Constantinople was said to be 8 m. long with a bore of 80 cm. and throw a ball weighing 550 kg measuring 2.2 m. in circumference. An excellent bronze example is preserved today in the grounds of Rumeli Hisarı (fig. 51), practically identical to the Duke of Burgundy’s Mons Meg (see fig. 20).

Such guns were not in any sense anti-personnel weapons. They were first and foremost aimed at the demolition of fortifications, hence their popular Turkish designation kale-kob, or “fortress-smasher”, and achieved a secondary role in naval combat, employed as the principal bow-line armament of war galleys (see section below) with the purpose of sinking other ships. Similarly, they came to be employed in coastal batteries like those at Rumeli Hisari, Kilid-ül Bahr, and Kale-i Sultaniyye against shipping, and attained enormous proportions, some bored to fire stone shot of 600 to over 1000 pounds in weight. Although capable of ranges of up to 2500 m., they were most effective at extremely close range, being, as with all weapons firing round shot, notoriously inaccurate. Their rough construction made them undependable and dangerous to operate: flaws in the casting made them prone to explosion.

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22 The dimensions are taken from Magoulias’ conversions of Kritovoulos’ measurements of the weapon in Doukas, Magoulias, ed., p. 305, f.n. 239
23 While Guilmartin terms these “ship-killers” and praises their ability to sink ships with “a single well-directed shot” into the sixteenth century (p. 80), he does so without examining the limitations imposed by such colossal weapons on their built environment.
24 The sixteenth-century Spanish gunnery expert Luis Collado recommended a very cozy 55 m. as the ideal distance of a siege battery from its target (“if you can do it”), anything over 200 m. already being too far. From his Platica Manual de Artillería of 1592, in Guilmartin, p. 179
25 It is possible that the early Ottoman preference for such enormous archaic weapons throwing massive shot of 600-900 pounds or even more (273-409 kg.) into the sixteenth century (and even beyond) was more to do with ease of targeting with such a large projectile than with perceived striking power.
Weapons of such a size were extremely difficult to transport. Although some versions were cast in sections (fig. 52) and could be dismantled for placement on wagons during campaign, they were remarkably intransigent once assembled. Fired from a prostrate position on immobile wooden or stone beds (balks) set on the ground, they were difficult to deploy once in position, requiring considerable effort to traverse and the barrel effectively impossible to depress to provide downward-angling fire. No provision was made to mitigate or control recoil, and they must have had to be recalibrated after every shot. Kritovoulos vividly describes the mounting procedure for the massive weapon cast by Urban:

"After this, having pointed the cannon toward whatever it was intended to hit, and having leveled it by certain technical means and calculations toward the target, they brought up great beams of wood and laid them underneath and fitted them carefully. On these they placed immense stones, weighting it down and making it secure above and below and behind and everywhere, lest by the force of the velocity and by the shock of the movement of its own emplacement, it should be displaced and shoot wide of its mark."28

Versions of such weapons remained in the Ottoman arsenal well after they had become obsolete in the rest of Europe. In 1534 Kapudan-ı Derya (High Admiral of the Fleet) Hayreddin Barbaros Pasha’s infamously successful squadron possessed but one modern cast bronze basilisk firing iron shot, that mounted on Barbarossa’s flagship; the rest were archaic wrought iron pieces firing stone balls.29 De Tott remarked on the

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26 See Guilmarlin, f. n. 5, p. 11. He suggests that “heavy ropes” were used for traversing these gigantic weapons into the sixteenth century, a theory borne out by the presence of bronze rings on either side of the barrel on early weapons, which may also have been used for hoisting.  
27 This was a problem finally solved on war galleys by mounting such weapons on a wooden track running down the centerline. The problems posed by recoil being absorbed by the hull must have been considerable beforehand. See Guilmarlin, p. 207  
29 From a contemporary Spanish source quoted in Guilmarlin, p. 40. Other bronze pieces were reserved for the siege train carried by the fleet.
continuing presence of such outmoded ordnance on his visit to the Dardanelles fortresses in 1770, noting that the cannon were

"[A]ll of brass, without trunnions or carriages, laid upon hollowed pieces of wood, with their breeches secured by large stones to prevent their recoil." ³⁰

Practically nothing had changed since the time of Urban. The physical parameters imposed by such unwieldy weapons should be firmly kept in mind: they will be a decisive factor in our analysis of the fortifications in which they were employed.

"Mortars"

Kritovoulos credits Mehmed II with having “invented” the mortar during the siege of Constantinople, setting up cannon beyond the walls of Galata angled to fire upward and thus bring shot crashing down on the decks of the Byzantine and Genoese ships guarding the chain blocking entrance into the Golden Horn. Although the technique of lobbed shot was clearly a new one, our picture of the weapon involved is vague – Kritovoulos states merely that “they constructed a cannon of this type, as designed by the Sultan”³¹. Mihailović mentions Mehmed as having employed “mortars which drop stones into cities” in his siege of Mytilene/Lesbos/Midilli.³² While it is possible that Mehmed devised a short-barreled gun of the type we now associate with mortars, it is also possible that the arrangement simply angled the barrel of the traditional bombard upward, either with a frame or by burying most of the barrel; no contemporary examples of such early mortars exist. In any case, the effect of such lofted shot would have been relatively minor

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³⁰ de Tott, François, Memoirs of Baron de Tott, II, 2nd ed., London, 1786, p. 36
³¹ Kritovoulos, Riggs, trans., p. 52
³² Mihailović, Konstantin, Stolz, B., trans., Soucek, Svat, commentary, Memoirs of a Janissary, Ann Arbor, 1975, pp. 133-135
in the era of the stone ball. While the idea of plunging fire coming over the walls must have been distressing to the residents of a besieged town, such weapons only achieved their majority after the invention of the bomb. At the time of which we speak the parameters of range, accuracy, and velocity of early firearms meant that concentrated direct fire was the most reliable option, both against walls and shipping.

Siege Techniques

Mining

The mine was a time-honored siege technique that became even more effective with the invention of gunpowder. What began as the simple technique of undermining the walls, supporting them briefly with wooden beams, and then setting light to the beams in order to cause a collapse was made even more efficient and destructive by the setting of powder charges beneath the walls and exploding them. Conditions had to be right: the ground could not be too hard or rocky or too close to the water-table, but if done right the mine was a highly effective means of creating a breach without wasting valuable men and shot.\textsuperscript{33} The Ottomans were expert miners, the \textit{lağımecis} (sappers) digging no fewer than fifty-four mines at the second, successful siege of Rhodes in 1522.\textsuperscript{34} Interestingly, the typically solid walls of early Ottoman fortifications employed none of the measures taken in the west to mitigate the threat of mining, the countermine gallery in particular. This was a largely French approach constituting a gallery in the base of a tower with the

\textsuperscript{33} Confronted by hard soil at Malta the Ottomans attempted unsuccessfully to mine through the very collapsed material in the ditch. Guilmartin, p. 190
\textsuperscript{34} Duffy, 1987, p. 192. Ottoman mining techniques may have been acquired from the actual ore miners employed early on in the technique: Konstantin Mihailović may have been among a contingent of Serbian miners from the mining center of Novo Brdo sent by Đurađ Branković to assist Mehmed at the Siege of Constantinople. Soucek, in Mihailović, p. 218 f.n. 4. At Rhodes, fifteen Ottoman engineers were impaled for having failed to undermine a portion of the walls as they had promised to do. See Kollias, Elias, \textit{The City of Rhodes and the Palace of the Grand Master}, Athens, 1988, p. 28
purpose of listening for sappers.\textsuperscript{35} Once a mine had been detected, a countermine would be dug from within the enceinte with the intent of surprising the sappers at their work and potentially prematurely collapsing their mine on top of them. It was all extremely hazardous and difficult work, and exemplified by Murphey’s statement that “the moving of earth (by both defenders and attackers) was without doubt the chief occupation of the greatest number of men for the longest period of time in most sieges”.\textsuperscript{36}

\textit{Trenches}

Trenches were another form of mining that allowed the approach of the walls in relative safety and the undertaking of further siegeworks. In Ottoman usage, \textit{beldars} (trench diggers) were entrusted with expanding the network of such trenches in order to bring the siege guns to within effective range, as well as to allow the all-important capture of the ditch. The engineer Giovanni Mormori recalled the piercing of the counterscarp wall of the ditch at Famagusta/Gazimağusa in 1571 by the \textit{beldars}, who proceeded to build a double traverse \textit{within} the ditch with the soil ejected from the hole they had made, its open flanks protected by gabions, bringing troops to the base of the wall.\textsuperscript{37} In Mihailović’s mid-fifteenth century account, however, it seems that approaches were still made primarily under cover of darkness without the use of trenches, which

\textsuperscript{35} See Mesqui, p. 181
\textsuperscript{36} Murphey, p. 119
\textsuperscript{37} Giovanni Mormori, in Duffy, p. 196. See also Murphey, pp. 115-119 for a very detailed description of the 1638 siege of Baghdad. Very little had changed in terms of siege techniques since the conquest of Cyprus.
must have only become necessary when attackers were faced with a significant threat of massed firearms.  

_The Siege Tower_

The siege tower was a true holdover from Roman warfare that continued to have relevance into the sixteenth century. Once a ditch preceding a fortification was filled in with gabions (Turkish çit, bundles of wood), soil, and rubble (often that which tumbled off the wall itself through bombardment), the wheeled tower could be brought up against it, allowing archers in the upper storeys to pour fire down upon the defenders of the wall and cover the approach of their colleagues crossing to the wall on wooden gangplanks. Employed by the Ottomans in desperation as late as 1565 at Malta, the tower was particularly vulnerable (as with all conventional cold-steel artillery) to cannon fire directed at its base; in this case a newly cut embrasure in the base of the wall allowed the Knights to make short work of the structure. With the gradual lowering of fortress walls in response to gunfire and the mounting of artillery in defense, both the purpose and effectiveness of the technique were eventually lost.

_The War Galley_

Three of the fortresses we consider in this study – Rumeli Hisari, Kilid-ül Bahr, and Kale-i Sultaniyye – are coastal, and were constructed with the express purpose of

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38 Mihailović, p. 186-187. Janissaries would approach the place of a breach during the night and lie in wait until daybreak, at which point the cannon were discharged to force the defenders from the wall. They would then attempt an escalade of the empty parapets.

39 Guilmartin, p. 190. The tactic was tried again later the same week only to have the tower burned.
controlling and destroying shipping. Therefore it is imperative that we have a thorough understanding of the type of shipping they were built to confront. Preeminent among the types of military and cargo vessels in use during the fifteenth century by the naval powers of the Mediterranean was the galley (*kadırga*), which although sometimes additionally equipped with sails was primarily powered, particularly during combat, by two parallel banks of men with oars, at least twenty-one or twenty-two rows in all, with at least three men to a bench, each pulling an individual oar (fig. 53). Armament usually consisted of a single bow-line gun pointing forward (untraverseable for lack of space), supplemented in the sixteenth century by smaller antipersonnel weapons mounted on the flanks (fig. 54). The purpose of the war galley was primarily anti-ship warfare of a variety that had been practiced since Salamis: the head-on approach, boarding, and capture through hand-to-hand combat of an enemy vessel, or its destruction through ramming, fire, or the use of its bow-line gun, for the use of which the galley itself had to be pointed at the target.

This is absolutely critical observation for our study. War galleys of the fifteenth century were incapable of laying down the kind of heavy broadside fire that the successive generation of sailing warships with ranked decks of guns was capable of from the seventeenth century onward. When deployed against fortifications, their role was chiefly blockade, followed by the landing of fighting men to attack the walls. Concentrated artillery fire was difficult to make effective against stone walls unless there

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41 R. C. Anderson has pointed out that the use of Greek Fire allowed Byzantine shipwrights to dispense with the traditional elongated Greek underwater ram, allowing for a lighter, stronger, and amphibious prow. Anderson, R. C., *Oared Fighting Ships*, London, 1962, p. 39
42 Guilmartin, p. 73
43 A role played by Mehmed’s galleys at the Siege of Constantinople, and repeated in Mesih Pasha’s strategy at the first siege of Rhodes in 1480. See Kollias, p. 19.
was complete naval superiority and open, relatively still water on which to marshal a cannonade; this assumed that withering disruptive fire was not incoming from the shore. In the narrow, swift-currented channels where our three fortifications are located, the likelihood that a fleet of galleys could have formed up abreast and astride the current to mount an effective coordinated barrage would have been low indeed. Forced by the geography of the setting into a confrontation with the superior firepower of the fortresses, galleys were at a distinct disadvantage. At the same time, such coastal fortifications had to be prepared for the very good possibility that an enemy fleet might land an infantry force up- or downstream in order to execute an amphibious encircling manoeuvre, then deploy to blockade the fortress from the water. With its low draught and the high maneuverability afforded by its oars inshore, the galley was the ideal amphibious assault vessel, capable of running its prow directly onto a beach, covering its disembarking troops with its centerline bow gunnery. Such amphibious assaults were a tactic of pointed significance in the Dardanelles as late as 1915. These are all considerations that we must take carefully into account in our examination of the design of Fatih’s fortresses.

44 Even by 1683 as recognized an authority as Vauban was still extremely circumspect about deploying ships against fortresses, citing the very real issues of small-caliber ship-borne guns, the flimsiness of wooden hulls, and the instability of the firing platform. See d’Aiglun, Rochas, *Vauban, sa Famille et ses Ecrits*, 2 vols., Paris, 1910, pp. 212-213. This changed with the introduction of the ship-borne mortar in the seventeenth century, which could loft an incendiary bomb behind the ramparts while staying out of range of its guns, and the appearance of armor on ships during the mid-nineteenth.

45 Guilmartin, pp. 79-80, observes that in open water galleys tended to stay out of range of batteries, also for fear of running aground, rendering the guns of both sides relatively impotent. Without citing specific instances, he then contends that in calm weather a galley might approach and attempt a bombardment of the traditionally more vulnerable sea walls of a lightly manned or outmoded fortification. The latter is doubtful, given the evidence of the previous footnote: as late as the eighteenth century it was a dangerous proposition indeed for wooden ships to engage shore batteries at close range, no matter how heavily armed.

46 Guilmartin makes the point that Mediterranean sea battles were generally fought near land and often had a strong amphibious component as a result, citing the example of the Battle of Prevesa/Preveza, 1538. Guilmartin, p. 56
Part One:

1452 – 1458
Chapter Four

Rumeli Hisarı

History

By 1452 the comprehensive Ottoman adoption of gunpowder artillery in the form of wrought-iron bombards allowed a very different type of fortification to be built on the shores of the Bosphorus, a vital strategic position in Mehmed II’s plan for the conquest of Constantinople. Whereas Anadolu Hisarı had acted chiefly as a staging post for Beyazid I’s forays into Europe, Mehmed saw that batteries placed on both European and Asian shores at the same point – the narrowest in the Straits, at roughly 660 m. – would allow complete control of Black Sea traffic to and from the doomed city. The Byzantine capital had historically profited from the ready avenue of supply afforded by the Straits and the Sea of Marmara (and thus the Aegean) when under siege, and the loss of control of both of these routes to the Ottomans provided the chokehold that proved the city’s undoing. Despite Mehmed’s assertion to a gathering of Byzantine ambassadors that the fortress was intended only to provide security for Ottoman crossings from their holdings in Asia to those in Europe, the real purpose of the project was quite clear to the inhabitants of Constantinople:\(^1\) the early name given to the fortress, “Boğaz Kesen”, with the dual meaning of “the Cut-Throat Fortress” and “the Fortress which Cuts the Bosphorus” was an appropriate one. It is a testament to the powerlessness of Constantine XI that he were unable to in any way impede the construction of a hostile fortress not thirty kilometers

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\(^1\) Kritovoulos, Riggs, ed., pp. 16-18
beyond the walls of his palace; as Mehmed stated, “I take nothing from the City (in
building the fortress). Beyond the fosse she owns nothing.”

Preparations began in the fall of 1451. Both Kritovoulos and Doukas somewhat
doubtfully record that the plans were laid out by the Sultan himself, and construction
commenced on April 15, 1452. Doukas records that 1000 masons and 2000 workmen
were engaged in the construction of the walls, the work apparently apportioned at one
cubit per mason, the unskilled labor provided through corvée from “the eastern and
western provinces”. Another three thousand were responsible for the supplies. Beams
were brought from the Nicomedia/Izmit on the Sea of Marmara and Pontoheraklea/Ereğli
on the Black Sea. The stone came from the East. Furnaces were set up at Çubuklu on the
Asian shore to produce cement. The construction of the three main towers was delegated
to three of Mehmed’s viziers to be undertaken at their own expense, while the curtains
and smaller towers were to be the task of the Sultan’s own workmen. Entrusted with the
construction of the seafront tower was the most senior of the three officials involved,
Grand Vizier Çandarlı Halil Pasha, of the ancient and illustrious Çandarlı family, early
companions of the Ottomans. Second Vizier Zağanos Pasha was put in charge of the
southwestern corner tower. A Christian renegade, he was a convert to Islam and may

2 Doukas, Magoulias, ed., 195
3 The number is usually given as three thousand (eg. Müller-Wiener) but Doukas clearly states that
“[o]utside the walls there were one thousand masons, and each mason was given two assistants. Within
there was an equal number of masons and assistants, who carried stones, slaked lime, and baked bricks
beyond number.” Doukas, Magoulias, ed., p. 197
4 Gabriel, p. 62
5 Doukas, Magoulias, ed., p. 197. The epigraphical evidence indicates that Zağanos Pasha was also
responsible for the southeast corner tower. Ayverdi observes that this kind of delegation of building cost
was fairly standard in the Turkish tradition – at Konya, for instance, the walls were financed by high
officials. Ayverdi, IV, p. 628
6 See Uzunçarşılı, I. H., Çandarlı Vizier Ailesi, Ankara, 1974, pp. 78-84. The latest of a line of Çandarlı
Grand Viziers, he would not be long for his post, his execution for collusion with the Byzantine Emperor
taking place in June or July after the conquest of the city.
7 Lowry, Heath, Nature of the Early Ottoman State, p. 119
later have been involved with the reconstruction of the walls of Galata after the
Conquest. Saruca Pasha was put in charge of the northern tower, the tallest of the three.

An anonymous sixteenth-century Greek chronicle records that the Constantinopolitans
themselves contributed food and stone to the project, in a desperate attempt to appease
the Sultan, while others, angered at the demolition of the Church of St. Michael
Archangel to provide building materials attempted to storm the site but were captured and
killed. So eager was he to finish the fortress quickly that Mehmed himself apparently
helped to carry stones.

The fortress was reportedly completed by August 31 of the same year and was
placed under the command of Firuz Ağa with a garrison of four hundred men. On the
26th of November 1452 the guns of its waterfront battery sank a Venetian galley that had
attempted to force the Strait, and the hapless captain Antonio Rizo was impaled. Despite
this action the fortress seems to have played a minimal part in the actual siege of the city
beyond acting as a deterrent to Christian relief efforts. It has never faced a siege itself and
damage has been mostly the result of the frequent earthquakes in the area. In the sixteenth
century the north tower was used as a prison, although having lost its strategic
importance the fortress fell into disuse. Sometime in the 1830’s the lead-covered roofs

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8 Eyice, Semavi, Galata ve Kulesi (Galata and its Tower), Istanbul, 1969, p. 62. Eyice gives no source for
this remark.
9 Anonymous, Philippides, M., ed. and trans., Emperors, Patriarchs, and Sultans of Constantinople, 1373-
1513: An Anonymous Greek Chronicle of the Sixteenth Century, Brookline, 1990, p.43
10 Doukas, Magoulias, ed., p. 197
11 Mihailović, p. 89. Mihailović was not yet a Janissary during the building of the fortress: he joined the
corps sometime after his capture at the siege of Novo Brdo in 1455. He may, however, have been present at
the siege of Constantinople two years earlier as a very young member of the Serbian contingent in the
Ottoman forces sent by Despot Đurađ Branković as a vassal of the Sultan. Soucek, in ibid., p. xxi and f.n.
4, p. 218
12 Extraordinary speed of construction is a recurring theme in the literature of imperial architectural
achievements, although with the massive labor forces frequently employed by the Ottomans there is no
reason to think it overly exaggerated. If Mehmed were able to drag his galleys over the hill of Galata into
the Golden Horn there is no reason to think him incapable, with a force of six thousand men, of completing
Rumeli Hisari in five months.
collapse. The first restoration efforts were undertaken in 1915 and most recently between 1953 and 1955, for the five hundred year anniversary of the conquest of the city.

Description

Rumeli Hisarı is set on a somewhat awkward site on the extremely steep slopes of two adjacent hills above the western shore of the Bosphorus (fig. 55), between which runs a deep ravine. It covers an area of approximately 30,000 square m., parts of which are only marginally useable given the pitch of the site (fig. 56). The steepness of the location dictates the profile of the walls, which, on both north and south curtain, are forced to climb almost cliff-like terrain; on the north side in particular this is achieved through quite drastic stepping of the walls (fig. 57). It is remarkable that the interior terrain of the fortress is in parts visible from the water (fig. 58). The fortress is an irregular polygon, the three chief features being the large cylindrical towers of Saruca Pasha at the north and Zağanos Pasha to the south, positioned on opposite hilltops, and the dodecagonal Tower of Çandarlı Halil Pasha on the waterfront. Our description will address the curtains and subsidiary towers first, and then address the main towers and the gates.

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13 Presumably after Pardoe made her engraving in 1836, although the roofs appear to be in fairly good condition in her depiction. See fig. 98 below. The disappearance of the roofs is mentioned by Mamboury, “L’art Turque du 18e siècle” in La Turquie Kemaliste XIX, Ankara, 1937. The date of the 1830’s for the disappearance is repeated in Müller-Wiener, Wolfgang, Ülker, Sayın, trans., Istanbul Tarihsel Topografyası (Bildlexikon zur Topographie Istanbul’s), 3rd ed., Istanbul, 2007, p. 337

14 For the purposes of clarity I have assigned letters to the towers, beginning with Tower A (the Tower of Zağanos Pasha) in the southwest corner and continuing alphabetically in a clockwise direction.
West Wall

A long western wall links the two large cylindrical towers across the small, densely wooded ravine between their respective hilltops, its length interrupted by a gate (Sel Kapısı, the “Torrent” or Ravine gate) between the Tower of Zağanos Pasha and tower B, the first of two round flanking towers (figs. 59, 60). There is no communication between the wall-walk and the large towers at either end. Notably this, and not the sea wall, is the thickest, averaging about 5 m., and the highest, in places 15 m., of the fortress walls, reflecting the greater likelihood of a Byzantine flanking maneuver from the advantaged high ground west than a coordinated naval assault from the Bosphorus.\(^{15}\)

Like all of the curtains in the fortress except for a short internal passage along the east, the western wall is internally solid and featureless except for its wall-walk and parapet. The merlons in this sector are plain (without slits), and are truly massive, some approaching 3.5 m high and 2 m wide (fig. 61). The parapet is 70 cm. thick. The wall is pierced every four or five merlons by low openings with protruding stone lips to drain water from the wall-walk without damaging the exterior surface of the wall, although they could have served equally well as makeshift embrasures. The wall-walk in this sector is 4 m. wide (fig. 62).

Stairs built against the wall (but not “Palladian” or supported on mounting arches in the old Byzantine manner) give access to the wall-walk at several points. The sector between the Tower of Zağanos Pasha and tower E is a thoroughfare, passage being

\(^{15}\) The measurements directly contradict Kritovoulos’ assertion that “the thicker parts of the walls were towards the sea” (Kritovoulos, Riggs., ed., p. 20) and Barbaro’s statement that “[o]n the landward side it was very strong, but not so much as toward the sea”, in Barbaro, Nicolò, Jones, J.R., trans., _Diary of the Siege of Constantinople_, 1453, New York, 1969, p. 9. This inaccuracy is restated in Imber, p. 147. The western wall, with its two massive towers and thickness, is by far the most heavily defended part of the fortress. We have already established the difficulties which contemporary war galleys would have faced in attempting to match guns with Rumeli Hisarı from the water, although the question of a landing upstream was not out of the question.
possible through the top floors of towers B (now blocked), C, and D.\textsuperscript{16} The sector is serviced by four staircases. Towers B and C are cylindrical and closed-gorged, the ground floor of tower B accessible from the bailey (fig. 63). There is no such access in tower C, its first floor reached via an external, and possibly later, stairway (fig. 64). With subsequent intervention it is difficult to determine the construction of each floor. The middle was probably of wood (there is a replacement in tower C) and the terraces too as there are no signs of vaulting or internal features – tower B is a simple gaping well. At the ravine floor at the midpoint of the wall stands a square salient, Tower D (fig. 65, 67, 68), much restored in concrete with a water gate admitting the stream (fig. 66) (now mostly sewage) that flows into the fortress from the east. Two rectangular niches are preserved in its interior, on the east and west walls of the level of the wall-walk, the only accessible level.

From this point the wall climbs again, interrupted by two pentagonal open-gorged towers to the north, towers E (figs. 69, 70) and F (figs. 71, 72). These may have had wooden platform floors in their height, although the post-holes are no longer visible in tower F – their most important features are their protruding fighting-terraces (fig. 73). The communication ends at the first of these, tower E, where due to the rise in ground level the wall must be echeloned; the same occurs again at tower F. Both towers and their adjacent curtains to the north are serviced by single staircases, creating two independent sectors. The possibility that this was also due to security considerations should not be ignored. The wall culminates at the Tower of Saruca Pasha, where again there is no communication with the interior of the tower.

\textsuperscript{16} Throughout this study I have used the European system of floor numbering, i.e. ground floor, first floor, etc.
North Wall

The north curtain begins with the north, or Mountain Gate (Dağ Kapısı) on the flat area immediately to the east of the Tower of Saruca Pasha (fig. 74), with which it has no communication. From here it begins an extremely steep descent, the wall staggered to follow the plunging terrain (fig. 75, and see fig. 57). The wall-walk breaks as the wall turns southeast towards tower H, which is small, open-gorged and may have had at most one internal wooden platform, if any internal floors at all (fig. 76).

East Wall

The east wall should really be considered in two separate sections, the curtain between tower H and tower I, and the section between tower I and tower O at the southeast corner of the enceinte. Generally speaking, despite facing the potentially hostile direction of the water, the eastern curtains are among the thinnest in the main body of the fortress, at 4-4.2 m. The first sector between towers I and O, because it fronts a practically sheer cliff, is internally low (c. 4 m – see fig. 76) and exteriorly almost inaccessible. It is steeply echeloned where it descends to meet open-gorged tower I (fig. 77, 78), beyond which lies the main entrance to the fortress, flanked to the south by the dodecagonal Tower of Halil Pasha. There is no communication between the wall-walk and the Tower of Halil Pasha.

Between the Tower of Halil Pasha and the southeast corner tower O there are three towers, the first a small pentagonal salient L (fig. 79), wedged between the Tower of Halil Pasha and the open-gorged tower M (fig. 80). Judging from its masonry, which is
unengaged with that of the main wall and different in construction, and the greater depth of its crenellations than those adjacent in the eastern curtain, this tower is an addition, perhaps contemporary or nearly contemporary with the exterior battery discussed below. From the exterior of the fortress the arch of a second water gate is visible in its base, allowing the exit into the Bosphorus of the stream that entered the fortress at tower D (see fig. 79). The presence of tower L just behind is not expressed on the inside of the fortress wall, and it seems likely that its construction was an afterthought, intended to defend the vulnerable water gate over which it is built. The water gate itself is accessible only via a passage through the thickness of the wall from the interior of the tower of Halil Pasha. It should be noted that this is the only instance of a gallery within the fortress walls and, lacking embrasures of any sort on the outside, is entirely without offensive function; small openings to the interior of the fortress light the passage (see plan fig. 56). Sewage and water are still audibly in transit through the channel under the tower and through the gate. In summer and winter both these and the water gate at tower D could have served as supplementary postern gates.

Beyond open-gorged tower M lies the odd tower N, which is closed-gorged but without any access to its cylindrical interior from ground level within the enceinte (fig. 81). It had a wooden floor at the level of the wall-walk, and the terrace above may have had a flat wooden floor covering the interior. As it is it is a gaping well without any signs of vaulting and must have been a damp, dank place indeed. As noted, there is no communication from the eastern wall-walk with the interior of southeast corner tower O.
South Wall

Tower O at the southeast corner of the fortress is also inaccessible from the ground level inside the enceinte, its only entrance being at the level of the south wall-walk (fig. 82). A stair in the thickness of its wall leads up to the terrace. Although irregularly hexagonal exteriorly, this shape is only reflected interiorly in the terrace and the floor at the level of the wall-walk (fig. 83). Below this the interior is cylindrical and featureless, although it could have been used for storage. The exterior facets of the tower are heavily battered for about a quarter of its height (see fig. 163). According to Pardoe’s engraving of the fortress of the 1830’s, this tower was covered with a conical roof in the manner of the three main towers of the fortress (see fig. 98). As the tower also bears an inscription on its exterior face (see fig. , and below) attributing it to Zağanos Pasha, it has come to be popularly known as the “Küçük Zağanos Pasha Kulesi”, or the “Little Zağanos Pasha Tower”. As such, and given its inaccessibility from the bailey and the east wall, it should be considered an intermediate type between the simple unroofed flanking towers and the three large independently fortified towers that we will discuss in a separate section below.

The south wall is the thinnest of those in the fortress, at a mere 2.5 m in places, and is echeloned along its entire length up the steep slope to the tower of Zağanos Pasha (fig. 84). Unlike the other parapets of the fortress, all of the merlons along the south wall are pierced for small arms (fig. 85). The merlons themselves are quite wide, 2.14 in places, and 60 cm thick.

The length of the wall is defended by two small pentagonal towers along its length, P and Q (figs. 86, 87). These are semi-open-gorged, that is, their backs have tall
arched openings (figs. 88, 89), although only in the first of these, tower P, is there communication between the level of the wall-walk and the ground (fig. 90). Beside tower Q stands a small square postern gate with a tall arched interior (fig. 91). Where the wall-walk eventually meets the tower of Zağanos Pasha there is a small platform (see fig. 85) again, with no communication with the interior of the tower.

_Bailey_

The fortress interior is remarkably devoid of any contemporary permanent structures. There are no halls built against the walls, nor any armories or barracks of any kind. Occupied after the decommissioning of the fortress (probably a gradual process) by a sizable village of wooden houses, it is now empty except for modern buildings and an outdoor theater.

The only Ottoman remains are that of the mosque of Ebü’l-Feth (“Father of the Conquest”, Mehmed’s Arabicized _nom de guerre_), consisting of a single brick minaret set upon a square mixed brick and stone base. Underneath this in what was the undercroft of the mosque (fig. 92) is a cistern holding the water brought into the fortress via the water gate in tower D. A well of uncertain but probably Ottoman date also survives just to the south of the mosque (fig. 93).

_The Towers_

As the bulwarks of the defensive system in what is otherwise a relatively featureless enceinte – the walls, typical of all of Fatih’s fortresses, lack any kind of internal shooting gallery – the three main towers of Rumeli Hisarı deserve individual
consideration. They are similar in their massive size, their lack of communication with the wall-walk, and their independently fortified aspect, but each possesses unique characteristics that confirm their independent construction.

Çandarlı Halil Pasha

The seafront tower attributed to Grand Vizier Çandarlı Halil Pasha (tower K) is a regular dodecagon projecting almost entirely from the line of the walls on the east front of the fortress, directly facing the water (fig. 94, see plan fig. 56). The tower has a diameter of 23.3 m. and rises to a height of 22 m. The walls are 6-6.5 m. thick. It is set upon a round stepped foundation and has a very slight batter, rising only about a meter off the foundation, which does not appear on the interior of the enceinte (fig. 95). The tower probably had nine internal floors including a basement, although Gabriel’s reconstruction only puts eight in the tower (section fig. 96). There is no cistern. Stairways in the thickness of the wall create what are effectively two concentric cylinders (the interior of the tower is round), the inner rising above the height of the outer to create two superimposed terraces (fig. 97). These were both covered by a bipartite lead-covered conical roof, the portion covering the lower terrace forming a “skirt” abutting the walls of the interior cylinder and resting on the sloping tops of the merlons, that of the upper terrace supported on diagonal posts from the surface of the terrace but with an additional skirt resting on the merlons: the arrangement is shown on an engraving of 1836 (fig. 98 and see section fig. 96). Such was the case in all three of the main towers at Rumeli Hisarı until approximately the 1830’s when the roofs collapsed. In addition to lending a

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17 Ayverdi’s reconstruction puts two additional floors in the central drum based on the evidence of a hearth just beneath the level of the terrace. See Ayverdi, III, p. 648
monumental aspect to the fortress, such roofs served an important practical function in protecting the vulnerable flat terraces from incendiaries.

The entrance to the tower consists of a complete reconstruction of a finely carved tripartite, probably Middle Byzantine church doorway set within a brick arch (fig. 99). It is tempting to suggest that this is one of the doorways of the church of St. Michael Archangel that Doukas observes to have supplied much of the building material for the fortress. The arch, while round in profile (although slightly flattened by the loss of some masonry above it), is remarkable for having had a groove cut into the bricks of its lower edge to create a typically Ottoman ogee arch (fig. 100).

The small entrance chamber is covered with a small blind dome (fig. 101). Wide stairways (1.2 m) branch off immediately through the thickness of the wall, the right rising, the left descending to the cellar, both covered with ramping barrel vaults (fig. 102). Immediately off the rising staircase a small doorway cut through the wall of the tower into the thickness of the adjacent curtain gives access to tower L and the water gate through the gallery mentioned above (see plan fig. 103).

A barrel vaulted passage flanked by niches leads straight into what was the ground floor. Surprisingly for a building of this size but typical of all of Fatih’s towers, all of the floors including the ground floor were of wood. None survive. All floors have six large brick-arched casemates let into the walls (fig. 104), each 2.35 m deep, three wide and three narrow (see section fig. 96). These are directly superimposed from floor to floor without regard for possible weakening of the structure. Some give access to slits through tight square channels through the wall (fig. 105). These, angled steeply upward interiorly, are intended for light only and could not have been used for small arms. Other casemates

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18 Doukas, Magoulias, ed., p. 197
contain hearths (*ocak*), with chimneys leading up from their backs (fig. 106). Small square niches with brick arches are also set into the walls. Although the upper floors are inaccessible today the fourth and fifth floors in particular had a number of auxiliary spaces built into the thickness of the walls (fig. 107).

For the purposes of security the openings of the tower looking on the exterior of the fortress tend to be slits except for some small square windows in the upper registers. The facets of the tower looking into the battery/“barbican” tend to be blind, presumably as a security measure. On the interior of the enceinte, however, several square and brick arched windows open from the floors and stairway on the upper levels to look into the bailey, the two arched examples directly superimposed over the entrance acting as makeshift overhead machicolations (fig. 108).

**Zağanos Pasha**

The Tower of Zağanos Pasha, also known as the Rose Tower (*Gül Kule*) stands at the southwest corner of the enceinte on the summit of one of the two hills the fortress encompasses (fig. 109, 110). The tower, with a diameter of 26.7 m. is the thickest of the three main towers, but at 21 m. high is also the squattest. Its walls are 5-7 m. thick, especially on the west side facing the open country, giving its plan a slightly ovoid shape (fig. 111). The high ground beyond this – the heights of the present-day Bosphorus University – would have meant that this sector was perhaps the most vulnerable in the fortress. As with the Tower of Halil Pasha, the tower sits on a stepped foundation (fig. 112) but has a much more pronounced batter (fig. 113). There are five internal floors, the ground floor uneven because of the bedrock upon which it is built (see section fig. 120).
Like the Tower of Halil Pasha, the internal cylinder rises above to create two separate terraces, both covered until the early nineteenth century by a conical, bipartite roof (see fig. 98).

The projection of the tower beyond the line of the walls is likewise noteworthy—the south and west curtains are deliberately retired north and east, respectively, to allow the tower to project almost four-fifths of its exterior surface (see plan fig. 56). This was clearly intended to allow the greatest angle of attack for defenders on its upper fighting platforms, as the terraces entirely dominate both adjacent curtains as well as the interior of the bailey. We will see a similar but more sophisticated awareness of defensive angles in our treatment of Yedikule. In view of this pronounced projection it is interesting that the outer face of the tower is almost entirely blind (fig. 114) bar the area immediately adjacent to the south wall (see fig. 110), even more so than the outward-facing surfaces of the tower of Halil Pasha. This was clearly a security precaution against bombardment of the outer face taken at the expense of having additional fighting levels below, in which the necessary introduction of casemates could have fatally weakened the structure; this is emphasized by the additional thickness of the western wall of the tower. A similar structural logic may have militated against the presence of internal galleries in the curtains of the fortress. In any case, the builders were clearly quite aware of the danger posed by the high ground just beyond the fortress in this area. The darkness of the interior of the tower must have been overwhelming before the collapse of the roof.

The tower’s entrance is elegantly treated. The steep approach was probably always served by a long flight of steps through the corridor formed by the retirement of the adjacent curtains (fig. 115). The arrangement would have provided its own security:
there is no overhead machicollation and the gate sits flat against the surface of the tower, although overlooked by two windows and a slit. The doorway itself is flat-arched, here enlivened with the use of alternating limestone and greenstone voussoirs (fig. 116), the arch outlined in brick. The jambs are composed entirely of stacked spolia with some intervening brick; the monumental impression is increased by two capitals sunk into the masonry on either side of the doorway (fig. 117, 118).

Like the other two main towers, the interior of the Tower of Zağanos Pasha is unique. Rather than the casemates of Halil Pasha, the central cylinder is almost featureless (see plan fig. 111), and the stairway, rather than rising through the thickness of the walls as in both other towers, here is built against the interior of the inner cylinder (fig. 119). This seems to have been intended to preserve the strength of the walls which would have been weakened with the introduction of interior spaces.

The tower is also interesting for the method of flooring. As seen in the plan (fig. 111), the wide, squat proportions of the tower are such that a central pillar is necessary to support the wooden floors. This is an impressive structure, rising up through the entirety of the body of the tower, its diameter 3.6 m. at the base (fig. 120, 121). Brackets projecting from the pillar on each floor level supported the wooden floors, now disappeared (fig. 122).

Saruca Pasha

At the northwest corner of the enceinte stands the Tower of Saruca Pasha or the ominously named Dark Tower (Kara Kule). Although not as thick at 23.8 m. as that of Zağanos Pasha, the tower is the tallest of the three at 28 m (figs. 123, 124), with seven
internal floors (fig. 125). Its projection beyond the line of the walls is not as pronounced as that of Zağanos Pasha but remains considerable and must have been dictated by the same defensive considerations. Again, it sits out of line with the otherwise straight western curtain, the wall diverted west to push the tower forward (see plan fig. 56). Its outward-facing surface, like that of Zağanos Pasha, is almost entirely blind (fig. 124) except for a concentration of openings overlooking the western curtain (see fig. 123). Like the other two towers it also has a mild batter on the exterior (see fig. 158) All the interior spaces are concentrated in this area and that overlooking the bailey (plan fig. 126).

The entrance to the tower appears to be corbelled out from the curving surface of the tower on several layers of masonry superimposed (fig. 127), creating an effect not unlike that of *muqarnas*; in fact the device is intended to eliminate the two potentially deadly blind corners created by the depth of the entrance, opening up the field of vision from the doorway in both directions. The security problem inherent in putting an entrance through very thick walls might have been better addressed by a double door, but in this case a square overhead machicolation serviced from the third floor and two slits in the cut-away jambs of the arch complete the defensive program of the entry (fig. 128). An ogee arch of radiating bricks is set into the tympanum of the doorway, below which was placed the inscription, now disappeared. The lintel of the actual opening of the doorway is a large reused piece, as are the jambs and impost blocks heightening the entrance. The jambs have been set so that their grooved decoration does not face outward (fig. 129, 19 Gabriel puts eight internal floors in the tower, including the ground floor (see section fig. 125). Ayverdi and Toy put no extra floor immediately under the dome, creating one very commodious top floor. Ayverdi, *III*, p. 637, Toy, Sidney, *A History of Fortification from 3000 BC to 1700 AD*, London, 1955, reprinted as *Castles: Their Construction and History*, New York, 1985, p. 87. The latter reconstruction is probably more likely as Gabriel’s top floor would have coincided with the smoke outlet just under the dome.
They are, however, very similar to those of the entrance of the Tower of Halil Pasha and may also have come from the Church of St. Michael Archangel (see fig. 99). Finally, set into the masonry above the arch of the gate is another, small relieving arch of radiating bricks, highlighting a rectangular space now filled with bricks. It is difficult to determine what, if anything, was set into this space.

The interior of the tower is again unique among the towers of the fortress. In this case, a corkscrew staircase rises up through the thickness of the wall, accessed from the right of the entrance (see fig. 126). This rises in the same position the entire height of the tower rather than connecting across floors as the stairways do in the tower of Halil Pasha (see figs. 103, 107). Of the extensive interior spaces most notable is a well built into the thickness of the wall that descends two floors, as there is no cistern on the ground floor. This is not, as might be assumed, an oubliette or dungeon (fig. 131). This is interestingly the only measure taken in the three main towers of the fortress for preserving an internal supply of water in case of siege, a rather significant oversight given the soundness of all three structures in all other respects. The wooden floors in the Tower of Saruca Pasha, like those in that of Zağanos Pasha, are additionally supported in their massive span by a central column, in this case formerly of wood, one on each floor supporting that above by means of diagonal trusses (see section fig. 125). This and the floors have since collapsed. Unlike the other two main towers, the upper terraces of which had wooden floors covered with a conical roof, the central cylinder of Saruca Pasha is covered with a dome with a span of almost 10 m. (see fig. 129), above which the upper terrace is again wood floored and roofed in the same manner of the other towers.

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20 Toy, p. 88. Unusually for a scholar of his expertise, and perhaps indicative of the importance of regional knowledge, Toy believed the bottom five storeys of the tower to be Byzantine, along with the rest of the fortress.
Most of the slits having been blocked the interior of the Tower of Saruca Pasha is almost completely dark.

Battery

There is a single exterior feature to the fortress. Surrounding the main gate complex comprising the waterfront tower of Halil Pasha and the semi-circular tower flanking the gate to the north is a polygonal outwork pierced by arched embrasures, much of which has been destroyed by later building (fig. 132). Tursun Bey’s description of this feature as a *h caravan-peçe* \(^{21}\), or fortress-veil, has caused it to be misleadingly termed a barbican \(^{22}\), but is more properly considered an external battery: rather than intended to defend the entrance (the purpose of a true barbican), the small enclosure is only intended for the defense of the gunners within it. Although it features a small pentagonal turret on a round base, the wall is low and its larger embrasures were open to the ground, rendering the precinct marginally defensible at best, as each of these is 2 m. wide (fig. 133). The wall of the battery is 1.40 m thick, far thinner than that of the main fortress, although it does feature a very narrow wall-walk behind its crenellated parapet (fig. 134).

\(^{21}\) Tursun Bey, Tulum, Mertol, ed., *T arih-i Ebü’l-Feth*, Istanbul, 1977, p. 45: “Ve deniz kenarındaki bâruya, leb-i deryâya muttasîl bir hisar-beççe yapıldır; denize açılı kopucu kapu konuldu, ve her bir kapudan içeri bir ejderhâ-ı ateş-bâr şeklinde toplar konuldu ki, her biri bunun taş felek-i tedvir-i karmerden nişan virür ki, bunlar atıldıguna hiddet-i sür’at-i seyrinden.” “And along the shore-wall at the water’s edge was built an adjoining fortress-veil; opening onto the sea were twenty embrasures, and in each embrasure was placed a cannon like a fire-breathing dragon, the balls fired from which seemed able to target the moon revolving in the heavens, such was their speed and ferocity.” (my trans.). There has been some confusion over the term *hisar-peçe* by Tursun Bey, it having been often transliterated (and translated) “hisar- beççe”, literally, “fortress-child”, as in Dağtekin, Hüseyin, “Rumeli Hisari’nın ‘Askerî Ehemmiyeti”, in *Fâıh ve İstanbul Mecmuası I*, Istanbul, 1953, pp. 117-137, and Gabriel, Ilgaz, trans., p. 56, f.n. 1. Gabriel believed the term to be a diminutive meaning something akin to “châtelet”. The notion is absurd and Ayverdi lays it firmly to rest in Ayverdi, III, p. 630, f.n. 9.

\(^{22}\) For instance, Ahunbay, in Ćurčić and Hadjitryphonos, eds., p. 167
The embrasures are of two varieties. Despite Tursun Bey’s assertion of twenty emplacements for guns “like fire-breathing dragons”\textsuperscript{23}, only the arches of three (four if we include the water gate, which probably had a comparable appearance) of the large type open to the ground are visible today, with an additional perhaps four or five in the vanished section of the battery. There is additionally a smaller type of embrasure at a height of about 1 m off the ground, of which there are five in the surface of the wall and an additional two in the forward-facing facets of the pentagonal tower (fig. 135). A small arched doorway in the back of the tower gives access to its ground floor, probably useful only for storage as it has neither embrasures nor communication with the upper floor (fig. 136). This is accessed only from the wall-walk. The terrace above this seems to have been mostly decorative, as it would only have been accessible by ladder.

The elevation of the terrain has been similarly altered with the addition of the highway, but it is nevertheless apparent that the wall of the battery declined in height as it ran down towards the water from the small rocky eminence of the gate complex (see fig. 133). The highway has swallowed most of the height of the large embrasures on the waterfront, but the battery wall at this point was probably no higher than 3.5 m in its original incarnation, including the crenellation. The crenels are themselves remarkable in varying in height, a shallow one being flanked by two deeper ones (see figs. 135, 136). This is quite different from the parapets in the body of the fortress proper, where the crenels are of a uniform depth throughout; the arrangement here may have been designed to facilitate standing and kneeling fire. Either originally or with restoration some of the deeper crenels reach the level of the wall-walk and must thus have provided little protection to sentries – the castellation may thus have been primarily for show. The

\textsuperscript{23} Tursun Beg, Tulum ed., p. 45
merlons immediately above the entrance to the battery are pierced to accommodate small arms (fig. 137), a feature seen in main fortress only in the merlons of the south curtain and in two instances (perhaps the result of restoration) on the western curtain.

The battery is clearly an addition to the original circuit. The masonry at the point where it springs from an awkward point at the front of the semi-circular flanking tower to the north (tower I) is unengaged, simply abutting that of the tower (fig. 138). With its partial destruction the point at which it rejoined the main circuit at the south is not clear, although it was probably at or right beside the odd pentagonal salient L to the south of the Tower of Halil Pasha just discussed. Generally speaking, its workmanship is of an entirely different class than that of the main fortress. Tellingly, the flattened-arched entrance to the battery (and thus the front entrance to the fortress complex) lacks a foundation inscription or any of the decorative monumentality of the entrance within; it is frankly unthinkable that an Ottoman fortress, and particularly an Ottoman fortress of this magnitude, should have lacked an inscription above what was originally intended to be its main entrance (fig. 139). Furthermore, the battery wall interrupts the line of sight on the approach to the fortress gate from the north, thus blocking the view of the decorative features on the façade of the tower of Halil Pasha and the inner gate itself, features of which we will have more to say below. It is highly improbable that this disruption was the original intent of the architect(s).

Despite the impression given by Tursun Bey that the fortress was all of a single build, there is also much documentary evidence to support the likelihood of the battery having been a later addition. Beyond the structural issues we have considered of unengaged masonry and placement, Kritovoulos makes no mention at all of a “fortress-
veil”, stating simply that cannon were placed “by the seashore, on the ground under the wall, putting them close together along the whole side, pointing at the sea”\(^{24}\). Similarly, what is likely a Venetian spy sketch found by Babinger in the Biblioteca Trevulziana in Milan depicting the fortress and dated by him to roughly 1452-1453 shows the completed fortress without the battery, the guns simply mounted on the ground below the wall (fig. 140).\(^{25}\) Another such battery added by Fatih to the fortress of Anadolu Hisari on the opposite side of the Straits is similarly missing from the sketch. In sum, it seems likely that the “veil” was not part of the initial design of the fortress at all, its addition an afterthought for the protection of the gunners on the shore occurring sometime between 1453 and the early 1460’s when similar features were incorporated into the primary conceptions of the two Dardanelles fortresses.

**Gates and Windows**

Despite the sometimes insensitive restoration work that has been carried out, particularly on the main and northern entrances, a certain sense of monumentality is evident throughout the gates and doorways of the fortress. Even the tiny postern gate at the south is framed with large reused ashllars (fig. 141), its tall arched interior clearly intended to give those on the inside an advantage over those who would have to duck to enter (see fig. 91).

It should be noted that the majority of the arches in the fortress are of the large round type with radiating bricks more commonly associated with Byzantine work, embrasures and windows included: the three larger gateways uniformly feature these,

\(^{24}\) Kritovoulos, Riggs, trans., 1954, p. 21
within which are set typically Saljuq and Ottoman flattened-arched doorways. The pointed arch commonly associated with Islamic work occurs rarely in the gates of the fortress, on only one of the doorways into tower P from the wall-walk on the south wall (fig. 141), in somewhat ersatz ogee form above the reused Byzantine doorway of the tower of Halil Pasha (see fig. 100) and in the doorway to its lower terrace, and set into the tympanum under a larger round arch in the tower of Saruca Pasha (see fig. 127). It appears in elongated form in a single window in the tower of Halil Pasha and three of those in the Tower of Saruca Pasha (figs. 143, 144), as well as in the door to the interior of the Tower of Zağanos Pasha, an interesting occurrence in this otherwise extremely Byzantinizing structure (fig. 121).

The main gate features a large, radiating brick arch – heavily the product of restoration – and an inset, flattened-arched doorway with stone voussoirs, the whole set upon jambs of green stone blocks, the original pieces now heavily decayed (fig. 145). The tympanum was set with an inscription (now disappeared) framed by a border of perpendicularly set bricks (fig. 146). This is in large part, if not entirely, a modern replacement – the brick backing of the tympanum is bonded with wooden ties and supported by a wooden lintel (fig. 147). The overhead machicolation is now a simple rectangular hole, although a slot would have been architecturally feasible and probably desirable; this may be the result of restoration intended to replicate the square machicolation above the entrance to the Tower of Saruca Pasha (fig. 148, and see fig. 128).

The interior of the main gateway has seen a large amount of intervention, rendering it quite difficult to read architecturally. The brick arch of the exterior here is
translated through the wall in the form of a brick barrel vault, the corresponding interior arch set within a high rectangular area itself inset into the surface of the wall (fig. 149). The arch is confined on either side by the edges of the rectangle, squashing it at its springing points. The barrel vault and the arch are in large part restored, and it is possible that the original arrangement of the interior may have been quite different, although in the absence of any images of the interior of the gateway in its unrestored condition this is difficult to confirm. Its appearance is also typical of a number of gateways that have seen multiple interventions, as in that of the Korkut Camii in Antalya of c. 1500 (fig. 150).

The other main entrance to the fortress next to the Tower of Saruca Pasha at the north (Dağ Kapısı or the Mountain Gate) is quite differently treated (fig. 151). Although heavily restored, the arrangement, featuring a radiating brick arch set upon limestone corbels producing an outset overhead machicolation reflects the original arrangement, albeit here again restored with a hole, rather than a more likely slot, machicolation. Below the machicolation are two spaces for inscriptions, both now blank, and a flat arch with green stone voussoirs (fig. 152). The door jambs in this case are single, probably reused gray stone pieces with some rough carving on the left hand jamb, once possibly a Byzantine lintel. It is notable that on either side of the door at a height of 1 m. are a series of marble elements, clearly intended to highlight this significant locus in the walls. These consist, on the right hand side, of a section of frieze and an abacus (fig. 153), and on the left a stepped square element, possibly a plinth (fig. 154). Similarly, the whole sector of curtain, but particularly the area immediately around the entrance, is enlivened by the use of yellow/tan sandstone. Interiorly, the flattened arch of the gate itself is expressed in brick (fig. 155), giving access to a barrel-vaulted passage flanked on both sides by niches.
Of all the gates the Ravine Gate (Sel Kapısı) retains the most of its original appearance (see fig. 59). Again the gate features a radiating brick arch, this slightly higher and more ovoid than those of the other entrances (see fig. 60), squeezed as it is by the tower to the north. The arch rests upon jambs of limestone blocks, the topmost slightly outset on both sides, adding to its pinched appearance; clearly the need for monumentality was at odds with the need for security at this point in the walls. A lower, inset radiating brick arch creates a tympanum, in this case blank and recently repointed. A slot machicolation, clearly original work, overlooks the actual gate (fig. 156). The gate itself was a very small, low opening in comparison with its attendant archway, recessed through a brick barrel-vault let through the wall. This is entirely framed with green stone and has the same flattened voussoirs as the main and north entrances.

The water gates in towers D and L are very similarly treated, both with handsome stone frames, the arches notable for not being flattened in the way of the entrances (see figs. 66, 79). Although its front has been sheared off, leaving only a vault of radiating bricks (fig. 79), that through the battery wall was probably similar, following the model of the large adjacent embrasures: externally arched with limestone voussoirs bordered by a single course of brick (see fig. 133). Internally these embrasures are barrel-vaulted in brick, as with the entrances to the fortress – the vaults are expressed on the interior as radiating brick arches (see fig. 134). The use of stone voussoirs on the façade of the battery is remarkable, indicating a desire to impart an impressive appearance to what was essentially a roughly built structure. The smaller embrasures to the north are not so finely treated, their brick arches visible on both the interior and exterior (fig. 135).
Masonry

The fortress is constructed of mixed brick and stone, with a large diversity apparent in the application of the materials. Stone – a white-grey local limestone, a greenish variety from Karamürsel on the south shore of the Marmara Sea26, and small amount of yellow-tan sandstone – predominates in the curtains. These are generally of rough rubble construction, with liberal application of white mortar in the joints, these varying between 5 and 10 cm in thickness. The cut of the stone used similarly varies, flat, long cuts predominating along the southern and western curtains (fig. 157) and larger, probably reused ashlars apparent (especially towards the base of the wall and in the foot of tower of Halil Pasha) along the east and at certain points in the north (see fig. 95). Flat square bricks and their fragments appear as filler. Spolia consisting mainly of column and colonette drums as well as sculptural elements and blocks occur with some frequency in all sectors as a supplementary building material, but primarily in towers and along the eastern curtain (fig. 158); some of this may be the material Doukas mentions as having come from the ruined church of St. Michael Archangel. Those elements treated decoratively will be addressed in a separate section below.

The fabric of the towers varies greatly. As a general rule brick appears more frequently in towers than in curtains, suggesting a special status either as a decorative medium or as a material easier to work with in the execution of more complicated architectural features. Comparatively speaking, the tower of Saruca Pasha, towers B and C on the western curtain, and towers N and M on the east display a more limited use of brick than those of Zağanos Pasha, Çandarlı Halil Pasha, towers O and L, and towers D, E, and F on the western curtain, although re-pointing in cement may to some extent have

26 Ahunbay, Z., “Fortress of Rumeli Hisar, Turkey”, in Ćurčić and Hadjitryphonos, eds., p. 168
obscured some of the brick used in the fill. Certain areas of the curtains immediately adjacent to towers like those flanking towers P and Q seem to display a proportion of brick similar to the fabric of the towers, perhaps indicating the limits of the working area of crews. It should be kept in mind that subsequent restoration work has also affected the appearance of the walls, re-pointing and what appears to be a white lime wash applied to the curtains altering their original appearance. This is particularly true of the eastern front, the curtains of which are almost entirely white.

Some, more uniform masonry approximating Byzantine-style cloissoné work is clearly to be seen, particularly in the towers of Zağanos Pasha, that of Çandarlı Halil Pasha (fig. 159), and towers D, E, and F on the western curtain (fig. 160), although the execution of this is generally haphazard and piecemeal. The insertion of vertical bricks between blocks of stone often suggests this technique, but no concerted effort seems to have been made to give any part of the building a uniformly cloissoné appearance, and we can only speculate that crews or individuals familiar with this technique were employed alongside others not thus trained or inclined. The tower of Halil Pasha in general is the most soigné in its construction (see fig. 94), although this is chiefly to do with the superior quality of its materials vis-à-vis the other parts of the fortress; the large green ashlars that make up its base and the smaller green square blocks that compose the bulk of its height lend themselves well to cloissoné and semi-cloissoné treatment. Where, perhaps as a weight-saving measure, the small blocks become rubble and fieldstones in its upper registers, the merlons, and the top terrace the quality becomes identical to the other two main towers, where such a graduation of materials is not evident.
Workshops

Besides the south wall, which shows a great consistency in the size and shape of its merlons, the curtains are not distinctive enough in their construction to give a definite idea of the scope of workshop operation. While a greater or lesser presence of spolia or brick in a certain area may be a tempting index, this may have had more to do with the apportioning of materials than with the tendencies of a particular workshop.

The towers are more distinct. From the integrity of the workmanship and the sources we should assume three separate workshops on each of the large towers. Judging from masonry and style a single identifiable workshop was probably at work on the two pentagonal towers E and F on the west front, and possibly D, which share a high proportion of brick and some rudimentary cloissoné. The dogtooth frieze in tower D and the brick bands in E may also possibly tie these to the builders of the Tower of Zağanos Pasha, who we know from inscription to have also been responsible for SE corner tower O. The cylindrical interior of O has something in common with tower N in the same wall, as well as with towers B and C; we might assume the builders of the Tower of Zağanos Pasha responsible for this entire cylindrical group. Another single workshop was probably responsible for pentagonal towers P and Q on the south. Open-gorged towers H, I, and M should be considered the work of the same group. Overall it is difficult to imagine a single workshop under Fatih having been responsible for all the curtains and flanking towers; it seems more likely that there were at least five different crews with individual visions for their projects working under Sultanic authority, each tied very much to a specific sector.
Decorative Elements

A number of decorative elements or what we might term decorative tendencies are evident in the fortress, concentrated primarily in the towers and consisting of ornamental applications of brick and stone as well as individual reused marble elements from Byzantine churches or classical buildings. Generally speaking, it is nevertheless impossible to speak of an overarching program of decoration for the fortress: most of the decorative elements beyond the uniformity of the brick bands, the treatment of doors and gateways, and inscriptions set above doorways appear at apparently random points in the wall surface and impart no sense of formality beyond that achieved by the physical presence of the fortress itself. There are no specially commissioned decorations beyond the inscriptions.

While such decorative elements may not have been systematically commissioned (and indeed, may have been left partly up to the initiative of the masons themselves), the general impression is that they were meant to be seen from a distance and were strategically positioned to be so observed. In the tower of Zağanos Pasha, for instance, groupings of decorative elements occur at a considerable height (just below the parapet) and are concentrated in two areas, one facing the water approach to the fortress from the southeast (fig. 161), and the other on the southwest facing the cliff opposite (now on the Bosphorus University campus), from whence the road descends the hill to the Ravine Gate of the fortress (fig. 162). Similarly, the face of the irregular southeastern corner tower O facing inland (and thus invisible from the shore and the water) is plain, whereas its two outer facing facets are heavily decorated with inscriptions and sculptural elements (fig. 163). The tower of Çandarlı Halil Pasha likewise boasts cartouches and sculptural
elements on the three of its facets facing the approach to the entrance (fig. 164). Even the largely plain eminence of the tower of Saruca Pasha features projecting reused decorative pieces on the side that would have been seen by those approaching the Mountain Gate (fig. 165).

**Brick Bands**

Brick bands appear in several varieties in the fabric of the fortress. They are decorative in purpose, being non-structural, that is, they do not penetrate the thickness of the wall in the way of visually similar Early and Middle Byzantine construction. Single leveling courses of brick do appear through the thin section of the wall of the external battery where it has been severed to make way for the highway. However, the overall lack of relationship between the interior and exterior articulation of walls at Rumeli Hisarı is more in line with the late Palaeologan provincial tendency towards decorative facings applied to a rubble core than with the solid wall construction of Constantinople in all periods of Byzantine rule. The presence of purely decorative brickwork is quite noteworthy in a work of military architecture and quite closely mirrors the late Byzantine tendency. It should be noted that the “recessed brick” technique however does not appear in any of Fatih’s fortresses.

Brick bands appear on four of the towers. Salient L – probably, as we have established, a later addition – has bands of brick along its entire height, laid in courses of

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28 As, for example, at Python. See f.n. above.
varying thickness even into the height of the merlons (see fig. 79). Tower E has two bands of brick running around the bottom half of its five facets, each consisting of three courses of irregularly laid bricks in deep mortar beds (fig. 166). A so-called “dogtooth” or “saw-tooth” frieze runs around the top of tower D just under the height of the merlons (fig. 167) comprising a single course of bricks laid with their corners outermost and sandwiched between equally thick mortar joints, these squared to match the corners of the bricks. The entire frieze is bordered above and below by single courses of bricks normally laid (fig. 168). The Tower of Zağanos Pasha, the most heavily decorated of the towers, displays eight bands of brick, the bottom six comprising three courses of brick irregularly laid (fig. 169, and see figs. 161, 162). The seventh is a dogtooth frieze in the manner of tower D. Above this the uppermost band is again three courses of brick, in this case laid in strict vertical sets of three, a unique treatment in the context of the fortress. The brick bands in this case penetrate surprisingly deeply, all the way to the depth of the interior spaces, as clearly visible in the window jambs, but not into the core interior space itself (fig. 170).

**Cartouches**

Eleven square or rectangular cartouches appear in the wall surfaces of the towers of the fortress, eight in the Tower of Zağanos Pasha (figs. 171, 172), one, apparently intentionally defaced, about 3 m. up the front facet of tower F (fig. 173), and two in the Tower of Halil Pasha (fig. 174). Besides the intriguingly obscure example in tower F, the other examples of cartouches all appear high in the towers, oriented towards the direction of approach, and were plainly meant to be seen. The two concentrations in the tower of
Zağanos Pasha face southeast and southwest, and the two on the tower of Halil Pasha appear on the facets flanking the entrance.

Damage has rendered most of these marginally legible, a situation compounded by later restoration work, which, given the indecipherable appearance of the unrestored examples, must to some extent have been the work of the imagination. Those on the tower of Zağanos Pasha seem simply to have had geometric designs, either diamond patterns, in one case highlighted by a dogtooth border above (fig. 175), or simply placed perpendicular bricks (fig. 176). The diaper pattern we will see again in the later buildings we consider in this study, either in cartouche form or as a meander.

The left-hand cartouche in the tower of Halil Pasha has a central radial pattern of single bricks and rectangles (see fig. 173) that may signify the Arabic letters alif and ha, the first and last letters of the name of God, respectively. Its crow’s-feet border seems to have been purely decorative. The cartouche on the neighboring facet of the tower has a meandering border that may represent the alif, lam, lam, ha of Allah or even the first phrase from the declaration of faith, la illaha illallah, “There is no God but God”, although it could equally be a simple brick meander in the traditional Byzantine manner. The complicated figure at the center of the cartouche, while too elaborate to be completely random, is unfortunately impossible to make out; Gabriel believes this to have been a quadruple radiating rendition of the name “Muhammad”.

The cartouches are unusual for being the one decorative element in the fortress firmly outside of the Byzantine tradition, although in their highly visible locations they

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29 Goodwin confuses the towers, somewhat questionably claiming to have identified the names of both God and Muhammad (the Ism-i Celâl and the Ism-i Resîl, respectively) in the seals of the tower which bears the inscription bearing the date of the completion of the fortress (Goodwin, 1971, p. 468 f.n. 54). The inscription is in fact over the entrance of the tower of Zağanos Pasha.

30 Gabriel, Ilgaz, trans., p. 92
recall the placement of Byzantine ciphers on public buildings. They have been identified by Goodwin as forms of damga/tamgha, or seals\textsuperscript{31}, although they do not replicate the typical rounded forms of early Ottoman seals, either the tuğras of the sultans or those of office and personal use bearing the name of the bearer accompanied by some divine invocation.\textsuperscript{32} It is possible that the geometric patterns found on those in the tower of Zağanos Pasha represent damgas in their primeval form, i.e. the brands or symbols placed by Turkic tribesmen on livestock and property as signs of ownership, and believed by Köprülü to have later become house or dynastic symbols along the lines of Western coats-of-arms.\textsuperscript{33} It is problematic, however, to identify any of the designs with the symbols collected in works by Mahmud al-Kashgari/Kâşgarlı Mahmud (eleventh century), Rashid al-Din (fourteenth century), and Yazıcıoğlu Ali (fifteenth century) (fig. 177). While the simple early damgas bear some passing resemblance (particularly the chevron patterns) to the designs of the cartouches, the similarity is far from conclusive given our scanty knowledge of the symbols themselves and the state of the cartouches at Rumeli Hisar.

An architectural explanation may be more appropriate. Those on the tower of Halil Pasha with possible references to the names of God and Muhammad recall the tilework cartouches featuring geometrical renditions of the names of God and Muhammad typical of the Persian tradition (fig. 178). Calligraphic cartouches of this variety do occur in the Saljuq architecture of Anatolia in the preceding centuries, though not to the same extent as in the brick-and-tile buildings of Persia proper – the use of stone

\textsuperscript{31} Goodwin, 1971, p. 468 f.n. 54
as the predominant medium in Anatolia lent itself to a different, carved decorative vocabulary. It does, in any case, appear periodically in Ottoman buildings of the early period, as in the base of the minaret of the Beyazid II Mosque (1501-1506), in two different arrangements (figs. 179, 180).

Finally, Goodwin has, without pursuing the resemblance, also pointed out the similarity of these cartouches to Chinese seals in their application of red (brick) figures to a white (stone) background.\textsuperscript{34} Although perhaps a simple coincidence of medium, it is a connection that deserves more than passing notice. It is known that the Mongols and their successor states employed Chinese-style stone or metal seals (Mandarin \textit{bao} or \textit{xi}, in the case of royal seals, or more generically \textit{yin}), typically square and impressed in vermilion ink (\textit{zhusha}) derived from cinnabar (fig. 181). Such seals (Turkic \textit{al damga}, vermilion seal) appear on the correspondence of Mahmud Ghazan, Khan of the Tatars (1271-1304), and Tokhtamysh, last Khan of the White Horde (d. 1406) (figs. 182, 183). Inscriptions occur in Chinese as well as Uyghur, Mongol, and Phagspa. Although Mehmed II must have been familiar with this type of seal through diplomatic correspondence, Ottoman usage of the \textit{al damga} is not entirely clear, and was in any case soon superseded by the use of the \textit{tuğra} and the seals with inscriptions in \textit{ta’liq} or \textit{naskh} of a later period.

\textit{Brick Patterns}

There are, in addition to the cartouches, several instances of brick designs appearing in free-form on the surface of the walls, the purposes of which are not entirely clear. The tower of Saruca Pasha has on its east side (and unfortunately somewhat obscured by ivy) an expanse of brick patterning featuring three repeating areas of

\textsuperscript{34} Goodwin, 1971, p. 468 f.n. 54
diagonally placed bricks, followed by several perpendiculars (fig. 184). It is not clear whether the pattern had a border.

Similarly, on a single merlon of the western curtain between the tower of Zağanos Pasha and tower B appears a diamond-shaped arrangement of bricks, articulated on either side with a short band of brick (fig. 185).

**Rosettes**

Two full rosettes appear on the façade of the fortress, both on the southwestern side of the tower of Zağanos Pasha. Both consist of a central round stone element – probably reused – with a sunken or hollow center, surrounded by a sunburst pattern of radiating bricks (see fig. 171). In one of the examples the whole is surrounded by another circle of bricks, creating an overall cartwheel effect.

Such rosettes are a standard Byzantine motif commonly seen on the facades of churches, as in the apses of the tenth-century north church in the Monastery of Constantine Lips/Fenari Isa Camii, where they may also have held a stone element (fig. 186), as well as on the facades of fortifications, as in a tower of the possibly Palaeologan additions to the walls of the Blachernae Palace (fig. 187). They likewise have a significant place in the early Ottoman canon, appearing on the facades of many early mosques, as at the Orhan Camii in Bursa of 1334 (see fig. 44).

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35 The stretch of wall studded with four square towers between the wall of Manuel Comnenus and the Tower of Isaac Angelus bears three inscriptions, one of Isaac II Angelus (1188), another of Andronicus Palaeologus (1317), and the last of John VII Palaeologus (1441). Their decoration should be compared with the sobriety of adjacent Theodosian and Comnene work, and the Marmara sea walls of Theophilus, all of which display minimal use of spolia and an almost total absence of such unsystematic decoration. The decorative and perhaps talismanic use of spolia and brick patterns in facades is generally more typical, as with ecclesiastical architecture, of late Byzantine fortification, perhaps more economical replacements for the elaborate carved inscriptions, cornices, and sculpture of an earlier, more prosperous age. A good example is the extravagant decoration with helmet and inscription of the Tower of Orestes in the acropolis of Serres, built by Serbian Tsar Stefan Dušan after his capture of that city in 1346.
**Architectural and Sculptural Elements**

A large number of marble sculptural elements presumably removed from Byzantine or classical buildings serve a decorative purpose in the walls, including column and colonnette drums and bases as well as carved sections of friezes and simple marble pieces (fig. 188). These are treated in various ways. We have noted the presence of column drums found laid haphazardly into the walls as part of the general fabric of the masonry, but it is apparent that at times their placement reflects a certain underlying decorative symmetry. In the front facet of tower E, for instance, two smaller drums flank a larger (fig. 189). A similar treatment is seen in the talus of the tower of Saruca Pasha (see fig. 158), in a less conspicuous position at the junction with the western curtain. It is tempting to speculate whether this minor phenomenon reflects a simple whimsy – perhaps the product of on-the-job boredom – on the part of the masons. A large concentration of such pieces, including column drums and a capital, is found above the main entrance to the fortress (fig. 190, and see fig. 145), although again with no overarching logic and skewed slightly to the left. Again, this may be the result of later intervention in this area.

More prominently, column bases often protrude from the wall surface (fig. 191), as do corbels and other sculpted elements (fig. 192). Remarkably, some of these are adorned with animals (figs. 193, 194, 195) and even faces (fig. 196). These are also found in significant positions, for instance above doorways as in the two sculptural elements, one an animal face, immediately above the water gate in the front of tower D (fig. 197). It
seems likely in this case that such elements were intended to have an apotropaic function in protecting or guarding potentially vulnerable spots in the fortress fabric.

Flat elements appear within the fabric (fig. 198), sometimes slightly protruding (fig. 199) or emphasized with the addition of brick borders, creating an effect not unlike that of cloisonné (fig. 200). They are sometimes highlighted with the addition of radiating brick arches set into the wall surface (fig. 201), creating a sort of “medallion” effect. This last phenomenon is somewhat puzzling, often involving blank pieces of marble treated in a way seemingly more appropriate to an image of some sort, although there is no evidence to suggest that such pieces were painted or bore images of any sort. Furthermore they often appear at the most visible point at the very front of towers (fig. 202). Such occurrences mirror previous Byzantine usages, where it is not uncommon to find crucifixes or other symbols depicted in bricks set into the wall and emphasized with brick arches. Somewhat illegible examples are found in the possibly Palaeologan stretch of the walls of the Blachernae Palace (fig. 203). It is tempting to suggest that such treatment was intended, like the brick borders on other pieces, to emphasize and “commemorate” fragments of former holy buildings, as it is likely that the majority of the spolia were removed from churches. As such they may have been considered to possess hallowed properties. Certainly those placed in sensitive or significant positions as over doorways or in the fronts of towers are likely, as with the figural pieces mentioned above, to have been employed towards a talismanic or apotropaic purpose.
Inscriptions

Although blank spaces for inscriptions appear above the main entrance, the northern entrance (two), and the entrance to the tower of Saruca Pasha, only two inscriptions survive in the fortress, one above the entrance to the tower of Zağanos Pasha, and another in the southeast face of the polygonal southeast corner tower, tower O. Both are in Arabic and are of two lines each.

That above the entrance to the tower of Zağanos Pasha (fig. 204) reads:

'Amara bi bina' hadhihi l-qal'a l-munifa wa l-qule l-rafi‘a al-Sultan al-'azim wa al-Haqan al-mu‘azzim al-Sultan Mehmed bin Murad Khan

Khaledet memleketuhu li-‘abdihi l-mukerrem wa Wazirahu l-mutamara Zaganos Pasha bin ‘Abdullah wa faragha minha li-temam shehreyn min shuhur sene sitta wa hamseen wa themanemiyah.36

“The Great Sultan and Exalted Emperor Mehmed son of Muran Khan ordered the building of this commanding castle and lofty tower

It remains eternally his property by act of his Honorable Slave and Conquering Vizier Zağanos Pasha son of Abdullah37, and he completed it in two months in 856.”

The second inscription is placed very high up in the exterior wall of southeast corner tower O, which by dint of its construction by Zağanos Pasha has also become known as the Küçük Zağanos Pasha Kulesi, the “Little Tower of Zağanos Pasha”. It is an unusual position for an Ottoman dedicatory inscription (fig. 205).38 It was not recorded by Gabriel as it was obscured at the time by a structure built against the walls of the

36 Gabriel misses out “l-qule” (this tower) entirely, drops the “wa” between “Abdullah” and “faragha” and has “shahr rejeb” (“July-August”) rather than Ayverdi’s “shehreyn” (“two months”). Gabriel, p. 95. From Ayverdi’s photographs it appears that he has the more correct reading.
37 It was standard Ottoman practice for converts like Zağanos Pasha to use Abdullah (literally “the Slave of God”) as a patronymic in lieu of their Christian father’s name.
38 The traditional position is over a gate or doorway.
fortress. It is in rather poor condition and is quite difficult to read even in close-up photographs (fig. 206). In almost precise repetition of the first inscription, it reads:

‘Amara bi bina’ hadhihi l-qal’a l-‘aliya wa l-qule l-jelila al-Sultan ibn al-Sultan Mehmed bin Murad Khan

Khalada mulkehul li-abd al-Wazir Zaganos Pasha bin ‘Abdullah wa faragha minha li-temam shehreyn min shuhur sene sitta wa hamseen wa themanemiyah.”

“The Sultan son a Sultan Mehmed son of Murad Khan ordered the building of this high castle and huge tower

It remains eternally his property by act of his slave the Vizier Zağanos Pasha son of Abdullah, and he completed it in two months in the Hijri year 856.”

Greek Involvement

We have already established the unquestionable involvement of Byzantine Greek masons in early Ottoman building projects in Chapter Two. In the context of Rumeli Hisari this involvement was clearly apparent at the very highest level: Zağanos Pasha was responsible for the funding and supervision of at least the southwestern and southeastern corner towers. As a former Christian it is unlikely that he would not have had Greeks among his retinue or have employed them in his portion of the construction. Certainly the heavily Byzantinizing style of his namesake tower would seem to confirm this:

alternating bands of brick and stone either as a facing or solid through the wall were a

39 The second inscription came to light in the 1940’s during the construction of the coast road. As it attributes the southeast corner tower O to Zağanos Pasha as well, this tower is popularly known as the “Küçük Zağanos Pasha Kulesi” (“The Little Tower of Zağanos Pasha”). It is astonishing that Goodwin, writing almost twenty years after Ayverdi (and having clearly consulted him with regards to the date of completion) is still unaware of this second inscription. Goodwin, p. 103

40 My translation is taken from Ayverdi’s transcription of the inscription, in which he repeats the “shehreyn” (“two months”) of his version of the first inscription. “Shahr rejeb” (“July-August”) may be more accurate here as well.
hallmark of every age of Byzantine architecture, as were the dogtooth frieze and the very formal meander towards the top of the tower. We have likewise already discussed the Byzantinizing rosettes or sunbursts with radiating bricks, two of which appear on the tower and nowhere else in the fortress.

Generally speaking, the special treatment of spolia, either with the emphasis of brick bordering or placement in sensitive places in the fortress walls would seem to suggest the presence of masons with a psychological attachment to the churches from which much of such material must have been removed, but this cannot be considered conclusive testimony of Christian involvement: simple folk superstition on the part of uneducated Muslims would be quite sufficient to explain such phenomena.41 Nevertheless, given the application of typically Byzantine construction techniques throughout the fortress – mixed brick and stone construction, particularly in alternating bands, the use of domes, and the presence of round, radiating brick arches – the evidence for the involvement of architects and masons trained in the Byzantine Greek tradition is strong indeed.

**Adaptation to the Use of Firearms**

There are three types of embrasures in the fortress that appear intended for the use of firearms. The slits through several of the merlons in the battery immediately above the entrance (see fig. 137), in most of the merlons of the southern curtain (see fig. 85), in

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41 Muslim veneration of Christian shrines, particularly during this early period, is well documented even outside of the “folk” context: Orhan himself was buried in a Christian church in Bursa. Architecturally speaking, the use of Christian spolia in a reverent manner in a Muslim building is often so extensive as to be confusing: the late fourteenth-century Hüdâvendigâr Camii at Behramkale/Assos employs so much spolia, even unto a fully inscribed Byzantine doorframe, as to have been widely identified as a former Christian church. See Kuran, Aptullah, *The Mosque in Early Ottoman Architecture*, Chicago, 1968, p. 38 for this misattribution.
those of the lower terrace of the tower of Zağanos Pasha (see fig. 161), and in two instances each in towers E, O, and the tower of Halil Pasha (see fig. 144) could be intended for archers but are small enough to suggest the use of arquebuses. Although they are splayed internally to allow for lateral play of the weapon they lack the traditional height, at about 60 cm., and depth of arrow slits, preventing the archer from placing his hand (and the missile) as close to the opening as possible. Despite the relative shortness of the janissary bow (usually just over 1 m.) such slits do not seem “optimized” for archers, although would have been ideal for the placement of a wall-gun. The slits in the towers accessed from casemates are without exception too deep and angled incorrectly to have been intended for weapons. They are for light only.

The distinctive embrasures of the battery are more unambiguously designed for firearms. The small arched embrasures at a level of about 1 m. off the ground and in the upper floor of the turret are unmistakably intended for arquebuses, being, with the original ground level, about chest high and in any case too generously sized and inappropriately designed for bows (see fig. 135). The width of the embrasures would have allowed for the rapid clearance of smoke after discharge.

As confirmed by the sources, the large arched embrasures open to the ground (see fig. 133) are clearly emplacements for stone-firing bombards, examples of both of which are preserved at the fortress today (see fig. 51). The use of such large pieces, cast in sections for easier transportation and assembled on wooden balks for firing, would have been facilitated by the open embrasures. With their massive size and immobility, crews would have been obliged to move frequently back and forth between muzzle and breech for the purposes of loading and firing, and thus the sill of a closed embrasure would have
been inconveniently in the way. Later, lighter guns cast with trunnions or prongs for mounting on carriages could have been retracted behind a parapet for loading, but that is clearly not the type of weapon with which we deal here. We have established that the battery in which they were placed was a later addition to the fortress, and not part of its original design; as confirmed by Babinger’s sketch from the Biblioteca Trevulziana, the original placement of the guns was simply on the shore without any kind of built structure protecting the guns or gunners.

Scholars have glibly asserted that “other cannon were mounted on the battlements of the towers, turrets, and curtains”\(^42\) of the fortress, mostly owing to the statements of Doukas, who asserts that the tower of Halil Pasha contained “bronze tubes capable of discharging balls weighing over six hundred pounds”\(^43\). Here we must exercise great caution in our interpretation of sources written by individuals who probably never saw the interior of the building itself. Statements like Kritovoulos’, “with cannon and larger or smaller crossbows he armed all the battlements of the great towers and the smaller towers and bastions”\(^44\) smack of hyperbole and are unlikely to reflect the actual distribution of armament within the fortress.

The fact of the matter is that neither the walls nor the towers of the interior of the fortress proper are capable of accommodating or employing firearms of a larger variety than perhaps handheld arquebuses. Indeed, there is very little evidence for the mounting of any kind of large artillery at all. The walls, while substantial by contemporary standards, are nevertheless not wide enough, even at 4.5 m (not including the parapet) in

\(^{42}\) Pepper, in Tracy, ed., p. 292.
\(^{43}\) Doukas, Magoulias, ed., p. 199. To be fair, Pepper himself questions Doukas’ wildly improbable assertion: “I take leave to doubt that the towers held guns of this size” (Pepper, in Tracy, ed., p. 292, fn. 25)
\(^{44}\) Kritovoulos, Riggs, ed., p. 21
its thickest portion along the western curtain, to have carried bombards of the type used in the seafront battery, particularly when allowing for loading and recoil (or at least, the natural movement of the weapon when fired, given that the flatbed balks of such weapons made no allowances for recoil action). This is irrespective of the inconvenience of the closed crenels when employing such a gun, both in the loading process and the elevation of the piece that would have been necessary to fire over the transom, most of the crenels in the fortress of course varying considerably in height. It should be further noted that the same restrictions apply to the mounting of conventional, non-gunpowder artillery: there is simply no way that a trebuchet of any appreciable size could have been mounted on the walls for the same limitations of space.

Very much smaller pieces, for which no evidence exists in Fatih’s period, could possibly have been accommodated (still hardly allowing for recoil), but this is to overlook the fundamental difficulties in mounting artillery on walls that are severely echeloned throughout (see, for instance figs. 84, 108, 109). There is simply no way that guns could have been mounted, for instance, at any point along the precipitous southern curtain, nor hauled along it without considerable toil. Furthermore, the stairs built against the walls giving access to the wall-walks are so narrow and steep as to be practically cubic, in places a mere 80 cm. wide with each step a lofty 50 cm. high (fig. 207), making the notion of hauling heavy ordnance up them absurd. The suggestion of hoisting guns up to the wall-walk can always be made, of course, but the possibility flies in the face of the obvious obstacles to actually using them once hoisted, not to mention the continuing trouble of having to hoist up ammunition. The boulevards along the tops of fortress walls of a later period replacing, in effect, the wall-walk were wide and flat for good reason.
Many of the same obstacles hold true in the case of mounting ordnance in the towers. First of all, no accommodation is made for the placement of pieces larger than small arms in the interior of the towers – the casemates into the main bodies of the towers are so deep and steeply angled upward as to be only intended for some little passage of light. Besides the occasional window in the stairway, all the openings are slits, very few of which face the exterior of the fortress in any case (see fig. 124). The presence of gunpowder and sparks would have posed a constant threat of fire to the wooden floors of all the towers; this is not to mention their doubtful strength in carrying heavy ordnance. This leaves the terraces, to which the same difficulties of transportation and mounting pertain. It is inconceivable that large ordnance could have been conveyed to the tower tops by way of their narrow curving interior staircases, and there is hardly any more width to the terraces of the towers than there is to the wall-walks. With the pointed wooden roofs in place, there would have been a further issue from the gun smoke that would have filled the confined spaces. This last issue also precludes the mounting of conventional non-gunpowder artillery on the terraces – the very presence of the roofs means that there could have been no way of mounting a trebuchet in any of the tower-tops. We can conclude that the towers were overwhelmingly intended as largely passive defensive entities with an emphasis on vertical combat from bows and other conventional weaponry operated from the terraces.

Finally and perhaps most significantly, even had artillery been hoisted to the terraces, there would have been very little purpose for doing so: we have observed that bombards mounted on wooden flatbeds could not have been depressed to deliver

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45 There are very good reasons why the true bastions meant for the use of firearms of a later generation are as a rule stone- or brick-vaulted throughout.
plunging fire. It should be kept in mind here that such early guns were not primarily antipersonnel weapons – they were intended to destroy fortress walls, and their application by the Conqueror against shipping was an innovative one. Level fire from the top of a tower would have caused little worry to either man or ship, the latter of which needed to be struck ideally below or near the waterline. It would have been much more effective, then, in the words of Kritovoulos, to send balls skimming “along the surface of the sea as if they were swimming”\textsuperscript{46} from the waterfront battery. We must conclude, therefore, that the walls of Rumeli Hisari were intended overwhelmingly to be defended by small-arms, and indeed, that its predominant strength was a passive one, predicated upon the massive thickness of its walls, from which, particularly in the towers, very little provision was made for defensive fire on the part of its designers.

**Geometry**

A final comment deserves to be made on the subject of the geometry of the fortress. Clearly this was dictated by the site and the necessity of controlling the high ground behind the battery\textsuperscript{47}, but the pronounced irregularity of the plan is very much underlined when viewed in comparison with Fatih’s three subsequent, highly formalized projects. I would, however, like to point out that the fortress is not without any sense of formality, not only in the symmetrical placement of the large towers, the two hilltop ones of which are almost precisely equidistant from the Tower of Halil Pasha on the

\textsuperscript{46} Kritovoulos, Riggs, trans., 1954, p. 21
\textsuperscript{47} A point made by Kritovoulos: “by holding the points at the top and guarding them, he might keep the warriors of the enemy as far away as possible, so that they might not shoot down from above on those manning the battlements and wound them but would have to keep a respectful distance.” Kritovoulos, Riggs, ed., p. 21
waterfront.⁴⁸ It is also true of the western curtain linking the two large towers where there is a definite consistency in the spacing and shape of the towers although the regularity is somewhat marred by their differing shapes, being probably the products of separate workshops. This regularity in planning seems to be a new feature in the Ottoman repertoire; one of the few securely dated earlier works of Ottoman military engineering – the fortress at Anadolu Hisari, built by Yıldırım Beyazid in the years between 1390-1391 and 1394-1395 – displays no such overarching logic, being simply a square tower with an irregular surrounding chemise with turrets of varying height placed at odd intervals along its length. We might venture that the rationality apparent in embryonic form in the western flank of Rumeli Hisar and clearly manifested in Fatih’s three later works is evidence of a tendency that we might term Byzantinizing, born perhaps out of continuous Ottoman contact with the grand defensive programmes of the earlier Byzantine periods.

The strictness in the placing of the towers on the western front of Rumeli Hisari, and certainly the rigid plans of the three later of Fatih’s fortresses, smacks of the rigor of centrally-mandated Byzantine military engineering in the age of Theodosius and Justinian, rather than the ersatz, highly parochial work of the Palaeologan era.

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⁴⁸ This flanking relationship between round and polygonal towers will be a recurring theme in our discussion.
Chapter Five

Yedikule

History

Although immediately following the Conquest Mehmed II ordered the repair of the land walls where they had been damaged by the siege, he waited almost five years before his next project of refortification: the construction of a fortress in the winter of 1457 “near the Golden Gate where there had formerly been an imperial palace”.

Kritovoulos here refers either to the unusual Marble Tower, a fortified pavilion with a decorated “keep” at the Marmara end of the Theodosian land walls, of uncertain date and once equipped with its own private harbor, now filled in (fig. 208), or the frourion or fort built by John VI and strengthened by John V at the Golden Gate (Chryseia Pyli/Porta Aurea/Altın Kapı) just adjacent, later dismantled by order of Beyazid I.

Mehmed II’s original intent in the construction of Yedikule is somewhat ambiguous. Although “royal residential quarters” (now unidentifiable) were allegedly included in its design, the fortress was hardly designed as a palace, nor was it suitably placed to act as a refuge in case of a threat to the imperial person. Resident as he would have been at either the Eski Saray or later, the Topkapı Sarayı, it is unimaginable that the

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1 Kritovoulos, Riggs, ed., p. 93. Kritovoulos dates the construction to immediately after the Conquest in 1453. Doukas on the other hand dates the construction of the fortress more or less to the first major Peloponnesian campaign of spring 1458. Doukas, Magoulias, ed., p. 257. As Kritovoulos was present in the city during the period he cites, his dating is to be preferred.

2 Doukas, Magoulias, ed., p. 82. Doukas reports that John V “enclosed a part of the City from the Golden Gate to the shore southwards, reserving this as a naval station for refuge in time of need.” This is a sizable area if, as seems likely, the works consisted of a single line of walls leading from the Golden Gate to the shore isolating the southwest corner of the city. It is not clear what works were undertaken at the Gate itself exactly, and whether this constituted a separate piece of fortification.

3 Necipoğlu, 1991, p. 10
sultan would have ridden all the way to Yedikule in case of civil strife, except perhaps on entering the city from the direction of Edirne.

The fortress is rather the ideal colonial citadel: the bulk of its defenses consisting of the three main towers are oriented inward towards the city rather than outward towards the hinterland, indicating its predominant role as a bulwark against urban unrest (fig. 209). Likewise, it is accessible from both within and without the city, perfectly embodying the ideal elements of a colonial citadel stipulated by the Duke of Alba, the great but ultimately thwarted hammer of the Spanish Netherlands: that loyal troops should have free access to the citadel and be able to penetrate the town at will, and that they should be in a position to cut the townspeople off from their allies in the hinterland.4

Lowry has advanced the theory that the fortress was intended as a compact, defensible strongpoint in anticipation of the day in which artillery would make the defense of medieval walled cities impossible – a reality Mehmed had amply demonstrated in his conquest – modeled on the pattern of his father’s work at the Heptapyrgion in Thessaloniki/Selanik.5

Located as it was on the land walls and nearby both the Yedikule Gate6 and the Belgrade Gate (Belgrad Kapısı, known to the Byzantines as the Second Military Gate but used as a public gate since the Conquest), the garrison of Yedikule was perfectly placed to man both the city walls and to control traffic in and out of the city – if besieged from

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4 From a memorandum of 1568, paraphrased in Duffy, 1979, p. 67. Alba had such citadels built at Valenciennes, Ypres, Groningen, Flushing, and Antwerp; certain cities in Holland still celebrate the razing of these fortresses as anniversaries of their liberation. See Duffy, C., *Fire and Stone: The Science of Fortress Warfare 1660-1860*, London, 1975, p. 22
5 Lowry, 2008, pp. 130-137
6 The Byzantine name of the gate immediately north of the fortress is unknown, but judging from its interior decoration featuring a Byzantine eagle it must have existed in Byzantine times as the public alternative to the Imperial Golden Gate. The exterior Ottoman structure is primarily of Ahmed III of 1724-1725.
within the walls they could theoretically have been reinforced by troops sent thither from Thrace without those troops having to break into the city. Thus, it is possible that Mehmed intended the fortress to be a stopgap solution (much as the Eski Saray turned out to be, in the palatial context), a security measure taken before the definitive pacification of his new capital. Similarly, according to the sixteenth-century historian Âli, local Christians saw the construction of the fortress as evidence that Mehmed was concerned about the possibility of a crusade against him immediately following the Conquest.7

As it turned out, the careful social engineering affected by Mehmed II in the repopulation of the city8 made the building largely redundant as a citadel – it was never to face a siege. Nevertheless, the strength of the fortress and its privileged location made it a suitable treasury and prison, most famously for foreign dignitaries, of whom several have left graffiti recording their names and enumerating their woes upon the walls of the fortress (fig. 210). Genç Osman (Osman II) was also infamously imprisoned and put to death in the fortress in 1622, after his deposal at the age of seventeen.

*The Symbolic Significance of the Golden Gate*

There was also a strong symbolic dimension to the fortress. The Golden Gate was a highly charged feature in the monumental program of the Byzantine capital (figs. 211, 212). Along with the Marble Tower it was the first landmark encountered on the approach from Thrace, and thus had a special significance as the procession-route for victorious generals and emperors returning from Balkan campaigns along the Via Egnatia. It was originally a classically Roman free-standing triumphal arch, the main

7 Âli, in Necipoğlu, 1991, p. 10
8 See İnalcık, H., “İstanbul”, in EI, IV, particularly pp. 238-242
opening flanked by two lower arched passages, built astride the highway 1.5 km before the Constantinian walls by Theodosius I, the Great (379-395) and later incorporated into the new land walls by his grandson and namesake Theodosius II (408-450). With its incorporation into the new landwalls a bridge was built across the fosse to reach it, and a smaller triumphal arch – the so-called Küçük Yaldızlı or Altın Kapı, or Small Gilded or Golden Gate – was added into the line of the proteichisma which diverted westward in front of it to accommodate the large square towers, forming a small courtyard (figs. 213, 214).

As a city gate its gilded leaves were only opened for Imperial processions, which usually proceeded, in the case of the proclamation of a new Emperor, from the Field of Mars at the Hebdomon (modern Bakırköy), at the seventh milestone from the Milion, through the Golden Gate, past the Monastery of the Stoudion and through the various monumental fora of the city to join the Mese, and thence on to the Great Palace or the Church of Divine Wisdom (fig. 215). Although the gate was walled up for security purposes in the late Byzantine period, it retained its monumental aspect and psychological import: Michael VIII had ridden through the Golden Gate on a white charger to take the city back from the Latins as late as 1261.⁹

There can be no doubt that such symbolic importance was not lost on Mehmed II, who seems quite consciously to have endeavored either to co-opt the traditional Byzantine symbolic geography of the city, as in his construction of his imperial mosque on the site of the Church of the Holy Apostles, or to establish a new, Islamic/Ottoman one, as in the identification of the tombs of various Companions of the Prophet in

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⁹ For a summary of the Byzantine history of the Golden Gate, see Müller-Wiener, Sayın, trans., p. 297. Ousterhout believes the walling up of the north arch of the Golden Gate to have occurred in the mid- to late fourteenth century. Ousterhout, p. 78
Blachernae and at Eyüp (Eyüpul- Ensarî). There is no doubt that his decision to effectively truncate the processional route of former Byzantine triumphs at its most significant locus and, indeed, to turn that very locus into a fortress guaranteeing his dominion over the Imperial City was one loaded with symbolic implications for victor and vanquished.

Gabriel has suggested that the construction of a citadel in Istanbul was in line with several similar contemporary projects undertaken by Mehmed II to establish such citadels in major urban centers – he mentions Konya, Sivas, and Kayseri in particular – the physical evidence for which is unfortunately very little today. Unfortunately the specifics of the construction of the fortress are almost entirely unknown. The disastrous earthquake of 1509 severely damaged the fortress and the land walls, at which time repairs were carried out by Janissaries brought from the European provinces. The towers were restored once more in 1700, only to be severely damaged by another earthquake in 1754; Osman III rebuilt the northwest corner tower the following year. In the nineteenth century, having been a prison throughout most of its history, the fortress was turned into an armory, then a girls’ school, then a museum. The small mosque in the bailey burned

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10 The tomb of Hazret Hafiz outside Eğri Kapı/the Gate of the Kaligaria, those of Ebu Şeybetül-Hudri and Hamdül-Ensarî between the walls of Leo and Heraclius, and that of Toklu İbrahim Dede on the Golden Horn.

11 Halil Edhem Eldem designated such urban fortifications *ahmedek*, a usage maintained by Ayverdi (Eldem, H.E., *Yedikule Hisarı*, Istanbul, 1932; Ayverdi, *III, IV*, passim). It seems to have sprung from a usage of Tursun Bey’s with reference to Yedikule: “Ve denize ve kuruya hüküm ider bir kûşede bir *ahmedek* yaptı, muh kem burgâzlar ile kurşun ortedir. İrtifâ’ı bir mertebededür ki, iki günlük yoldan görünür” – “And in a nearby corner between the sea and the land he built a citadel, with fine towers covered with lead. Such was its height that it could be seen from the road two days distant.” (Tursun Bey, Tulum, ed., p. 75, my emphasis). Gabriel suspects the word might be “açmedik”, implying something that could not be opened. Gabriel, Ilgaz, trans., p. 177.
down in 1905. Modern restoration of the fortress was undertaken between 1958 and 1970 by the General Directorate of Museums under the direction of architect Cahide Tamer.\textsuperscript{12}

**Description**

The fortress is shaped like a slightly irregular five-pointed star, the irregularity caused by the diversion of the Theodosian walls immediately after the Golden Gate where it turns directly south towards the Sea of Marmara (fig. 216). The southern curtain is consequently slightly longer than its northern counterpart. Towers stand at each point of the star, the northern, eastern, and southeastern towers constructions of Mehmed’s time and the southwestern, now destroyed, once a pentagonal tower in the Theodosian walls. The northwestern octagonal tower is the eighteenth-century Ottoman replacement for the original fifth-century Byzantine construction which can only be entered from the wall-walk (fig. 217, and see fig. 222).\textsuperscript{13}

*The Golden Gate and Land Walls*

The western “curtains” are in fact a section of the Thedosian walls including the Golden Gate, this 66 m. wide and flanked by two massive square towers with marble revetment, each 17 m. by 18.3 m. (fig. 218, and see fig. 211) and barrel-vaulted internally with wooden floors. The openings of the Gate have been largely walled up since the

\textsuperscript{12} See Kumbaracilar, İzzet, and Tamer, Cahide, *Yedikule*, Istanbul, n.d.

\textsuperscript{13} Also known as the *Pastirma Kulesi* (“Pastrami Tower”) for the former presence of a cattle market between the walls in front of it. Müller-Wiener, Sayın, trans., p. 341. The tower is known by tradition as the Tower of Ahmed III (r. 1703-1730) although it is dated by the inscription on its front to 1754-1755 and thus the reign of Osman III (1754-1757). The tradition has to do with the relationship of the tower with the Yedikule Gate immediately adjacent to it outside the fortress to the north, attributed by inscription to Ahmed III. Ayverdi “guesses” that the restoration of this section of the walls took thirty years to complete, overlooking the intervening earthquake of 1754 which must have required the reconstruction of the tower. There is no structural relationship between the Byzantine curtain to which the tower is attached and the Yedikule Gate itself. Kumbaracilar and Tamer, pp. 87-90; Ayverdi, *III*, p. 675
Byzantine period as a security measure, although to what extent is not entirely clear. The south arch was entirely cleared of obstruction during the restoration of 1958-1961: contemporary photographs show its blocked state (fig. 219). In the Ottoman period only the central arch was provided with a low marble-framed postern gate, the interior of the postern left far larger with a pointed hipped arch to give the garrison an advantage over potential attackers (see fig. 219). A similar arrangement may have already prevailed in the late Byzantine period. The blocking of the north arch Ousterhout has identified as fourteenth-century masonry, although the lower portion of this collapsed or was demolished in the Ottoman period and has since been rebuilt (fig. 220). In any case the Golden Gate constituted a subsidiary entrance to the Ottoman fortress, although with the destruction of the bridge across the Theodosian fosse (fig. 221) it could only have acted effectively as a postern gate. In case of major urban unrest the garrison could of course have erected a temporary bridge to admit reinforcements from Thrace.

The land wall is 4.6 m. wide on either side of the Gate, and as with the Ottoman walls that replicate it, stands about 15 m. high. At the northwestern corner of the fortress it is backed by two arches (fig. 222). These may be Palaeologan additions as this sector does not share the banded brick and stone masonry of the Theodosian wall south of the Golden Gate (fig. 223) or the continuation of the walls to the north (fig. 224). It does, however, closely match the arches backing the repairs to the wall of the Blachernae Palace performed during the Palaeologan periods with their banded voussoirs (fig. 225).

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14 Müller-Wiener claims the arches to have been walled up by Mehmed at the same time as he destroyed the bridge reaching the Gate across the fosse, although the architectural and historical evidence, as well as simple logic, point to the large openings of the Gate as having become a security liability before the Ottoman conquest. Both John VI and John V would no doubt have been careful to control passage through the walls at this point in their construction of a frouрон here. Müller-Wiener, Sayın, trans., p. 297

15 See Ousterhout, p. 78 and plate 5
An odd structure with a steep talus clings to the south tower of the Golden Gate (fig. 226, and see fig. 223). This is in fact the remains of another, supplementary “tower” believed by Müller-Wiener to have been added during the Palaeologan conversion of the Gate into an independent fortress. Interiorly it consists of several barrel-vaulted staircases mounting the rear of the south pylon of the Gate which it abuts, with slits looking into the bailey of the fortress on each landing. It has obviously been truncated where it reaches the roof of the pylon (see figs. 211, 216). The stairway also gives access to a room above the smaller south arch of the Golden Gate, similarly with slits looking into the bailey. This “tower” is clearly meant to strengthen the inner face of the south pylon tower, enabling it to counter attacks from the east as well as the west, and may also have given access to some sort of superstructure crowning the entire Gate complex, perhaps giving it a character approaching that of the Western European keep. This would be supported by the presence of a well within the south pylon (the so-called “Well of Blood” or Kanlı Kuyu), which would have supplied the complex in a siege. As such, the conversion may have had something in common with the transformation of the gate complex of the fortress known as Yoros Kalesi or Heiron, on the Anatolian side at the northern mouth of the Bosphorus, which similarly had the main, probably Comnene gate blocked and the flanking towers fortified from the interior of the enceinte to create what was effectively a keep (figs. 227, 228). In that case, the large arched openings of the towers were walled up and box machicolations were installed above to achieve the same

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16. The south pylon is also known as the Genç Osman (Osman II) Tower, as he was apparently incarcerated therein.
17. Müller-Wiener, Sayın, trans., p. 297, 298. Gabriel believes this to have been a buttress counteracting earthquake damage. Gabriol, Ilgaz, trans., p. 136
18. By tradition the well is doubtfully said to communicate with the sea and have been used for the disposal of heads severed in the tower.
independently fortified effect (fig. 229). We unfortunately have no idea when the conversion of Yoros Kalesi took place, although the box machicolations suggest that it is late – Gabriel believes the Genoese to be responsible for the conversion of the fortress in the mid-fourteenth century, but on uncertain evidence. Nevertheless, both gate conversions are an interesting example of the many security solutions pursued in the late Byzantine period, many aimed at segmenting larger earlier systems into units more manageable by the limited resources of the day.

**Ottoman Curtains and Flanking Towers**

The four Ottoman curtains between the main corner towers are entirely interiorly featureless, just as at Rumeli Hisari. Their trace echoes the deviation taken by the Theodosian wall at this point in the landwalls by bending inward slightly, creating the distinctive star plan of the fortress. This seems to suggest a reactive tendency on the part of the designer, as the star plan was clearly to some extent inspired by the particular existing circumstances of the site. The possible motivating factors behind the planning of the fortress will be discussed further below. Unlike Rumeli Hisari, the wall-walk here is continuous, linking both the Ottoman curtains and the Theodosian walls without any interruption. Given the level nature of the site, there is no stepping or echeloning at all (fig. 230, and see fig. 209). The walls are 15.5 m. high and uniformly 4.9 m. thick, the parapets 0.7 m. thick. These dimensions are the same as the Theodosian wall and almost identical to the west wall of Rumeli Hisari, the strongest in that fortress. The merlons here are a fairly uniform 2.3 m. tall and 1.7 m. wide, some pierced for arquebuses (fig.

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19 Gabriel, Ilgaz, trans., p. 119. The fortress was also surveyed by Toy, who concluded it to be largely a Comnene construction. Toy, pp. 89-91. It is a site that deserves far greater attention than it has heretofore received.
At the apexes of the bends in the curtains stand small, solid triangular salients (see fig. 230, 233). The terraces of these are elevated above the wall-walk (but not interrupting it) and accessed by short flights of stairs. Staircases built against the wall (again, not rising on arches) give access to the wall-walk at each triangular salient, double at salients B and F, single at L and D. There are additional flights at main towers A and C. The stairs are just over a meter wide throughout the fortress.

The northern and southern curtains are further defended by small semi-circular towers M and H standing between the triangular salients and the Theodosian wall, their terraces similarly elevated above the wall-walk (see fig. 222 and plan fig. 216). These, as pointed out by Ahunbay²⁰, were intended to reinforce these vulnerable points where the Theodosian towers standing on the other side of the wall were not designed to resist attack coming from within the city. These are entirely different from the round open-gorged towers of Rumeli Hisarı, but may have something in common with the small pentagonal salients P and Q in the earlier fortress (see figs. 86-90), having arched openings in their backs. The interiors have no communication with the terrace, however, rising to blind half-domes (fig. 232). In this they have the closest resemblance to the small irregularly pentagonal tower in the battery of Rumeli Hisari, which likewise had an arched opening in the back and no internal communication with its terrace (see fig. 136).

Added after the general construction of the earlier fortress, there is a good likelihood that the same workshop was involved in both the battery of Rumeli Hisari and Yedikule, both occurring in the same four or five year period. The persistence of this possible workshop is an issue we will return to in our discussion of the polygonal outer enceinte of Kilid-ül Bahr.

²⁰ Ahunbay, in Ćurčić and Hadjitryphonos, eds., p. 196
Main Towers

As at Rumeli Hisari, the fundamental bulwarks of the defensive system are three very large towers, each again positioned in the perimeter of the enceinte (figs. 233, 234, 235, 236). In this case at the three eastern corners of the fortress facing into the city (towers A, D, and F on plan fig. 216). The immediately striking aspect of the three towers is their similarity. Although the central tower, tower D, is exteriorly dodecagonal\(^2\), gone is the idiosyncratic quality of the three main towers of Rumeli Hisari, each with its own patron and architecturally distinct. The towers at Yedikule share the same proportions, the same methods of construction, and very similar interior arrangements, making it almost certain that they are products of a single large workshop working under a central authority. All three, dodecagonal tower D included, are internally cylindrical, measuring approximately 19.5 m. in diameter, with walls 5 m. thick, rising from their basement floors to a height of 33 m. Exteriorly, all have stepped foundations and a practically nonexistent talus (see fig. 260). Each rose to the same double terrace, the interior cylinder rising above the body to form the upper, and was covered until the early nineteenth century with the same bipartite conical lead-covered roofs as the main towers of Rumeli Hisari. These probably saw damage and replacement on occasion during their history, for several appear to be missing in a (somewhat fanciful) sixteenth-century woodcut, only to be restored in a seventeenth-century drawing (figs. 237, 238). Again, they would have served an important function in protecting the terraces from incendiary missiles.

\(^2\) The dodecagonal tower is also known as the Kitabeler Kulesi (the Tower of the Inscriptions), or the Zindan Kulesi (the Prison Tower). In Western lore, because of the many incarcerated here, it is usually known as the Tower of the Ambassadors.
Each tower is entered from the bailey through brick-arched gates which display a superficial but interesting degree of variation. In towers A and F these are defended by an overhead machicolation, in tower F operated from a domed room the second floor, in tower A, somewhat bizarrely from a hole just in front of the upper entrance to the tower in the wall-walk above, now blocked (figs. 239, 241, 242). Because the star geometry of the fortress is slightly imperfect, as pointed out by Ayverdi (fig. 243), the angle at tower F is slightly more acute than those at the other two towers, making the internal face of tower F narrower than those of the other two. It is unclear whether there was enough room for the large pointed external arch framing the doorway as in towers A and D (fig. 242). In any case whatever original arrangement collapsed and has been rebuilt as a low round arch with a large amount of spolia above (fig. 236).

The entrance corridors in towers D and F have a tall dome – a barrel vault in tower A – from which a passage rises to the right through the thickness of the wall to the first floor. In tower F this is a ramp rather than stairs, hence its designation the Tower of the Ramp (Rampalı Kule). Another short staircase straight ahead descends 1.5 m. to the ground floor, more accurately termed a cellar, which is equipped with a cistern in dodecagonal tower D only (fig. 244, 245, 246). This is otherwise featureless in all three towers, without hearths and lit only by slits 2 m. above the floor. Towers A and D had five wooden floors above which have all now disappeared (fig. 247). Tower F, like the Tower of Saruca Pasha at Rumeli Hisarı, was covered by a dome (see fig. 241). All three towers were equipped with the usual hearths and chimneys built into the walls (fig. 248). Small subsidiary spaces for latrines etc. were built into the walls, some groin vaulted (fig. 249, 250). Otherwise transitions in the stairway within the thickness of the walls are
covered with faceted domes (fig. 251). Unlike the towers of Rumeli Hisari, the slits in all three towers are positioned at a height (and are of a depth) at which they could have been used to fire out of; they were not just for light (see fig. 248). In this sense the towers of Yedikule provided a much more active defense than the mute mass of the towers of the earlier fortress, the role of which was chiefly to absorb artillery fire while allowing response from the terraces alone.

Critically, and unlike the main towers of Rumeli Hisari, all three towers at Yedikule communicate with the wall-walk via another gate at the corresponding third floor level (fig. 252). This was a security liability that the builders of Rumeli Hisari had been unwilling to countenance, but which in the context of an urban citadel like Yedikule would have made life much more convenient for the garrison whose very raison d’être was to be seen patrolling the wall-walk. These entrances were, in any case, directly overlooked by the lower terrace of the towers, and additionally by two windows in towers A and D. In tower F the entrance is additionally highlighted by a handsome relieving arch above (fig. 253).

*Continuity of Workshops*

The towers of Yedikule are crucial in being a possible testimony for the continuity of workshops between the earlier two of the Conqueror’s fortresses, for besides the possibility of a link between the two semi-circular towers M and H and the small battery tower of Rumeli Hisari, we have very little else by which to gauge the relationship between the two works.
An accurate assessment nevertheless remains problematic. Overall the three towers of Yedikule are more than three meters smaller in diameter than the two thinner towers at Rumeli Hisari with which they have most in common, those of Saruca Pasha and Halil Pasha. At 33 m., however, they are exactly as tall as Saruca Pasha, the tallest at the earlier fortress. Tower D (the Tower of the Ambassadors) is dodecagonal and slightly battered upon its stepped foundation in precisely the same manner as the tower of Halil Pasha (figs. 94, 95). That said, the entrance of towers A and D are more reminiscent of that of the Tower of Saruca Pasha, being inset below a brick arch; the overhead machicolations of towers A and F are similarly like that of Saruca Pasha, that of tower F, operated from a room above, in particular (see figs. 127, 242). Tower F is, like the Tower of Saruca Pasha, the only one to be covered with a dome, although in all other respects it is like its two peers. All three towers at Yedikule lack the multiple casemates narrowing into slits of the tower of Halil Pasha, although their walls are of course more than a meter thinner. Generally speaking the simple interiors of the towers of Yedikule with their limited discrete spaces still have more in common with that of Halil Pasha than they do with the vast and intricate interior arrangements of Saruca Pasha; their stairways through the thickness of the walls (rather than a corkscrew) work the same way as well. It is possible that the same workshop responsible for the tower of Halil Pasha may have begun to question the wisdom of placing multiple large, directly superimposed casemates in a building that stood a fair chance of coming under bombardment: while expanding the usable interior space the casemates also thinned the walls, which would have been liable to collapse with the destruction of the arches.
The presence of the two types of main tower at Yedikule, cylindrical and dodecagonal, arranged so that the lone polygonal tower is flanked diagonally by twin cylinders recalls the plan of Rumeli Hisarı and seem to indicate an aesthetic continuity between the two, here executed in a much more formal way.\textsuperscript{22} No longer explicable by the independent practices of multiple workshops and militarily superfluous, the arrangement also clearly reflects a conscious aesthetic choice lifting the fortress beyond the category of pure military necessity. The motives behind the choice of dodecagon for both the Tower of Halil Pasha and tower D are not clear – the decision may have been taken on purely decorative grounds – but it should be nevertheless recalled that the number twelve did hold a particular resonance as the number of descendents of the Prophet’s son-in-law ʿAli in the Imami, or “Twelver”, Shi’a tradition, a genealogy that also figured prominently in the beliefs of the Bektashi dervish order closely allied with the Janissaries. It may have been that the architectural choice was a symbolic nod to this mystical tradition. In any case, in its role as an urban citadel and even more so as an Imperial treasury, Yedikule was an Imperial Ottoman public building in a way that Rumeli Hisarı had not been, and manifests an “overall sense of order [ ] one expects from Ottoman public architecture”\textsuperscript{23}.

\textit{Gates}

There are two entrances to the fortress, the main gate with a tower (C) in the northeast curtain between triangular salient B and Tower D, and the small postern (fig.

\textsuperscript{22} A similarity noted by Ahunbay, in Ćurčić and Hadjitryphonos, eds., p.
\textsuperscript{23} Pepper, in Tracy, ed., p. 296
212) let through the walled-up Golden Gate in the Theodosian Walls giving access to the hinterland beyond the city which we have already discussed.

The main gate is treated in a far more complex and monumental way than any at Rumeli Hisari (fig. 254, 255). It is fully overlooked by both triangular salient B and Tower D and is additionally defended by the four-storey gatehouse tower C above it. Projecting beyond the line of the walls, the entrance forms a corridor internally, with an external portcullis operated from the first floor of the tower above (fig. 256) followed by a set of double doors leading into a domed vestibule flanked on either side by guardrooms. The gate is decorated in a much more formal way that any of the entrances at Rumeli Hisari. The upper two-thirds of its projecting part is the only Ottoman element of the fortress to feature banded brick and stone masonry, and has a pointed archway in the way of the ground-floor entrances to towers A and D. Inset within it, as in most of the entrances at Rumeli Hisari, is a flat-arched entrance with stone voussoirs, the keystone in this case decorated with a projecting stone boss. Above the lintel is the usual space for an inscription, now missing. The spaces around the inscription are embellished with triangular and star-shaped tiles, as well as a frieze with a familiar leaf or tongue motif dividing the inscription space from the entrance below (fig. 257).

Ayverdi additionally believes a small opening with reused lintels in the northern curtain between triangular tower N and tower A to have been a postern gate (koltuk kapısı), later transformed into a public fountain on the exterior of the fortress (figs. 258, 259). 24 This is 1.15 m. wide interiorly, .78 m. wide exteriorly. His reasoning is not entirely clear, as there is no reason to doubt that it was not always a fountain or perhaps a water gate of the same variety as we have encountered at Rumeli Hisari, with the

24 Ayverdi, IV, p. 672
possibility of being used as a subsidiary entrance – the provision of a water source in this area would have gone along with Fatih’s general policy of resettlement of the city through the construction of public utilities. It seems at some point in its history to have been housed under an arched structure which has left its imprint on the wall; the pronounced ogee arch in its exterior may indicate a later intervention.

Masonry and Decoration

In comparison with Rumeli Hisarı, the masonry of Yedikule is of a strikingly consistent quality not seen in the earlier fortress, resulting in almost an almost complete absence of the decorative if haphazard use of spolia that characterizes the earlier fortress. Construction is almost entirely of küfeki limestone, cut in relatively uniform blocks, with a small amount of green stone, perhaps from the southern Marmara shore, used in the lower registers. Larger ashlars are used in towers and towards the base of walls, smaller but consistently well-cut blocks in curtains (fig. 260). There is very little brick fill and a noticeable absence of spolia. What small amount there is generally laid randomly into the wall surface without the formality seen at Rumeli Hisarı where such elements are often framed or highlighted in bricks (figs. 261, 262). Among the few instances in which such framing is seen is with two pairs of probably Middle Byzantine molding fragments featuring acanthus leaves, one pair immediately adjacent to the main entrance and another in Tower A (figs. 263, 264).

Despite the general lack of circumstance with which such spolia is laid into the fabric, there is nevertheless a slightly greater preponderance of such elements in the areas surrounding the entrance in the north and northeastern curtains. In addition to the
acanthus moldings just mentioned a Byzantine spiral is set at a prominent height into the surface of Tower C overlooking the immediate entrance area (fig. 265) and a number of carved elements including a cross set horizontally are visible in the curtain between Tower A and triangular salient L (fig. 266). These sectors of the fortress are as visible today as they would have been in the fifteenth century from the road leading to the Yedikule Gate. Just as at Rumeli Hisari, we may surmise that the concentration of such decorative elements in these sectors was the result of a conscious aesthetic decision to adorn the most public fronts of the fortress. Additionally, a limited decorative use of spolia is seen in the interior of the fortress in doorframes (fig. 267) and in the attractive Byzantine knot pattern above the gate of the Tower of the Ramp (fig. 268, and see fig. 236). Some spolia appears in towers as readymade architectural elements (fig. 269).

There is an exception to the sparseness of brick in certain more complicated architectural figures as domes (fig. 270), doorways (see figs. 253, 255, 256), and the pointed tops of merlons (fig. 271), now mostly reconstructions. The main gate stands out in being the only element of the Ottoman fortress featuring bands of brick alternating with the blocks of küfekī limestone in its projecting component (see fig. 254), implying either a purely decorative intent or the work of another workshop. Overall, however, the quality and uniformity of masonry seems to suggest that the entire fortress, of a much more manageable size than Rumeli Hisari, is the work of a single large workshop or was at least supervised by a single administrative body with a well-defined and fully integrated vision for the project.

**The Use of Artillery**
Most of the same caveats apply to Yedikule concerning the aptness of its design for the use of gunpowder weapons as do in the case of Rumeli Hisari. Although here the wall-walk is uninterrupted by the main towers and salients as it is at Rumeli Hisari, more appropriate for the circulation of ordnance and leading Pepper to call it a “level platform about five metres wide which could well have mounted cannon”\textsuperscript{25}, we are still in fact confronted with a woeful narrowness in the curtains (4.2 m, excluding parapets) for the placement of contemporary weapons (fig. 272). Indeed, the thickness of the walls of the Ottoman fortress exceeds that of the Theodosian wall by a scant 30 cm. Again, despite the possibility of circulation provided by the continuous wall-walk, there are numerous tight corners (fig. 273) that would inhibit the passage of anything larger than a man on foot, and the problem of narrow (1.06 m.) and steep stairways still persists (see figs. 230, 233). Fundamentally, the walls of the fortress at 15 m. are still far too high to have provided effective level fire against an approaching force, being once again as at Rumeli Hisari internally featureless. Finally, the towers, with their steep, narrow internal stairways, wooden floors, and cramped terraces (fig. 274) are again entirely devoid of any facility for artillery to have been mounted either within or upon them. Although certain of the merlons on the terraces and on the wall-walks were (or have been restored) to accommodate arquebuses through their mass, the long variety in the towers are clearly meant for bows. The large gap between two merlons in tower F has been mistakenly identified by Ayverdi as being designed to accommodate cannon firing \textit{into} the bailey, for whatever reason – the suggestion is frankly extraordinary.\textsuperscript{26} This is more likely to

\textsuperscript{25} Pepper, in Tracy, ed., p. 296
\textsuperscript{26} Ayverdi, \textit{IV}, p. 672
have been a measure to defend the entrance into the third floor of the tower immediately below.

**Geometry**

The geometry of Yedikule is unique, expressing a formality, complexity, and integrity of design entirely unwitnessed in Rumeli Hisari and more typical of the rigidity of Fatih’s later two projects at Kilid-ül Bahr and Kale-i Sultaniyye. Much has been made of this distinctive geometry, comparisons usually tending towards examples from the Italian Renaissance. The trend was started by Restle and echoed by Raby and Necipoğlu, who asserted that “[t]his star-shaped fortress [was] designed according to new Italian theoretical concepts of ideal planning”. Ahunbay has likewise pointed out the similarities of the plan with that of Filarete’s ideal city of Sforzinda as proposed in his *Trattato di architettura* of c. 1465, an eight-pointed star with towers at each of the points and entrances at the vertices of each of the entrados (see fig. 10).

Filarete’s proposed presence at the Ottoman court in c. 1465 has been treated with skepticism by modern scholars. Be that as it may, Pepper has rightly pointed out that “the geometry of Yedikule’s walls and towers predates by some years the earliest tentative Italian drawings of star-shaped castles and fortified cities in the manuscript treatises of Filarete and Francesco di Giorgio Martini. Even if Filarete did travel to

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27 Restle, M., 1981, pp. 361-367; Raby, Julian, 1982, pp. 3-8; Necipoğlu, 1991, p. 10. Raby states that Filarete “certainly planned a visit in 1465”, and goes on to attribute the design of Yedikule directly to Filarete: “Mehmed converted Filarete’s theoretical musings about star-shaped fortresses into reality, anticipating the rest of the world by decades”. He also finds the role of artillery to be “fully integrated” in the fortress. Raby, p. 7

28 Ahunbay, in Ćurčić and Hadjitryphonos, eds., p. 196

29 Babinger, 1978, pp. 465, 504-507
Given the putative chronology of his visit, it seems more likely if anything that Filarete in his *Trattato* was influenced by the geometry of the seven-year-old Ottoman fortress, rather than vice versa. In any case, to set so much stock by the supposedly Western-influenced “Renaissance” star geometry of the fortress is to ignore the long history both of geometrical patterns as an artistic theme in Islamic art as well as the longstanding motif of the star within that tradition: the presence of star-shaped tiles above the entrance of Yedikule is in and of itself prominent testament to this (fig. 276).

Furthermore, I believe such Renaissance parallels to be based upon an incomplete knowledge of late-medieval fortress planning, and a lack of understanding of the practical motives behind such plans. Likewise, such parallels ignore the dynamics under which such plans emerged in Italy itself. Horst de la Croix has pointed out that the radial plan as conceived by Filarete was primarily an aesthetic exercise in urban planning, not a military solution, which, despite enjoying a period of initial interest during which it was elaborated by da Vinci, Fra Giocondo, and Baldassare Peruzzi, rapidly fell out of favor in the early sixteenth century, during which gridded urban plans came to predominate. It would only be revived later in the century, when standardized, mobile artillery as that employed by Charles VIII in his march into Italy in 1494 gave the radial plan a new, practical application in which angled bastions arranged in a radial pattern allowed the

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30 Pepper, in Tracy, ed., p. 297
31 de la Croix, Horst, “Military Architecture and the Radial Plan in Sixteenth Century Italy”, in *The Art Bulletin* 42, Chicago, 1960, pp. 263-290. De la Croix observes that Filarete tried his hand too at military architecture, but approached it “in the orthodox manner of the Middle Ages; and [his] conventional approach has been mildly criticized by some modern authors. It should be recognized, however, that at [his] time the cannon had not yet become the formidable weapon which, a few decades later, was to force military architecture to undergo a general transformation.” (pp. 268-269). Filarete was certainly dismissed as the architect of the Castello Sforzesco after his construction of the high medievalizing entrance tower, in preference of Gadio, who produced the likewise medievalizing structure we see today; it is interesting to speculate as to what Filarete had planned instead.
entire perimeter of a defensive entity to be swept by overlapping fields of fire. The angled bastion, initially appended to traditional square and rectangular plans in singular and only later in the sixteenth century seen to be more useful in series, consequently preceded the reemergence of the radial plan as a strictly military solution. It might even be argued that the two generations of radial plans are effectively unrelated: beyond a likeness of plan, Filarete’s ideal city on the one hand and sixteenth-century bastioned forts on the other were dictated by entirely different sets of military considerations and have very little in common with one another conceptually or functionally. The distinction between the two separate phenomena – radial plans and angled bastions – should thus be clearly recognized.

Likewise, while comparisons with the plans of the later, mainly late-sixteenth century (and after) phenomenon of so-called “star-forts” (fig. 277) involving the marriage of radial plans and angled bastions are tempting given the superficial impression given by the plan of Mehmed II’s fortress, it should be remembered that such sixteenth-century buildings have very little in common functionally with Yedikule, and nothing in common with it from the point of view of elevation. In the sixteenth-century context, guns mounted on low pointed bastions sunk behind a ditch provided overlapping fields of fire that eliminated any dead ground in front of the bastions, while presenting very little target profile; the system became more effective when repeated in a radial pattern. Having established that gunpowder artillery in its contemporary form was very unlikely to have

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32 Pepper correctly observes that “[t]he first Italian radially planned fortress cities appeared on the ground well into the sixteenth century and were always far outnumbered by paper projects”. Pepper, in Tracy, ed., p. 297

33 A point made resoundingly in Hale, 1965, p. 478
been mounted on either the walls or towers of Yedikule, and considering its imposing profile, such an offensive intention for its geometry must be ruled out.

Moreover, if we put aside for a moment the striking shape created by the whole, we see that the unusual geometry of the fortress in fact fulfils several purposes we have already touched upon in our analysis of Rumeli Hisari. The retired angles of the walls adjacent to each main tower are intended to present the least possible target to enemy artillery while allowing the maximum amount of command from the terraces of the tower. The thickly-walled towers with their ballistically correct rounded outer surfaces were intended to absorb the bulk of the enemy artillery. Should they have been destroyed, the breach incurred would have been made as narrow as possible, and closely overlooked internally by the two remaining adjacent walls. Such considerations were nothing new to the fifteenth century and are reflected in a number of late-medieval designs that recall that of Yedikule, critically in both plan and elevation. The thirteenth-century polygonal plans of the citadel of Cambrai (the Château de Selles) (fig. 278), Fère en Tardenois (fig. 279), and Lassay (fig. 280) were all similarly intended to mitigate the vulnerability of the curtains by making them as short as possible and “hiding” them behind the closely concentrated towers, the lynchpins of the defense. This vulnerability of the curtains had been recognized as early on as Vitruvius, who advised that towers should be spaced no more than a bowshot from one another to allow the curtain in between to be covered from both sides.34

Possible Antecedents

Heptapyrgion/Yedikule, Thessaloniki

Interesting as these examples are, more instructive parallels for our purposes exist within the region. The citadel of Thessaloniki, now commonly known as the Heptapyrgion (the Fortress of Seven Towers), was also known as Yedikule during the Ottoman period, the Turkish version of the same (fig. 281). It is situated at the very summit of the fortifications at the north end of the city (fig. 282). The name of the fortress presents an interesting puzzle, as the building quite clearly comprises more than seven towers – there are technically nine towers in all not including the tall gate structure (fig. 283). It may be that the fortress, functionally identical to that in Istanbul in acting initially as an urban citadel guarding against civil unrest, then as a treasury (hazine), and then as a prison, came to be known by the same name.\(^35\)

Similarly ambiguous is the precise history of the building, which remains subject to debate. As possibly one of the earliest examples of Ottoman fortification in the Balkans, its convoluted past deserves a detailed examination here. According to Koniordos and Oreopoulos, the architects in charge of its most recent restoration in 1997, there is an Early Christian phase to the fortress, perhaps the first and also possibly attributable to the ninth century, consisting of the five towers in the north wall, those which also constitute part of the larger circuit of the acropolis walls (see figs. 282, 283). A second, twelfth century phase follows, completed in the Palaeologan period, during which time the inner circuit of small, solid square towers and the arched gateway was

\(^{35}\) Lowry has made the same observation regarding the names and commonalities in the function of the two fortresses, noting also that while Yedikule, the Turkish name of the Heptapyrgion, occurs in the sources as early as c. 1675 in Evliyâ Çelebi’s description of the city (Kahraman, Seyit Ali, Dağlı, Y., and Dankoff, R., eds., Evliyâ Çelebi Seyahatnamesi, VIII Kitap, Istanbul, 2003, p. 67), he is “unaware of the usage of the Greek variant, Heptapyrgion, prior to the end of the 19th century.” According to Lowry no reference is made to a Heptapyrgion in the Byzantine sources concerning Thessaloniki. Lowry, H., “Thessaloniki’s Fortress of the Seven Towers”, in his collection of essays The Shaping of the Ottoman Balkans, Istanbul, 2008, pp. 130-131 and f. n. p. 131.
completed, effectively creating the fortress. Koniodos and Oreopoulos do not make clear when the two proteichismas protecting the north and south fronts were added. Finally, “the defensive character of the Byzantine fort was altered by the Ottomans a year after their capture of Thessaloniki in 1431.”

Their view has been challenged most recently by Lowry, who, through a detailed reading of the long obscure and mistranslated entrance inscription, suggests that the fortress is “primarily a structure built by the Ottomans in the aftermath of the 1430 conquest” by Murad II, particularly the southern front with its evenly spaced square towers and gatehouse which creates the fortress. It is a view supported by the dendrochronological analysis performed on the fortress by Kuniholm and Striker which obtained a post-Ottoman conquest date of 1431.

The idea that the fortress is of a single build, whether Ottoman or Byzantine, defies all logic and the obvious physical evidence. The Heptapyrgion would be more usefully considered as it is: a perfect example of the late Byzantine/early Ottoman architectural continuum, in which Byzantine buildings were not only acquired and adapted for Ottoman use, but old Byzantine techniques of construction were seamlessly transposed into new Ottoman buildings through the practices of Greek architects and

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36 Ćurčić opts for this late Byzantine date for the foundation of the citadel, making it part of a group of late-Byzantine fortified palaces he has identified in the Balkans. Ćurčić, 2000, pp. 37-39.
37 Koniodos, V., and Oreopoulos, P, “Heptapyrgion, Thessaloniki, Greece” in Ćurčić and Hadjitryphonos, eds., pp. 192-195. Analysis of the building remains hampered by extremely mixed masonry and perhaps not a little nationalist sentiment. Koniodos and Oreopoulos do not clarify their statement as to the “alteration” of the fortress’ defensive character by the Ottomans, at the same time claiming to have “not identified any large-scale modifications from the period of Turkish rule” (p. 193). This is a view echoed in their contribution to the catalogue edited by Tsanana, E., The Eptapyrgion: The Citadel of Thessaloniki, Athens, 2001 which again identifies the north front as being a primarily Early Christian work and the south curtains as Byzantine. This is frankly preposterous: the superstructures of all the walls and towers and the extensive outworks on both north and south fronts are unambiguously Ottoman work.
38 After many years of obscurity during the fortress’ time as a prison this inscription has been finally authoritatively translated by Lowry and Leisten in Lowry, 2008, pp. 107-138.
masons co-opted, forcibly or through conversion and advancement, by the new rulers. A problem persists, of course, in ascribing the convoluted phases of construction of which there are indisputably multiple, and it is a process that emphasizes the difficulty, or even futility, of attempting to analyze a building of this knotty historical and cultural juncture through the traditional techniques of architectural history. Style alone cannot tell us the history of the Heptapyrgion. Without further archaeological examination it would be presumptuous and foolhardy of this dissertation to propose a date of construction or to weigh in on either side of the debate. The fortress is nevertheless a critical monument for the architectural past of the Balkans, and its close relationship with Yedikule in Istanbul demands that we take up Lowry’s challenge of attempting some comparative analysis of the two buildings.

We may attempt here a simple summary of the different visible phases of the central northern tower, as it is the one feature, along with the southern segment of walls, which pertains directly to the conversion of this stretch of city wall into a fortress (fig. 284).

1) The northern curtains are unequivocally part of the early Byzantine city walls, most commonly dated to the residence of Theodosius I in the city in 379 but suggested by Vickers to be in large part mid-fifth century, based on the identification of the Hormisdas mentioned in an inscription. The large square central tower thus would appear to have once been a simple projecting rectangle in this circuit, once probably two-storeyed and open-gorged, its top flush with the

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height of the adjacent curtain, alternating (as it still does) with prow-shaped towers (see fig. 283). This earlier phase can clearly be discerned on its northern face, where the lower half to the height of the curtains is of obvious banded Byzantine construction and slits with radiating brick arches have been blocked (fig. 285).

2) As the brick bands on the surface of the tower do not precisely adjoin those on the adjacent curtains and several of the brick arches have been impinged upon by the masonry of both adjacent curtains, we may assume that the tower itself is a fourth- or fifth-century structure the adjoining curtains of which have collapsed and been rebuilt (fig. 286). It is possible that this occurred after the function of the tower had become interiorized, as the angle at which they abut the tower significantly reduces its exterior projection and blinds its lateral slits. Given the banded masonry of the curtains, it is possible that this occurred later during the Byzantine period although such evidence is not conclusive: we have seen the use of banded masonry in Ottoman construction although not frequently in curtains.

3) The entire upper half of the tower rising from approximately the level of the wall-walk does not, however, share the banded brick and stone masonry of the portion below, nor does it map precisely to it, being cantilevered slightly on the east side by means of a column laid into the join (fig. 287). The adjacent eastern curtain has been built up to support the cantilevering (fig. 288). On the west side the join is neater, beginning just under the merlons of the adjoining curtain (see fig. 286). It is at the height of the beginning of this building-up of the eastern curtain to support the upper storeys of the tower that the first row of putlog holes appears on
the southern, interior face of the tower, approximately at the level of the wall-walk (fig. 289). The sudden appearance of putlog holes suggests that the inner, southern face of the tower was constructed in at least two phases, the first, lower phase without putlog holes converting a simple flanking tower into what is functionally a square donjon or keep for the surrounding fortress.

4) The sudden introduction of scaffolding just under the height of the wall-walk would suggest that the upper half of the tower is a *rebuilding* of an initial conversion undertaken after a destruction of the original superstructure which like the levels below presumably had no putlog holes. The rebuilding augmented the height of the tower by two storeys, the first with large arched openings giving access to the wall-walk on both sides and a view of the courtyard, and the upper with smaller arched windows.

5) Subsequently all of the arched windows bar one were filled or converted to slits. The parapet of the eastern curtain was rebuilt higher with musket slots instead of merlons (fig. 290). Repairs were probably carried out in the upper registers of the inner face where the large putlog holes disappear, particularly where an arched window has collapsed and, at the roofline, a single piece of spolia is found under the cornice (see fig. 289).

The possibly two-phase conversion of the flanking tower into a keep concerns us here. When did they occur? The question is complicated by the chronicle of Constantine the Philosopher, which states that upon the Ottoman (re?)capture of Thessaloniki in
Sultan Beyazid I built a “koula” “at the highest point of the fortification”, later destroyed following the restoration of the Thessaloniki to the Byzantines in 1402 by the Emperor Manuel II in 1415 in order to dispel any potential Ottoman claims to the city. Lowry has used the statement to support his theory that Murad II on his reconquest of the city in 1430 rebuilt the southern stretch of walls of the Heptapyrgion, recreating an Ottoman citadel that had been built by his grandfather Beyazid I and was destroyed by Manuel II.

Whether Kissas’ “koula” is translated as *kale*, “fortress”, or *kule*, “tower”, is almost irrelevant – what is certain is that the construction of the tower was predicated upon the existence of a surrounding enceinte, as it is highly unlikely that Beyazid would have built a stand-alone tower in the midst of a hostile city. If we are to interpret Constantine the Philosopher’s statement as meaning that a “kule” or tower specifically was built by Beyazid I at this location “at the highest point of the fortifications”, then a surrounding enceinte must have either already existed or been built by him at the same time. Similarly, the lower of the two phases on the internal face of the central tower must thus be attributable to him – whatever destruction was carried out by Manuel II did not lower the height of the tower below the original exterior Byzantine work, which would have jeopardized the security of the city as a whole. Such a tower as it once stood would have had much in common with his work at Anadolu Hisari of four years earlier in its featurelessness and its abutment of a wall within the enceinte (see fig. 33).

41 Some ambiguity exists as to whether the Ottomans retained control of Thessaloniki/Selanik from its initial capture in 1387 until 1402, or whether it reverted briefly to Byzantine control before being recaptured in 1394. See Lowry, 2008, f.n. p. 132 for full bibliographical details of the debate.
42 Quoted in Kissas, S., p. 907. In keeping with Constantine’s usage in his chronicle, Kissas prefers to translate “koula” as “fortress” or “citadel” rather than the literal “tower”.
43 Lowry, 2008, pp. 133-134
The second phase with the putlog holes must then be part of the reconstruction of Murad II after Manuel’s partial destruction of the “kule”. At this point the tower takes on the character of a belvedere, the floor-length, “French” window on the interior face of the tower, later converted into a slit, denoting a primarily internalized palatial or residential intent rather than an exterior military function (fig. 291). Such extensive fenestration may have a relationship with other Ottoman belvederes as Murad II’s work at the Cihannüma Kasrı at Edirne.44 These windows, it should be noted, were of precisely the same character – radiating bricks framed with a single course of brick – as those in the topmost floor of the north tower of the north curtain, where they are framed with indisputably Ottoman ogee-arched medallions (fig. 292). The presence of identical windows in the upper floors of all of the square towers of the northern front, all clearly additions, strongly suggests Ottoman work at that level.

The southern enceinte was definitely in place by the time of the construction of these two upper floors of the central tower, although whatever had existed or was built at the time of Beyazid’s initial construction was likely reduced in some way by Manuel: along with the central tower, the southern walls created the fortress which would have been neutralized, functionally and symbolically, through their destruction while maintaining the actual walls of the city intact. It is unlikely that such a process would have necessitated razing the entire structure to its foundations – the demolition of a tower or a section of the curtains would have been sufficient to render the fortress unusable.

44 The round arches of the two upper floors and the double dogtooth frieze at the roof line may have led some scholars to arrive at a Byzantine date for the tower, but it should be kept in mind that, just as they appear in Rumeli Hisari, these features are in no way conclusive evidence of Byzantine construction: the arches of Murad II’s Bey Hamami of 1436-1437, possibly the second-oldest Ottoman monument in the city, for instance, are uniformly round, and its cascading roofs all rest upon dogtooth friezes. See Lowry, H., In the Footsteps of the Ottomans, Istanbul, 2009, p. 161
With its inscription of Murad II stating that he “built and raised this tower”, however, Lowry has determined the entire southern segment to be an entirely Ottoman construction of 1431, in accordance with the dendrochronological findings of Kuniholm and Striker.45

The southern assemblage displays a remarkable unity of plan, suggesting a single build. The section consists of four square towers rising to the level of the curtains, and an arched gateway flanked by narrow square pylons with the inscription of Murad II above (fig. 293). The pylons rise to short cornices from which springs a high arch carrying two levels of rooms, the lower operating an overhead machicolation (fig. 294) and giving access to slits in the southern pylon. The towers are otherwise solid, an unusual phenomenon in both Byzantine and Ottoman fortification, and are curiously small, suggesting an almost decorative function again possibly in tune with the palatial/residential character of the ensemble. They are protected additionally by a low outwork or proteichisma (fig. 295). Solid towers of such diminutive size rising to the height of the curtain are seen in the chemise of Anadolu Hisari, although in round form; we are also reminded of the small triangular salients at Yedikule in Istanbul, which are likewise solid throughout.

There is a great variety in the fabric of the south front, most clearly demonstrable on the façade of the gateway (see fig. 293). The lowest level to approximately the top of the arch of the gateway has an extremely high concentration of structural spolia, mostly plain marble blocks (fig. 296). This is followed by a second layer just above the height of the doorway arch which is brick-heavy, although decorated with a large quantity of

45 Lowry, pp. 118-120, 131, and passim. It should be noted that Kuniholm and Striker’s samples were apparently taken from all over the existing building, and that the leading specialist on Byzantine Thessaloniki, Charalampos Bakirtzis, has unequivocally stated that he believes the “structure now visible at the Heptapyrgion dates from a primary phase of construction in the two years following the final Ottoman conquest of the city in 1430-1431.” Cited in Lowry, 2008, p. 131.
decorative Byzantine spolia as well as herringbone brick patterning and rosettes. Although there appears to be a clear differentiation between the two layers it should be noted that a similarly large quantity of spolia appears in the upper registers of the other towers of the southern curtains, as well as in the low gate of the partially preserved proteichisma (see fig. 295). Thus brick may have been introduced in the second level for decorative purposes and may not necessarily reflect a different phase, and this is confirmed on the inner side of the entrance, which is clearly of a single build with some later repairs and windows filled in (fig. 297). There is a section of cloisonné work on the southern of the pylons at the level where two slits (the only other defense of the gateway besides the machicolation) have been added. The radiating brick arch has been rebuilt on the east side (fig. 298) and the two levels of chambers it carries seem to have been repaired of mortared rubble on the exterior (see figs. 293, 294). None of the masonry or decorative elements can be considered conclusive evidence for either Byzantine or Ottoman provenance, although it should be remarked that a diaper pattern that appears in the tympanum of the arch consisting of red brick on a white ground framing red dots (see fig. 298) also appears as a meander on the triangular southern enclosure of Mehmed II’s fortress of Kilid-ül Bahr (fig. 290).46

The entrance is unusual in having the character of a triumphal arch, a form atypical of the late Byzantine period and one immediately reminiscent of the

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46 While the appearance of spolia depicting crosses and human figures might invite a “Byzantine” reading of the decoration, Lowry counters with the observation that usage of such spoils was typical of Islamic buildings in Anatolia ever since the Saljuq period. See Redford, Scott, “The Seljuqs of Rum and the Antique”, in Muqarnas X, Leiden, 1993, pp. 148-156. We have seen faces and crosses at Rumeli Hisari and Yedikule, as well as rosettes and a variety of meanders, all again more or less typical of late Byzantine work. Despite the temptation to read this particular diaper pattern as Ottoman work of 1431 reiterated thirty years later by the same workshop at Kilid-ül Bahr, the reality is that such a meander would be equally at home on a Byzantine building of the late Palaeologan period, evidence once more of the multiethnic or even primarily Greek identity of early Ottoman architects and builders we have discussed previously.
incorporation of the Golden Gate into Yedikule in Istanbul, albeit of a different scale and configuration. The high arch is a purely monumentalizing feature, without any of the security afforded by the portcullis/corridor entrance of the main gate of Yedikule in Istanbul. It does see a very close parallel in another unusual late-Byzantine building, the Tower of Thomas Prelubović (or Thomas Comnenos Preliambos) at Ioannina (fig. 291), in fact not a tower at all but the arched entryway into the back of a square tower added to the city walls by the Byzantine/Serb husband of Maria Angelina Doukaina Palaeologina and Despot of Epirus from 1367-1384.\(^{47}\) The tower to which it gave access has been subsumed by Ali Pasha’s nineteenth-century bastions. Set against the interior of the city walls, the entryway has precisely the same high arch on pylons and is decorated with cloisonné work and a brick inscription honoring its patron; if the gatehouse of the Heptapyrgion was part of Beyazid’s campaign of 1391, the two structures may be closely related indeed, even products of the same workshop. The Tower of Thomas does not share the cornices under the springing of the arch of the Heptapyrgion, which, while traditionally a “Byzantine” element, appears with frequency in the early Ottoman monuments of Northern Greece, as in the Evrenos Bey zaviye-imareti at Komotini/Gümülcine of c. 1370 (fig. 292), and in the türbe of Oruç Pasha in Didymoteichon/Dimetoka, of c. 1417 (fig. 293).

The gateway could also be interpreted as a version of a Persian pishtaq entrance (fig. 294) that had become highly influential in the Islamic architecture of Anatolia ever since the Saljuq period (figs. 295, 296), although the thickness of the structure and the

presence of rooms above are atypical of the type.\textsuperscript{48} Its closest Ottoman parallel is probably the Bab-ı Hümayûn, the first gate of the Topkapı Palace built by Mehmed II in 1478 (fig. 297), the high arch of which carried a wooden pavilion with windows for enjoying public spectacles in the square below until the late nineteenth century (fig. 298).\textsuperscript{49} Although the small windows along the top of the gateway façade of the Heptapyrgion are probably of a later date, the former presence of large arched windows on the inner, rear face of the gateway, probably six over two floors all now blocked and repointed (fig. 299, and see fig. 297), and the decorative character of this façade with evidence of rosettes and other motifs suggests a similar belvedere function, as do the sweeping views to be had from that height (fig. 300).

Regardless of the many difficulties in dating and attribution inherent in the Heptapyrgion, several observations should be made about the relationship between this problematic building and Yedikule in Istanbul. Thessaloniki and its fortifications were known to and used by the Ottomans from their (at least) two occupations of the city well before the construction of Mehmed’s citadel in Istanbul; Ottoman architects, be they Greek or otherwise, were involved in the (re)construction of its walls. It follows, then, that there are striking similarities in the designs of the Heptapyrgion and that of Mehmed’s fortress. Their placement within their respective cities is identical: although the Heptapyrgion does not resemble a star, it too is formed out of an addition of a length

\textsuperscript{48} The \textit{pishtaq} is itself possibly a derivative of the Roman triumphal arch. See Andrews, P.A., “Pishtak” in \textit{EI, VIII}, pp. 313-316; Ünal, Rahmi Hüseyin, \textit{L’Étude du portail dans l’architecture pré-Ottomane}, Izmir, 1982; Çakmak, Şakir, \textit{Erken Dönem Osmanlı Mimarisinde Taşkapılar}, Ankara, 2001. Examples with chambers inserted behind are also typical of a later period at Samarkand, etc., although these are generally never fenestrated through the façade.

\textsuperscript{49} Later used as a treasury by Beyazid II and Süleyman I, and removed by Abdül Aziz in 1867 when the marble facing was also applied. See Goodwin, p. 132, Necipoğlu, 1991, p. 37-40. Such a gateway with royal quarters above might be seen as replicating an older Near Eastern type embodied in the gatehouse of the Citadel of Aleppo.
of wall to the existing Byzantine city wall to the north. As such, the fortress was accessible from both within the city and from the hinterland beyond, and had complete command of the city walls adjacent. The closeness of its towers performed the same function as those of Yedikule in protecting the vulnerable stretches of curtain between. The large towers to the north of the fortress and the central one in particular, while square rather than round in plan, performed a functionally similar role to those of Yedikule, acting both as an independently fortified units while also offering a strong forward placed defense of the entire compound. At the same time, there was also a strong “polite” quality to both fortresses, a distinctive stately, decorative and monumental aspect clearly symbolic of imperial dominion with provisions possibly made for imperial residence.

**Novo Brdo**

A less problematical parallel exists in the citadel of Novo Brdo, in present-day Kosovo, a historically important mining centre of medieval Serbia from approximately the second decade of the fourteenth century.⁵⁰ The citadel is almost identical to the Eptapyrgion in its shape and disposition although on a rather smaller scale (fig. 301), crowning, in this case at the eastern extremity, a small walled lower settlement on the slopes of the hill on which it is located. The inner face of the fortress to the west is defended by five square towers, each radiating from the curtains in way that precisely recalls the inner wall of the Heptapyrgion, with a narrow entrance between two of them. This front was likewise defended by a low proteichisma and a ditch. At the highest point

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⁵⁰ Šuput, Marica, “Citadel. Novo Brdo, Yugoslavia”, in Ćurčić and Hadjitryphonos, eds., p. 204-207. Although Šuput hints at relationships with “other contemporary fortifications in the Balkans”, and that “[a]nalogies may be found in the more central areas of erstwhile [sic] Byzantine empire” (p. 204), she stops short of identifying or discussing these parallels.
of the fortress on the eastern front, that facing the hinterland (or what was a possibly more lightly defended suburb) stands a larger square tower of the same general characteristics as the central tower of the Heptapyrgion: a tall square structure with internal arrangements possibly intended for residence. Šuput terms this the “donjon”.  

There is a crucial difference between the two in that the central tower at Novo Brdo was fully exteriorized beyond the curtains, clearly intended to act as a strong, forward-placed bulwark of the defense. This was emphasized by its decoration, which employed contrasting dark red stone as quoining and to depict a prominent cross in the outer face of the tower, highlighting and probably invoking divine protection upon this public and vanguard element of the fortress (fig. 302). In this, the citadel of Novo Brdo is even closer in spirit to Yedikule in Istanbul. Indeed, Novo Brdo was a famously strong fortress, having successfully resisted Ottoman sieges in 1428 and 1439 before finally succumbing to Mehmed II in 1441, the last Serbian city to fall. It is tempting to speculate whether the manifest strength of Novo Brdo made it an attractive model for the Conqueror’s architects at Yedikule, marrying their characteristic large round towers and a slightly improved geometry to an existing, and militarily proven, Serbian type, one possibly mirrored in the plan of the Heptapyrgion.

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51 Šuput, p. 206
52 Before the refoundation of Serbia in 1444. Novo Brdo was permanently taken in 1455. Fine, pp. 527, 529.
Interlude:

The Galata Tower and the Philippian Tradition
Chapter Six

The Independently Fortified Tower

Despite the stark differences in their respective plans, we have observed in the earlier two of Fatih’s fortresses, Rumeli Hisari and Yedikule, the presence of multiple, massive, cylindrical towers at angles in their outer perimeters. These are individually fortified, accessible from the bailey only through well defended gates, and, being multi-storeyed, comprise sufficient interior space for the accommodation of a large quantity of men and stores: Doukas quite accurately describes each of the towers of Rumeli Hisari as “serving as citadels for the purposes of defense”.\footnote{Doukas, Magoulias, ed., p. 197} The walls being largely featureless below the wall-walk in both fortresses, these towers represent the nuclei of the defensive system, acting as both vanguards in a siege and final refuges in the case of a breach.

A clear distinction should be drawn between towers of this type and subsidiary flanking towers, including those with open gorge, of which Rumeli Hisari in particular has several, and the simple triangular salients in the walls of Yedikule. As a group these independently fortified towers are unquestionably the most significant features of both fortresses, exercising a clear dominance over the exterior and interior of the fortresses and their adjacent curtains. At Rumeli Hisari the three towers of Zağanos Pasha, Saruca Pasha, and Çandarlı Halil Pasha are entirely inaccessible from the wall-walk, having entrances only in their ground floors at the level of the bailey defended either by overhead machicolations or by superimposed windows. At Yedikule the wall-walk is continuous with entrances giving access to the wall-walk from their third floors. These are nevertheless closed with heavy gates and overlooked by windows serving the
effective purpose of overhead machicolations (see figs. 233, 252). Although their roofs have disappeared, the contemporary illustrations we have examined demonstrate that the three major towers at Rumeli Hisari and the smaller polygonal southeastern corner tower, and all of the major towers at Yedikule once had distinctive bipartite conical roofs, their caps identically supported on the central drum with the surrounding terrace covered by a lower “skirt”. Such a monumental treatment clearly demonstrates that these buildings represented a special set within the category of “towers” at large, and indeed, this is reflected in the Turkish usage of kule for these towers rather than the more generic burç, designating simple flanking towers.

“Frankish” Provenance

Zeynep Ahunbay has quoted Tursun Bey, in his contemporary description of the construction of Rumeli Hisarı, as describing the cylindrical towers of Zağanos Pasha and Saruca Pasha as “firengî” (Frankish), and thus “not in the Turkish tradition”. She goes on to contrast these cylindrical towers with the dodecagonal plan of the tower of Halil Pasha. It is tempting to conclude the latter as “Turkish” (or otherwise “not Frankish”) in style, given the distinction apparently made in the text of the chronicle.

A closer look at Tursun Bey’s statement, however, reveals “firengî” to be a problematic classification. First of all, the chronicler’s recollections of the fortress written in Bursa some thirty years after its construction seem to be patchy at best: in his description of it he seems to reverse the plan, stating that two towers “each of which rose to the roof of the stars” (her biri rif’atte kille-i simâke müvâzîdür) were built at either end of a wall that ran along the waterfront (akar deryânun kenârında, hatt-i müstakîm

2 Ahunbay, in Ćurčić and Hadjitryphonos, eds., p. 168
Although Tursun Beg may have intended the polygonal southeastern corner tower and the tower of Halil Pasha in his description of the waterfront towers, taken literally the statement indicates that only a single tower was considered to be in the “Frankish” style. If Tursun Beg did indeed reverse the plan east-west, this would suggest that the tower of Halil Pasha was the “Frankish” tower, as it could be seen as standing at the “junction” of north and south walls, although of course not at their “upper junction” as he describes.

The ambiguity of the term persists in its other applications in Tursun Beg’s history. In his description of the defenses of Constantinople the chronicler describes the fifth-century Theodosian walls as being studded with “round and square and hexagonal Frankish towers” (müdevver ü murabba’ u müseddes firengî burgâzlar). Tursun Beg’s equivocal usage of the term is not unique: Kemalpaşazade, in his description of the Topkapi Palace characterizes the two octagonal towers flanking the Middle Gate built by Mehmed II in his fortification of his new palace in 1478 as “two Frankish towers” (iki...
firengî burgâz). Apparently, then, the term was applied liberally by Ottoman chroniclers to describe large towers irrespective of their shape or the nationality of their builders.

**A foreign inheritance?**

Its imprecise application notwithstanding, the use of the term *firengî* in the narrative sources implies that towers of this type, whether round or polygonal, constituted a new and foreign phenomenon in Ottoman military architecture. This is generally borne out by the archaeological record. Although we have observed that similarly independently fortified square towers were built by Ottoman architects in the preceding century perhaps in imitation of contemporary Byzantine models, as at Anadolu Hisari in the 1390’s and at the Cihannûmâ Kasrı in Edirne in the early fifteenth century, no securely dated precedent exists for round or polygonal towers of such scale and strength in the Ottoman repertoire before the time of Mehmed II.

Nor do such towers exist within the Byzantine canon. Although all manner of round and polygonal shapes were employed for corner and mural towers in almost all periods of Roman and Byzantine construction⁷, these fulfilled a function quite different from those of Fatih’s fortresses, being generally intended for flanking and not as stand-alone defensive entities⁸. Access from within the enceinte was largely unrestricted and such towers were frequently open-gorged or pierced with multiple entrances, although of

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⁶ The towers have long been attributed to the Süleymanic period on the basis of the inscription above the gateway which in fact records only its restoration during the reign of Kânuni; the appearance of the towers on earlier engravings of the gate confirms their construction by Mehmed II. See Necipoğlu, p. 51 and its depiction in the Nuremberg woodcut of the late fifteenth century (pl. 24). Necipoğlu is herself non-committal about the precise applications of the terms *türkî* and *frengî* (p. 32).

⁷ For the enormous diversity in Roman tower shapes see Ward-Perkins, J. B., *Roman Imperial Architecture*, China, 1994, pp. 174-175.

⁸ Notable exceptions being, of course, the square and rectangular defensive towers that came to characterize late-Byzantine fortification of Ćurčić’s “Age of Insecurity” from 1300 to 1500. See Ćurčić, S., in Ćurčić and Hadjitryphonos, eds., pp. 19-24.
course many were walled up in later, less secure years (figs. 303, 304). Byzantine examples are also of a completely different scale: by comparison, round towers in the Byzantine fortresses surveyed by Foss around the Gulf of Izmit/Nicomedia average a scant 10 m. in diameter. Generally speaking, corner towers in the Byzantine tradition were not markedly different in scale from their mural counterparts. Similarly, the overwhelming height differential between tower and curtain in the Ottoman fortresses is unlike anything in the Byzantine canon, the tower of Saruca Pasha at Rumeli Hisarı standing more than triple the height of the adjacent northern wall (see fig. 123). The independently fortified square towers characteristic of Ćurčić’s Age of Insecurity between 1300 and 1500 notwithstanding, Byzantine flanking towers tended to very closely follow the level of the adjacent curtain, the parapet often being the only level above. In Theophilus’ ninth-century sea walls of Constantinople for instance there is no differential at all between towers and curtains (fig. 305), a sharp contrast with the large disparity between the Ottoman walls and towers of the Topkapı Palace that adjoin them (fig. 306).

Very few efforts have been made to identify possible models for Mehmed II’s unusual towers. Gabriel freely uses the Western European term “donjon” in reference to

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9 Foss, Clive, *Survey of Medieval Castles of Anatolia II: Nicomedia*, Ankara, 1996. An exception is Foss’ Tower 53 at Kütahya, which had a 2 m. thick facing applied at an uncertain date probably in the late Byzantine period, likely also in response to the counterweight trebuchet, which brought the tower to a c. 15 m. diameter. Foss, Clive, *Survey of Medieval Castles of Anatolia I, Kütahya*, Oxford, 1985, p. 42, 70, 76-77. The Byzantine response to the counterweight trebuchet, largely focused on applying facings to existing structures, are discussed in Foss, C., and Winfield, D., *Byzantine Fortifications: An Introduction*, Pretoria, 1986, Part II, Chapter 1; a good example of an extra brick facing being applied to an existing tower occurs at Nicomedia, for which see Foss, C., 1996, p. 37 and plates 17-18 and ibid., “The Defenses of Asia Minor Against the Turks”, in *Greek Orthodox Theological Review*, 27, Brookline, 1982, pp. 199-201. Nevertheless, the Lascarid examples discussed in Foss, C., “Late Byzantine Fortifications in Lydia”, in *Jahrbuch der Osterreichischen Byzantinistik* 28, Vienna, 1979, pp. 267-320 show very little evidence of having been upgraded to face more powerful artillery, despite having been located on a sensitive frontier.

10 Lawrence notes a similar uniformity in profile in the thirteenth century at the fort of Ghardiki on Corfu, built by the Despots of Epirus. See Lawrence, A. W., p. 223
the towers. Although he does so without addressing the issues of transmission implicit in such an appellation, the usage is extremely telling.\footnote{Gabriel, Ilgaz, trans., p. 66. Gabriel draws a loose comparison with the Donjon of Coucy based on size, but without forwarding any theories as to their stylistic provenance. For so thorough a monograph in its other respects, it is surprising that Gabriel attempted no typology for these extraordinary towers.} The focal towers of Rumeli Hisarı and Yedikule uniformly display many of the features traditionally associated with the archetypal late-medieval Western European donjon or keep, in being a) residential (in the Ottoman context intended to accommodate members of the fortress garrison, rather than a lord or castellan), b) designed for secure storage, c) of a height and position to command the other features of the enceinte, and d) in the strength of their walls and defensive features capable of independently resisting assault should the surrounding precinct have been compromised.

**The Galata Tower**

Janet Sourdel-Thomine, in her passing comment on the towers of Rumeli Hisarı in the *Encyclopedia of Islam* is one of two scholars, along with Ayverdi, to have suggested the possibility of the defenses of Genoese Pera as having acted as a model for the towers of the Ottoman fortress (and by extension, we may infer, for the practically identical towers of Yedikule). Although she refers only to the “flanking towers of the Genoan enceinte”\footnote{Sourdel-Thomine, Janet, “Burdj”, in *EI*, I, Leiden, 1960, pp. 1317-1318}, we must assume that she intends the preeminent Galata Tower, the keystone to the Genoese defenses of their settlement, with the massive cylindrical body of which the towers of both Rumeli Hisarı and Yedikule share more than a passing resemblance (fig. 307). Ayverdi was likewise puzzled by Gabriel’s choice of Coucy as a
vague parallel for the towers of Rumeli Hisarı, pointing out that the Galata Tower is a much more obvious choice of model.  

Originally known as the “Tower of Christ” (Turris Christi) by the Genoese and the “Great Tower” (Megalos Pyrgos) by the Byzantines, the tower stands on the north bank of the Golden Horn, just below the ridge occupied by the former Grande Rue de Pera, now İstiklâl Caddesi, at what was once the highest point of the Genoese trading colony in Constantinople (fig. 308). In the time of its construction deal the Genoese settlement consisted of two wings extending to the water roughly from the present-day Kılıç Ali Pasha mosque in the east to the Azap Kapı mosque and the Atatürk Bridge in the west, a circuit built largely illegally during the first half of the fourteenth century – a treaty of 1304 stated explicitly that the Genoese were not allowed to fortify their quarter of the Byzantine capital. Vestiges of these walls and their flanking towers, of several various periods and many of them internal to the colony (separating quarters within the community and often demarking additions to the original circuit), may still be seen intermingled with the later buildings of Galata and Karaköy (fig. 309).

The tower formed the summit of a second phase in the fortification of the settlement, the highest point of a trapezoidal extension to the north (fig. 310), part of a program of refortification undertaken not long after a Genoese naval victory over the combined Venetian and Aragonese fleets in the Golden Horn in 1352. Despite further

13 Ayverdi, IV, p. 632. To his credit, Ayverdi did attempt a closer analysis of the potential relationship with Coucy that Gabriel neglected in his monograph, but concluded that beyond size there was nothing in common between the two monuments. Ayverdi was unaware of the underlying relationship between all three monuments – the Galata Tower, Coucy, and Rumeli Hisari – that is the subject of this study.
15 Müller-Wiener, Sayın, trans., pp. 320
16 An action in the wider Venetian-Genoese War that culminated in the Genoese defeat in the War of Chioggia, 1378-1381.
additions to the east and west in later years, the tower would remain the focal point of the
defences, standing at their summit and commanding the two waterfronts of the settlement
below, that of the Golden Horn to the south and the Bosphorus to the east.

The tower has seen numerous alterations in its history and requires considerable
imagination to reconstruct in its original form. It now consists of a tall, freestanding
cylindrical body without talus, its base protected by a partial chemise, or low-lying
surrounding wall, in this case a demilune bulge in the main line of the northern curtain
through which one of the gates of the settlement was let (the so-called **Büyük Kule
Kapısı** (see plan). The construction of the chemise was not contemporary with that of the
tower, forming a part of an extension of the enceinte to the northwest (fig. 311 and see
fig. 308). Another gate (the **Kuledibi Kapısı**), this leading from what was the original
northern quarter of the settlement into the north-western extension, was put through
between the body of the tower and what was the original outer wall of the colony,
running downhill to south-west. The Galata Tower was thus not originally freestanding,
having been connected to both the northern and western walls at the north-western corner
of the original urban enceinte.

The interior of the tower has been altered dramatically with the removal and
addition of floors and its various conversions into prison, observatory, fire-tower, and
most recently, restaurant and viewing platform. It is certain that the tower in its original
form stood much squatter than the ten floors which it comprises today, including the
ground floor, mezzanine, and viewing platform. The roof is a construction of 1964-1967
restoring the tower to its pre-1875 appearance when the roof constructed in 1833 by
Mahmud II (1808-1839) was lost in a storm. The entire nineteenth-century stone superstructure and viewing platform including the gilded spire brings the total present height of the tower to 70 m.

Below the level of the roof and cupola interpretation becomes more difficult. Certainly the fifth-floor windows with their ogee arches indicate Ottoman construction, making it thus certain that the height above is not part of the original Genoese fabric. Internally, a decrease in wall density at the fourth floor and the interruption here of the staircase through its thickness leading from the ground floor likely indicate an intervention at this level (fig. 312). Certainly the decrease in wall mass and the addition of a series of decorative windows at fifth and sixth floor levels would seem to be interventions dating from after the period in which the tower had an expressly military function.

Three bands of brick appear on the exterior of the tower, the first at a height of 13.2 m, the second at 17.17 m – the heights of the second and third floors, respectively – and the third at the ceiling level of the sixth floor, just under the nineteenth century superstructure, at a height of about 31 m. (figs. 313, 314, 315). Given their apparently random distribution, these may indicate leveling courses inserted during restorations or reconstructions. Eyice points out that the middle band is “more decorative in character”, typical of fifteenth-century, and suggests that it constituted part of restorations carried out in the reign of Beyazid II after the disastrous earthquake of 1509, when Yedikule and the

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17 For a brief construction history of the tower see Anadol, K., and Ćurčić, S., “Galata Tower, Istanbul, Turkey”, in Ćurčić and Hadjitryphonos, eds., pp. 228-229. Anadol was the architect in charge of the restoration.
18 It should be noted that no such levelling courses appear on the flanking towers of the enceinte of Galata, reinforcing the theory that they indicate later interventions.
landwalls were also gravely damaged.\textsuperscript{19} It is also possible that the middle band dates from the several mid-fifteenth century repairs to the tower carried out by the Genoese themselves (with Byzantine workmanship), including a probable heightening of the tower in 1445/1446 under the podestà Baldassare Maruffo.\textsuperscript{20} The middle band could also pertain to the reduction in height of the tower by 7.5 m. ordered by Mehmed II after the conquest of the city, in which case we may conjecture that the tower once rose to a height of about 25 m., that is, 7.5 m. above the height of the second brick band.\textsuperscript{21} On the other hand, Eyice mentions that the truncation may have been followed by a restoration of the tower carried out by none other than Zağanos Pasha later in the reign of the Conqueror.\textsuperscript{22} Were this the case, and contingent upon the absence of any major damage before 1453 necessitating another leveling course, it is possible that the lowest band at 13.2 m. represents the height after the initial truncation of the tower by Mehmed II, and the second the beginning of Beyazid’s restoration of Zağanos Pasha’s work after the 1509 earthquake.\textsuperscript{23} Given the (originally) similar fifteenth-century appearances of both the middle and upper meanders, and Beyazid’s restoration “apparently following the original

\textsuperscript{19} Eyice, p. 75. Eyice and Anadol and Ćurčić all neglect to mention the uppermost brick band, although it appears in plate 54 on p. 114 of Eyice’s book. Probably due to insensitive restoration after 1967, the second band (at a height of 17.17 m.) described as “more decorative in character” by Eyice has been reduced to a simple band of four courses of brick on the north side of the tower, with the upright bricks clearly visible above the entrance of the tower elided (see fig. 314). I would disagree with Eyice, however, in her assertion that this band “shows the characteristics of a Turkish style” (p. 64) – such a meander is typical of both Byzantine and Ottoman fifteenth-century work. The uppermost band also retains this decorative fifteenth-century character although it is likely later, appearing as it does towards the top of the tower. It should be noted that this uppermost meander (and the original appearance of the middle one) is of a quality and complexity not seen in Rumeli Hisar, although it does see a parallel in the elaborate decoration of the tower and trefoil chemise of Kilid-ül Bahr.

\textsuperscript{20} A restoration for which the Genoese settlement apparently requested funding from their ally Murad II. Eyice, pp. 61-63

\textsuperscript{21} It is unclear whether this demolition included the height of the roof.

\textsuperscript{22} Eyice, p. 62. Eyice makes no mention of a source for this intriguing statement.

\textsuperscript{23} It is difficult to explain the lowest band any other way – it is certainly too low to have ever represented anything near the full height of the tower. If we are to accept Zağanos Pasha’s restoration, this would put the tower’s pre-Conquest height at around a very plausible 21 m., made especially convincing when compared with the c. 20 m. height of the fifteenth-century Genoese donjon at Cembalo/Balaklava, discussed below.
design,

it is possible that the entire height between the two (and thus between the third and sixth floors, beginning approximately where the wall density thins) is a work of 1510. With unknown interventions carried out in the tower in response to the numerous fires and earthquakes in the history of the city, however, we may never know with certainty.

In any case, the parallels between the Galata Tower and Fatih’s towers at both Rumeli Hisarı and Yedikule are too close to be ignored. Each monument constitutes a massive cylinder that dominates its associated curtains and is capable of standing alone defensively. Each, in effect, is an individual fortress acting as an anchor of the wider defensive system. Although the towers of Rumeli Hisari are among the largest in the world, that of Saruca Pasha boasting a 28.6 m diameter, the Galata Tower shares the massive quality common to the Ottoman group, having a diameter of 16.45 m at its base with walls 3.75 m. thick (thinning by about 1 m. at the fourth floor). If our conjectured original height of about 21-25 m. for the Galata Tower is correct, that would similarly put it at a stature comparable to the towers of Rumeli Hisari, those of Zağanos and Halil Pashas rising to 21 and 22 m., respectively. Such dimensions are unknown among contemporary monuments of the region. Although their interior arrangements vary considerably (as we have observed, the Ottoman examples themselves have very little in common with one another internally), the Genoese and Ottoman buildings are comparable in employing no vaulting even over very large spans, opting instead for multiple wooden floors.

Although the uppermost section of the Galata Tower is largely a construction of the nineteenth century, early views of the city as that of Gilles (fig. 316) suggest that the

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24 Anadol and Ćurčić, in Ćurčić and Hadjitryphonos, eds., p. 228
tower featured a conical “pepper-pot” roof, as it does today, in its original, fourteenth century incarnation. This would support our theory of direct Ottoman imitation of the Genoese monument, as all of the Ottoman towers under consideration featured pointed roofs of this type. Had the Galata Tower indeed originally featured such a roof, it would likely have been among the only buildings in the environment of Constantinople, or, indeed, the entire Anatolian context to do so. Gilles’ view shows but a single other tower in the Byzantine city with comparable roof possibly in the Blachernae region, but in any case the appearance of such a distinctive cap on his depiction of the Galata Tower suggests that the monument was as unique to the skyline then as it is today.

The possibility of direct Genoese involvement

We have observed that despite being a close match exteriorly, the eclectic interiors of the towers of Rumeli Hisarı have very little in common with that of the Galata Tower. The latter, although furnished with wooden floors in the way of all of Fatih’s towers, had a lofty ground floor with a mezzanine and a basement with a cistern; other than this it featured considerably less interior articulation than the Ottoman examples, in particular the towers of Zağanos Pasha and Saruca Pasha with their elaborate and distinct interior spaces. Compounded with the possibly similar appearance of their roofs, it is tempting to suggest that this disparity between interior and exterior similarity is a result of Ottoman replication of the Genoese building “from a distance”, as it were: although the city was not yet Ottoman at the time of building, the architect(s) of Rumeli Hisarı would no doubt have been quite familiar with the skyline of the Genoese settlement and the outward, if not the interior, appearance of its most distinguished monument. The point
is especially germane if, as is likely, the workshops responsible for Rumeli Hisarı were of local extraction.

That said, the possibility of direct Genoese involvement with the design of the towers of Rumeli Hisarı and Yedikule cannot be instantly ruled out: the Genoese were central players in the convoluted geopolitics of the Eastern Mediterranean throughout the century preceding the Conquest, allying themselves with various Ottoman and Byzantine factions as it suited their economic interests. From the Venetian attack on Galata of 1351, during which the Genoese appealed for and received reinforcements from Orhan, to their alleged assistance in transporting the Ottoman army across the Bosphorus to confront the Crusade of Varna (1444), the Genoese maintained a close military alliance with the Ottomans that ended definitively only with the Conquest. This is in addition to the constant possibility of Genoese renegades having entered Ottoman service, following the example, for instance, of Urban, the infamous Hungarian cannon-founder responsible for casting the largest of the Ottoman cannon at the siege of Constantinople.

There is some historical evidence for the involvement of the Genoese on previous Ottoman fortification projects, notably the construction of an “enormous tower” at Lapseki/Lampsakos on the Asian shore of the Dardanelles by the Genoese nobleman

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25 See Gallo, Giuseppe, *La Repubblica de Genova tra nobili e popolari, 1257-1528*, Genoa, 1999, pp. 269-271. Gallo delivers a particularly scathing description of the self-interest and political myopia of the Republic in the years immediately preceding the Conquest, in particular the Genoese disregard of the Ottoman threat due to their perceived lack of naval power.

26 Although the accusation of Genoese complicity in ferrying the Ottomans across the Bosphorus appears only in a single, but oft-repeated, contemporary Burgundian source — a passage from Jehan de Wavrin’s *Ancient Chronicles of England*, citing his nephew Walerin de Wavrin, who was in command of the Burgundian fleet — it was likely in Genoese interest to facilitate Murad II’s manoeuvres. Nevertheless, it should be noted that far closer contemporary Byzantine and (naturally hostile) Venetian sources make no mention of this assistance. See Fine, p. 550

27 A treaty of 1381 binding the Genoese to assist John V Palaeologus against all enemies except Murad I was renewed with his son Beyazid I in 1389. See Balard, Michel, *La Romanie Génoise*, Rome, 1978. For the continuing trade interests shared between the Ottoman Empire and Genoa into the sixteenth century and the resultant complicated politics of that relationship, see Argenti, Philip P., *The Occupation of Chios by the Genoese and Their Administration of the Island 1346-1566*, Cambridge, 1958, pp. 328-331
Salagruzo de Negro on the behalf of Bayezid’s son Süleyman Çelebi in about 1403, during the Interregnum, which we have already discussed. The tower, damaged by a Venetian raid, was later razed, possibly by Murad II, although Doukas contends that the dismantlement was undertaken by Hamza “the brother of the vizier Bayazid”, on the orders of Mehmed I. Such cooperation seems to have been limited, however, and given the uniqueness of Fatih’s buildings at Rumeli Hisarı and Yedikule there is nothing in the archaeological record to suggest a continuing collaboration into the fifteenth century.

**The Galata Tower and Genoese fortification: A problematic relationship**

The evidence for the strong influence of the Galata Tower in the design of the towers in Rumeli Hisarı and Yedikule is highly compelling. However, the investigation of this possibility has yet to be pushed further. Chief among the obstacles in attaching the fifteenth-century revolution in Ottoman military architecture to the influence of Genoese fortifications is the very singularity of the Galata Tower. In exploring a possible connection between the two, Pepper concludes that “the so-called Genoese Tower at Pera is not typical of Italian medieval fortifications, even in Genoa”, and that the architectural genealogy of the towers of Rumeli Hisari and Yedikule should therefore be

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28 Tekindağ, Ş., “Çanakkale”, p. 343, also quoted in Thys-Şenocak, f. n. 61, p. 130. Tekindağ probably refers to Doukas in recording that “with the help of a member of the Genoese Negro family, Süleyman Çelebi had a tower built at Lapseki, opposite Gelibolu, exactly like that his father had had built at Gelibolu.” (my translation). See Doukas, p. 106. Thys-Şenocak misreads the statement to mean that a tower in the fortress of Gallipoli was constructed by a member of the Negro family. She also makes an rare error equating Beyazid I and Beyazid II in her mention of the reinforcement of Gallipoli, Lapseki/Lampsakos, and Çardak by Beyazid (I) and his son Süleyman Çelebi in the early fourteenth century, and Beyazid (II)’s construction of the two fortresses at Rio guarding the entrance to the Gulf of Corinth in fall and winter of 1499 (loc. cit.).

29 İnalçık, Halil, “Gelibolu”, in EI, p. 984.

30 Doukas, p. 119

31 Pepper neglects to provide any concrete evidence for this assertion, maintaining only that subsequent demolition of medieval fortifications in Hungary have obscured what may have been prototypes for such towers. Pepper, in Tracy, ed., p. 312.
sought further afield, possibly “in the Danubian and Translyvanian theatres of operations.”32

Such scholarly reluctance to attribute the most important chapter in Ottoman military architecture to the influence of a single, apparently unique monument is completely understandable. As Pepper points out, the Galata Tower is atypical of the vast majority of contemporary Northern Italian military architecture, which, at the risk of over-generalizing, we may say tended towards modest dimensions, the use of brick33, and tall square shapes in towers. The tower finds no parallel even among the contemporary buildings of the other Genoese colonies of the Black Sea coast of Anatolia such as Amasra, Sinop, et al., which manifest typically early-medieval Italian square shapes (albeit executed in stone) and continuous merlatura or machicolation (figs. 317, 318).

As a cosmopolitan, colonially far-reaching trading empire situated at the juncture between France, Provence, Savoy, and the Northern Italian states, however, it would be unwise to too closely equate Genoese military architecture with that of its immediate Peninsular neighbours to the east and south. The history of the city’s international involvement across the Mediterranean and beyond is long and exceedingly diverse, and as such, we should expect its architectural production to be equally as rich. As it is, we must acknowledge that our picture of Genoese military architecture remains limited at best, and it is from this unprivileged position that scholars like Pepper have been obliged to work. Like the Adriatic and Aegean outposts of her rival Venice, the monuments

32 Ibid, p. 313
33 Genoa and the Ligurian hinterland might be an exception to the Northern Italian preference for brick, a cursory inspection suggesting a consistent use of stone outside the major towns. The almost Tuscan-looking historical center of Albenga notwithstanding, the same may be true of the large urban centers. The remaining twelfth-century gates of Genoa itself are of stone. See Minola, Mauro and Ronco, Beppe, Castelli e Fortezze di Liguria, Genova, 2006
concerned in reconstructing an architectural history of medieval Genoese fortification are far flung across the domains of the former trading empire, and a scholar must contend not only with large gaps in the archaeological record but inadequately secure dating among the monuments that do remain.

The modest amount of work that has been done on the fortifications of Genoa itself reveals little of the appearance of the medieval urbis. The extensive defensive works that remain are predominantly part of the vast bastioned system built in response to the Napoleonic threat. Of the identifiably medieval elements, only two gateways remain of the “del Barbarossa” walls constructed between 1155 and 1160 against the Byzantines: the Porta Soprana (also known as Porta di San Andrea) and the Porta Vacca (Porta di San Fede), both flanked by a pair of very tall and slim semi-circular towers almost twice the height of the gateway between (figs. 319). Little is to be learned about the defenses of Pera from these distant cousins, and any significant features of the fourteenth century reconstruction of the city walls seem unfortunately to have been entirely obliterated by the Early Modern additions.

In order to get an idea of the medieval character of Genoese fortifications, then, we must look beyond the walls of the city proper. In the Ligurian hinterland we find very little to suggest that massive round towers of the Galata type were employed in the wider Genoese dominion during the fourteenth century. The provincial work tends to be extremely mixed and small-scale, consisting in large part of the country estates of the urban aristocracy. It is difficult to identify much that is palpably French or Provençal, especially given the border situation of the area, and neither is there much that is specifically Italian about the local architecture, although thin square towers of typical

34 See Finauri, Stefan, Genova Fortificata, Varese, 2003 and ibid., Forti de Genova, Genoa, 2007
Northern Italian type are to be found, particularly in the urban centres (fig. 320). Although the round tower does appear in Liguria, none are of a disposition that duplicates that of the Galata Tower, being generally sited at the heart of the enceinte and thus performing a more traditional role of a final defensive refuge and lookout, particularly in coastal situations (fig. 321). A possible, but unlikely, parallel is the thin round tower of the castle of Campo Ligure (fig. 322), which, while similar in shape and is likewise surrounded by a chemise (in this case hexagonal), is of a completely different scale to the Galata Tower and is likely a closer relative of the spindly Germanic *burgfried* or *tour-beffroi* than of the defenses of Pera. In general, the round thirteenth-century towers of Liguria tend towards a slimness and great height which probably does not reflect the original form of the Galata Tower, and as such we may consider them at best distantly, if at all, related to the monument in question.

**Corsica**

**Bastia**

We must thus turn our attention to the overseas Genoese trading colonies. An intriguing series of monuments is found in Corsica, a Genoese colony from 1284, when it was wrested from Pisa following the battle of Meloria, until its purchase by France in 1768.  

In response to native unrest in the 1380’s, Genoese governor Leonello Lomellini built a citadel or *bastiglia* on the water below the inland town of Cardo, an installation

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that eventually grew into the city of Bastia, capital of the island until 1791.\textsuperscript{36} The citadel, or “Terra Nova”, is situated on the high ground to the south of the harbour (“Terra Vecchia”), and is encircled by a major bastioned work of the seventeenth and eighteenth centuries (fig. 323).

At the heart of the citadel are remains of the original fourteenth-century defenses, somewhat difficult to discern among the subsequent building. Most notable is the large round tower in the eponymously-named Place du Donjon, a corner tower in the fourteenth century bastiglia later transformed into the largely seventeenth century Governor’s Palace that stands today (fig. 324). It is a massive construction of approximately 15 m. diameter at its base, supported on a talus on its north side which joins the undercroft of the Governor’s Palace, itself constituting a bastion in the seventeenth and eighteenth-century walls of the citadel. Heavily modified in the seventeenth century to accommodate cannon, the tower has three internal storeys and features cordons at two levels. The lower of these is a torus moulding replicated on the seventeenth-century eastern façade of the adjoining palace, albeit with a slightly different profile (fig. 325). The upper is a lip or scarcement running continuously over the two adjacent facades of the palace, underscoring the very low top floors of both structures (see fig. 324). This attic level being a later addition to the palace, it seems probable that the height of the tower was truncated to match it, preserving the baroque profile of the ensemble; the arrangement of the tower’s roof is certainly no longer the original one. The entire top floor of the tower may likewise be a later construction. In any case, functionally speaking the “donjon” at Bastia duplicates the role of the Galata Tower in

constituting a strong cylindrical tower protecting a vulnerable corner in the perimeter of an enceinte. Undertaken before the construction of the adjoining *bastiglia*, the tower served as an independently fortified nucleus for the construction of the surrounding defenses, within which workmen might even have sheltered during the course of works. This was perhaps similar to the role played by the Tower of Zağanos Pasha at Rumeli Hisarı, which Müller-Wiener believes to have stored building materials during the construction.\(^{37}\)

**Calvi**

A similar usage is seen in Calvi, on the opposite coast of the island, where two towers of approximately the same period – one heavily modified in the eighteenth century to create a terrace – both battered and of almost exactly the same dimensions stand at diagonally opposite corners of the similarly baroque Governor’s Palace (figs. 326, 327).\(^{38}\) Whether the arrangement, suggesting a *quadriburgium* with massive round corner towers, reflects the earlier appearance of the original *bastiglia* at Bastia is not clear, but in any case the both examples clearly indicate a fourteenth-century Genoese preference for large round towers placed at sensitive corners of a fortified precinct. A better preserved example is also seen on the waterfront of Calvi, where the harbour is defended by the Tour du Sel, built probably in 1453 – a telling date, for our purposes – and featuring a battered base and torus moulding (figs. 326, 328). The tower was once linked to the circuit of medieval walls, later demolished to make way for the bastioned...

\(^{37}\) Müller-Wiener, Sayın, trans., p. 335. Müller-Wiener believes the Tower of Zağanos Pasha to have been completed considerably before the rest of the fortress, as early as February 1452, i.e. before the commencement of the rest of the building. This runs contrary to the date of Rejeb 856 (July/August 1452) as stated in the inscription above the entrance of the tower. His source for this assertion is unclear.

\(^{38}\) Rossini, p. 156
system that stands today. Like the towers of the Governors’ Palaces, the tower features later casemates for cannon.\textsuperscript{39}

The persistence of these medieval buildings into the seventeenth and eighteenth centuries and their conversion to gunpowder warfare is a testament not only to the famously restive political climate of the island, but to the continuing effectiveness of the type as well, perhaps not least of all as a symbol of colonial dominion. Certainly the proliferation of the famous round coastal watchtowers of the island during the sixteenth and seventeenth centuries (figs. 329, 330) is clear evidence for the wholesale adoption of the form by Genoese military architects. They are clearly the heirs of the type in question, shortened and thickened to resist ever more powerful ship borne artillery and howitzer fire.\textsuperscript{40}

\textbf{The Genoese Crimea}

\textit{Caffa/Theodosia/Feodosiya}

The most telling parallels of all for their chronological proximity to the Galata Tower and their state of preservation lie outside the immediate area of the Mediterranean, in the Genoese Crimea (“la Gazaria”), where, following the Treaty of Nymphaeum with Michael VIII in 1261 granting the Genoese concessions in return for military and

\textsuperscript{39} Although focused mainly on the seventeenth and eighteenth towers of the island, Meria, Guy, and Ribaldi, Francis, \textit{Les tours du littoral de la Corse}, Ajaccio, 2000 is a valuable resource with excellent images of all generations of Corsican towers. For Calvi see pp. 66-67

\textsuperscript{40} The effectiveness of the form was not lost upon the British sailors aboard the \textit{Juno} and the \textit{Fortitude} who attempted a bombardment of the exceedingly hardy coastal tower at Mortella, just south of Cap Corse, in 1794, during British operations to blockade the island; both ships were badly battered by the two (!) twelve-pounders mounted within. Introduced as a result to Britain as part of its program of coastal defense against Napoleon, such “Martello Towers” (a corruption of the original) acquitted themselves well in resisting plunging howitzer fire, yet another example of the “unfriendly interface” of warfare. See Hogg, I.V., \textit{Coast Defences of England and Wales}, Newton Abbot, 1974 and Sutcliffe, Sheila, \textit{Martello Towers}, Newton Abbot, 1972
financial aid, a series of Genoese trading colonies sprang up, centred on the three main entrepôts of Caffa (Theodosia/Feodosiya), Sudaia (Sudak), and Cembalo (Balaklava). The settlements remained in Genoese hands until the conquest of the Crimea by Mehmed II in the 1470’s. Although heavily restored by the Soviet archaeological services most of these monuments remained unaltered by later building and are therefore among our most valuable records of medieval Genoese military architecture anywhere, vitally, in our case, providing a concise snapshot of its last phase before the Ottoman conquest. There is clear evidence at Theodosia and at Cembalo of major fourteenth century efforts to modernize the defences, efforts that are in large part contemporary with and closely parallel the works undertaken at Galata, with which settlement these outposts were closely linked.

Only one wall of the citadel of Theodosia remains, its tall square towers probably dating from a campaign Consul Goffredo da Zoagli of the 1350’s, improving upon works begun in the first years of the century (fig. 331). Most of the walls of the lower town have disappeared except for those defending the medieval harbour, but one particular vestige of the landwalls of the city concerns us here. The “tower” of Consul Giovanni Scaffa stood at the south-western corner of the lower city and dates from 1342, during the period of his consulship. The remains consist of two fragments of what was once a squat circular structure of 32.8 m. diameter, with a height of c. 8 m., set upon a rocky eminence with commanding views of the citadel and the sea (fig. 332). The structure is built of massive rough stones in its foundation with smaller grey rubble above, and is crowned with a decorative double row of non-functional continuous machicolation typical of the

Genoese monuments of the region (fig. 333). Although the “tower” has been called such by the sparse scholarship on the remains, it is unlikely to have been such: the dimensions, particularly the contrast between its massive diameter and squat stature are completely atypical of the fourteenth century. At 32.8 m. it is almost double the diameter of the Galata Tower, and larger by over 6 m. than the tower of Zağanos Pasha, the largest at Rumeli Hisarı. The walls on the other hand are excessively low and thin, at 2.4 m., for a structure of this size placed at an outer corner of the enceinte. Moreover, no provision appears to be made for vaulting or roofing or internal floors of any kind up to the level of the false machicolation (fig. 334).

Rather, the structure is more likely to have been a chemise defending the base of a now-demolished cylindrical tower, although this would have to be confirmed by excavation. In its present state the relationship of the tower with its adjacent curtains, now disappeared, is unclear. As a comparison, the chemise surrounding the base of the Galata Tower, while not fully semicircular (see fig. 311), measured just over 50 m. across, and its walls are 1.3 m. thick (fig. 335). Whether it is a tower or, as is more likely, the chemise of a tower, the presence of the structure confirms the presence of a round, independently fortified tower at this corner of the precinct with a character very similar to that of the Galata Tower.

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42 Double rows of false machicolation or corbel frieze are seen in the donjon of the Consul’s Castle of Santa Croce at Sudak and in the eastern prow-shaped tower of the citadel of Cembalo/Balaklava. Mercenaro points out that a triple row of such arches appears on the Tower of the Embriacos in Genoa itself. Mercenaro, p. 141
43 Mercenaro, p. 141. The “tower” was labeled as the “1342 Tower” in Russian and Ukrainian (“Bashka/Bashnya 1342”) by the Soviet Ministry of Culture, and remains known as such locally.
In 1357, the consul Simone del Orto began work on the citadel of San Nicola at Cembalo, now the port of Balaklava. Together with the lower fortified town of San Giorgio, the settlement constitutes an extensive series of fortifications ranged across the promontory to the east of the fjord mouth, which, like the Golden Horn, could be sealed off with a chain (fig. 336). The eastern curtain of the town facing the open country is the most heavily defended, and here we have the remains of three large round towers arrayed along the length of the wall leading from the water to the citadel at the top of the hill, which is additionally defended by a prow-shaped tower pointed towards the east (figs 337, 338). The northern two towers closer to the water are without talus, closed at the back with wooden internal floors, and both additionally defended by unusual irregularly shaped semi-chemises attached directly to their bases rather than to the adjoining curtain (figs. 339, 340). These are in all likelihood later additions of subsequent campaigns of 1386 and the 1460’s, and may have reached as much as halfway up their bodies (see fig. 340). The northern of the towers was clearly originally square to which a round exterior facing has been added in addition to the chemise (fig. 341). The middle tower was probably likewise originally square or polygonal, judging from its slightly irregular geometry: three-quarters of its circumference appears to be a round addition to an angled structure (fig. 342). Both towers preserve remnants of false continuous machicolation around their crowns. Two square towers in the same wall survive only in foundation (see plan fig. 336).

At the summit of the settlement to the south stands the third of the group, half collapsed (fig. 343), this enclosed in a more formal semi-chemise that almost precisely

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44 Mercenaro, p. 145
replicates that of the Galata Tower: a bulge in the curtain protecting its northern side (fig. 344, and see plan fig. 336). As with the Galata Tower, a short length of wall attaching to its south side extended to the cliff edge behind, and it appears that the tower may have served an identical purpose to the Galata Tower in controlling a subsidiary entrance to the settlement, in this case perhaps between its body and the chemise although the precise arrangement of this is not clear from the remains. The tower has a bulky talus reaching a third up its 20 m. height. Although of rougher construction than that of the body of the cylinder it is of the same phase and gives the tower an aspect more closely akin to the sixteenth- and seventeenth-century coastal drum towers of Corsica than to its two neighbours, and, for that matter, the Galata Tower (fig. 345). Within the talus is contained a large stone-domed cistern (fig. 346). The entrance was significantly elevated above the talus into the ground floor, in this case almost halfway up the body of the tower (fig. 347). The tower had three internal floors, the lower two of wood and the uppermost covered with a fine stone dome. The first floor was equipped with a hearth of exactly the same shape as the Ottoman versions we have seen in Fatih’s fortresses (fig. 348). Access between floors is unclear – the walls, at c. 2 m. thick, are probably too thin to have contained a staircase in their thickness, although a trapdoor and ladder or interior wooden stair may have been a possibility. Such was the case in later Corsican towers. The parapet level was ringed by a single circuit of continuous machicolation, in this case probably functioning, as evidenced by the remaining corbels (fig. 349). The tower has been dated to Consul Giovanni Battista de Oliva’s last campaign of 1467 in preparation for the Ottoman assault45 and displays evidence of a greater technical sophistication than the

45 Ivanov, A. V., Kreposti i Zamki yuzhnogo berega Krima: Mir krimskogo srednovekovia, Sebastopol, 2008, p. 42. See also Ibid., “Materiali k rekonstruktsii donjona genuizkii kreposti Cembalo” in Adaksina, S.
other towers of the fortress, as well as the Galata Tower, albeit considerably smaller than the latter. With its talus and machicolation the tower has much of the aspect of its earliest sixteenth-century Corsican cousins and would thus seem to represent an intermediate type linking the two generations of works.

**Not atypical, but still problematic**

A broader geographical examination of the Genoese architectural past clearly reveals the existence of a number of contemporary examples of towers similar in design and purpose to the Galata Tower – round towers placed at the sensitive corner of an enceinte intended to dominate and anchor the surrounding defences.

This observation does not, however, diminish Pepper’s statement regarding the atypicality of this group vis-à-vis the bulk of fourteenth-century Italian fortification. Even within the realm of Genoese military architecture (or at least that which remains to us) such towers would appear to be something of a rarity, a type more characteristic of the colonies than of the Genoese mainland, and thus perhaps not an indigenous Genoese phenomenon. There is also very little evidence of a progression in design and size; rather, we seem to be dealing with an adoption, a type introduced wholesale into the Genoese architectural canon probably during the early to mid fourteenth century. As such, we are really no further towards understanding the architectural origins of the Galata Tower or its progeny, Mehmed II’s massive constructions at Rumeli Hisarı and Yedikule. Our investigation into the stylistic provenance of the Galata Tower – and hence, the further pedigree of Fatih’s two early fortresses – must consequently continue.

B., Kirilko, V. P. Mits, V. L., *Materiali Yuzhno-Krimski arhaeologicheski ekspeditsii: Otchet ob arhaeologicheskih issledovaniah srednevekovii kreposti Cembalo (g. Balaklava) v 2005 g.*, Simferopol, 2006. This is one of five volumes of excavation reports from the 2002-2006 seasons.
Chapter Seven
The Crusades and the Philippian Standard

The Legacy of the Crusades

It is impossible to meaningfully discuss late-medieval fortification in the Mediterranean without discussing the military architecture of the Crusades, and it is at this critical juncture in the history of warfare that our further discussion of Genoese fortification – and by consequence, Fatih’s fifteenth-century buildings – must begin. The almost three hundred-year long Frankish occupation of the Holy Land and its various epilogues in Greece, Cyprus, Rhodes, and Malta impelled a continuous evolution in fortress building by both Christian and Muslim that shaped military architecture in the Mediterranean into the Early Modern period. Creative ingenuity from each end of the Mediterranean built upon the ready availability of Roman and Byzantine models, a process of absorption and adaptation fuelled by the constant menace of armed conflict. It was a continuous state of war nevertheless tempered by periods of mutual tolerance and peaceful interaction during which both ideas and workmen changed hands. As a client and banker to the Western Crusading courts, as well as a heavily invested commercial enterprise and feudal partner in the administration of the Crusading states, Genoese martial culture was deeply intertwined with that of the Crusading movement from its very inception. It is thus to the technological outgrowths of that conflict that we must look for the roots of the fourteenth-century introduction of the independently fortified round tower into the Genoese repertoire.

Despite the abundance of general works on “Crusader Castles” and the like, the full implications of this long and fruitful period for the general history of
fortification have yet to be fully understood. While frequently studied as individual architectural masterpieces, the wider effects had upon military architecture in Europe and the Middle East by innovative defenses like Crac des Chevaliers remain only tentatively explored. ¹ It is an area of enquiry with enormous potential. As the great battleground of the day and the intersection of Frankish, Byzantine, and Islamic martial traditions, the Near East was the primary forum for advances in siege techniques that necessitated the development of new architectural solutions, solutions which then frequently passed into currency behind the actual lines of confrontation.

Nevertheless we have still only an approximate idea of the changes that occurred in European military architecture as a result of exposure to the Near Eastern theatre of war. Parallels are frequently proposed, but often as a footnote to a geographically specific study and without due scholarly consideration of the full scope of monuments in question, both in Europe and in Outremer. Richard the Lionheart’s Chateau Gaillard (1196-1198), with its “concentric” (after a fashion) plan has long been held to manifest evidence of a new defensive thinking perhaps born out of the king’s recent experiences in the Holy Land, but Lawrence correctly observed that it remains too unique a monument to pin down as specifically “eastern”.² Generally speaking, the transmission of the much-vaunted regular concentric plan, ostensibly a Near Eastern phenomenon, remains ambiguous, although its influence is clearly felt in later European fortifications as Edward I’s Welsh castles.

¹ The bibliography for the fortifications of the Crusader period is long, but has tended to emphasize Frankish architecture at the expense of its Islamic counterpart. A useful general introduction is Kennedy, Hugh, Crusader Castles, Cambridge, 2001, with extensive bibliography. Kennedy, Hugh, ed., Muslim Military Architecture in Greater Syria: From the Coming of Islam to the Ottoman Period, Leiden, 2006 is a major contribution with several essays addressing the other side of the issue.

² Lawrence, T.E., p. 112. He describes it as displaying “a unity of purpose that could only have been secured by a consummate master of war, absolutely uncontrolled.” (p. 116)
With the continuous traffic of men and knowledge between the Crusader states and their European genitors, it should be emphasized that it is a difficult task to pinpoint precise instances of technological or stylistic transmission. Solutions deemed worthy enough to export home to Europe might be incorporated only piecemeal into new constructions, contingent upon inclination and budget, and ideas were of course simultaneously travelling in the opposite direction. We must thus proceed with caution when attempting to speak of an overarching, specifically “Crusader style” of military architecture; such a thing could not be said to have existed as a comprehensive, singular entity.

The counterweight trebuchet and effects upon fortification in the Near East

In order to accurately track routes of technological transmission we are better off focusing rather on individual elements within a specific fortified system, and by doing this, our task becomes more manageable. In this instance, we must examine an important and very specific series of modifications undertaken in two major Islamic fortified sites right around the beginning of the thirteenth century, and investigate the motives behind them. As responses to a major shift in the conduct of warfare in the Near East – and hence, internationally – these modifications have major implications for our study.

Citadel of Cairo

Upon supplanting the Fatimid caliphs as the ruler of Egypt in 1171, Salah ed-Din set about refortifying his capital with a major campaign to restore and expand the city walls. Between 1176 and 1183 he also added a citadel to the eastern flank of the suburb of Fustat, to serve as a secure seat for the new Sunni regime. The result has
been called the finest of his military works. The more heavily defended northern enclosure of the bipartite citadel features a series of small three-quarter round towers equally distributed around the perimeter of the irregular curtain, each some 6 m. in diameter (fig. 350).

With this fine new installation in place, why did it become necessary for Salah ed-Din’s younger brother al-Adil to “finish” the citadel in 604 A.H. (1207/1208), a scant two and a half decades later? In addition to a series of larger square towers on the southern flank of the enclosure, Creswell has shown al-Adil’s contributions to have included two enormous facings applied to the two easternmost of Salah ed-Din’s round towers, those protecting the corners of a small quadrangular salient (fig. 351). The additions increased the diameter of each tower approximately threefold to about 18 m., their walls being now 5 m. thick, protected with a considerable sloping talus and box machicolations projecting from their upper floors. This new gigantism lent the two towers a character quite different from their neighbours and erstwhile facsimiles, and they were given names in the way of other singular architectural achievements: the Burj al-Haddad and the Burj ar-Ramla, respectively (fig. 352).

Salah ed-Din’s original work was preserved interiorly, the former casemates being simply cut through to provide access to the expanded shooting gallery on each of the two floors (see plan fig. 351).

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4 Creswell observes that it would be more correct to observe that al-Adil reinforced the Citadel of Saladin. See Creswell, K.A.C., “Archaeological Researches at the Citadel of Cairo”, in *Bulletin de l’Institut francais d’Archeologie orientale, xxiii*, Cairo, 1924, p. 156
Diyarbakir

A similar and almost exactly contemporary phenomenon took place in the eastern Anatolian city of Diyarbakir, where in 1208/1209 the Sultan al-Malik al-Salih Mahmud of the ruling Artuqid dynasty added two enormous towers to a western salient of the mixed Roman, Byzantine, Abbasid, and Saljuq walls. The towers, known as the Ulu/Evli Beden and the Yedi Kardeş, likewise consist of an expansion – extremely elaborate, in this case - of existing smaller round Byzantine corner towers, bringing them to a diameter of 25.5 m. and 27.8 m. respectively (figs. 352, 353, 354, 355, 356).5

The dimensions of all four of these examples far exceed those of their predecessors, and in the case of the Citadel of Cairo, those of only a few decades before. The reasons for this sudden need, at the turn of the thirteenth century, for towers with massively increased wall thickness at corner locations in a circuit of walls has only recently begun to be addressed in the sparse scholarship on medieval Islamic fortification.6 The answer lies in a corresponding development in siege warfare, specifically, with the emergence of the counterweight trebuchet, the technical specifications of which we have described in chapter three. The new weapon, hurriedly adopted by all belligerents involved in the conflict, hurled unprecedentedly


6 Paul Chevedden’s article “Fortifications and the Development of Defensive Planning During the Crusader Period”, in Kagay and Villalon, eds., The Circle of War in the Middle Ages, Woodbridge, 1999, pp. 33-43 is a brief but breakthrough account of this phenomenon, going some distance toward laying to rest the old canard that nothing changed in medieval fortification between the motte-and-bailey and the emergence of the angle bastion. Chevedden only briefly touches al-Adil’s additions to the citadel of Cairo, however, and does not address the emergence of more ballistically correct round shapes in response to the new technology, focusing purely on the massiveness of masonry in the new buildings. Similarly, he asserts the primacy of Islamic builders in the development of the new fortification, overlooking late twelfth-century Frankish solutions like that at Saône, probably in response to the same threat.
large projectiles unprecedented distances, completely revolutionizing – by considerably abbreviating – the process of siege. Armed with a “Western-Islamic trebuchet (*manjaniq al-Maghribi*), it took the Sultan al-Kamil but a day to take strong Edessa in 633/1236, a city defended, ironically, by the very Latins against the trebuchets of whom Sultan Mahmud had earlier fortified his capital at Diyarbakır.\(^7\)

Al-Adil’s decision to add such massively walled towers to his brother’s Citadel, still practically brand-new and built to the most modern specifications of its time bespeaks the fearsome and revolutionary power of the new weapon and the threat it posed to fixed defenses on both sides.

**Latin Responses to the Counterweight Trebuchet**

Facing the same threat, similar retrenchments were undertaken by the Latins in their march castles of the Levant.\(^8\) This was reflected in the repositioning of the classical square or rectangular Norman donjon – imported to the Holy Land largely wholesale from its native Northern France – within the fortified enceinte. Buildings of this type, smaller in scale but employed in their traditional position freestanding within the walled enceinte, had been the most popular choice for the rudimentary fortified homesteads of the lay nobility of the Kingdom of Jerusalem.\(^9\) Well preserved examples of this provincial work exist at Red Tower (Castrum Rubrum/Burj al-

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\(^7\) From an account by Ibn al-Muqaffa, quoted in ibid., p. 38

\(^8\) Scholars working on the Christian castles of the Crusades seem to have largely overlooked the effect had by the trebuchet on architecture. Christopher Marshall blithely discusses Montfort and Belvoir without considering the obvious reaction to the weapon mirrored in the thirteenth-century structures. Marshall, C., *Warfare in the Latin East, 1192-1291*, Cambridge, 1992, pp. 100-111. For Montfort, see Dean, B., *The Crusaders’ Fortress of Montfort*, Jerusalem, 1982

\(^9\) Kennedy, 2001, p. 33
Ahmar) and Caco (Qaquin), as well as in the castle of the Embriaco lords of Giblet, a Genoese family (fig. 357).  

*Belvoir, Saône*

Toward the end of the twelfth century there was a gradual movement of the keep into the line of the curtains, and the primary perimeter of defense. This is apparent in nascent form in the concentric castle of Belvoir, of the 1170’s, in which the keep appears in the line of the second, interior circuit of walls, and acts simultaneously as the gatehouse (fig. 358). Later at Saône, the original Byzantine “keep” at the summit of the main enclosure – in fact a small, irregular *castrum/tetrapsylon* – was abandoned in favour of a new and enormous vaulted rectangular keep of three storeys with walls 5.3 m. thick (c. 1188), situated on the most vulnerable eastern flank of the fortress facing the extraordinary rock-cut fosse and the table-land beyond, from which attack was expected to come (figs. 359, 360). Creating such a strong front, especially in a context of Saône where flanking was not an issue on the sheer eastern face (the keep is built flush with the cliff, with no external projection), this was likely in response to the increased effectiveness of gravity-powered artillery and the need for an elevated fighting platform to counteract and neutralize it.

It is unsurprising that this repositioning of the keep, traditionally the intended “final refuge” within the fortified system and thus placed entirely within the protection of the exterior walls, came about at the hands of the Religious Orders and the frontier garrisons of the Crusader states. In this frontier context, and particularly in

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after the decimation of the aristocratic classes at Hattin in 1183, the role of the keep was drastically altered, losing its primary function as an aristocratic residence *cum* final fortified refuge. In the heavily militarized border zones of the Crusader States where defensive considerations were paramount, and especially in the more egalitarian environment of the Military Orders, the keep became primarily a barracks; this utilitarian shift is apparent in the unusual size but spartan fittings of the keeps at Saône and Chastel Blanc (Safita). This is an observation with important consequences for the next stage of our discussion.

The new, “active” role of these vanguard keeps has been well emphasized in the scholarship. Such large, independently fortified towers became the backbone of the defense of the enceinte; beyond providing simple flanking fire upon assailants attacking the base of the wall, they also served as repositories of manpower and ammunition. A single, stronger tower with a considerable height advantage over adjacent structures was a focal point from which the enemy could be surveyed and the defense coordinated. When added the threat of effective siege artillery, a particularly sturdy tower served as an additional bulwark when placed in an otherwise vulnerable section of the curtain, and, as an independently fortified unit, allowed for the coordination of a counterattack in case of a breach of the adjacent curtains. Larger towers also provided a broad platform for the mounting of counter-artillery: trebuchets could be mounted on their roofs with the purpose of destroying the enemy’s batteries. Relegated to its traditional place at the heart of a fortified complex, the keep was an inert entity, an uncongenial residence awaiting a rare and largely nugatory turn as the final refuge of a routed garrison. Shifted into the line of the curtains, the traditionally strongest element in fortress became an asset, an integral and highly effective component of the primary defensive system.
Acre: The Cursed Tower and the Tower of the King

An identical solution was adopted in town defenses. Acre had been recently refortified after a disastrous earthquake of 1067 and proved strong enough to repel the first Crusader attempt made against it in 1100. After its eventual capitulation in 1104 it was considerably strengthened, although with the almost complete disappearance of the medieval land walls it is unclear how much Crusader work was added to existing Arab defenses. We know that at least one of the towers in the curtain, the so-called “Cursed Tower” (Turris Maledicta) at the northeast corner of the city was of a larger size than the others, costing the Frankish besiegers of 1189 considerable effort to neutralize. After the Christian reoccupation of the city a proteichisma was added which, in addition to enveloping the existing circuit, also branched north to include the new suburb of Montmusard.11 According to Benvenisti, the supplemental curtain included a larger tower known as the “Tower of the King” placed immediately in front of the “Accursed Tower” to reinforce this sensitive spot in the defenses.12 This was in turn protected by a “barbican” of indeterminate type but presumably a constituting a chemise appended to the main circuit protecting the base of the tower. In the final siege of 1291 Muslim attacks were focused on this vulnerable northeast salient just as they had been in earlier campaigns against the city. The Tower of the King was taken when the ditch surrounding it was filled with sacks of sand and

12 Benvenisti, Meron, The Crusaders in the Holy Land, New York, 1972, p. 88, 91
crossed by the besiegers, although it held out practically independently for a week before; the Cursed Tower soon followed.\textsuperscript{13}

Unfortunately Benvenisti’s picture of medieval Acre remains controversial\textsuperscript{14} and has yet to be confirmed archaeologically. His reconstruction would have both the Accursed Tower and the Tower of the King as round structures (fig. 361), but this is not necessarily reflected in earlier images of the city. The map probably produced by the Genoese cartographer Pietro Vesconte for Marino di Sanudo’s \textit{Liber secretorum fidelium crucis} in about 1320, and which has become the defining image of medieval Acre, clearly has a round tower – presumably the actual Turris Maledicta of earlier fame - in the inner, older wall, and a square tower in the \textit{proteichisma}, here (presumably mislabelled) “Turris Maledicta” (fig. 362). This formulation is reproduced in later images of the city, many of which drew to varying degrees upon Sanudo/Vesconte. Thus Frère Anne de Nahert’s map of c. 1628 (fig. 363) has the inner of the two corner towers as a round structure, but the \textit{outer} of the two in this case is labelled “Turris Maledicta” (Benvenisti’s “Tower of the King”), and is square in shape.\textsuperscript{15} Their shape notwithstanding, considered beside the Islamic work at Cairo and Diyarbakır this would suggest that a precedent for the positioning of strong, independently fortified towers at crucial points in the circuit of walls had been firmly imbedded in both Muslim and Christian defensive thinking by the beginning of the thirteenth century.

The disadvantage of the traditional twelfth-century square or rectangular Frankish tower when faced with heavy artillery was its shape: its flat sides were

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\textsuperscript{13} Idem., pp.91-91. Benvenisti’s account of the siege draws upon the account of the “Templar of Tyre”, who calls the Tower of the King the “New Tower”.
\textsuperscript{14} Idem., p. viii. Benvenisti acknowledges his disagreement with Professor Jonathan Riley-Smith on the medieval topography of the city.
\textsuperscript{15} See Dichter, B., \textit{The Maps of Acre: An Historical Cartography}, Israel, 1973
\end{flushleft}
particularly vulnerable to direct bombardment by the new trebuchet. The problem became especially troublesome at corners, where square towers furthermore exacerbated the vulnerability caused by the disadvantaged angles of the adjacent curtains falling away from the enemy. Defenders could not be massed to the same density as along a linear front, and were forced to fire at an awkward angle (right-handed archers would be severely handicapped along one side) and over a greater distance to reach their targets. Corners were thus a natural target for besiegers, who could set up their artillery relatively unhindered by return fire. Al-Adil’s round corner towers alleviated these problems by presenting curved faces to projectiles as well as allowing defenders a greater field of return fire. They also required less painstakingly squared masonry. The advantages were clear but there were trade-offs, especially with the Frankish predilection for residential towers: square rooms are arguably more liveable. A tendency towards round tower shapes becomes apparent towards the late twelfth century, eventually becoming the rule in larger projects in the thirteenth, but compromise solutions, especially where living quarters were involved, were also reached. At Crac des Chevaliers, for instance, luxurious apartments were arrayed over three separate towers on the south side of the inner court, the combined strength of their rounded outer walls the primary shield against artillery mounted on the plateau opposite, while the interiors of the apartments remained approximately rectangular (fig. 364). Even at Margat, the magnificent round Crusader donjon was built with a square interior, making the walls up to 10 m. thick in places (fig. 365).

16 A deficiency noted as early as Vitruvius: “The towers therefore are to be made round or polygonal. For engines more quickly demolish square towers, because the battering-rams beat and break the angles; whereas in the case of rounded surfaces, even when they drive the battering-rams wedge-fashion towards the centre, they cannot hurt them.” Vitruvius, *I:V*, Granger, trans., p. 51
The Philippian Standard

The Latin tradition thus effectively combined two functions in a single type of building: the residential or administrative function of the traditional, independently fortified European keep and the expressly combat role of a strong tower forward-placed at vulnerable corners of the enceinte intended to mount and resist improved artillery through its ballistically correct rounded design. It was not long before the type was introduced to the European heartland. Its primary exponent was Philip II Augustus (r. 1180-1223), credited with the great consolidation of the French kingdom through a strategic marriage and the confiscation of English possessions on the continent, by which he more than doubled the area of the Capetian royal domain and quadrupled the income of the French crown. In order to administrate his newly expanded territory he instituted a bureaucracy composed of non-feudal baillis and seneschals owing their allegiance directly to Paris, a great process of standardization that laid the foundations for a stable and enduring French monarchy.17

No less sweeping was his were his arrangements for the defence of his newly expanded domain. In the border castles of his realm he introduced a new set of standards that together have come to be known as the “Philippian system”.18 The components of the system were basic in comparison to the multifarious independent solutions pursued in the preceding century; one need only think of the inventiveness

17 On the career of Philip Augustus see Bradbury, Jim, Philip Augustus, King of France 1180-1223, New York, 1998; Gautier, Guy, Philippe Auguste: le printemps de la nation française, Paris, 2002
18 The term is most appropriately given in the French in which it exclusively occurs – système philippienne – as it has yet to achieve currency among scholars of other nations. This is despite the obviously revolutionary significance of the school in France and its later international influence, in part the subject of the present study. The lack of scholarly interest in what is clearly the mark of Philippian fortifications on Edward I’s Welsh castles, for instance, remains inexplicable: Edward’s chief architect Master James of St. George was after all a Savoyard who must have been quite familiar with buildings of the school. See Viollet-le-Duc, Eugène, Bernage, George, ed. and commentary, Châteaux royaux (XIIIe siècle), Bayeux, 2006, pp. 22-34 and the very concise précis of the school in Mesqui, “Philippe Auguste”, in Mesqui, p. 290-291
of Plantagenet works at Chateau Gaillard or the highly idiosyncratic structures at La Roche Guyonne and Houdan within the French royal domain: Toy’s “transitional keeps” of the twelfth century. Philip’s works seem positively mass-produced by comparison, and indeed, it was in part the very simplicity of the Philippian system that made it so widely influential. Philip’s architects combined regular plans – square, chiefly, but also rectangular and regularly polygonal – with generally circular flanking towers placed at equal distances along the curtains, the whole of the enceinte girded by a stone-lined fosse (figs. 366, 367). Entry was achieved through gateway flanked by two, usually semi-circular towers. The focal point of the defense was a stone keep (“donjon”), round and often free-standing at a corner of the enceinte, isolated by its own fosse and perhaps a low surrounding wall or chemise. This was typically of at least two storeys and stone-vaulted internally, with a crenellated terrace above. In wood-rich France, as versus wood-poor Outremer where towers traditionally remained uncovered, such towers could also be covered with conical roofs (fig. 368), considerably less vulnerable to incendiaries than the large flat or squared timber roofs of the traditional angular Norman keep.

Individually speaking none of these elements was particularly new to the European context. Regular plans in the antique fashion were known in France from

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19 Toy, pp. 104-113

20 The terms “keep” and “donjon” become increasingly problematic in the Philippian context. Mesqui points out that its usual medieval meaning was “the seat of feudal power”; usually the combination of a motte and a tower comprising the audience hall and residence of a lord. “Grosse” or “grand tour” were more generally used to indicate the architectural entity, “donjon” being a largely eighteenth and nineteenth century appellation for the same (Mesqui, p. 153). He prefers “tour maîtresse” in reference to the Philippian towers, which, as he observes, were largely non-residential, particularly in the context of urban fortifications. The issue becomes more difficult still when working in English: “dungeon” – the original English equivalent – no longer denotes the same concept, and “great tower” seems unnecessarily archaic, not to say unspecific. For the purposes of clarity, I have tended to use the relatively neutral, Anglo-Saxon “keep”, although the term remains difficult in reference to the transitional and mixed-use structures we are discussing herein.

21 See de Caumont, Arcisse, Abécédaire ou rudiment d'archéologie: Architectures civile et militaire, Caen, 1869, p. 487
Gallo-Roman *castra* like that at Jublains and Carcassonne (fig. 369), the knowledge of which was only further enhanced by Crusader contact with Roman and Byzantine march-forts in the Levant. The *castrum* plan had already seen a medieval interpretation on French soil well before the reign of Philip Augustus, at Druyes-les-Belles-Fontaines, probably by Guillaume III, Count of Nevers, after his return from the Crusade in 1149 (fig. 370). The round keep, too, was not new. Simple freestanding round towers had been built from the late twelfth century on both sides of the Channel: by Henry II at Château-sur-Epte and Neauffles in the 1180’s and by William Earl Marshal at Dover in c. 1200, usually at the summits of older mottes (fig. 371).

It was rather Philip’s marriage of the *castrum* plan with the now forward-placed, heavily fortified round keep that made the system innovative. The Philippian system enjoyed the regularized flanking towers afforded by the *castrum* plan as well as the advantages of the round, independently fortified tower placed in a position to dictate the primary defense of the enceinte. The effectiveness of this in both mounting and countering artillery has already been discussed. Furthermore, the system was a boon to French architects, being easily replicated throughout the expanded royal domain. Much like Roman *castra*, the system was particularly suited to areas lacking in natural defensive features, a factor that may have contributed to its later popularity in the walls of low-lying towns and level frontier areas. Philip’s considerable territorial ambitions meant that royal engineers were no longer always afforded their choice of naturally fortified sites.

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22 A point made effectively by Smail, among the first generation of scholars to point out the presence of flanked and *castrum*-type buildings in Europe before the First Crusade. He specifically cites Ludlow, Pevensey, Portchester, Rome, and Carcassonne as potential models for the introduction of *castrum*-type buildings in Western Europe. Smail, 1956, pp. 232-233

Given the continuous flow of information to and from the Holy Land, the indefinite appearance of the fortifications at Acre, and the uncertain scope of what he saw in the Holy Land, it is impossible to state categorically that the Philippian system applied principles absorbed by the King during his mere three months on Crusade (April 20-July 31 1191). We have observed that the various elements of the system already existed in diffuse form on French soil. That said, Philip was certainly at Acre for the latter part of the difficult siege of 1189-1191 and although gravely ill would have witnessed first hand the devastation wrought by the Frankish trebuchets – many of his own construction – on the walls of the city; he must have appreciated the value of the Cursed Tower placed at a vulnerable angle in the curtains in counteracting that threat. 24 What is certain is that the positioning of the keep in Philip’s castles built after his return from the Holy Land closely reflects usages similar to those at Cairo and Diyarbakır, and probably Acre.25 It is perhaps indicative that the Louvre, begun in 1190 before his departure for Near East, followed older Norman models in retaining the keep entirely within the safety of the enceinte while the castrum plan had already been adopted for the curtains (fig. 372). Although completed after his return, its obsolete arrangement would never be replicated: the technique of placing “la grosse tour” at an exterior corner of the enceinte, defended by its own fosse, as at Lillebonne

24 The Itinerarium Peregrinorum et Gesta Regis Ricardi gives a detailed account of these weapons, two of which were named – the “Malvoisine” (“Bad Neighbour”) and “God’s Stone Thrower”, furnished and maintained through pilgrim subscription. The latter eventually destroyed the wall next to the Accursed Tower, evidence of the tendency of artillerymen to target the more naturally vulnerable corners of the enceinte. See Nicholson, H.J., Chronicle of the Third Crusade: A Translation of the Itinerarium Peregrinorum et Gesta Regis Ricardi, Aldershot, 1997, pp. 208-209
25 His exposure being limited to Acre and its environs, it comes as no surprise that Philip seems to have been more influenced by the urban fortifications of the Holy Land than the equally innovative thirteenth-century solutions at Crac and Margat that he never saw. It is interesting to note the different direction taken by the Philippian school: whereas the Hospitallers opted for a closely-packed profile appropriate to their hilltop sites, and recognized the value of the secondary curtain or proteichisma, arguably a classical inheritance, the latter was never taken up by Philip, despite his adoption of the castrum plan. The proteichisma (or fausse-braie) begins to make its first appearances in France during the reign of his grandson Louis IX (Saint Louis), at Carcassonne and at Saint-Gobain, in the Aisne. See Mesqui, “Fausse-Braie”, in Mesqui, pp. 166
in c. 1211 (fig. 373) and Dourdan of the 1220’s, (see fig. 366) was characteristic of all his later projects and would became a hallmark of the Philippian system. It is likely that this was in response to the same threat of the counterweight trebuchet, by now likewise in process of importation to the European theatre.

**The Tower as a Symbol of Royal Power**

As with the effect had on military architecture by the growing role of the more egalitarian Military Orders in the Holy Land, the reasons behind the drastic shift have similarly, if secondarily, to do with the changing nature of the French military hierarchy. With the institution of a bureaucracy of salaried, nonfeudal *baillis* assigned to the governance of royal properties, the keep was no longer the residence of a nobleman concerned primarily with the safety of his person and that of his immediate family. The majority of such towers were never intended for permanent residence, lacking chapels and other trappings of the aristocratic lifestyle, as well as being awkwardly shaped interiorly. As Mesqui observes, “la tour philippienne ne fut jamais residence du maître, mais symbole de pouvoir”. 26 The utilitarian but highly symbolic character of such towers would find particular relevance in the similarly non-aristocratic context of Genoese colonial administration and Ottoman military organization, as we will return to shortly.

*Carcassonne*

This symbolic function of the Philippian tower was highly pertinent in the realm of expansionist Capetian France. Distinctive by dint of their height and exteriorized position in any fortified compound, such towers became a potent symbol

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26 Mesqui, p. 290
of the royal presence by consequence of their uniform proliferation throughout the royal domain. This symbolic role was particularly significant in the introduction of such towers to the design of city walls, their most public manifestation. The works begun at Carcassonne by Louis VIII in 1226, for instance, applied all of the “royalizing” features of his father’s ideas to the new royal acquisition (fig. 374).27 The palace of the former rulers of the city, the Viscounts de Béziers – an agglomeration of buildings of various periods appended haphazardly to the antique city walls - was formalized in the Philippian manner with the addition of a rectangular perimeter of walls featuring evenly spaced round towers and the usual flanked entrance.

The same regularity was applied to the proteichisma that was added to the existing walls, which again displays the strictness in the spacing of its towers characteristic of the system. Its most notable feature is the Tour de la Vade, added during the reign of Louis IX (Saint Louis) to the southeast flank facing the plateau after the siege of 1240, which constitutes a large cylindrical tower, unusual for an element of the proteichisma in being tall enough to actually overlook the inner wall (fig. 375). Equipped with a well, latrines, and an oven, the tower was clearly intended to house a compliment of men at this sensitive corner of the enceinte and was well capable of standing on its own as a defensive entity, had even the lists between the two circuits of walls been breached (fig. 376).28 Strategically useful in allowing a strong defense of the outer perimeter of walls, the tower was also a lofty reminder of the royal dominion over this much-contested city.

27 The restoration carried out by Viollet-le-Duc and his successors during the latter half of the nineteenth century has been widely criticized for its “fanciful” tendencies. Nevertheless, the city remains an incomparable showcase for more than a thousand years of fortification in France.  
Aigues-Mortes

A similarly instructive and almost exactly contemporary application of his grandfather’s ideas is seen in the walls of Aigues-Mortes, formally founded in 1246 by Saint Louis (Louis IX) as a French outlet to the Mediterranean, but only completed towards the end of the reign of his grandson Philip the Fair (r. 1285-1314) (fig. 377). Formerly coastal, silt has now rendered the town land-locked. Its plan has all the standard characteristics of the Philippian system almost a century old by the time of its completion, writ large to accommodate an urban settlement: a rectangular plan, evenly spaced towers, and flanked entrances. Completed in 1248 and thus among the first elements of its fortifications constructed was a round tower, the Tour de Constance, isolated from the main circuit of walls at the north-western corner of the town by a wet fosse (fig. 378). This was endowed with independent access to both the town and its surrounding hinterland via two drawbridges leading in either direction from its ground floor (fig. 379). The tower is truly massive, 30 m. high with a diameter of 22 m. and walls 5 m. thick. The tower served most regularly as a prison for religious dissenters, royal officers being quartered in the adjacent castle, now disappeared; again, “l’essentiel du rôle de la tour était celui d’un symbole royal, à l’image des tours de Philippe Auguste.”

The International Style

There can be little doubt that the colonial Genoese towers of Galata, Corsica and the Crimea we have addressed in the previous chapter are direct descendents of the French buildings of the Philippian school we have examined at Carcassonne and

29 Mesqui., p. 15
Aigues-Mortes. Although the Tour de Constance is unusually massive, generally speaking the proportions of the towers are similar – tall, thickly walled cylinders between 15 and 20 m. in diameter. The positions of the Galata Tower and those at Bastia, Calvi, Caffa/Theodosia, and Cembalo/Balaklava at vulnerable corners of their respective enceintes directly recall the fundamental tenets of the Philippian system. Each is intended to resist bombardment by conventional cold-steel artillery, particularly the counterweight trebuchet, while allowing the deployment of a large quantity of men and materiel at loci traditionally targeted by besieging forces. The presence of surrounding chemises in Galata, Caffa, and Cembalo closely recalls usages typical of a contemporary generation of Philippian towers as at Coucy (fig. 380).

In the Corsican examples the internal construction follows the French model, with high vaulted ground floors covered with domical, in this case, rather than groined, vaults (fig. 381). The wooden floors of the Galata Tower diverge from this model, although the mezzanine level elevated over a lofty ground floor may constitute a parochial version of the galleries common in the larger Philippian towers executed in wood (see fig. 312); such an arrangement recalls the presence of a gallery overlooking the ground floor in the Tour de Constance and other towers of the Philippian type, as that at Coucy, a security measure allowing the surveillance of the entrance floor (fig. 382). The Galata Tower similarly had a cistern allowing it to

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30 The dome would remain the preferred method of vaulting in the towers of Genoese Corsica into the seventeenth century.
31 Although wooden floors are common among the spindly twelfth and thirteenth-century round towers of Liguria (e.g. Vernazza), those of the Galata Tower are probably better explained by their expediency. Nevertheless, the absence of vaulting in the tower is somewhat odd, given the use of vaulting in Genoese Corsica and at Cembalo/Balaklava. Even had the tower been built with some degree of Byzantine expertise and/or labour, which is likely – the “sintesi tra la tecnica medievale genovese e quella bizantina” noted by Belgrano with reference to the Genoese palace of the podestá of Pera – one would have expected at least one domed level, as in the contemporary square independently
independently resist a prolonged siege. It also likely featured a conical roof as seen in early illustrations, an element which may also have existed among the other cylindrical Genoese towers. Such a roof would have recalled the traditional method of covering in towers of the Philippian school: Viollet-le-Duc’s restoration of the Tour de la Vade at Carcassonne recreates precisely such a roof (see figs. 375, 376, 381).

_The Capetians and Genoese in the Mediterranean_

The apparently sudden fourteenth century appearance of such towers in the Genoese repertoire follows remarkably closely on the French royal penetration of the Mediterranean and the introduction of the type into the French Midi. Given the close relationship between Genoa and the Kingdom of France during the same period, such transmission is hardly surprising. In the case of Aigues-Mortes, and particularly relevant to our study, the governor charged with the continuation of the construction of the port city by Philip III during the 1270’s was Guillaume/Guglielmo Boccanegra, the first Popular Captain of Genoa, exiled to the French royal domain after being unseated by the successful aristocratic counter-coup of 1262.\(^{32}\) A close associate of the French crown, Boccanegra had helped to finance Saint Louis’ efforts to refortify the Holy Land in 1253 and was immediately appointed governor of the city for his lifetime upon seeking asylum there – his defense and maintenance of the walls were undertaken in return for a considerable yearly stipend drawn from the profits of the fortified Byzantine towers of the period (e.g. Gynaikokastro, Maro). See Belgrano, L. T., _Documenti riguardanti la colonia Genovese did Pera_, Genoa, 1888. It is also possible that any original domed arrangement of the Galata Tower was destroyed during one of the many subsequent interventions.\(^{32}\) See Gallo, pp. 83-90. Boccanegra had in fact already been the first Genoese consul in the town during the 1240’s during which time he would have witnessed first hand the construction of the Tour de Constance (p. 92).
Following a brief hiatus after his death in 1274, during which Boccanegra’s heirs, preferring to return to the affairs of the their city declined the governorship of Aigues-Mortes, in 1289 the French city was once again placed in the hands of a Genoese, Guglielmo Buccucio di Mari, whose additions to the enceinte were brought to completion by his successor and countryman Nicolo Cominelli.

It would be specious to claim that Boccanegra or his fellow Genoese successors to the administration of Aigues-Mortes were single-handedly responsible for the introduction of the Philippian tower to the Genoese architectural vocabulary. The historical, cultural, and linguistic ties between Liguria and Provence and the Languedoc were close: the Republic had had long and significant commercial interests in all of the trading cities of the south coast, Marseilles in particular, and population movements between the two areas were considerable and continuous. Cathar refugees had fled to Genoese territory to escape the wrath of the Albigensian Crusade, and, like Boccanegra, skilled and savvy Genoese were often encouraged to settle in French towns. Moreover, the military ties between Genoa and the French crown were intimate and longstanding: not only had Genoa contributed financially to French crusading efforts of the thirteenth century, but Saint Louis had shrewdly engaged Genoese shipbuilders and captains to assist him in the creation of the embryonic French Mediterranean fleet. Furthermore, the Genoese presence in France extended far beyond the south coast. There were Genoese commercial communities in Champagne, Flanders, along the Rhone, and above all, in Paris. Genoese naval

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33 Jehel, Georges, *Aigues Mortes, Un port pour un roi: Les Capétiens et la Méditerranée*, Le Coteau, 1985, pp. 139-143
34 Ibid.
35 It should not be forgotten that as “Italian” a figure as Garibaldi was born in Nice, and that the Grimaldis of Monaco were originally a Genoese family.
expertise had been enlisted to extend French power as far as the Atlantic and the English Channel.\(^{36}\)

Irrespective, then, of the eventual appearance of the type in the Languedoc, Genoese exposure to the Philippian tower from its very inception in the Île-de-France must have been considerable. Given the inextricable relationship between its military and commercial interests, the Republic’s incorporation of the type into the defenses of its overseas trading colonies was a natural outgrowth of that contact. This was particularly after the advantageous arrangements made with the newly reinstated Michael VIII at Nymphaeum in 1261, after which many of the lightly-defended Genoese trading *fondaci* of the previous period became bona fide fortified colonies.\(^{37}\) Expansion into Bulgaria, Wallachia, Moldavia, the Crimea, and the Caucasus brought with it not only new markets, but the potential for new enemies in the neighbouring Kipchaks, Tatars, and Circassians.\(^{38}\)

Not only was the type of proven military effectiveness, but the same symbolic qualities that made the Philippian tower a French royal icon would have appealed to a Republic eager to project a forceful presence abroad. The original names of the Galata Tower, “Turris Christi” and “Megalos Pyrgos” are indicative of the potent emblematic nature of that building. Its emulation, in multiple, by Fatih Sultan Mehmed in his sovereign new fortress one hundred years later is equally so. Functionally the defensive qualities of the Philippian tower were expanded by its reproduction in triplicate: the potential weak points in the western perimeter of Rumeli Hisari were

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\(^{36}\) Jehel, p. 143

\(^{37}\) Mercenaro, in Boccardo, Piero and Di Fabio, Clario, eds., p. 135

entirely covered by the twin cylindrical towers. Symbolically, the awesome size and
dominant position of the buildings served to strike fear into the hearts of the
Byzantines they were built to conquer: it is no surprise that the Tower of Saruca Pasha
was known to the Greeks as the Tower of Lethe, or Oblivion.39 Far from Goodwin’s
specious generalization, these towers represented the true late-medieval “International
Style” – a French system developed directly out of the experience of the Crusades and
the threat of the counterweight trebuchet, re-exported to the Near East by means of
the Genoese maritime republic to find an Ottoman incarnation preserving not only its
functional qualities but its strong symbolic dimension as well.

39 Toy, p. 88
Chapter Eight
Independently Fortified Towers in the Islamic World

Polygonal Islamic towers: A parallel tradition?

We have established important connections between the independently fortified towers in Mehmed’s fortresses and those of the late-medieval Philippian, and hence Genoese colonial schools. It is more than likely that the fourteenth-century Galata Tower, a Genoese building on French lines, served as the conduit for the transposition of the thirteenth-century Philippian tradition into Mehmed II’s mid-fifteenth century Ottoman fortresses.

Nevertheless, we cannot afford to ignore the subsequent history of the independently fortified tower within the Islamic architectural tradition itself, that upon which Ottoman architecture was equally dependent. Although we have established that Tursun Bey’s statements about the “Frankish” provenance of certain of the towers of Rumeli Hisarı are equivocal, the fact of the unusual polygonal designs of the towers of Halil Pasha at Rumeli Hisarı and at Yedikule remains. Although functionally identical to towers of the Philippian/Genoese school, such polygonal plans as a stylistic choice cannot be thereby explained.¹

The existence of earlier, local Anatolian Saljuq examples of polygonal independently fortified towers makes the issue more problematic still. Although the

¹ Regularly polygonal donjons are relatively rare in the West. Notable examples are Edward I’s Eagle Tower at Caernarvon; Largoët, an octagon of the last quarter of the fourteenth century; and the poorly restored but unique octagonal donjon and chemise at Eguisheim in the Vosges, of the second quarter of the thirteenth century, with its echoes of Castel del Monte. See Mesqui, pp. 157, 210. Serving very little military purpose, we may say that such decorative forms began to appeal more as castles in the West turned towards residence in the fifteenth century, giving rise to such fanciful creations as Oudon and Vincennes.
extent of Ottoman exposure to such monuments before the mid-fifteenth century – all of which are in the southern Anatolian region, and were hence outside of the immediate Ottoman domain at the time – is uncertain, we are indeed faced with the temptation to call such polygonal towers an “Islamic” phenomenon as versus the “Frankish” cylindrical type, as suggested by Ahunbay. \(^2\) The continuing importance of the polygonal plan in the later history of Ottoman fortification, as will be seen below, makes the issue an extremely salient one for our study.

**Subsequent developments in the Islamic tradition**

We have established the emergence of a functionally similar, albeit cylindrical type of tower in the Islamic context in early thirteenth-century works of al-Adil and Sultan Mahmud against the counterweight trebuchet. Unlike the Philippian system that came to profoundly inform later medieval Western fortification however, the subsequent history of such towers in the Islamic world is far more obscure and disjointed. Without the centralizing authority of a figure like the king of France, solutions undertaken by various Muslim rulers to the same problem of the counterweight trebuchet became diverse and heavily localized. \(^3\) Political disruptions and the widespread destruction attendant upon and following the Mongol conquests make our task of tracing the inheritance of the independently fortified tower, and particularly its polygonal incarnations, a difficult one indeed.

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\(^2\) Ahunbay, in Ćurčić and Hadjitryphonos, eds., p. 168

\(^3\) In the Holy Land itself, the Mamluk successors of the Ayyubids seem to have favored square and rectangular shapes for their versions of the same type of tower. Examples like the addition to Crac des Chevaliers, the Burj es-Sabaa (see fig. 4), the outer gatehouse at Aleppo, and the Palace of Qayt Bey in Alexandria may even have been in imitation of traditional square Frankish keeps, giving such fifteenth- and early-sixteenth buildings a much more early medieval appearance (to Western eyes) than those of their round Ayyubid predecessors.
Red Tower/Kızıl Kule, Alanya

The forward-placed, independently fortified tower appears to have penetrated Anatolia from the Levantine Crusading theatre close on the heels of its inception there at the turn of the thirteenth century. In 1226 an architect from Aleppo, Abu Ali, was charged with adding a massive octagonal tower (fig. 383) to the waterfront defenses of Alanya, the second capital and the winter residence of the Saljuq Sultan Alaeddin Keykubad I. An inscription on the north side of the tower records the commission (fig. 384). Positioned at the junction of the seawalls and the eastern landwalls of the city, the tower served to guard the port and the important and unique tersane or dockyard built there two years later (fig. 385). It was additionally defended by an extension of the proteichisma of the town walls around its eastern flank, creating what was effectively a chemise very much like the arrangement of the Galata Tower, and through which an entrance to the town was managed (fig. 386).

The tower is 29 m. in diameter and 33 m. tall. Interiorly, the tower has six elaborately constructed levels, centered upon an octagonal pier which contains an unusual cistern at the level of the first floor, accessed from the roof (figs. 385, 386). The first two floors are covered with pointed barrel-vaults – stone on the ground floor, brick on the first floor – over each of their eight sections. The ground floor has casemates in each of its eight facets (fig. 387). These are extraordinarily tall (c. 6 m.), culminating in lower (c. 4 m.) casemates and slits. The first floor, accessed by a stairway through the thickness of the wall, is entirely of brick except for the octagonal pier which rises through it (figs. 388, 389). It is also equipped with low (c. 1.5 m.) casemates, as well as square murder-

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holes overlooking the ground floor below (figs. 390, 391). Access to the adjacent eastern landwalls of the town is from this level (fig. 392). A series of eight brick piers arrayed around the octagonal core on this level supports a remarkable gallery level above, the low passage of which is furnished with access to a single box machicolation on the exterior of each facet, as well as internal machicolations overlooking, in turn, the first floor below (figs. 393, 394).

Stairs continue in a fine double flight through the thickness of the wall to give access to two different points on the roof of the tower (see fig. 392). This is a three tiered space (fig. 395). The lowest terrace level has access to the cistern via a well, and an extraordinary series of sixteen concentric murder-holes, commanding most sectors of the first floor below. Above this is an intermediate level with small casemates giving access to slits flanked externally by two box-machicolations in each facet of the tower. Finally, there is a narrow parapet level.

The Red Tower presents an architectural puzzle. In its polygonal plan it is like no existing earlier building in Aleppo or Saljuq Anatolia, although it shows the clear influence of the Levant in the neat reddish ashlar construction of its lower body with decorative courses of projecting column drums, the pointed arches, and its projecting box machicolations. It is particularly remarkable that the tower bears no resemblance to any of the buildings in the Citadel of Aleppo, and particularly to the renowned inner entrance there, recently completed by Malik az-Zahir in 1215 (fig. 396). While the box

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5 With the total destruction of the lower town walls of Aleppo we may never know what influence, if any, these may have exerted upon Abu Ali’s unique project.
6 The famed inner entrance at Aleppo is yet another example of the regional responses to the counterweight trebuchet, being forward-placed and enormously strong but built on a more traditional square plan. The Citadel being circular, Malik az-Zahir may not have felt the need for round towers which acquitted themselves so well at corners – thus the inner entrance may be seen as functionally related to the massive intermediate square towers built by al-Adil in the Citadels of Cairo and Damascus, contemporary with the
machicolations of the Red Tower are reminiscent generally of Levantine practice they bear no resemblance to the elegant elongated structures on the façade of the inner entrance of the Citadel of Aleppo (of a type replicated at Crac des Chevaliers, and of possibly the same workshop\(^7\)), being more akin to the vertical type seen in the Burj el-Haddad and the Burj ar-Ramla in the Citadel of Cairo (see fig. 352)\(^8\).

The curious internal arrangement of the tower, centered on a massive octagonal pier hollowed out to contain a cistern on the first floor, is quite unlike anything in the Western or Near Eastern tradition. It is of dubious structural value in strengthening the building: beyond supporting the relatively thin roof, under which it is in any case hollow, the pier would have lent little reinforcement to the exterior walls which would have been at the greatest risk of battery. Indeed, it serves mainly to take up space, reducing the usable interior area to the narrow vaulted aisles around it and the casemates, and creates a security risk in blocking the line of sight to the entrance from most points on the floor.

We may venture that the arrangement is in fact a facsimile of arrangements we have examined in Cairo and Diyarbakır, that is, *replicating the plan created when a facing is applied to an existing, smaller tower*. If such is the case, we may assume that the architect Abu Ali was familiar at least with the monuments of Diyarbakır or similar, subsequently disappeared monuments of the northern Jazira, through which he may well have traveled en route to Alanya.

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\(^7\) An ancient Near Eastern type, of which an early Islamic example (c. 729) of Hisham is seen above the entrance to Qasr al-Hayr ash-Sharqi. See Creswell, 1952, p. 91, and Kennedy, p. 154-156

\(^8\) Introduced by al-Adil and not seen in Saladin’s earlier work. See Creswell, 1952, p.123
The similarities in the design of the Red Tower with contemporary Western buildings are likewise remarkable. Not only are the position and proportions of the Red Tower highly reminiscent of towers of the Philippian school, but such features as the gallery in the thickness of the wall overlooking the first floor and the high vaulted amplitude of the two interior levels (rather than the multiple wooden floors of Ottoman practice) strongly recalls Philippian-type buildings like the nearly contemporary Tour de Constance, most of which were limited to two or three vaulted interior storeys overlooked by galleries (fig. 397, and see figs. 378, 382). While an actual connection between the Red Tower and comparable Western buildings is unlikely, their parallels are indicative of the universality of the threats facing combatants in the age of cold steel warfare, irrespective of nationality or confession.

*Mamure/Mamuriyye Kalesi, Anamur*

Closely related to the Red Tower were probably both of the two large polygonal towers of the castle known as Mamure or Mamuriyye Kalesi on the coast at Anamur, about 100 km east of Alanya, only one of which remains to us (fig. 398). A fortification has stood in the spot since Roman times but the bulk of the present remains are of Saljuq and Lusignan origin, although the fort was in Karamanoğlu hands and shows considerable Ottoman additions including the large mosque. As a whole the castle is one of the finest examples of thirteenth-century Crusader work in Anatolia, the northern front with its beautifully spaced towers, their battered bases sunk in the wet moat (fig. 399) in particular bringing to mind as accomplished a building as contemporary Angers (fig. 400). Along with its fine Saljuq portals and inscriptions (figs. 401, 402) the castle is a
unique study in trans-cultural architectural harmony.\textsuperscript{9} It remains largely overlooked and unpublished.

Located in almost exactly the same position as the Red Tower on the seafront, the towers guarded either end of the small harbor of the castle. Erosion has altered the coastline and done away with the western of the towers, which remains today only in foundation (fig. 403); this once octagonal and likely acted as a final refuge for the occupants of the small palace/citadel, to which it is linked via a series of narrow passages perched on the rock (fig. 404).

The eastern example remains well preserved (fig. 405). Exteriorly the tower sits on a round foundation of reused ashlars and columns that rises in a round talus for about the first third of the body of the tower, the material changing to rubble and small irregular blocks, laid more neatly as the tower rises. The round lower third of the tower and the change in material suggests that the polygonal upper registers may be a reconstruction of an earlier round tower. The talus is pierced with three arched slits neatly lined in a brown stone. It culminates in a distinct lip, from whence the tower becomes a fourteen-sided polygon for the rest of its height. Each facet is pierced with an arched keyhole slit and is quoined in lighter colored stone (fig. 406). The terrace above looks to be a primarily later Ottoman construction with banded brick and stone merlons, a similarly constructed central turret with an unusual corbel frieze and emplacements for small cannon (figs. 407, 408, 409).

In the configuration of its two inner floors the tower is a close replica of the Red Tower, barring some crucial differences largely stemming from its more modest

\textsuperscript{9} Surprisingly, Goodwin seems not to have accurately read the remains, calling Rumeli Hisarı “no more an Ottoman building than the great Karaman-cum-Armenian fortress on the shore at Anamur” (Goodwin, p. 104). I saw no evidence of specifically Armenian or Karaman remains on the site.
dimensions. It too has casemates radiating from a core resembling a central pier, in this case cylindrical, but here a spiral staircase is contained within the core rather than rising through the thickness of the wall as at Alanya (figs. 410, 411). The core also contains a cistern below the ground floor, which has fewer slits than the first (see fig. 405). As with the Red Tower, the tower communicates with the adjacent east wall of the fortress, in this case on three levels, from both interior floors as well as from the terrace of the tower to the wall-walk (fig. 412). In what is clearly a fine piece of Lusignan work, the east wall has two levels of interior galleries with slits facing both outward and into the enceinte (fig. 413).¹⁰ Both galleries are linked, the lower via a stairway, with the capacious barrel-vaulted upper level of the gatehouse, which had no communication with the bent entrance below but controlled its traffic by means of slits overlooked both its exterior and interior (figs. 414, 415). The smooth communication between the existing tower and the gatehouse/gallery complex probably again indicates that it is a replacement of an earlier Lusignan round structure possibly of the Philippian type.¹¹

In any case, the similarity between the existing tower at Mamure Kalesi and the Red Tower make it almost certain that this too is Saljuq work, probably also of Alaeddin Keykubad I of the 1220’s, although the vastly inferior quality of the workmanship and materials make it unlikely that Abu Ali, the architect of the Red Tower, was directly involved. Rather, this should be seen as a provincial version of his masterpiece in Alanya executed by a local workshop familiar with both in the interior and exterior of that monument. Finally, the striking similarity in its proportions with the tower of Halil Pasha at Rumeli Hisari should also be noted. They are fourteen- and twelve-sided, respectively,

¹⁰ Interior wall galleries are unknown in Saljuq and, for that matter, Ottoman work.
and have very similarly disparate relationships with their adjacent curtains, particularly with the sea-walls, in the case of Mamure Kalesi, where the tower rises to almost three times their height (fig. 416). Finally, with the Ottoman addition of a turret to the tower of Mamure Kalesi – probably replacing an earlier example, as this would have been the only access to the terrace level – the profiles of the two towers are remarkably alike, although of course with its roof the tower of Halil Pasha would have had quite a different aspect. It is unlikely that the tower at Mamure Kalesi would have been roofed in the same way, as the turret is much too small and the terrace too wide to have carried a bipartite roof in the way of Fatih’s towers. Rather it seems that the turret at Mamure Kalesi with its banded masonry and decorative corbelling was intended as an ornamental crown for the unroofed building.

Çandarlı/Pitane

It is unlikely that Mehmed II or any of the three of his high-ranking lieutenants deputed to the construction of Rumeli Hisarı had direct knowledge of these distant buildings, already more than two centuries old by the time of the construction of his fortress on the Bosphorus. Falling later into the hands of the Karamanoğullar, Alanya and its environs would not become part of Fatih’s dominion until 1471, well after the construction of all four of his most important works.

Nevertheless, these Saljuq buildings constituted a small but distinguished school in the history of fortification in Anatolia, and it is more than likely that they remained familiar to workshops in the region, not least of all to those charged with their maintenance during the restive Beylik period following the Mongol conquest. What is
more, border areas would have been natural magnets for workshops skilled in the
collection of fortifications, and we must expect that the sensitive, fluctuating frontier
between Karaman and the Ottoman domain would have been quite permeable throughout
the long period of confrontation between the first clashes of 1386 and the final Ottoman
absorption of the area in the 1470’s.

Such distinguished antecedents as the Red Tower and Mamure Kalesi may thus
explain the later construction of polygonal towers elsewhere in the Aegean region. An
almost unknown example and one of vital importance for our study is the small fortress
in the town of Çandarlı on the north shore of the gulf of the same name north of
Izmir/Smyrna, a settlement formerly known as Pitane (ancient Greek Aeolis) but renamed
for the Grand Vizier who by tradition supervised the construction here of a fort for Murad
II, who preferred to reside at nearby Manisa.12 As one of the few works possibly dating
from the reign of Mehmed’s father and predecessor and supervised by the very same
Çandarlı Halil Pasha charged with the construction of the polygonal tower of Rumeli
Hisari in question, this obscure building constitutes a critical link in our investigation.

The fort is quite clearly of several different builds, all of the same tan stone but of
varying size, the entirety surrounded by a short talus of a later construction (fig. 417).
The square northwest corner tower (fig. 418) would seem to be all that is left of what was
once probably a square or rectangular tetraption/quadriburgium-type fort built of neat
ashlars, perhaps a Genoese construction dating from their occupation of large portions of

12 The fortress is entirely unpublished. It is briefly mentioned by Ekrem Akurgal, who excavated the
ancient necropolis here during the 1960’s. He dated it to the Genoese period, with Ottoman additions from
the second half of the fifteenth century, who “made it strong enough to withstand onslaught from weapons
using gunpowder”; Akurgal probably did not recognize that the bastion and embrasures in the walls are
undoubtedly the early nineteenth-century work of Mahmud II. Akurgal, Ekrem, Ancient Civilizations and
Ruins of Turkey, Istanbul, 1978, p. 112. See also Freely, John, The Western Shores of Turkey, London,
2004, p. 86, who agrees with Akurgal’s dating.
the area following the Treaty of Nymphaeum in 1261.\footnote{The treaty granted Genoa large concessions on the Aegean coast including Smyrna/Izmir and, from 1275 Phocaea/Foça, a personal fief of the Zaccaria family. See Argenti, pp. 21-25; Miller, William, “The Zaccaria of Phocaea and Chios, 1275-1329”, in The Journal of Hellenic Studies 31, London, 1911, pp. 42-55} In its proportions and regularity the tower is strongly reminiscent of thirteenth-century Northern Italian work and sees close parallels in the Genoese fortifications of Amasra (see figs. 317, 318). Its parapet level has seen intervention and the addition of a box machicolation probably at the same time as the precinct was expanded to the east – box machicolations appear on most of the towers and at several points along the curtains, and are of a long vertical single aperture type reminiscent of those on the Red Tower, although elongated (fig. 419). A corresponding southwest corner tower has been replaced, probably at the time of the fort’s expansion to the east, by a square tower set on an unusual diagonal (fig. 420). A smaller tower in the middle of the south wall is set on a large square base (fig. 421) that probably once constituted the southeast corner tower of the original \textit{quadriburgium}, subsequently destroyed.

From this point eastward the character of the fabric changes to small squared stones, probably indicating the beginning of the eastern fifteenth-century Ottoman addition (fig. 422). The southeast corner tower is pentagonal in plan, the point of the pentagon unusually oriented towards the interior of the fort rather than outward, so that from the exterior the tower appears square (fig. 423). At the northeast corner stands a small hexagonal tower, noticeably larger at the base than at its summit (fig. 424). From here a wall ran east to the main tower of the fort, next to which the gate was managed; this stretch of curtain has been subsequently strengthened by a pointed barbican added during the early nineteenth-century reign of Mahmud II.
The main tower itself forms a hexagon with one of its points oriented directly north, perpendicular to the adjacent curtain (fig. 425), giving it a slightly prow-shaped projection. Like the tower of Halil Pasha at Rumeli Hisari and the polygonal tower at Yedikule, it flanks the entrance and acts as its principal defense. Although it has very little in common with the tower of Halil Pasha at in terms of size, this example barely 8 m. in diameter and c. 20 m. tall, there is also a certain commonality in their proportions, this, like the tower of Halil Pasha (and all the main towers of Rumeli Hisari) standing extremely tall in relation to its adjacent curtains. In this case the hexagonal tower stands about double the height of that to the west and almost triple that to the east, which has been truncated with the addition of the barbican. The internal floors were of wood. As we have observed, such extreme verticality may be regarded as typical of Mehmed’s fortifications, and quite unlike both Byzantine practice and the Saljuq monuments we have considered above.

In the hexagonal tower at Çandarlı may be seen inklings, then, of the mature versions at Rumeli Hisari and Yedikule, and clearly demonstrates that the polygonal plan had entered the Ottoman vocabulary in an inchoate form before the reign of the Conqueror. While it would be unwise to posit a link between such fifteenth-century Ottoman towers and their Saljuq predecessors based on the evidence of a single, possibly unique monument, the polygonal plans and the striking presence of box machicolations are strongly suggestive of a relationship, further reinforced by geographical proximity. We may venture further to suggest that drawing upon his experience of the construction of the fortress at Çandarlı, Halil Pasha was directly responsible for the transmission of the type to the shores of the Bosphorus. Unfortunately, the differences between the towers at
Çandarlı and at Rumeli Hisarı in their dimensions and their interior arrangements are too stark to allow for the possibility of the same workshop having been involved in both projects. It would seem, rather, that Halil Pasha conveyed a simple preference for a monumental polygonal tower placed next to the entrance to his architect(s), recalling the arrangement of the fortress he had had built for Mehmed’s father.

Only a much more detailed investigation of the historical sources will reveal whether the polygonal plan was by this time (if ever) considered an expressly “Islamic” phenomenon in the eyes of the Ottoman architect and observer; it is possible that further exposure to monuments like the Red Tower upon Ottoman expansion into southern Anatolia during the 1470’s created the notion of such towers being a Saljuq, and hence “Turkish” or “Islamic” inheritance (rather than “Frankish”) to the Ottoman eye. In any case, and as we will discuss in further detail below, polygonal plans in towers continued to be a cherished element in later Ottoman military architecture, developing a symbolism intimately linked with the Imperial House much as the Philippian towers discussed in the last chapter were a potent emblem of the French royal presence.
Part Two:

1461 – 1462
Chapter Nine

Kilid-ül Bahr

History

The simultaneous construction of the two fortresses of Kilid-ül Bahr (“Lock of the Sea”) on the European shore of the Dardanelles and its counterpart Kale-i Sultaniyye on the opposite coast in 1461-1462 served several purposes for Mehmet II. Blocking the southern entrance to the Straits, and hence, the Sea of Marmara and the Bosphorus, the two fortresses allowed the Conqueror to consolidate his hold on Istanbul, only just beginning to acquire the major imperial monuments that characterized its transformation from pillaged city to Ottoman Imperial capital: the Topkapı Palace begun in 1459 and Fatih’s imperial mosque and mausoleum in 1463. Economically, the fortresses presented a considerable source of income from the tolls they collected, as goods from the Black Sea termini of the Silk Road, and particularly the Genoese depots in the Crimea were obliged to pass through the Dardanelles and back. Tolls were initially collected at the port immediately north of Kilid-ül Bahr until the harbor was deemed insufficiently deep for heavier shipping; thereafter tolls were paid at the opposite fortress.1

Strategically speaking the placement of the two fortresses anticipated the confrontation that would dictate Mediterranean geopolitics for the next three hundred and fifty years. With the Venetian acquisition of Euboia, Methoni, Koroni, Naflplio, and Argos in 1460, and the Ottoman seizure of the rest of the Morea in the same year, the stage was set for the Ottoman-Venetian War of 1463-1479, the first of seven such

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conflicts. The two fortresses protected the Ottoman naval base at Gallipoli/Gelibolu and
the shipyards in the capital that allowed the prosecution of such a campaign, and allowed
the secure massing of the fleets in the Sea of Marmara and immediately outside the
mouth of the narrows. “Locking” the Straits with “awful cannon” mounted on opposite
shores, the two fortresses ensured that “not even birds could fly from the Mediterranean
without permission.”

They were caught, as it were, “between Scylla and Charybdis”. Little is known about the specifics of the construction. Kapudan-ı Derya (Lord High Admiral) Yakub Pasha as governor of Gallipoli/Gelibolu was put in charge of the project. As with Rumeli Hisari, an astonishingly short period of time was taken for the construction. Restoration of the fortress and its counterpart across the Straits was undertaken by Süleyman I the Magnificent (Kanuni Süleyman), probably under the supervision of Sinan, and again between 1658 and 1660 during the reign of Mehmed IV with the supervision of Mimarbaşı Mustafa Ağa. Major alterations occurred in the nineteenth century particularly during the reign of Abdül Hamid II (r. 1876-1909) as part of attempts to strengthen the defenses of the Dardanelles. Contemporary restoration of the fortress took place between 1955 and 1956 and again in 1967-1968.

2 Tursun Bey, Tulum, ed., p.75. Tursun Bey’s account of the fortresses is extremely brief, although he would likely have seen them for himself on his way to the Mitylene/Midilli campaign in 1462.
3 Kritovoulos, Riggs, trans., p. 198
4 Ibid., p. 197
5 Although the round southern corner tower is dated by inscription to have been added by Süleyman in 1541, V. J. Parry states without citing a source that the restoration of the fortresses occurred in 1551. Parry, V.J., “Çanakkale’ye Boghaz”, in EI, pp. 11-12. Sinan became Chief Imperial Architect in 1539.
6 Goodwin, p. 359. Although Goodwin mistakenly terms the two restored fortresses “the Bosphorus fortresses”, there is no evidence that Rumeli Hisari and Anadolu Hisari were restored at this time. The restoration of Kilid-ül Bahr and Kale-i Sultanıye was undertaken concurrent with the construction of two new fortresses at the mouth of the Dardanelles, Seddüll-Bahr and Kumkale, under the patronage of the Valide Turhan Sultan, mother of Mehmed IV. See Thys-Şenocak, 2006. Although Mustafa Ağa – typically for Ottoman architects – is not specifically named as the architect of the two new fortresses, he was indeed Mimarbaşı during this period (1651-1664) and is assumed to have designed the valide’s fortresses and been responsible for various restoration projects, activities that earned him the somewhat unflattering nickname meremetc, or mender. See the list of seventeenth-century Imperial Architects in Afyoncu, Fatma, “XVII. Yüzyılda Hassa Mimarları Ocağı”, in Turkler 12, p. 105
Description

Kilid-ül Bahr is located in the modern town that bears its name (the simplified “Kilitbahir”), near or on the site of ancient and Byzantine Sestos, in a small bay in the European shore of the Dardanelles at the point where the Straits are narrowest, at 1200-1250 m. It is notable that despite its ostensible purpose of closing off the Straits to hostile shipping, shipping which would, presumably, have been moving north from the Mediterranean, the fortress is situated in a notch in the coastline open to the north, so that in fact the defenses of the fortress face approximately northeast rather than south towards the direction of approaching ships. Although illogical at first glance, this might have been intended as a precautionary measure against the bow-line guns of contemporary galleys, which faced forward: the fortress was nestled against the steep hill behind it (fig. 426) and thus sheltered from frontal bombardment from approaching vessels while such vessels would have been plainly visible from the top of its commanding central tower and vulnerable to bombardment from the rear once they had passed through the narrows.

The fortress occupies a site approximately 220 m. long along the coast by 120 m. deep.\(^7\) It consists of three related enceintes, the first two concentrically arranged: the outer, polygonal northern enceinte that might be considered a *proteichisma*, the large trefoil chemise with the three-pointed tower at its center, and the triangular southern compound culminating in the southern round tower at its apex (fig. 427). The entirety is surrounded by a ditch preserved on the north, west, and south sides of the fortress. The

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\(^7\) Utkular, Ismail, *Çanakkale Boğazında Fatih Kaleleri*, Istanbul, 1953, p. 31. Although well illustrated, this early monograph did not attempt any comparative dating or phasing for the site.
curtains of the polygonal enceinte facing the waterway have been destroyed to make way for the highway.

_Counterscarp, Ditch, and Talus_

The entire landward side of the fortress is preceded by a ditch some 13 m. wide with a stone counterscarp, the depth of which varies with the gradient of the slope, reaching 5 m. on the southwestern side of the polygonal enceinte where the slope is steepest (figs. 428, 429). A seventeenth-century engraving has this open at either end to the water of the channel, creating a wet moat (fig. 430). It is doubtful that water ever completely surrounded the fortress: with the pitch of the site the ditch would have had to be more than double its depth on the south side in order to be anywhere near sea level. Despite the pictorial evidence Ayverdi believes the mouths of the ditch to have been closed at the waterfront.⁸

A talus of rough gray stone about 4 m. high from the bottom of the ditch has similarly been added (presumably after the draining of the moat, if this ever existed) to the entire landward side of the fortress on the inner side of the ditch (fig. 431), making it impossible to examine the foundations. Utkular and Ayverdi suggest that this was to prevent flood damage.⁹

_Outer polygonal enceinte_

Where the circuit begins on the waterfront at the north there stands an imposing, corniced gateway flanked by two short stretches of curtain with rounded tops, the

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⁸ Ayverdi, _IV_, p. 796
⁹ Ibid., p. 792, Utkular p. 31
northern reaching the water (fig. 432). The gateway is matched by another at the southern end of the fortress giving access to the nineteenth-century batteries beyond; both form part of Abdül Hamid II’s improvements to the defenses of the Straits (fig. 433). The northern entrance is not the original. De Tournefort’s engraving of the fortress made in the early eighteenth century shows a gate in the northern wall of the polygonal enceinte and accessed by a bridge over the wet moat (fig. 434). Such a gate is identifiable today between the first triangular salient and second pentagonal tower, brick-arched and now walled up and converted into a casemate with two musket slots (figs. 435, 436, and see plan fig. 427). This was once defended by a box machicolation supported on corbels and additionally covered by an arched embrasure in the north wall (figs 437, 438). 10 It is surprisingly modest despite the anonymous seventeenth-century Venetian drawing in the Museo Correr which has it housed in what appears to be a square tower or gatehouse (fig. 439). This would have had a direct relationship with the “secondary” entrance to the chemise in the western lobe, now walled up as well – it may be that later security considerations led both of these to be sealed and the other entrance, from almost precisely the same angle in the south curtain where the triangular precinct abuts this one, to be used instead. This is now mainly of restoration work but appears to have been similarly modest (fig. 440, and see plan fig. 427). Such an arrangement would have obliged attackers to make a third of a circuit of the chemise to reach the eastern entrance used today, a passage covered from both inner and outer enceintes.

The wall of the present nineteenth-century gateway abuts the front of a small blunt pentagonal tower, the beginning of the extant fifteenth-century work (see fig. 432).

10 Ayverdi believes the corbels to have been part of a mechanism for supporting the bridge over the ditch, which seems unlikely given their proximity to each other and their lack of anything to attach chains or any other suspension mechanism to (/IV, p. 796).
It is the first of nine towers in the circuit, five pentagonal alternating with four triangular salients, constituting the primary defense of this outer wall. This first example has been truncated, but the tallest example at the southwest of the enceinte reaches a height of 12.5 m. above the floor of the ditch, including its talus. Other than this example the tops of the towers are approximately the same height as their adjacent curtains, this varying with the topography and the changing physical character of the site from about 4 m. at the waterfront rising to about 6.5 m. from the top of the 4 m. talus at the south (figs. 441, 442): the landward walls to the southwest are much higher just as the ditch is much deeper, the wall stepped to follow the gradient. The towers are not, strictly speaking, open-gorged, but most have small arched openings into their interiors from the rear (see fig. 441). Otherwise, the triangular salients in particular are so similar those at Yedikule in their proportions as to be undoubtedly products of the same workshop. Small arched embrasures for muskets appear in the faces of both types of towers just under the merlons, many walled up, and several of the towers are decorated with single or double brick bands (on the tallest polygonal example at the heights of 4.5 m. and 6.5 m.) which do not appear on their adjacent curtains, suggesting separate work details for the two components (figs. 443, 444). The curtains themselves are just over 2 m. thick and rise 1.5 m. above the wall-walk. It features traditional tile-covered peaked merlons in the way of both Rumeli Hisari and Yedikule.

Interiorly, the bailey between the two enceintes measures as much as 25 m. wide, and shows great evidence of having been densely occupied by buildings as shown in most of the contemporary illustrations: rooflines are clearly visible built against the masonry (fig. 445, and see fig. 439). There are additionally a large number of arched recesses built
into the interior of the wall (see fig. 441). The narrow wall-walk is reached by means of several staircases built against the walls, in one location against the south curtain its width unusually increased by means of corbelling (fig. 446). Two stone-arched embrasures open to the ground pierce the southern front, oriented into the triangular enclosure adjacent, implying that that structure may be a later addition to the complex.

Our knowledge of the disappeared sea-wall of the polygonal enceinte must rely upon illustrations. De Tournefort’s engraving of the fortress shows that this was pierced with arched embrasures open to the ground in the manner of those at Rumeli Hisari, the front bisected by another pentagonal tower – Kritovoulos’ “fortresses like gates [with] stone-shooting cannon”.11 Eight such embrasures survive on the neighboring triangular enceinte, indicating that the entire face of the fortress facing the water was once pierced with embrasures (see figs. 473, 474). Utkular draws the line of this wall from the southern pentagonal corner tower of the polygonal enceinte to another, hypothetical pentagonal tower some 35 m. beyond the extant northern pentagonal tower; he would have this hypothetical tower be the corner of the enceinte, and retain the original gate in this position, with sixteen embrasures facing the water (fig. 447). His plan throws off the very regular symmetry of the site and does not account for the nineteenth-century date of the gate nor the irregular way in which its flanking wall abuts the front of the adjacent pentagonal tower, out of line with the curtains to the west. Ayverdi (probably correctly) disagrees, arguing that the extant northern pentagonal tower, which the present gate and its flanking walls abut to the east, was the original corner tower.12 His reconstruction puts thirteen embrasures on this front. Symmetry is thereby preserved (see fig. 427), and in

11 Kritovoulos, Riggs, trans., p. 198
12 Ayverdi, IV, p. 792
accordance with de Tournefort’s engraving he puts no original entrance at the north corner of the fortress. He points out that with his reconstruction the distance between the two enceintes would have been reduced to a bare 3 m. at the two seaward bulges of the trilobate chemise, a distance that some might find unlikely – again he cites the evidence of the engravings, and notes that the distance between the hisar-peçe at Rumeli Hisarı and the Tower of Halil Pasha is as close as 2 m. in places (fig. 448). It should be remarked that there are no embrasures at that point in Rumeli Hisarı, and we may never know the distribution of the embrasures at Kilid-ül Bahr. According to the engravings there may also have been a tower at the middle point of the sea wall (see figs. 430, 434). Certainly if the original entrance arrangement led directly into the chemise from midway along the north wall there would have been little need for clear passage along the waterfront.

In any case the presence of multiple embrasures open to the ground must have drastically affected the defensive character of the outer polygonal enceinte, with these openings being extremely susceptible to storm. Thévenot noticed this as early as 1655 with his binoculars, remarking that

“il y a ainsi que je pus voir secrètement avec des lunettes d’approche environ vingt embrasures à fleur d’eau, auxquelles sont les canons, don’t la bouche est si prodigieusement large qu’outre ce que j’en pus remarquer avec mes lunettes, on m’assura qu’un homme y pouvait entrer à l’aise.”

The presence of three landward facing embrasures on the north and south perimeters seem to have been insurance against just such a scenario. In this, the enceinte must have been almost identical in function to the waterfront battery of Rumeli Hisari which we

13 Ibid., p. 794
have examined above, and indeed, the two enclosures closely resemble each other in many respects.\(^\text{15}\) The small pentagonal turret in the battery at Rumeli Hisarı, for instance, is of very similar dimensions to those in the polygonal enceinte of Kilid-ül Bahr and also features both small brick-arched embrasures in its outer faces as well as a small, slightly elevated arched chamber in its inner face (see figs. 135, 136). Generally speaking the low, thin, and undulating character of the curtains is almost identical in this element of both fortresses, and their entrances are of exactly the same plain stone, flat-arched type. Like that at Rumeli Hisarı, we may conclude that this polygonal outer enceinte had much more of the character of a battery with its walls primarily intended to protect its guns and gunners than forming an integral part of the defenses of the inner fortress. We may even speculate, given Babinger’s spy sketch from the Biblioteca Trevulziana demonstrating the absence of the “hisar-peçe” at Rumeli Hisarı in c. 1452-1453, that the two structures are practically contemporary and perhaps even products of the same workshop (see fig. 140). Although not part of the original design of Rumeli Hisarı, experience gained in the intervening decade had clearly demonstrated the value of such a work and it was incorporated into the primary conception of Kilid-ül Bahr, its role, with its ditch and towers, expanded to become something akin to a proteichisma, particularly on the landward side of the fortress. Despite this increased role it is interesting to note the lack of an inscription of any kind or any of the monumentality we might expect from the public façade of a major Sultanic foundation. Just as at Rumeli Hisarı, it is a modest structure that appears to be of an entirely different conception from the two central components of the fortress, the trilobate chemise and its tower, and may even have been the work of another architect altogether.

\(^{15}\) An observation also made by Ayverdi, \textit{IV}, p. 794
Trilobate chemise

The trilobate chemise at Kilid-ül Bahr is one of the most remarkable structures in Ottoman military architecture. It is no longer encompassed to the seaward side by the polygonal enceinte, demolished on this front, but overlooks it in every other direction by more than 10 m (fig. 449), its walls rising with the gradient. The walls are 18 m. tall and 7 m. thick. In plan it comprises three lobes that radiate from the similarly three-pointed tower at its center, the lobes meeting at the points of the tower (see fig. 427).

There are two entries, the current used one in the east lobe were it meets the north lobe and another in the same position in the west lobe, now walled up (figs. 450, 451, 452, 453). Both entries had flat-arched marble frames set within a higher pointed brick arch; in the western one this has been walled up to be flush with the wall surface. The east entrance has the usual allowance made for an inscription between the arches, although this has since been replaced with a blank marble plaque. Internally both consist of corridors flanked by arched niches. The east gate is accessed via two short ramps on the exterior but enters the enclosure quite low because of the change in gradient, where it is also overlooked from the tops of the chemise; this must have served a useful security purpose as well. On the exterior it is flanked on the northern lobe by an arched niche suggesting another doorway left unexecuted. We have already discussed that the original arrangements for entry may have been quite different from what we see today.

The lobes are joined to the body of the tower (and separated from each other) by short stretches of wall pierced by gates and topped by a “walk” crenellated on both sides, the crenellation cantilevered slightly outward by means of a dogtooth frieze (fig. 454).
Oddly, only one of walks, the eastern, is actually accessible via a stair which also gives access to a slit (see plan fig. 427). Fronting the entrance this was the most sensitive barrier, whereas the others were apparently “just for show”. The chemise is thus separated into three discrete compounds, each capable of being isolated and independently defended. Entry to the central tower is from the northern lobe, which is the only lobe without access from the exterior of the chemise (fig. 455). In order to gain the central tower, as Utkular points out, attackers were thus obliged to pass through at least three gates, a situation he compares to the holds of a ship. The north lobe also contains a well. Despite the overall ingenuity of the arrangement there are certain weaknesses in the accessibility of the wall-walk from the eastern lobe, which would have allowed attackers to circumvent the gates, as well as the gates themselves, which, in a possible concession to aesthetics, have jambs which are arranged so that the gates from the east and west lobes (the points of entry) into the northern open in that direction. This would have made them vulnerable to battering, a threat not mitigated by the ersatz wall-walks that surmount them.

Two long flights of stairs in each lobe rise to the wall-walk, the stairs 1.5 m. wide. Each passes a brick-arched niche for storage (fig. 456). The wall-walk itself is 5 m. wide and slopes upward following the gradient without stepping. The state of the parapets deserves special attention. Currently the “merlons”, if they can be so described, are rounded on the exterior, with alternating direct and diagonal embrasures for small cannon. This is not the original arrangement: evidence of intervention at this level is clearly visible in the exterior masonry which changes from small squared blocks to rubble, a change further highlighted by the corbels which project from the exterior wall
surface without supporting anything at the apex of each lobe just under the height of the parapet (figs. 457, 458). These are obviously the remains of box machicolations which have been removed with the conversion of the crenellation, presumably originally the peaked-merlon type of the polygonal outer enceinte and Fatih’s fortresses in Istanbul, into the more ballistically-correct rounded shape, at which point box machicolations became redundant. This is supported by the appearance of the exact same type of merlons on the Süleymanic round southern tower, datable by inscription to 1541 and clearly of a single, very fine build; it seems likely that the “medieval” crenellation was removed from both the chemise and the central tower at the same time as the southern tower was added. The rounded parapets were certainly in place by the late eighteenth century, judging from a Spanish engraving of 1790 (fig. 459).

Furthermore, the placement of the embrasures in the new, rounded parapet is remarkable. Rather than radiating regularly from the lobes as would be expected, most are set at an angle, some indeed set perpendicularly to one another sharing the same opening (figs. 460, 461). Some are framed by stone arches. Although attractive from the point of view of design, the system must have been exceedingly difficult for gunners to

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16 Utkular does not identify the merlons as having been transformed, calling them simply “original” and “not to be found in any other fortress” (“Diğer kalelerin hiç birisinde yoktur”, p. 35). He likewise does not distinguish the south tower as a later addition (p. 31).
17 Ayverdi again takes the unlikely view that the corbels formed part of some sort of hoist system for hauling materiel up to the terrace (IV, p. 798). A hoist system is hardly likely to have had its pulley situated some meters below its destination.
18 It is also possible that the merlons of the chemise and central tower were converted by Selim II, who added an almost identical round tower to Kale-i Sultaniyye in 1570-1571 (see below), although the extent of his interventions, if any, at Kilid-ül Bahr are unknown. In any case it is clear that little had changed in the thirty years since the construction of Süleyman’s tower. Ayverdi, on the appearance of such rounded tops on the walls immediately adjacent to Abdül Hamid II’s entrance of 1893-1894 on the waterfront (see fig.) dates the conversion of the merlons to that period. Not only is this disproved by Velasquez’ engraving (see fig.), this is a patently absurd contention in the age of rifled artillery: late nineteenth-century guns firing armor-piercing rounds would have reduced Kilid-ül Bahr to rubble within a matter of minutes, rounded parapets or not. Rather, the nineteenth-century gate would appear to have been added to an existing stretch of wall probably built by Süleyman to isolate the area immediately in front of Fatih’s battery, a usage not unlike the walls perpendicular to the shore shielding Kale-i Sultaniyye’s batteries.
manage – the correctly-angled embrasure would have had to be found for any given

target, with almost no allowance made for simple frontal fire even along the seaward

side, which it must be assumed given the role of the fortress would have benefited most

from concentrated frontal fire. Such an illogical arrangement, with cannon mounted

practically parallel to the line of the wall, can only be explained as a mid sixteenth-

century attempt to adapt the wall-walk to the use of firearms; at 5 m. wide the platform is

not appreciably wider than those of Rumeli Hisarı and Yedikule, and likewise could not

have been wide enough to comfortably accommodate recoil, even that of the smaller

caliber, cast-iron shot firing weapons of the Süleymanic period. Setting the guns at an

angle obviated the problem to some extent, but with the slope of the walk – again,

unlikely to have been intended to mount artillery – rolling would have been a problem,

not to mention accurate aiming. Chains may have been employed, as on warships, to hold

the guns forward particularly in the few front-facing embrasures, but again the solution

would have been far from satisfactory, particularly with the steep and narrow stairs up

which such pieces and their ammunition would have had to be hauled. It should be noted

that the embrasures on the spacious terrace of the trefoil central tower all face directly

forward, as do those on the round southern tower.

Central tower

Equally as distinguished as its chemise is the central tower that rises from its

center and overlooks it by more than 15 m. It is not quite a regular triangle, with two

bulges on each face creating a trefoil shape (fig. 463). One of its points directly faces the

water. The tower is almost 30 m. tall with walls 3.7 m. thick. Internally the tower
measures 11 m. from each corner to the opposite wall. Entry as noted is from the north lobe through another flat-arched gate set within a pointed-arch frame, the inscription disappeared. Stairs rise immediately through the thickness of the wall to the right, with a niche to the left. There are seven wooden floors each about 4 m. high, the remains of which are clearly to be seen (fig. 464). The southeast face is the most neatly fenestrated with two parallel rows of musket loops on either side of the cleft formed by the points of the tower (fig. 465). Interiorly these are brick vaulted. A single square window appears in each face of the tower beginning above the level of the fourth floor, each set within an ogee brick-arched frame.

The structure is covered by an unusual triangular brick vault without the rising drum and attendant peaked roofs of Rumeli Hisarı and Yedikule. Above this the parapets have been likewise converted to rounded merlons, two on each face and one at each corner, these all facing directly outward given the large allowance for recoil afforded by the wide terrace. The anonymous seventeenth-century Venetian drawing suggests that in its original form the parapet may have been cantilevered outward, perhaps as are the “wall-walks” of the dividing walls of the lobes of the chemise with dogtoothings or perhaps even with corbels to create continuous machicolation (see fig. 439), although this is unlikely with the presence of the box machicolations.19 Other than this conversion of the terrace there is again no evidence for the placement of artillery within the tower for the same reasons that we have discussed at Rumeli Hisarı and Yedikule. Although relative certainly to Yedikule there may have been a purpose in mounting guns at this

19 Although continuous machicolation is unknown in the earlier two of Fatih’s fortresses, a version appears in the octagonal towers and façade of the Gate of Salutations or the Middle Gate (Bab-üs Selam, or Orta Kapı) of the Topkapı Sarayı, once thought to be of Süleyman I (Ayverdi, p. 701) but now unquestionably Fatih’s (Necipoğlu, pp. 50-52). The machicolation may, however, be an addition made during Süleyman’s restoration of the gateway in 1524-1525, a possibility discussed further in our Epilogue.
height to loft shot at shipping in the Straits, with the narrowness of the stairway whatever pieces were mounted on the terrace of the tower would have had to be hoisted up. With the state of the interior it is quite easy to imagine what effect a fire started by a spark accidentally applied to loose powder within the body of the tower would have had to its wooden floors.

Triangular southern enceinte

A third, triangular enceinte springs from the exterior polygonal enceinte to the south, abutting two pentagonal towers in this circuit, one just beyond the south gate and the other the waterfront corner tower (fig. 466). The enceinte narrows to a point, where stands a round tower discussed below. On the west side the enclosure is bounded by the same ditch and talus, the wall standing approximately the same height and thickness as that of the polygonal enceinte while descending towards the water (fig. 467). The merlons are identical to those of the polygonal enceinte and the walls are of the same thickness, the sole difference in treatment being a thick meander that runs around the entire surface of the walls of the triangular enceinte, a feature discussed in more detail in a following section (fig. 468). The wall is featureless except for a gatehouse, access to which was presumably gained across the ditch by a bridge, as its opening is considerably elevated. The gatehouse is square in plan and of a single storey (fig. 469). The lintel and tympanum of the opening have collapsed, but it was set within a pointed brick arch with banded voussoirs. The short barrel-vaulted internal corridor was flanked by brick-arched niches, similarly with banded voussoirs. On the interior side of the enceinte the entrance is significantly elevated; this can only be explained by a change in elevation within the
enclosure or the disappearance of a wooden ramp, for no allowance seems to have been
made for stairs (fig. 470). The enclosure is additionally defended by a square tower open
at the back, the only square tower in the fortress (fig. 471). Beyond this the curtain has been demolished, making its precise relationship with
the circular tower unclear on this side. On the eastern, waterfront side, the tower is joined
to the original curtain by a wedge-shaped fill, rising slightly higher than the original
curtain to the height of the toros molding of the Süleymanic corner tower (fig. 472). The
merlons have been rebuilt. Beyond this the curtain runs straight along the waterfront to
join the polygonal enceinte once more at its southern corner pentagonal tower. Its length
is characterized by eight brick-arched embrasures open to the ground for cannon, some
with banded voussoirs, the first two flanked by niches (figs. 473, 474). These, at over 3
m. wide, are a good meter wide than those at Rumeli Hisari, and must have
accommodated very large guns of the bombard type indeed. Together with Ayverdi’s
thirteen embrasures in the polygonal outer enceinte, this would put the total seaward
armament of the fortress at twenty-one very large pieces full strength, twenty-four
counting those firing parallel to the water. This was a colossal equipage by the standards
of the day. Guilmartin points out that even by 1536 the armament of the important
Spanish colony of Santo Domingo in the Caribbean consisted of only four culverins and
four half-culverins, citing the vast expense of cast-bronze artillery.20 Fatih’s ability (or
projected ability) to garnish his fortress with twenty-four guns of the largest caliber is
testament to the almost limitless wealth of his Empire.

20 Guilmartin, p. 181. The actual contemporary scarcity of artillery because of its huge expense is a factor
often overlooked by historians of military architecture in the early gunpowder era.
The triangular enclosure is clearly an addition to the ensemble, but it is difficult to ascertain precisely when it was added. Ayverdi identified fragments of the counterscarp of the ditch where it once continued around the south side of the polygonal enceinte and was filled in, presumably at the addition of the triangular outer precinct. He is adamant that both the enclosure and the tower are Süleymanic based on the fact that the sea-wall of the triangular enclosure abuts those of the polygonal one, but I must disagree. First of all we have seen that the sea-wall has been joined to the Süleymanic tower by a section of fill, and furthermore, the masonry, the meander decoration, the merlons, and the embrasures in the east wall are far more typical of Fatih’s period. The lighter, smaller cannon of Kanuni’s era would not have required such enormous embrasures open to the ground as did the unwieldy bombards of Fatih’s day, the very reasons they could be mounted in the sixteenth-century corner tower. I would propose that while the triangular enceinte is an addition, it is an addition of Fatih’s reign, and culminated in a corner tower that was subsequently replaced during Süleyman’s reign by the round tower we see today. Some of the substructure of this earlier building may be evident in the large arched section that now supports the entryway of the tower (fig. 475), an arrangement that recalls the large arched entryways to the main towers of Yedikule (see figs. 236, 242).

Corner tower

It is of vital importance for us to compare Kanuni’s corner tower with the central tower of Fatih’s original work, for in the former for the first time we have a structure

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21 Ayverdi, IV, p. 791 and plan following p. 800. Ayverdi is scathing towards Utkular for his failure to identify the curtains of the triangular enclosure as abutments and read the inscription on the south corner tower (“20 sene evvel genç mi’mâr iken duvarların açık açık ekleme olduğunu görmemek de ma’zûrdur; halbuki hâli pek belli bir sürete gösterir. Fekat kulenin üzerinde 948 (1541) tarihli kitâbeyi okumaması milli bir noksan olarak saymamak mümkün değildir”).
indisputably designed with the purpose of both mounting cannon and resisting its shot (fig. 476). Although its walls are not appreciably thicker at 6.7 m. than those of the towers of Rumeli Hisarı\textsuperscript{22}, its squatness is immediately perceptible: it stands just less than 15 m. tall, about half the height of the central tower of the fortress (fig. 477). The diameter of its base is an enormous 24 m., girded by a colossal talus, and it has a single brick-domed internal floor set above this solid base: no combustible wood is to be found within the structure. The interior was originally only reached from the wall-walk – the current ramping exterior staircase is a modern addition. There are seven large pointed embrasures for cannon within, the first unequivocal accommodation for firearms made within a tower that we have witnessed in this study. A staircase in the thickness of the wall leads to the terrace which has the large rounded parapets with splayed embrasures we are now familiar with, certain of the merlons additionally pierced with musket loops. The sole exterior articulation of the tower consists of two toros friezes, a thicker-profiled one above the talus and the other, thinner example immediately below the parapet.

The tower is dated by inscription (see below) to 1541/1542, making it likely that it is a work of Sinan’s, who had become Chief Imperial Architect in 1539. We shall return to Sinan’s contribution to Ottoman military architecture in our Epilogue, but it should be noted here that there is a striking similarity between this tower and the contemporary generation of Genoese coastal towers, similarly squat structures featuring precisely the same talus with a single internal floor and terrace, the exterior articulated by toros friezes (fig. 478). In the eighty years between the construction of the unique main

\textsuperscript{22} The walls of the Süleymanic corner tower are only 1.7 m. thicker than the thirteenth-century walls of the Tour de Constance at Aigues-Mortes, evidence of the awesome power of the counterweight trebuchet and, contrary to accepted wisdom, the very little difference made by early gunpowder artillery to the thickness of walls.
fortress and the tower, then, it is clear that a large degree of Western influence had crept into Ottoman defensive thinking, no doubt to do with the “unfriendly interface” in the Mediterranean theater.

**Construction**

Construction of the fortress is generally of uniformly small white limestone blocks (küfeki), with very little evidence of spolia (fig. 479) and, as at Yedikule, very little brick except for vaulting. Some flatter cuts of stone are evident in the chemise while the rounded parapets of the chemise and central tower as discussed are chiefly of rubble or very small stone blocks. The triangular enceinte comprises slightly large blocks of the same stone, again with almost no brick or spolia evident, but of rougher construction and greater mortar use. The southern corner tower is of an entirely different construction, being of finely squared small limestone ashlers, the joints hardly visible between them.

**Decoration**

Decoration of the fortress is generally confined to the chemise and tower, although brick bands appear on the towers of the polygonal outer enceinte. The triangular enclosure features its own distinct decorative character.

**Meanders**

Brick meanders appear on the chemise in very unusual form, with two meanders superimposed on each lobe of the eastern façade (fig. 480, see fig. 450): a pattern of parallel-placed upright bricks above and a braid pattern below, both with a double border
of bricks. On the northern lobe these divert upwards accommodating for the change in gradient (fig. 481) while a third meander appears briefly below (fig. 482). The bottom two do not continue on the western lobe, where another meander appears below to join the top, continuous one. The top meander ends where it meets the southern lobe, the lower one diverting downward to become the top meander on the southern lobe (fig. 483). Such diversion in the course of a meander is, as far as I know, unique in the facades of both Byzantine and Ottoman buildings, usually imparting, as they are intended to do, a strict sense of hierarchy to a façade.\textsuperscript{23} The phenomenon must be explained by the desire on an irregular site for decoration to appear at comparable heights in all of the lobes of the chemise, but nevertheless the unusual effort made to bend the meanders accordingly is remarkable indeed.

A different meander of bricks laid in a continuous V appears in a more traditional configuration around the top of the central tower (fig. 484).

A thicker meander runs around the entire perimeter of the triangular enceinte, just under the height of the crenels (fig. 485). This consists of a diaper pattern, each lozenge dotted with a piece of brick. As noted in Chapter Five, the same pattern appears in the walls of the Heptapyrgion in Thessaloniki. The gatehouse of the triangular enceinte is also decoratively treated, with a short braided meander in the tympanum above the entrance in addition to the banded voussoirs (fig. 486).

\textsuperscript{23} We might even be tempted to argue an Ottoman perversion of this very traditional of Byzantine motifs, were it not for the continuing regularity and strict hierarchy of Ottoman mosque facades featuring banded masonry.
Rosettes / Roundels

Several rosettes or roundels appear on the façade of the chemise. The two eastern lobes feature what appear to be stone cannon balls set into the wall surface, the southern with radiating bricks and the northern with concentric rings of bricks (see fig. 450). These flank the entrance just above the level of the first meander, about 8 m. off the ground. A similar example appears on the north lobe next to the walled-up western entrance (see fig. 482). This is matched on the other side of the entrance by a slightly different type in the northwestern lobe, a marble medallion featuring a circular inscription in Arabic reading ya hennan ya mennan ya deyyan (“Oh Most Compassionate, Oh All Bounteous, Oh Supreme Ruler”) surrounded by radiating bricks (fig. 487, and see fig. 452).

Two rosettes appear in adjacent merlons in the west wall of the triangular enceinte (see fig. 485). On is a star with radiating bricks set in an arch, and the other may have held a cannonball where now lies a hole with radiating bricks. A solitary cannonball appears between the gateway and the tower (fig. 488).

Cartouches

The chemise features three cartouches in its surface, one on the interior of the northern lobe against the stairway consisting of a diaper pattern similar to that of the meander on the triangular enceinte (fig. 489). Another appears on the south side, an irregular checkerboard pattern framed with a double border of bricks (fig. 490). An interesting example appears on the exterior of the northern lobe, its brick border entwined to create a diamond shape above it (fig. 491). On the western lobe appears a very formal

24 Utkular astonishingly believes these to be actual buried shot! (p. 37)
25 Ayverdi describes these as having been added by the builders “for pleasure” (IV, p. 802).
cartouche sitting atop the upper meander, framed with a brick border of the same pattern and marble pieces (fig. 492). Whatever the frame held has now disappeared. A reused square piece appears just below, framed with bricks.

Inscriptions

A single inscription appears in the fortress, above the door in the tower of Süleyman (fig. 493). It reads

*Kilid-ül Bahr’a ki kule a’ala oldu / Frengistan ki döndü cay bume /
Felekten ruh-i qudsi dedi tarih / zihi qufel dir oldu bahr-i Rum’e 948*

“It was added this great tower to Kilid-ül Bahr / When he returned from the land of the Franks / From the heavens the Angel Gabriel spoke the date / ‘Bravo, a lock indeed is given to the Sea of Rum 948 (= 1541-1542)’

The return “from the land of the Franks” probably refers to Süleyman’s successful conclusion of the Third Venetian-Ottoman War in 1540, at which point Nafplio and Monemvassia were surrendered to the Ottomans.

Geometry, Artillery, and Ballistics

The trilobate chemise and central tower are unique in Ottoman fortification. Ayverdi calls them “architectural monuments” that are rightfully considered separately from the rest of the fortification, perhaps even the work of a different hand. As Utkular points out, the concentric geometrical relationship between the two elements is complex and shows the same high degree of planning that we have already seen at Yedikule.

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26 Transcription and translation is my own.
27 Ayverdi, p. 790. He holds Kilid-ül Bahr with Rumeli Hisarı to be “the two most beautiful castles in the world” (“bu iki kal’e dünyâdeki emsâlinin en güzelleridir”).
28 Utkular, p. 35
Özgüven has recently fastened upon this as evidence that the “architectural design of the Kilid-ül-Bahir reflects innovations in cannon technology”, the “crystallization of Renaissance military theories, from the point of its central plan, offensive character, and extensive use of artillery.”

Specifically, she compares the unusual plan of the fortress to Deal (fig. 494, and see fig. 11) and Walmer (see fig. 13) castles, Henry VIII’s concentric coastal forts of the 1530’s built along the south coast of England against the French and Spanish coalition. One of Henry’s engineers, the German architect Stefan von Haschenperg may have been influenced by the ideas put forth by Albrecht Dürer himself in his *Etliche Underricht zu Befestigung der Stett, Schloss, und Flecken* of 1527.

As with the frequent misreading of Yedikule’s radial plan, I see Özgüven’s position as a fundamental misinterpretation of both the plan and elevation of these English buildings. Although the lobed plans of Deal and Walmer have at first glance a strong resemblance to that of Kilid-ül Bahr, a closer inspection reveals an utter divergence in the use of space. The lobes in Henry’s castles consist of concentric, rising terraces upon which were placed ranks of superimposed cannon (fig. 495); in Mehmed’s they are enclosed ground-level space, with no allowance made for cannon on the enclosing walls until Süleyman’s largely token conversion efforts of the mid sixteenth century. Likewise, the profile of Henry’s castles are completely different – the sites of both are actually *excavated* so as to make the forts barely visible against the horizon (figs. 495, 496, 497) and thus present as small a target as possible to the guns of hostile shipping, while the resulting ditch was covered by casemates in the base of the structure.

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29 Özgüven, in Ćurčić and Hadjityrhoanos, eds., p. 170
31 Dürer, Albrecht, *Etliche Underricht zu Befestigung der Stett, Schloss, und Flecken*, Nuremberg, 1527 is the first printed book on the subject of permanent fortification. See Duffy, 1987, p. 4
(see figs. 11, 13). This was indeed the very essence of Dürer’s thinking (fig. 498). The ditch of Kilid-ül Bahr on the other hand remains a simple antipersonnel measure and the pronounced verticality of the site makes no effort to reduce its target silhouette, its rising profile making it theoretically possible for ship borne artillery to destroy its rear wall from the inner side.

The central plan of Kilid-ül Bahr is certainly expressed in a way hitherto unseen in Ottoman fortification. However, the fundamental components of the plan hark directly back to the late-medieval solutions that we have already discussed with reference to Fatih’s two earlier fortresses. Despite the intricate trefoil shape of the central tower, it is nevertheless of precisely the same quality as the large independently fortified towers we have seen at Rumeli Hisarı and Yedikule in its dimensions and disposition. If anything, the central tower of Kilid-ül Bahr is even closer in its fundamental aspects to the Galata Tower and its mid thirteenth-century Philippian counterparts such as Coucy, being isolated within its own chemise. Its retraction to the center of the enceinte rather than placement at a vulnerable corner as in the two earlier fortresses might also be interpreted as an archaism, harking back to the earlier model of Anadolu Hisarı, although it should be noted that this could also be to do with the extent of the site; it is not uncommon to see keeps retracted to the center of such small, thickly massed fifteenth-century fortresses such as the Sarzanello, but again, of a much reduced profile (see fig. 21).

As striking as it is I would tend to explain the geometry of Kilid-ül Bahr rather as a result of ballistic considerations not all that different from those that produced the Philippian system: the rounded surfaces of the chemise and the prow-shaped points of the central tower are of no greater strength or more unusual shape than any number of lobed
and pointed medieval solutions intended to resist conventional cold-steel artillery (figs. 499, 500, 501, 502). Such medieval buildings certainly have much more in common with Kilid-ül Bahr in terms of profile, and indeed, their common height indicates that they are more likely to have been built to resist missiles launched from a trebuchet than from a bombard, the latter by nature producing a flat trajectory: there would be no need to build a chemise 18 m. high to resist cannon mounted one or two meters off the ground, let alone a tower of 30 m. The almost exactly contemporary tortoise-shaped keep of Sassocorvaro springs particularly to mind, of 1474 and of the same ballistically-shaped surfaces combined with an essentially medieval, soaring profile (figs. 503, 504, 505). 

Like Sassocorvaro, the design of which was intended to symbolize the tortoise traditionally identified with impregnability (witness the Roman infantry formation known as the *testudo*), the plan of Kilid-ül Bahr may have served a second, symbolic purpose in replicating, as it did, the three spheres placed in a triangle of Fatih’s personal device, often seen on Imperial vestments (fig. 506). 

Furthermore, the defensive systems at Kilid-ül Bahr – the ditch, the small towers, the concentric plan, the box machicolations, and the gates separating the lobes of the chemise – are all more intended to counter threats of a conventional, hand-to-hand type; unlike the bristling guns of Walmer and Deal, artillery plays no part in the defense of the fortress, being limited, as at Rumeli Hisari, to the waterfront battery. While its plan is highly original particularly for its geographical and cultural setting, and its execution is

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32 See Hogg, pp. 102-103
33 Goodwin discusses the symbol, which may have been intended to replicate the pattern of the tiger skin on which Mehmed allegedly prayed. Three planets had also been the insignia of Timur, although three circles could equally have symbolized either the trinity of *Marifat* (the Knowledge of God), *Shariat* (the Law of God), and *Tarikat* (the Path of God), or alternatively the Sun, Moon, and Venus. Sarre believes them to be three full moons, the wavy lines that often accompany them being lightning clouds. Goodwin, p. 102, and f.n. 37, p. 468; Sarre, F., *Islamic Bindings*, London, n.d., p. 17
fine and manifestly the product of an accomplished architectural hand, Kilid-ül Bahr is
evertheless, by the strict (and strictly functional) standards of military engineering, a
“medieval” building in that the use of artillery is as yet not a fully integrated aspect of its
design.
History

The history of Kale-i Sultaniyye is effectively identical to that of Kilid-ül Bahr, the two fortresses simultaneously built by Mehmed II in 1461-1462.¹ According to Pirî Reis the fortress was apparently named for a son of Mehmed II, Sultan Mustafa²; its popular Turkish name, Çanakkale, or “Pot Castle”, comes from the earthenware industry of the region, and has also come to designate the Strait itself (Çanakkale Boğazı), as well as the surrounding city. It has also been traditionally known as Çimenlik Kalesi, or the “Meadow Castle”.

The fortress has undergone several restorations, usually in tandem with its counterpart on the European shore. Additionally, Ayverdi’s reading of the defaced inscription on the entrance tower (a replacement of the original entrance) attributes it to 1570-1571, the reign of Selim II, a campaign from which no datable remains are found at Kilid-ül Bahr.³ Some confusion has resulted from Evliya Çelebi’s designation of the fortress of Kumkale, one of the seventeenth-century pair of fortresses built at the mouth of the Dardanelles by Turhan Sultan on behalf of her son Mehmed IV, as Kale-i Sultaniyye.⁴ Like Kilid-ül Bahr, Kale-i Sultaniyye was restored during that campaign of

¹ Please refer to the previous chapter.
² Pirî Reis, Ökte, ed., p. 205. Ökte contradicts Pirî Reis’ comment in his gloss by stating that the name stemmed from the construction of the fortress by Mehmed II and its repair by Süleyman (p. 207).
³ Ayverdi states that the inscription was obliterated on the 20th of May, 1960 under orders from Ankara. Ayverdi, III, p. 184. His partial reading of the remains clearly show a date of 978 Hijri (1570-1571).
⁴ Evliya Çelebi, Seyahatname V, p. 157. Eyice believes Evliya to have used “Sultaniyye” to mean Sedd-ül Bahr, the counterpart of Kumkale on the European shore; in fact Evliya designated this the “Hâkâniyye”. Eyice, Semavi, “Çanakkale Hisari”, in İA, 8, p. 203. See also Thys-Şenocak, 2006, p. 109-110, who points out that “Sultaniyye” was a common generic name for fortresses of Imperial foundation.
1658-1660. Selim III (1789-1807) added the waterfront batteries in the early nineteenth century.

**Description**

The fortress occupies a completely flat site near that of ancient Abydos, on a point facing the open waterway with the mouth of the Kocaçay River immediately to the south. Its counterpart is clearly visible across the Straits. From the seventeenth-century German woocut of the site (see fig. 430) it appears to have been surrounded on all sides by a ditch in the same way as Kilid-ül Bahr although not a trace of this remains. Again, it is difficult to ascertain whether this was indeed a wet moat as suggested by the depictions, although du Fresne-Canaye writing in 1573 states that it was “*cinto di profondi fossi nelli quale corre il mare*”.\(^5\) De Nicolay observed only that the “Simois” (the Kocaçay) flowed alongside the fortress, and that it was “all well and indifferently ramparded and ditched”.\(^6\) Whatever ditch there had been was certainly gone by the early eighteenth century, as it does not appear on de Tournefort’s engraving of the fortress or a Spanish engraving of the end of that century (figs. 507, 508).

The plan is a deceptively simple one. The massive square tower constituting the core of the fortress is surrounded by a single quadrangular enclosure of walls with its short ends oriented north-south, parallel to the water (fig. 509). The entire enceinte measures 100 m. by 150 m. Much of the western waterfront has been destroyed or otherwise obscured by earth in the construction of the early nineteenth-century batteries.

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\(^6\) de Nicolay, Nicolas, *The Navigations into Turkie*, London, 1585, reprinted in facsimile New York, 1968, p. 44. “Indifferently” is obviously used in a sense other than the contemporary one.
Six perimeter towers survive, all rising to the height of the curtains except for the entrance tower/mosque complex, which is slightly elevated above. The wall-walk is otherwise continuous throughout. The curtains rise 9.2 m. to the wall-walk; rounded parapets of the same, probably Süleymanic variety seen at Kilid-ül Bahr rise 1.3 m. above this and all the towers, including the central tower; the join where these have replace an earlier version probably with pointed merlons is clear (fig. 513).

**East Front**

The east front runs directly parallel to the water with a tower at each end (fig. 514). The southeast corner tower is cylindrical, the northeast with nine exterior facets, both decorated with an angular string-course under the level of the parapets (figs. 515, 516). Both have wall almost 4 m. thick and have three internal floors, the ground floor domed and without any slits or windows, the first floor with three slits, one directly outward, the other two along each lateral curtain (fig. 517). From the first floor a staircase in the thickness of the wall led up to the second floor, which also had three slits. There is no communication between the second floor and the terrace/wall-walk. The ground floor and the first floor were reached independently via two arched openings in the back of the tower, an external wooden staircase necessary to reach the upper of these (fig. 518).

Between the two corner towers on the eastern front are two small blunt pentagonal towers (see fig. 514), each with an arched opening at ground level at the rear giving access to an arched bipartite casemate, rectangular interiorly and splayed slightly at the embrasure (fig. 519). These casemates penetrating the thickness of the curtains are

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7 If freestanding this would probably have been a dodecagon. See plans between pp. 176-177 in Ayverdi, *III*. Utkular has this simplified as an octagon on his plan (see Utkular, p12-13).
thus of a deep variety unlike the very simple arched embrasures we have seen at Rumeli Hisarı and Kilid-ül Bahr. The type is found in variation throughout Kale-i Sultanîyye. These two examples are 1.78 m. wide at the mouth, slightly less at the embrasure, and could only have been meant for guns mounted on carriages as they would have had to be withdrawn for loading; such weapons cannot have been the same stationary monsters mounted behind the 3 m. wide embrasures on the waterfront of Kilid-ül Bahr. Both embrasures here have both been filled in (fig. 520). The first floor of each tower was reached through an arch via a staircase against the wall (fig. 521). Each had three slits in the front and lateral sides. Again, there was no communication between the interior of the tower and the wall-walk above.

The three sections of curtain between the towers on the eastern front are the thinnest in the fortress at 4.5 m. Each section is additionally pierced with two large arched casemates at ground level, making six in all on this front including those in the bases of the two towers, all now walled up – a barracks has been subsequently built against this wall (figs. 522, 523). The casemates are 3 m. wide at the mouth, wider than those in the pentagonal towers, but taper interiorly to similar embrasures of c. 1.5 m. width. They are splayed exteriorly in the same way (see fig. 519). Again, guns employed here would have had to be mounted on wheeled carriages. Additionally, there are the remains of what appears to have once been a second, inner wall parallel to this one, running from the north to the south wall; its springing from both are clearly visible (see fig. 522 and fig. 519). Its course was interrupted by a small domed magazine, which bears traces of its former presence (fig. 524). At either end of this long rectangular
enclosure, i.e. in the eastern ends of the north and south walls are two additional casemates, both now blocked (see fig. 518).

This wall and the embrasures it protects are of vital interest to us. They represent the first time open ground-level embrasures have been brought into the fortified core of any of Fatih’s fortresses, and the first time they have been concertedly used to defend such a building against a threat from the hinterland, rather than simply targeting shipping. Their inherent vulnerability has clearly been acknowledged with the addition of internal tapering to make them narrower than the capacious waterfront embrasures at Kilid-ül Bahr and Rumeli Hisarı, as well as with the addition of an internal wall to further insure the security of the bailey. These are factors we will return to in our comparative analysis of the fortress.

South Front

Only 75 m. of curtain survives along the south front. The south wall is the same thickness – 4.5 m. – as the east except for the portion immediately adjacent to the southeast corner tower with the single ground-level embrasure mentioned above. This has been thickened to 6.25 m.

There is a single surviving tower on this front, a semi-circular protrusion (fig. 525) solid at ground level (without an internal casemate) but with two slits on either side at the first floor level and a large arched frontal embrasure, this floor accessed by a short external flight of stairs. Built very finely of well-cut ashlars, and its arched embrasure peaked in the same manner as those of the entrance tower of Selim II, this may be an addition dating to the same period (1570-1571). This possibility is supported by the 3.2
m. rear projection of the tower into the bailey, probably a measure to enable the mounting of guns on its terrace. Again, there is no communication between the exterior of the tower and the terrace/wall-walk, which is 4.25 m. wide at its thicker eastern end, narrowing to 2.36 adjacent to the tower.

The south front is additionally defended by five surviving casemates at ground level as on the eastern front, these clustered around the tower and slightly angled to southwest (fig. 526).

**Entrance Tower and North Front**

The sole entrance to the fortress is from the north, through the side of a large round tower of very fine ashlar construction (fig. 527). The entrance is flat-arched and inset within a pointed arch with a defaced inscription, as mentioned above, dating the tower to 1570-1571 and the reign of Selim II (figs. 528, 529). The entrance is through the west flank of the tower leading into its domed ground floor, at which point it bends south into a small domed vestibule and again east through a small corridor equipped with a murder-hole to arrive in the bailey, a circuitous transit indeed (fig. 530, 531). The arrangement is highly unusual for an Ottoman fortress; although gatehouses surmounted by towers are fairly common – we have the like at Yedikule – no comparable example featuring a round tower comes to mind. We must assume from the presence of a slanted embrasure in the adjacent curtain to the west, now blocked (see fig. 528), that the original

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8 Byzantine and Byzantine-era examples are fairly common. The fourteenth-century citadel at Loveč in Bulgaria was entered through the ground floor of a round tower, as was that at Markovi Kuli near Prilep, Macedonia. See Čangova, J., “Srednovekovniat Loveč”, in *Vekove 5*, Sofia, 1976, pp. 26-31; Miljković-Pepek, Petar, “Markovi Kuli. Prilep. F.Y.R.O.M.”, in Ćurčić and Hadjityphono, eds., p. 121
entrance was more or less in the same position, presumably of more conventional design. This is unfortunately difficult to confirm from any of the contemporary engravings.

The tower has a diameter of 15.5 m. and stands 14 m. tall, its walls more than 4 m. thick. There are three pointed-arched embrasures for cannon in its domed first floor, all facing outward (fig. 531 532). This is only reached via a flight of stairs from the bailey which also gives access to the small rectangular elevated mosque attached to the inner face of the tower; its minaret sits atop the tower itself (figs. 534, 535). There is no interior communication with the terrace of the tower, which is 2.5 m. above the wall-walk and reached via a flight of stairs from either side. Its sole exterior articulation is a torus frieze just under the level of the parapet, which is rounded with splayed embrasures and musket slits in the merlons in precisely the same way as that of Süleyman’s tower at Kilid-ül Bahr (fig. 536). Generally speaking the similarity between the two towers is striking and unsurprising given the mere thirty years of difference between them. A notable difference is the dispensing of the very pronounced talus of Süleyman’s work in Selim’s later tower, here echoed only by a very mild batter around the base of the structure (fig. 537) making the diameter almost 10 m. less in what is otherwise a practically identical building.

The curtains of the north front have seen significant intervention although it is difficult to precisely identify the phases of this. It seems that the entire wall was much rebuilt during the addition of the tower, to which both adjacent curtains are very smoothly joggle-bonded except at the height of the parapets, and built largely of the same finely-cut ashlers (fig. 539). Certainly this is the thickest front of the fortress, the curtain to the east of the entrance tower 7.6 m. next to the northeast corner tower where it bulges
out slightly (see plan fig. 511), and 6 m. nearer to the entrance tower. From the entrance
tower to where the wall is swallowed by the earth of the later batteries at the west it is a
massive 8.04 m. thick. The wall-walk is mounted at the west end of this wall by a
staircase from the bailey set against the inside of the wall, the only surviving point of
access to the wall-walk. There were three casemates in this wall at ground level, one
immediately adjacent to the northeast corner tower in the rectangular inner enclosure, as
mentioned, and two the west of the entrance tower. The latter two had pointed arches
exteriorly, the eastern one brick-arched (see fig. 528), the western stone-arched (fig.
540). All are now blocked.

West Front

As with the eastern front of Kilid-ül Bahr, our knowledge of the west front facing
the water at Kale-i Sultaniyye must rely on artists’ impressions. De Tournefort’s
engraving of the fortress clearly shows that the entire western front was pierced with
arched ground-level embrasures trained upon the Strait, as many as sixteen in all, in the
same manner as that of Kilid-ül Bahr (see fig. 507). Both eighteenth-century engravings
clearly show the presence of a length of curtain on the north front stretching from the
northwestern tower to the water’s edge (figs. 507, 508); in the seventeenth-century
German woodcut this is replicated on the south as well (see fig. 430). These walls would
have effectively closed off the flanks of the battery, and judging from the German
woodcut seem to have had embrasures oriented north and south parallel to the water
defending the coastal approaches. Whether these were original or additions, perhaps
contemporary with the walls adjacent to the nineteenth-century entrance at Kilid-ül Bahr,
is unclear, but in any case these walls served the same purpose of protecting the
vulnerable western front with its embrasures open to the ground from the amphibious
attack to which it was most susceptible. It is possible that the battery was provided an
interior wall as an extra layer of security as was the eastern front.

De Tournefort also depicts two circular round towers at either end of the front,
standing the height of the curtains and possibly battered throughout. Ayverdi identified
the remains of these submerged within the later batteries and measured them (fig. 541). ⁹
These were apparently both round and larger than both the eastern corner towers and the
entrance tower, having diameters of 17.75 m. with walls just over 5 m. thick, dimensions
just under those of the towers of Yedikule, although of course much lower in stature.¹⁰
They had two embrasures covering each of their lateral curtains on the ground floor,
unlike their counterparts on the east which had embrasures on the first floor, and there
was no internal access to the floors above. The lack of any embrasures facing the water is
remarkable. It is clear that at least at the base level that survives these towers were
intended not to deliver fire at shipping – the purpose of the adjacent battery – but to
present the thickest and most solid possible defense against return fire. In this, they are
reminiscent of the towers of Rumeli Hisari, with their sturdy blank outer faces. At the
same time, and although the term is an ambiguous one, their low stature, easy
accessibility from the bailey and wall-walk, and strength give these towers the character
of early round bastions.

⁹ Ayverdi, IV, pp. 180-181. It is notable that Dapper records the seafront towers as having been square.
Dapper, Olfert, Description exacte des îles de l’Archipel, Amsterdam, 1703, p. 488, although he maintains
that most of the guns were mounted at water level.
¹⁰ Uniformly of diameter 19.5 m., the walls 5 m. thick.
The cylindrical shapes of both of these towers is also worthy of note. This indicates that only one of the corner towers in the fortress was polygonal, the northeast, creating an arrangement not unlike Rumeli Hisarı and Yedikule – a single dodecagonal tower “flanked” by round ones. The reappearance of this scheme at Kale-i Sultaniyye confirms its significance as pointed out by Ahunbay in her brief article on Yedikule: clearly the polygonal, and specifically dodecagonal, tower had an important decorative significance in early Ottoman military architecture. Whether or not this had to do with its possible “Turkishness” is debatable, as we have established, but the replication of a theme manifested in Fatih’s two earlier fortresses indicates that such polygonal towers performed some sort of “signature” or symbolic function, perhaps constituting the stamp of Imperial patronage. The recurrence of such towers in later Ottoman fortification and its continuing symbolic role are issues we will touch upon again in our concluding chapter and epilogue.

Central Tower

The massive rectangular central tower at Kale-i Sultaniyye may be unique in the history of fortification (figs. 542, 543). In its design and layout it has much more of the character of a blockhouse or barracks than a tower, and indeed, one of the many puzzling aspects of the fortress is the total abandonment of the precedent for extremely high towers as lynchpins of the defensive system set by all three of Fatih’s other fortifications.

The tower is exceedingly squat and powerful, measuring 42.5 m. by 28.7 m., oriented with its longer side parallel to the Straits. It is 20 m. tall, overlooking the

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11 The tower has nine exterior facets, but would be dodecagonal if freestanding
12 Ahunbay, in Ćurčić and Hadjitryphonos, eds., p. 196
curtains by almost 10 m. It is set somewhat back within the enceinte, away from the water. The sole entrance is from the north via a flight of stairs rising to its elevated doorway, set between what are effectively two massive pilasters or buttresses – the sole exterior articulation of the tower (figs. 544, 545). The doorway is flat-arched and inset in the façade, a higher stone pointed arch with the usual allowance made for an inscription cantilevered out on top of it by means of spolia (fig. 546). This may have been intended as an allowance for a slot-machicolation although none was actually executed – a window above echoes similar arrangements in the main towers of Rumeli Hisari. Further reused pieces of column projecting above the arch may indicate additional, perhaps wooden cantilevered elements, but none survive. The interior corridor of the entranceway is flanked by niches, the eastern of which gives access to a small guardroom and slit (fig. 547). A board game has been etched into one of the benches by a former occupant (fig. 548). The interior face of the entrance is further articulated by a flat lintel supported on projecting jambs, above which rises a brick relieving arch (fig. 549).

Interiorly the tower consists of three floors, the first extremely capacious with a 5.5 m. wooden ceiling and very deep casemates leading to slits, two in each wall (plan fig. 550). The walls are 7 m. thick. Rising up through the center of the entire building is a rectangular pier 5 m. by 20 m., creating a long corridor to either side. Against the east side of the pier two separate staircases rise away from each other riding on brick-arched niches (fig. 551), both leading to the second floor. The second floor is again equipped with a pair of slits in each wall, these additionally furnished with small casemated rooms (plan fig. 552). Remarkably, the second floor is covered by ten small open brick domes, five above each of the corridors to either side of the central pier, their brick arches
pointed, slightly outset, and springing from 1 m. above the floor. Carrying the wooden floor of the third floor above, these constitute a very unusual method of roofing in Ottoman fortification. We can only speculate why such an elaborate system was chosen when simple wooden joists were used below (fig. 553).

Another pair of staircases at either end of the second floor leads up to the third floor. This is again covered by ten domes, but here they are closed, supporting the terrace above, their shape reflected in the spaces of the floor, which constitute two corridors of round rooms (fig. 554). Almost all of the fourteen slits and windows in this floor are accessed by a small rectangular room radiating off the central domed spaces of the corridors. From two small rectangular rooms at either end of the third floor twin staircases now lead straight through the thickness of the pier at its two shorter ends to arrive at the terrace through two small arched doorways. The terrace is broad and flat and completely unobstructed apart from the doorways; this could easily have accommodated cannon firing over the curtains, especially given the strength of the domed floor below, and pieces could have been hauled up without too much trouble given the short stature of the tower. The terrace measures 24 m. by 37.5 m. Its parapets are rounded in the way of the rest of the fortress.

The tower appears to be without direct precedent in fortification of the region, whether Ottoman or otherwise. Such a multi-domed structure appears to have more in common with bedestens, baths and other public structures involving small discrete interior spaces. In plan a parallel may be found in the rectangular iç hazine (interior treasury, also called the armory) of the Topkapı Sarayı (fig. 555), practically contemporary, although of quite a different conception, a tall single storey with the eight
domes expressed exteriorly, and obviously of an entirely different order of strength. It may be no coincidence, then, that the only other comparable fortification that springs to mind, the main tower of the Byzantine fortress of Python/Empython (fig. 556), was also built as a treasury by John VI Cantacuzenus in 1331. This, although considerably smaller (a slightly imperfect square of 15 m. sides) than the central tower of Kale-i Sultaniyye is almost as tall (17 m.) with three levels each covered by four domes. It was also originally freestanding. Bakirtzis sees this as having been Western influenced in the way of the late-Byzantine towers we have discussed earlier, although the presence of multiple domes is atypical of the group, as are the unusually massive dimensions. Overall, Fatih’s tower remains a puzzlingly isolated piece of work.

Successors to this unusual building are also effectively unknown. The one lone possibility that comes to mind is the blockhouse/barracks of Güvercin Adası (Pigeon Island), the small island fortress linked by causeway to the mainland town of Kuşadası (literally “Bird Island”, named for the island fort) (fig. 557). Ahmed I’s Grand Vizier Oküz Mehmed Pasha built the fortifications of the island and the harbor on the mainland sometime before 1612. The rectangular blockhouse shares the same squat proportions as Fatih’s tower, measuring 14 m. by 17 m. (fig. 558), and was sturdily built, its walls 3 m. thick. These have two arched casemates for small cannon in each wall (figs. 559, 560), but the tower has only has one internal floor, this covered with a large single barrel-vault, not domed. A single stairway leads up to the terrace, which must have mounted cannon in

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13 See Ayverdi, IV, p. 712
15 Bakirtzis, Ch., and Triandaphyllos, D., Thrace, 2nd ed., Athens, 2001, p. 87
16 The foundations of the town walls, a karavansaray, and the island fortress are apparently recorded in his Mülk-nâme of 1612-1613. Kuşadası was first founded by Genoese merchants in the fourteenth century as Scala Nova, as a replacement for silted-up Ephesus. Unfortunately the monuments of the town remain unpublished.
the same way as Fatih’s did (fig. 561). Generally speaking, the same considerations regarding the threat of artillery and their coastal positions seem to have dictated the identical low profiles of both buildings, but whatever actual connection there was between the two was probably a passing one given the century and a half intervening between their respective constructions, during which no comparable buildings seem to have been built.

**Construction**

Generally speaking the masonry of Kale-i Sultaniyye is of an even higher and more somber standard that that of Kilid-ül Bahr. Construction is almost entirely of plain gray/white küfeki limestone cut in small blocks (fig. 562). These get large in the entrance tower of Selim II (see fig. 536), the same material appearing in smaller flatter cuts in the parapets, which are probably not part of the original fifteenth-century structure (see fig. 539). The stone is finely coursed throughout. Only a very small amount of brick besides that used for vaulting is used as fill. Spolia is restricted to the entrance to the central tower and as lintels in one of its windows (fig. 563).

**Decoration**

Beyond the torus and angular friezes on the corner and entrance towers there is no decoration to speak of in the fortress. Overall there seems to be reflected the same shift towards the uniform sobriety and formality demonstrable in contemporary religious architecture enhanced by the use of a single material, and to a degree even greater than at Yedikule. One is immediately reminded of the choice of finely dressed küfeki for the
entirety of Fatih’s imperial mosque in Istanbul, begun on February 21 the following year (1463), even in the subsidiary medrese buildings (fig. 564). Just as these grim mountains of gray stone were a far cry from an earlier generation of lively – an probably Byzantinizing – brick-and-stone mosque facades, Kale-i Sultaniyye has nothing of the eclecticism of Rumeli Hisarı with its extensive and animated use of brick banding and spolia.

Analysis

It is practically impossible to believe the same architect responsible for Kilid-ül Bahr as for Kale-i Sultaniyye. Although both, on a basic level, preserve the freestanding independently fortified tower as a central strongpoint, the gulf in execution between the two is bewilderingly wide. From their plans to their profiles to their decoration, the two fortresses seem to be the products of two different architectural minds with two entirely different stylistic and tactical agendas. Only certain commonalities with Yedikule: the triangular salients at Kilid-ül Bahr and the recurring theme of the single polygonal tower flanked by round ones at Kale-i Sultaniyye suggest that their respective architects were schooled in a common Ottoman tradition. We may surmise, judging from their stark differences, that the single office of Chief Imperial Architect (Mimarbaşı) was as yet a long way from formation, and that the old model, as at Rumeli Hisarı, of different officials (and by consequence, different workshops) being assigned different aspects of a project, was still in force. Although Yakub Pasha may have been in nominal charge of

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17 It is interesting to compare Mimarbaşı Mustafa Ağa’s work on the fortresses of Seddül Bahr and Kumkale in the seventeenth century, also in the Dardanelles, fortresses that performed a very similar function to Fatih’s. They were practically identical in design and clearly the product of a single architectural hand. See Thys- Şenocak, 2006, pp. 135-186. Thys- Şenocak has argued elsewhere that the
the construction of both fortresses, he seems to have selected two very different hands for their respective executions.

Artillery as a core consideration in the fortified system

Whereas we have established the roots of Kilid-ül Bahr as being firmly in the more or less medievalizing Philippian tradition established at Rumeli Hisarı and Yedikule, with extremely tall, independently fortified towers used as anchors of a defensive system predicated primarily upon the use of cold-steel weapons, Kale-i Sultanıyye adopts an entirely different paradigm altogether. The large corner towers here of a completely new conception, independent fortresses no longer but easily accessible from the bailey through large arched openings (not gates) in their back. At the wall-walk level they have ceased to constitute distinct entities, being simple bulges in the perimeter allowing for unobstructed circuit of the walls. They have become, in effect, primitive round bastions, intended to absorb or deflect the head-on projectiles of gunpowder weapons rather than to provide a height advantage over forces deploying conventional siege equipment.\textsuperscript{18} It is noteworthy indeed that de Nicolay, writing in the 1580’s,

\begin{flushright}
18 The term “bastion” is an often ambiguous one, used variously (usually by non-specialists) to mean “tower” generally, or more particularly (usually by specialists of Early Modern fortification) to refer strictly to pointed bastions as a class. I use the term herein to indicate the successor of the tower, that is, a large, salient element in the line of the walls that does not exceed it in height (or does so by very little), allowing more or less uninterrupted passage of the wall-walk. This classification obviously does not include the
\end{flushright}
described the fortress as “more new and strong than Sestos (Kilid-ül Bahr), for it is in form 4 square”, despite being aware that they had been built at the same time by Mehmed II.\textsuperscript{19}

By the same token, there can be no doubt that the fortress is built with the use of gunpowder as an intrinsic offensive \textit{and} defensive consideration in its design. Gone are the effectively undefended batteries of Rumeli Hisari and Kilid-ül Bahr as accretions or annexes of the main defenses: here the guns are part and parcel of the fortified core, their inherent vulnerability, given the parameters of contemporary ordnance and the necessity of ground-level embrasures, somewhat mitigated by internal tapering of the embrasures as well as an internal wall on the east side and walls isolating the waterfront. The narrowed embrasures on the landward sides of the fortress are probably also indicative of the development of a smaller, lower-caliber generation of cast-bronze guns towards the end of the fifteenth century not requiring the gaping arches of the batteries of Rumeli Hisari and Kilid-ül Bahr, and mounted on wheeled carriages.\textsuperscript{20} As with Kilid-ül Bahr, the full projected complement of more than thirty-four guns at Kale-i Sultaniyye as suggested by the seventeen embrasures on the waterfront in de Tournefort’s engraving and the eighteen extant throughout the rest of the fortress is an overwhelming armament by contemporary standards and more reminiscent of the bristling seventeenth-century fortresses of Vauban’s day than even the vast majority of sixteenth-century European small flanking towers of earlier fortifications like Rumeli Hisari. Bastions, whether round or pointed, are a direct product of the Gunpowder Age.\textsuperscript{19} de Nicolay, p. 43

\textsuperscript{20} The smaller cast-bronze, stone-throwing piece known as the pedrero in the West, or perhaps early iron ball-throwing culverins. See Guilmartin, pp. 166-171. It is likely that the waterfront batteries of the fortress were of the same open-arched type 3 m. wide intended for the older generation of giant guns as at Kilid-ül Bahr.
defenses. Although it is unlikely, in the event, that there was a gun to each embrasure, Kale-i Sultaniyye nevertheless represents the full and munificent Ottoman embrace of gunpowder artillery.

Artillery as an antipersonnel weapon

Furthermore, and for the first time among Fatih’s fortresses, cannon were clearly employed at Kale-i Sultaniyye as antipersonnel weapons, intended to defend the fortress against an infantry threat from the hinterland rather than simply a means of attacking shipping. Disregarding the interventions to the northern front there are eight embrasures in total on the eastern front, five at least in the southern. Guns mounted at this level placed directly behind a ditch as probably existed here would have been devastating to advancing infantry, especially at very close range. Although the fortress, like Kilid-ül Bahr, is not submerged in the ditch, the placement of ground-level casemates presages usages like those at Walmer Castle (see fig. 13), where low casemates actually cover the ditch floor. In fact, despite the passing similarities of geometry, Kale-i Sultaniyye is in fact functionally a much closer relative of Henry VIII’s coastal castles than Kilid-ül Bahr: its profile, again, while not actually submerged, is low enough that cannon mounted on the terrace of its central tower could have fired with efficacy upon shipping. With its broad open roof strongly supported on the domes below and its squat proportions it appears to have been built expressly for just such a purpose: multiple cannon could easily

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21 It should be remembered that a much larger, and in some ways architecturally more advanced fortification like Salses de Roussonil of the 1490’s, which we will consider in our final chapter, had but forty embrasures for cannon. See Guilmartin, pp. 180-181. The expense of such armament had been made considerably lighter by Vauban’s day by the development and proliferation of cheap cast-iron ordnance, allowing cannon to finally dominate the antipersonnel role in defense.

22 Smaller bronze weapons on carriages could easily have been moved around the bailey as needed, unlike their enormous predecessors which probably stayed put in the waterfront batteries.
have been hauled up and deployed here. Indeed, du Fresne-Canaye states that “[i]n mezzo
di esso (the fortress itself) si vede una terrazzo con molte artilarie”\textsuperscript{23}, and Dapper noted
culverins at the same location in the early eighteenth century.\textsuperscript{24} By the same token, its
squat walls (at 9 m. exactly half the height of the trilobate chemise of Kilid-ül Bahr) were
clearly designed to offer as low a target silhouette as possible, as were Henry’s “sunken”
castles.

Despite the temptation to assume the presence of artillery on the curtains as well,
creating a tiered arrangement like that of Walmer and Deal Castles, the narrowness of the
wall-walks we have confronted at all three of Fatih’s other fortresses – between 2.36 m.
and 4.25 m. on the south curtains, here – continues to make this doubtful, as does the
absence of ramps or even multiple staircases to facilitate mounting. With the presence of
the ground-level embrasures this seems somewhat puzzling. The original arrangement on
the seafront is of course not clear, however; it may have been that the wall-walk was
wider there, an arrangement we see in the sixteenth century in Beyazid II’s work at
Çeşme, where the sea-wall has been widened to create a spacious terreplein for guns (fig.
565). While the north wall appears to have been thickened to 6 m. towards the seafront
probably to accommodate and resist artillery in the sixteenth century, it may have been
again that as at Yedikule, there was little point in mounting guns 9 m. off the ground
simply to fire over the heads of attackers. The solution to this problem, entrenching the
entire structure in order to allow guns mounted on the parapets to confront the enemy

\textsuperscript{23} du Fresne-Canaye, Hauser, ed., p. 285

\textsuperscript{24} Dapper, p. 488. It may have been that lighter pieces were mounted on the terrace of the tower, perhaps
throwing iron balls: Guilmartin points out the preferred and highly effective Ottoman tendency to “combine
systematically the superior penetration of iron cannonballs with the tremendous smashing power of the
large stone-throwing cannon” in their siege batteries (p. 174)
head-on as in Henry’s works on the south coast of England (see figs. 11, 13), belongs to the next chapter in the history of fortification.

**The Contemporary Context**

Representing, as it does, such a definitive break with Ottoman architectural precedent, where does Kale-i Sultaniyye figure among contemporary fortification? The question is a difficult one for the myriad different responses to the new threat, and advantage, of gunpowder artillery being concurrently made in fortification throughout Europe and the Mediterranean. So often constituting simply of reinforcements and alterations of existing defenses at this ambiguous time – Duffy’s “reinforced castles” – Kale-i Sultaniyye is remarkable in being an integrated, of a piece project. The fortress itself is unique for its marriage of obviously state-of-the-art thinking about the uses of artillery as a defensive weapon with what is an essentially conservative, almost classicizing plan: on paper Kale-i Sultaniyye resembles nothing so much as a typical Roman *castrum*, reflecting the consistent formality of Fatih’s three later projects.

**France**

Direct parallels do not come instantly to mind. The closest comparisons may again be in the France of the end of the Hundred Years War and the beginning of the Burgundian conflict, where condottieri like Antoine de Chabannes built defenses which, like Kale-i Sultaniyye, were poised directly on the cusp between medieval and Early Modern fortification. While the turreted keep of the castle of Blanquefort was a thirteenth-century work of Edward I (fig. 566), between 1455 and 1463 Chabannes added
two large round bastions to the outer perimeter, flush with the tops of the curtains, the larger at 17 m. across approximately the same size as the seafront towers at Kale-i Sultaniyye (fig. 567). As with the rest of the medieval enceinte, the bastions stand, as do those at Kale-i Sultaniyye, directly behind a wet moat rather than being entrenched. It appears, however, that Chabannes’ bastions were largely intended to resist shot, there being no allowance for the mounting of defensive cannon at ground level either in the towers or in the curtains.

Chabannes undertook similar work at Saint-Fargeau between 1469 and 1480, the largest tower of which at 28 m. has almost exactly the same diameter as the Tower of Zağanos Pasha (26.7 m.) but again does not exceed the height of the curtains (figs. 568, 569, and see fig. 2). Again, the fortress is not entrenched, although it probably originally had a ditch. Immediately noticeable as well is the complete absence of the smaller subsidiary flanking towers that persist at Kale-i Sultaniyye: although elegantly used as gun emplacements by Fatih, Chabannes may have realized that the value of such diminutive features was probably negligible under actual siege conditions.

Italy

By the 1440’s Italian architects had begun to experiment with the pointed bastion, but in somewhat limited fashion: Hale identifies several early bastions in the hill towns of Emilia and Le Marche where such early pointed solutions were being instituted as a

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means of presenting the smallest surface area possible to siege artillery. He points out, however, that the dominant trope was the round or irregularly polygonal bastion, particularly among palace-fortresses, as in the Castel Nuovo of Naples, of 1443-1485, Bracciano, of 1470-1485, and the new rocca of Volterra, begun in 1472 (fig. 570, and see fig. 3). Although all these works were considerably entrenched, unlike Mehmed’s, it should also be noted that very little accommodation was made for firearms, the sheer bulk of the works being intended to resist siege artillery while defense was still largely vertical, relying on the wall-walks and continuous machicolation. In this respect, and compared to both contemporary French and Italian work, the ground level embrasures of the Conqueror’s work at Kale-i Sultaniyye can be said to be well ahead of their time. Their implications for the further history of Ottoman fortification we will examine in our concluding chapters.

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26 Hale, 1965, pp. 466-494
27 Ibid., p. 479
Chapter Eleven
1452-1462: A Microcosm of Change

How can we begin to understand such a diverse architectural legacy as has been bequeathed us by Mehmed II? How can such a disparate group of buildings be comprehended as a whole? Although executed in great geographical proximity to one another and within such a short period of time, the four fortresses constructed by the Conqueror between 1452 and 1462 remain far from being a coherent “school”. Indeed, the four buildings seem to represent an almost epicurean excursion through an entire spectrum of ideas and defensive philosophies, some drawing upon obvious precedent, others largely *sui generis*, uniquely Ottoman solutions to the universally pressing problem of a changing way of war. It is telling that were it not for the historical evidence it would be difficult indeed to believe the same man responsible for Rumeli Hisari as for Kale-i Sultaniyye, and moreover, within a mere ten year period. It is this that is perhaps the defining characteristic of Fatih’s four fortresses: the overarching eclecticism, inventiveness, and adaptability of the hybrid, accommodating Ottoman material culture. As a class, they categorically refute Goodwin’s assertion that “[t]he reign of Mehmed II [] was architecturally conservative but constructionally bold.”¹ Architecturally speaking the four buildings undeniably rank among the boldest monuments in the history of fortification.

We have examined each of the components of these challenging buildings, not only in an attempt to discover the unities amongst them, but also to understand them in terms of the complex historical and cultural background against which they stand. Certain

¹ Goodwin, p. 141
dominant themes have emerged. In his four masterpieces of fortress architecture built between 1452 and 1462, Mehmed II can be said to have described, in microcosm, the close of the last great international chapter in medieval fortification. By his emulation of the independently fortified round tower that formed the core of the Genoese defenses of Galata in the principal components of his works at Rumeli Hisari, Yedikule, and Kilid-ül Bahr, he joined the ranks of the last heirs to the system initiated by Philip II Augustus upon his return from Crusade in 1202, a system which might be said to have been the defining philosophy of late-medieval military architecture in Europe. It was a philosophy characterized by the exteriorization of the strongest element in the fortified system, the independently fortified round tower, as a countermeasure against a devastating new weapon, the counterweight trebuchet.

Despite the emergence of gunpowder artillery in the fifteenth century, Mehmed’s absorption of the essentials of the system and his construction at Rumeli Hisari of some of the largest Philippian-type towers in the world demonstrates the proven effectiveness of the system against the trebuchet that would continue to dominate siege warfare until the end of the century. Furthermore, the recurrence of the type, particularly in a polygonal, possibly Islamic influenced version, suggests that such towers had taken on an importance beyond the purely practical, becoming, like the towers of Philip Augustus and their Genoese replicas, a symbol of dominion, whether royal or republican. So closely reiterating the qualities, both functional and symbolic, of its Philippian predecessors, Rumeli Hisari, Yedikule, and Kilid-ül Bahr can be said to be among the last great medieval fortifications in the world.
At the same time, it is a testament to the Conqueror’s adaptability and forethought that he quickly recognized the potential of the new gunpowder-fired artillery, and his application of it not only in siege but against shipping was revolutionary. In contrast to the weak, inert sea-walls of medieval towns, Fatih’s mounting of cannon on the shore effectively invented the shore battery as we now know it, changing the face of naval warfare forever. Despite the spurious comparisons that have been made between the geometries of Henry VIII’s coastal fortifications and Kilid-ül Bahr, fortifications like Deal and Walmer Castles in fact owe far more in their essence to Fatih’s simple expedient of mounting of cannon below the walls of Rumeli Hisarı some seventy years before.

Nevertheless, the allowances made for mounting guns were still dictated by the traditional parameters of medieval siege warfare as well as the limitations of the guns themselves. As long as the trebuchet remained a threat, the walls and towers of a fortification could not be lowered. By the same token, as long as primitive cannon required embrasures open to the ground to be effectively loaded and fired, they could not be incorporated into the main body of the defenses. Thus, Fatih’s batteries at Rumeli Hisarı and Kilid-ül Bahr remained perforce associate entities, lightly defended by their own circuits of walls but essentially vulnerable annexes to the medievalizing core fortifications.

This changed at Kale-i Sultaniyye with a suddenness and completeness that is difficult to explain, especially in light of the archaism of its counterpart fortifications contemporarily constructed in Europe. By the combination of the ditch, a time-honored defensive feature, and narrower flared embrasures perhaps made possible by the
development of smaller caliber weapons, gunpowder artillery was given its historic third role: that of a devastatingly effective antipersonnel weapon. Held off by the wet moat, attacking infantry could be decimated by ground-level fire while trebuchets and other conventional medieval artillery were outranged and destroyed at the chassis. As long as they were thick enough to resist return fire – and here there is no change from Fatih’s earlier fortresses – there was no longer a need for greater height in the curtains or towers, height that would only have served to collapse once the base was shot away by opposing cannon. Although the curtains at Kale-i Sultaniyye probably did not originally mount guns, the low central tower probably did, thereby enhancing the fortress’ capability as a battery by confronting shipping with superimposed fields of fire.

Kale-i Sultaniyye is a masterpiece of Early Modern fortification, a unique Ottoman solution that for the first time both met the threat and harnessed the defensive capabilities of artillery in precisely the ways that would come to define fortress warfare throughout the next four hundred years. It is thus supremely disappointing that it was proven to be a more or less solitary monument, for the Conqueror’s latter projects, mostly piecemeal and agglomerative upon existing earlier fortifications in the areas of conquest, did not live up to its great promise. We will see this demonstrated in our brief comments on some of his later undertakings. Nevertheless, this should not detract from the fact that as an individual work of military engineering Kale-i Sultaniyye was ahead of its time, a uniquely Ottoman conception presaging an era in which massed cannon would become the primary means of defense against infantry.
Among Fatih’s later military works were the walls of the Topkapı Palace (Sur-i Sultânî), a project widely disparaged as having been a purely symbolic move to isolate the person of the Sultan and devoid of real military value (fig. 571).\(^2\) This is not entirely valid, for these are not the featureless garden walls of the Eski Saray. The enceinte is sturdily built (the walls, at 3 m. thick, is thicker than the south wall of Rumeli Hisari) and studded with towers that are in every respect serious works of military architecture, albeit of an outmoded kind. For having been completed in 1478-1479, more than fifteen years later, the defenses display no evidence of the breakthroughs achieved at Kale-i Sultaniyye. Of course, the two cannot be directly compared; in addition for the desire for monumentality, there were doubtless practical considerations as well. While the likelihood of a concerted artillery barrage of the landwalls of the palace were slim, that of civil unrest and unwanted intruders was not, and hence, more traditional height in the walls was clearly advantageous. It should also be noted that round stone-framed embrasures for arquebuses appear in all of the towers, a usage not seen in any of Fatih’s earlier fortresses (fig. 573). It is similarly indicative that the height of the walls compares favorably with those of Yedikule, itself primarily a colonial urban citadel. The walls of the Topkapı Sarayı were true fortifications, but of a more mundane intent.

There are furthermore several important observations to be made about the walls. The choice of tall, rather slim square towers, in places rising almost double the height of the adjacent curtains, is an unusual one and entirely not in keeping with Ottoman

\(^2\) Necipoğlu, 1991, p. 10
precedent, in which square towers rarely if ever appear (figs. 573, 574, 575). Although the proportions are to some extent similar to those of the main towers of Rumeli Hisarı and Yedikule, the closest parallels for such lofty flanking towers seem to be among the late-medieval monuments of Serbia. For example, the flanking towers of the Despot Stefan Lazarević’s fortified monastery of Manasija/Resava, completed in 1418, rise to the same remarkable height and are likewise accessible from the back, in this case completely open-gorged (fig. 576). Identical open-gorge towers of similar proportions and as regularly spaced as those of the Topkapı Sarayı are also seen at the last Serbian capital of Smederevo (Ottoman Semendire), of 1428-1439 (fig. 577, and see figs. 598, 602). The possibility of a Serbian architect brought into palace service through the devşirme cannot be ruled out. Nevertheless, the highly formalized decoration of the enceinte is directly in line with Ottoman precedent, the sunburst and square-framed embrasures recalling the motifs we have considered in Mehmed’s fortresses and the decorative spandrels of the entrance arches of towers emulating Saljuq and Beylik usages of the thirteenth century (figs. 578, 579, 580, 581, 582).

The polygonal corner towers of the enceinte, like that now truncated and surmounted by the Alay Köşkü or Pavilion of Processions, are of an identical stature to the square examples, and along with the flanking towers of the Bab-üs Selam again demonstrate the Ottoman predilection for such elaborately shaped towers placed at loci of high public visibility (figs. 583, 584, 585). It is an observation with great significance for our concluding remarks concerning the architectural legacy of Mehmed II.
Mehmed II also refortified the island of Tenedos/Bozcaada, captured in 1464 and a key to the defense of the Dardanelles which lie just beyond (fig. 586). The earlier Venetian and Genoese defenses of the island having been demolished by Papal decree after the War of Tenedos in 1381, Mehmed was free to significantly rebuild the defenses of the jutting promontory sheltering the harbor in 1479. Although heavily rebuilt in later periods, it is possible that the mark of his architects remains upon some elements of the citadel although quite vividly without much of the mark of the revolutionary Kale-i Sultaniyye.

We again encounter a large polygonal tower, in this case irregular with seven exterior facets and a flat interior face (figs. 587, 588). It is built upon the jutting rock of the promontory and is thus externally tall with a massive talus over most of its height while having but a single internal floor accessible from the bailey. This is remarkable for having been domed internally and is unlikely from a stylistic point of view to have been a work of the Conqueror – its closest parallel in the Balkans is the Venetian Bourtzi in the harbor at Nafplio with the talus similarly starting from the height of the parapet, one of a group of similar late-fifteenth century Italian towers (figs. 589, 590, 591). The doming was undoubtedly with the purpose of mounting cannon on the terrace above, a role it continued to have judging from the later embrasures and rounded parapets. As at Kilid-ül Bahr, cannon mounted at this height may have been effective against shipping, but was obviously pointless as an antipersonnel measure.

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3 This process is accurately described by Pirî Reis in Ökte, ed., p. 209-211
4 The outer (and possibly large sections of the interior) defenses of the fortress were significantly expanded by Mahmud II (1808-1839) with the addition of several pointed bastions and batteries along the seafront.
Most notable are three pentagonal towers, two in the south front and one in the north, which, although the former two are built atop square foundations (perhaps the remnants of Venetian or Genoese work) are quite distinctly of the same size and proportions as those of Kale-i Sultaniyye (figs. 592, 593, 594, and see figs. 514, 520). Embrasures for cannon appear low in their front facets in two of them in almost precisely the same arrangement as those at Kale-i Sultaniyye. Just 60 km. and a short crossing away from Çanakkale, it is not inconceivable that the same workshop was responsible for the appearance of such towers on Bozcaada. It is unfortunate that Mehmed’s engineers did not see fit to recreate more of the spirit of Kale-i Sultaniyye here – this may have been a function of the relationship with the north side of the fortress on Bozcaada, the square towers of which are unlikely to have been Mehmed’s, having nothing in common with those of Topkapi Sarayi and being otherwise atypical of his oeuvre (figs. 595, 596). These would seem to be surviving, possibly Venetian or Genoese work to the height of which the Ottoman engineers were obliged to adjust their additions. It is not clear whether the large lower bailey is Mehmed’s or Süleyman’s work, as the latter is credited with restorations here; one of them must have been responsible for the massive rock-cut ditch effectively separating the fortress from the island (fig. 597) as it is far too deep to have been added along with Mahmud II’s bastions.

Elbasan/Ilbsan

The fortress of Elbasan/Ilbsan in Albania is known to have been built by Mehmed II in 1466, during the Albanian campaign of that year.\(^5\) In form the fortress is a

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\(^5\) The construction of the fortress is reported in Kritovoulos, Tursun Beg, and Aşıkpaşazade. Its dating was confirmed by Babinger in “Die Gründung von Elbasan” in *Mitteilungen des Seminars für orientalischel*
clear *castrum* plan with squat round towers at the corners and at the midpoints of the curtains. In this sense it unmistakably manifests the influence of Kale-i Sultaniyye, while presaging the configuration, with superimposed arched entrances in the backs of each of the corner towers, of Beyazid’s work at Çeşme – or perhaps even suggesting the hand of Mehmed II in the construction of the corner towers there, as discussed in further detail in the next chapter.

*Smederevo/Semendire*

The last Serbian capital of Smederevo was built between 1429 and 1439 by Despot Đurad Branković, at the confluence of the Jezava and Danube rivers (fig. 598). It was captured by Murad II in the year of its completion, apparently not because of any deficiency in strength but because of a lack of supplies. Reverting once more to Branković after the Treaty of Edirne in 1444, it was captured by Mehmed II for the last time in 1459, signaling the end of the medieval Serbian state.

The citadel with the Despot’s Citadel/Palace and the attendant walled town take the form of a large triangle (plan fig. 599). A canal dug between the rivers creates a wet moat defending the city walls, another shorter one further isolating the citadel at the junction of the two rivers. Branković’s city consisted of three fronts of perfectly spaced square towers, the citadel equally as finely treated with the large square donjon at the

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*Sprachen*, Vol.1, XXXIV, Jahrg. II. Abt., *Westasiatische Studien*, Berlin, 1931, pp. 94-103. See also Ménage, Victor, “Elbasan”, in *EI*, 2nd Edition, Vol. 3, Leiden, 1978, p. 693. Thanks to Professor Lowry for these references; I was unfortunately unable to visit the fortress for the purposes of this study.


*Fine., p. 530*
northern apex of the triangle. Smederevo may be the finest work of medieval military architecture in the Balkans.

It is a testament, therefore, to the astonishing speed of developments in gunpowder technology that in 1471, just thirty years after the completion of Branković’s circuit, Mehmed II was obliged to add four low irregularly polygonal bastions to the perimeter, in anticipation of the Hungarian threat across the Danube (fig. 600). These were placed at all three corners as well as midway up the long southern front facing the hinterland, and are not much larger although of course lower, than the towers they were superseding. The bastions were attached directly to the featureless *proteichisma* that had originally defended the citadel and the southern front of the town defenses; where there had been no *proteichisma*, as on the Danube bank, a low outer wall linking the bastions was added (figs. 599, 600, 601, 602). The bastions had slightly battered walls with arched embrasures in their ground floors for cannon firing across the moat and along the walls (figs. 603, 604, 608); these have been subsequently reduced to round holes accommodating smaller cannon. They are characterized by exceedingly Byzantinizing masonry, the southeast example displaying some of the finest cloissoné brickwork found in Ottoman fortifications, and can only have been the work of local, perhaps corvée, masons. In spite of their eclectic masonry the overarching regularity of their plans indicates a central design entity, but whether their plans came from Istanbul or were drawn up locally remains to be discovered.

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8 Ćurčić’s dating, in Ćurčić and Hadjitryphonos, eds., p. 34; Jocović has 1480 as the date of construction of the bastions. Jocović, in idem, p. 134. See also Deroko, A., *Srednjovekovni Gradovi u Srbiji Cernoj Gori, i Makedoniji*, Belgrade, 1950, pp. 140-143; Ayverdi, *IV*, pp. 848-851

9 Jocović observes that the Church of the Annunciation was demolished to provide building materials for the bastion at the northern apex of the city (Jocović, in Ćurčić and Hadjitryphonos, eds., p. 134). Ćurčić suggests that the masons came from Skopje, through a comparison of the cloissoné masonry of the southwest bastion with the very similar masonry of the Daud Pasha Hamam. Ćurčić, in Ćurčić and Hadjitryphonos, eds., p. 35
These four structures are remarkable for several reasons. They are the first evidence of large corner towers being used to mount cannon that we have seen in Mehmed II’s oeuvre, those at Kale-i Sultaniyye having remained simple bulwarks against gunfire without actually accommodating artillery within. In this sense they are the first “true” bastions in the Early Modern sense that we have encountered in Ottoman fortification, being designed individually to both mount and resist artillery. It is unlikely with their wooden floors that cannon were mounted on their terraces, which must have been covered with peaked roofs; these, along with the parapets of the low walls that link them, were probably reserved for small-arms, particularly the withering arquebuses of the Janissaries (fig. 605, 606, 607). The arrangement of the Ottoman enceinte in front of the older Serbian fortifications effectively recreated the archetypal Byzantine *proteichisma* for modern, gunpowder-driven usage, allowing very effective frontal antipersonnel fire from small-arms. Although it had not featured in Mehmed’s earlier works, such a “pseudo-*proteichisma*” or in Western usage, *fausse-braie*, intended specifically as a firing step for arquebuses and then muskets became a staple of later Ottoman defenses. It was particularly appropriate for the Janissaries, a corps known for their high rate of fire. It was also an inexpensive way of converting medieval walls to modern usage – we have already seen such a feature on the north side of the Heptapyrgion with embrasures for small cannon (figs. 609, 610), and will continue to do so elsewhere. To what extent the core of medieval walls retained an active role in the defense in these “conversions” is

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10 It is also possible that earth was banked up against the inside of the *proteichisma* to create a terreplein for mounting further artillery.

11 Already decisive even with primitive arquebuses at Chaldiran and a persistent strength of the Ottoman infantry: at Pleven/Plevna Todleben complained of the fire of the *Tanzimat* riflemen as having “the effect of a machine gun”. Osman Pasha had equipped each man with a Martini-Peabody with one hundred rounds for long-range use and a Winchester magazine rifle with five hundred rounds for close range. (Hogg, p. 152)
unknown – even if only intended as a last redoubt with their great height they stood a
good chance of being destroyed well before the outworks fell.

Undated Related Works: Şebinkarahisar, Travnik, Počitelj, Platamonas

Although ambiguously dated I have included these four works for their
commonalities and the likelihood that they are all, if not actually Mehmed II’s, at least of
the fifteenth or early sixteenth century. Certainly all appear in areas that were frontier in
Mehmed II’s time. Şebinkarahisar in northeastern Anatolia was taken by Mehmed II in
1473 after the Battle of Terdjan, and features an octagonal, freestanding tower of slightly
squat proportions, well built of local stone with contrasting quoins at the edges of each
facet (fig. 611). 12 It stands within its own irregular walled enclosure at the very summit
of the sprawling, craggy site (fig. 612). It is almost precisely replicated in the central
tower of the citadel of Travnik in Bosnia, visited by Mehmed II in 1463-1464 and
certainly a frontier area during the Bosnian campaigns of that period (fig. 613). Here the
tower is a dodecagon, but the squat proportions of the two are exactly the same. Both are
entered from ground level and feature wooden floors and stairs built against the interior
walls (fig. 614). The simple slits that appear in each are identically constructed of the
same contrasting material as the quoins, two blocks carrying another above (figs. 611,
615).

12 Mihailović mentions Mehmed as having stopped there during the campaign against Uzun Hasan.
İnalçık, however, believes the fortress to have been annexed by Selim I after Chaldiran along with Bayburt,
Erzincan, and Canik. İnalcık, Halil, “Selim I”, EI, IX, p. 129
Počitelj, on the banks of the Neretva in western Bosnia was taken in September 1471. The octagonal central tower here is taller and slightly pyramidal, although the contrasting quoins are again present (fig. 616). It is further articulated by a torus frieze about one third of the way up its height. Interiorly the tower is stone-domed on the ground floor and has wooden floors above, being domed again at the topmost level (fig. 617). The presence of a domed interior floor may indicate a later, possibly Süleymanic date, as all of Mehmed’s towers seem to have had wooden floors throughout. The tower is surrounded by an interesting multi-storey chemise that must have had wooden dwellings built against its interior, with ocaks (hearths) and windows built into the walls (fig. 618).

A tower and chemise appear again at Platamonas, Ottoman by 1385 and a work probably misattributed by Loverdou-Tsigarida to the Byzantine period (fig. 619). The freestanding octagonal tower and its practically concentric, much ruined chemise are clearly related to the many independently fortified Ottoman towers we have considered herein (fig. 620). The height of the tower is similar to Počitelj although the construction is more regular and reminiscent of the tall octagonal corner towers of the Topkapı Palace (fig. 621). All internal floors are of wood, the staircase again set against the wall, and there are internally splayed embrasures for small-arms although these could very well be later additions (fig. 622, plan fig. 623).

The concentric, polygonal quality of the tower and chemise harks directly back to Kilid-ül Bahr; if it is not the work of the Conqueror then it is almost certainly that of

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13 Fine, p. 588
14 Loverdou-Tsigarida, Katia, “Fortifications of Platamonas, Greece”, in Ćurčić and Hadjitryphonos, eds., p. 108. See also Ibid., To Kastro tou Platamona, Athens, 2006. For a discussion of the site in the Ottoman period, see Lowry, 2009, pp. 210-213
Beyazid, a possibility supported by the similarity between the turreted chemise here and that of the octagonal tower at Rio, discussed in our Epilogue (figs. 623, 624, 625 and see fig. 655). While it is possible that the citadel of the Byzantine-era settlement was in the same location, it would see rather that the Ottomans followed an expedient established at Yedikule and (possibly) the Heptapyrgion – by walling off an interior portion of the existing town walls, an urban citadel was created with a minimum of labor. The existence of an odd structure built against the south wall of the lower town immediately adjacent to the entrance may have constituted an older Byzantine citadel or donjon-type building (figs. 626, 627). Here a crenellated structure connected the faces of two adjacent flanking towers, considerably thickening the wall between and creating a series of rooms within, a complex that was extended into the enceinte by an additional layer of rooms behind, all strongly built. Such an agglomeration may have constituted a fortified palatial dwelling along the lines of the Tekfur Saray, exploiting the existing defenses of the settlement to create a smaller fortified habitat. The possible palatial function of the structure is supported by the Byzantine monogram in brick which is clearly preserved on the exterior façade (fig. 628).

Platamonas also shows plentiful, uncertainly dated evidence of later adaptation to the use of firearms, including a pseudo-*proteichisma/fausse-braie* along most of the south front of a type discussed above (figs. 629, 630, and see plan fig. 626) and gun emplacements created by retiring a square platform behind the existing, probably medieval curtain (figs. 631, 632 and see plan fig. 624). Both were inexpensive ways of adapting an essentially medieval structure to the use of firearms without substantially altering the existing structure or building significant new ones. It is tempting to suggest
that they date from a later, less prosperous period of Ottoman history than the octagonal
tower, which, in standing alone within its chemise and being independently fortified
clearly embraces precedents set between 1452 and 1462. As at Şebinkarahisar, Travnik,
and Počitelj, it was the defining Ottoman characteristic of the fortifications, and thus it
seems that such towers, having firmly established their place in the Ottoman canon
towards the beginning of Fatih’s reign in larger projects, had evolved into a totemic
element of lesser works, again, perhaps announcing the Ottoman imperial presence in the
way of Philippian towers. Withdrawn into the enceinte they have ceased to play the
active defensive role of their forebears, but being highly visible and consistently of a far
finer construction than their surrounding structures, they are nevertheless highly iconic
buildings of a type that would remain essential to the Ottoman tradition into the reign of
Süleyman the Magnificent.
Epilogue

The Legacy of Mehmed II

**Beyazid II and the Round Bastion**

What effect did Mehmed’s complex architectural legacy have upon his successors on the Ottoman throne? The question is a difficult one, involving a mass of far-flung and ambiguously dated monuments, and we must content ourselves with only the broadest of strokes. His son Beyazid II (1481-1512) can be said to have truly brought Ottoman fortification fully into the Gunpowder Age. His work at Rio, Çeşme, Koroni, Modoni, and Navarino shows a keen awareness of the uses of artillery in both defensive and offensive roles, with an emphasis placed on round bastions as platforms for artillery. However, it should also be observed that the next major step in the development of Early Modern fortifications, the entrenchment of the entire enceinte, was never fully taken by him, and in this perhaps we have the first inkling of the “deficiencies” in later Ottoman military architecture that would draw such Western opprobrium in later centuries. By 1498 Salses de Rousillon, built by the Spanish to guard the Pyrenean frontier was entirely submerged behind the ditch, thus bringing guns mounted on the parapets directly into play against attacking infantry (fig. 633).¹ Meanwhile, Beyazid’s architects largely preferred to retain the verticality of the perimeter behind the traditional ditch, often wet, employing closed ground-level embrasures against infantry while mounting guns above as well, most often against shipping.

¹ See Truttman, Philippe, *La Forteresse de Salses*, Paris, 1980. We have already noted the lack of guns at Salses comparative to Kale-i Sultaniyye.
The independently fortified, freestanding tower maintained its privileged position in Ottoman military architecture during Beyazid’s reign, albeit in a slightly altered role heralded by its treatment at Kilid-ül Bahr. No longer a forward-placed bulwark of the defensive perimeter, the tower, and specifically singular polygonal examples, were interiorized within the enceinte and probably represented, as they had already begun to do in Fatih’s fortresses, the Imperial presence. The repeated appearance of the “medievalizing” type in conjunction with modern rounded bastions supports the idea of a symbolic function, and also suggests a level of standardization not witnessed in Mehmed’s works: it is indeed during the reign of Beyazid that we have our first documentary evidence of an organized Corps of Imperial Architects (Hass Mimarlık Ocağı, mimaran-ı hassa, hassa mimarları), creating a Ottoman military and Imperial idiom in its offices in Istanbul that could be easily transposed throughout the realm.2

Bilhorod-Dniestrovsky/Akkerman

Captured in 1484, the third enclosure of the fortress of Akkerman may be among Beyazid’s earliest work (fig. 634).3 It is surprisingly conservative given what we have seen of Smederevo. Five polygonal “bastions” on the south front are certainly Ottoman work with Byzantine motifs similar to those of Smederevo, specifically multiple decorative brick bands (figs. 635, 636). These are solidly rubble-filled throughout, a usage we have not seen before in the Ottoman context, and flush with the low top of the curtains, offering sturdy resistance to shot (figs. 637, 638). They are, however, without

any accommodation for defensive gunnery within, and the wall here is a mere 3 m. thick. The only measures for firearms are found in the ambiguously dated octagonal corner tower, which is slightly pyramidal with multiple brick bands and has loops in its lowest storey, now completely walled up (figs. 639, 640). It appears that most of the defensive duty at Akkerman was undertaken again by a “pseudo-proteichisma” or fausse-braie running in front of the towers, which was crenellated or pierced for muskets and additionally protected by a very deep ditch, 15 m. in places (fig. 641, 642). It is possible that cannon were also mounted behind the fausse-braie, although there is no specific evidence for this in the crenellation, all of the surviving examples of which are musket loops. The lightly fortified aspect of the fortress was perhaps understandable, given that the major threat to Akkerman was – initially – poorly armed Cossacks. The fortress may have acquired an earthwork trace of pointed bastions in the late eighteenth century in response to the Russian threat and improved Cossack weapons and tactics, although not a trace of this survives.

Rio/Rhion/Mora Kastelli/Kastel-i Mora/Castle of the Morea

If there can be said to be an heir to the eccentric legacy of Kilid-ül Bahr, it must be Rio, the fortress built by Beyazid in 1499 again as part of a pair controlling what was known as the “Little Dardanelles” (Küçük Çanakkale), the entrance to the Gulf of Corinth

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4 On the basis of style – again, a dangerous proposition – I believe this to be very early, perhaps following immediately on the heels of the conquest in the 1484.
5 The Cossacks gradually began to increase their military capabilities until by the second half of the sixteenth century had become a formidable foe, necessitating the modernization of the fortress accordingly. Finkel, Caroline, and Ostapchuk, Victor, “Outpost of Empire: An Appraisal of Ottoman Building Registers as Sources for the Archeology and Construction History of the Black Sea Fortress of Özi”, in Muqarnas, 22, New Haven, 2005, p. 153
6 From a lecture by Victor Ostapchuk entitled “The Spade, the GPS, and the Defter as Tools in the Study of the Ottoman Black Sea Fortress of Akkerman”, American Research Institute in Turkey, July, 2007
from the Ionian Sea (fig. 643). The fortress stands on a promontory on the Peloponnesian shore. Compared with Akkerman a new dynamism is immediately apparent: Rio seems to be the only attempt ever made by the Ottomans at recreating the ballistic fronts of the chemise at Kilid-ül Bahr. The plan was triangular (plan fig. 644), with the sea to the east and the other two sides probably originally fronted by a wet moat that has since been expanded to include early eighteenth-century Venetian pointed bastions; this has caused the destruction of the west side of the triangle.7 Round bastions stand at the corners and halfway along the south wall of the original Ottoman work at the core of the later fortress (figs. 645, 646). These stand approximately the height of the curtains and feature the rounded, ballistically-correct parapets we have see at both of the Dardanelles fortresses – we may tentatively use 1499 as the approximate date at which such rounded parapets entered the Ottoman vocabulary, which appear in the fausse-braie of the Dalmatian fortress of Mali Ston, a dependency of Dubrovnik, in the same period (fig. 647). The bastions at the northern apex and along the base are in fact lobed agglomerations highly reminiscent of the chemise of Kilid-ül Bahr.8 At the northern apex this consists of a small bastion flanked by two larger ones, that in the southern base of the triangle a large one flanked by a single smaller one (figs. 648, 649).

Despite their geometry, in terms of profile and function these have much more in common with the primitive corner tower/bastions of Kale-i Sultaniyye, in this case with broad terraces clearly intended for the mounting of anti-ship artillery as well as a domed

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8 A resemblance also pointed out by Pepper, in Tracy, ed., p. 309.
ground floor with casemates allowing for antipersonnel fire across the ditch. Such bastions may be said to marry the highly divergent themes of Mehmed’s two fortresses in the Dardanelles in what, given the Turkish name for the location (literally, “The Little Dardanelles”), could even have been an intentional harking back to his father’s great works by Beyazid. Pepper has compared them to both Salses and the Henrician castles of the south coast of England we have discussed above. While the shapes of the bastions in all three fortresses are clearly similar, Pepper overlooks the vital issue of entrenchment that we have tried to emphasize. In elevation Rio has much more in common with the mid-century works of Antoine de Chabannes that we have encountered in the previous chapter than the heavily entrenched buildings Pepper cites. This is not to condemn it as outmoded: Salses was superlatively accomplished work\(^9\), and Henry had yet to come to the throne in 1499.

Moreover, even by the 1530’s entrenchment had not become the rule. One of the closest parallels to Rio in terms of elevation and function is in fact Francis I’s infamous Château d’If of 1529-1531, in the bay of Marseilles and of Dumasian notoriety (figs. 650, 651).\(^10\) The small fort is not entrenched, standing prominently on the rocky carapace of the island. It features two bastions with domed, casemated inner floors for cannon at the southwest and southeast corners, their smooth, featureless faces almost exact replicas of the bastions of Rio, down to their rounded parapets (fig. 652). It should be noted, however, that the wall-walk of Francis’ fort, at 5 m. wide and equipped with an interior parapet to keep recoiling guns from rolling off the back, are clearly intended for the mounting of additional pieces (fig. 653). The narrow walls of Beyazid’s fortress, like

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\(^9\) The ordinarily laconic Mesqui enthuses that “le programme défensif interne est d’une sophistication qui prouve une conception suprêmement réfléchie et minutieuse.” (p. 343)

those of Kale-i Sultaniyye, make no such allowances, although it is quite likely with the
large internal area at Rio and the low walls of the fortress that earth was banked up
against the curtains to create a rampart and terreplein for mounting guns, particularly
along the east side which would have faced ships attempting to force the strait. The lack
of bastions on this, the most important front of the fortress given its ostensible purpose of
controlling shipping entering the Gulf of Corinth, would support this theory.

A tall donjon (Tour de St. Christophe) of slightly large diameter stands at the
northwest corner of the Château d’If, harking back to Philippian antecedents (fig. 654). It
also finds a parallel at Rio, where behind the lobed bastions at the north apex of the
triangle stands the remains of a large octagonal tower, isolated within what was once its
own small turretted square chemise (fig. 655). This was probably used a magazine and
has been severely truncated, probably by explosion, having once stood higher than the
bastions immediately in front of it. Faucherre points out in his discussion of the
Château d’If that Francis was constructing pointed bastions in Marseilles but five years
later, at the fortress of Notre-Dame-de-la-Garde in the hills above the restive city in

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11 I use “rampart” to mean specifically a wall reinforced from behind by banked earth, creating a terreplein. Such a system was formerly used at the Ottoman fortress of Akkerman/Bilhorod-Dnieprosky, on the Dniestr, the rammed (“rampired”) earth of which was unfortunately removed during restoration. Similar ramparts must have appeared elsewhere as well, similarly obscured by changing internal topography, perhaps contributing to the general impression that the Ottomans never adapted fortifications to gunpowder artillery. Very narrow, low “wall-walks” should thus be read with skepticism, especially when preceded by a ditch; these may simply have been the retaining wall of a large earthen platform for mounting guns, the “wall-walk” itself actually constituting a banquette, or firing-step for small arms.

12 An arrangement directly recalling that of Platamonas

13 The persistent Ottoman use of towers as powder magazines is an interesting and somewhat baffling theme in the functional history of Ottoman fortifications; the ill-advised nature of the practice is well attested by the many exploded towers at Rio, Monemvasia, etc. Beyond the doubtful wisdom of storing explosive material in a building whose profile made it a natural target, the damp interiors of towers were hardly the ideal conditions for storing powder, the very dryness of which was paramount. The folly of the practice seems to have been finally acknowledged: Ali Pasha built a low, well-ventilated magazine in the Iç Kale of Ioannina in the late eighteenth century, in line with standard European practice. See Konstantios, 1997, pp. 36-37, and Duffy, 2006, pp. 76-78 on magazines in general, including similar European misadventures with early “powder towers”.

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He suggests that where the king wanted to emphasize his public presence, as in the highly visible Château d’If, he chose the tower, with its Philippian and royal connotations; where defense was of the essence, he resorted to the newly imported Italian pointed bastion. Much the same issue of decorum would seem to apply in Beyazid’s choice of state-of-the-art rounded bastions for the defensive fronts of the fortress and the tall polygonal tower for its core, an entity that had taken on, as we have established, an important decorative and even symbolic function in Mehmed’s oeuvre. Having become, much like the Philippian tower in the French context, a symbol of the Imperial Ottoman presence, the tower was a natural component of Beyazid’s foundations, so closely recalling those of his father. This theme of decorum in military architecture is an important one for this transitional period in Ottoman fortification, particularly in dealing with monuments of high public visibility.

Finally, the simultaneous construction of both “modern” round bastions and an “old-fashioned” tall polygonal tower also underlines difficulties inherent in attempting to date later Ottoman fortification on the basis of style alone. While the persistence of the tall, freestanding tower into the Age of Gunpowder may seem hopelessly out of date to the eyes of the Western scholar of fortification, it is clear that such buildings were an important part of the legacy of Mehmed II and served a symbolic purpose beyond the purely military. They are a recurring theme in Ottoman military architecture into the

14 Destroyed to make way for the Basilica of Esperandieu of 1864
15 Faucherre, 2006, p. 5.
16 This is a phenomenon that has also been noted by Ćurčić with reference to the Minčeta tower at Dubrovnik, an obviously Philippian tower surrounded by a chemise at the northwest corner of the enceinte. Begun by Michelozzo Michelozzi after 1461, the tower was completed by the local sculptor and architect Đurađ Dalmatinac towards the end of the century, and rises “archaically” behind its chemise; Ćurčić very rightly points out that the tower was tall and featured medievalizing continuous machicolation “for symbolic reasons”. Ćurčić, in Ćurčić and Hadjitryphonos, eds., p. 33
reign of Süleyman I, and thus their “medievalizing” appearance should be treated with caution, especially when style is the solitary means of dating.

**Antirio/Antirrhion**

Antirio, the counterpart to Rio on the north shore of the Gulf of Corinth is, like so many fortresses in Greece, unfortunately so altered by its many destructions and reconstructions as to be almost impossible to decipher.\(^{17}\) A plain, irregular hexagon it preserves a square shore battery at its southern tip and rounded bastions at the western and eastern corners (fig. 656), but having undergone Venetian alterations as late as the 1680’s it is an unreliable guide for the architecture of Beyazid’s reign.

**Durrës/Durazzo/Dıraç and the Chain/Trigonion Tower, Thessaloniki**

Although both are inconclusively dated, I include these two monuments here for their similarity and the likelihood that the large round bastion at Durrës is a work of c. 1501-1505 (fig. 657). Beyazid is known to have refortified the port during this period immediately following its conquest.\(^{18}\) The tower has a 14 m. diameter, with walls 4 m. thick and a single brick-domed interior floor with five arched embrasures for cannon. The exterior is articulated by two torus friezes, one above the short talus and one immediately below the parapet, which has been insensitively restored in “medieval” style. Overall the tower represents a stylistic departure from the smooth round bastions of Rio, perhaps

\(^{17}\) For the convoluted history of Antirio see Smiris, Giorgos, “Castle of Antirio”, in Triposkoufi, Anna, and Tsitouri, Amalia, eds., p. 114, and Georgopoulou-d’Amico, ed., pp. 64-65

\(^{18}\) Kiel, Machiel, *Ottoman Architecture in Albania*, Istanbul, 1990, p. 95-98. Kiel recognized a similarity between this tower and those added to Mehmed II’s two Dardanelles fortresses (although he mistakenly attributes them both to Süleyman), as well as to those of Rio and Koroni, which, as we have observed, are slightly different in design.
under the influence of local Venetian architectural tendencies, but is nevertheless functionally on par.

Almost identical is the so-called Chain Tower at Thessaloniki, in the landwalls at the junction of the upper and lower towns (figs. 658, 659). It has the same squat talus, largely featureless body (with several medievalizing box machicolations), and two friezes, a torus frieze above the talus and a square profiled string course below the parapets. The tower has been variously dated to anywhere between the second half of the fifteenth century to the late sixteenth century. If our attribution to Beyazid is correct, this would significantly upset our accepted notions about the building history of Thessaloniki.

**Koron/Koroni**

Koron/Koroni, along with Modon/Methoni one of the “Eyes of the Serene Republic” at the southwestern tip of the Messinian Peninsula of was taken by Beyazid in 1500 and except for 1532-1533 during which it was seized by Andrea Doria, the fortress stayed in Ottoman hands until 1685. The two large round bastions added to the existing defenses of the southeast front were almost exact replicas of those of Rio (figs. 660, 661). These probably date from early in the Ottoman tenancy and are perhaps a further measure of Beyazid’s to consolidate his gains in the Second Venetian-Ottoman War (1499-1503). Although the southern of the pair was blown up in World War II, the surviving example is extremely finely built, with the same smooth facades as those of Rio. Both bastions

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19 Pepper, in Tracy, ed., p. 305 f.n. 55. Pepper believes this to be part of works undertaken after the defeat at Lepanto in 1571. Charalambos Bakirtzis, on the other hand, believes the tower to be a mid-fifteenth century construction. Bakirtzis, Ch., “The Urban Continuity and Size of Late-Byzantine Thessaloniki”, in *Dumbarton Oaks Papers* 57, Washington, D.C., 2003, p. 47 and f.n. 94. See the extensive discussion of the relevant literature in Lowry, 2008, pp. 134-136, and f.n. 113 in particular.
appear to have been fairly well entrenched within the ditch, perhaps the only instance of this in Beyazid’s work. All told the arrangement of the southeast front displays a high degree of tactical thinking, the two bastions forming the ends of a large platform created between the main wall and a fausse-braie (called by the Venetians the Piazza Bassa), its length featuring musket loops and embrasures for cannon; at 15 m. wide, this area would certainly have mounted additional cannon, a role its narrower counterpart at Akkerman probably did not enjoy (fig. 662). The counterscarp of the ditch below the fausse-braie stands the height of a man and was probably used as an additional firing step. The system is absolutely in line with contemporary international modes of entrenchment. The parapets of the bastion itself are flat-fronted, in this case, but angled upward on top to deflect shot in the same way as those at Rio. It measures 21 m. high on the south side and has a diameter of 27.5 m. The brick-domed interior is 15 m. high, the dome supported on an octagonal pier. Four casemates each 4.5 m. deep allow cannon to fire across the rock-cut ditch, the bastion additionally equipped with outlets rising to the terrace for smoke to escape, an important new feature (fig. 663).  

Within the enceinte there is also a much ruined octagonal tower which Kontogianis calls “an intermediate type of tower constructed for cannons, attributed to the Ottoman architecture of the beginning of the 16th century, based on its shape and masonry.” It is positioned immediately behind the landward defenses of the fortress in much the same way as the octagonal tower of Rio (see fig. 661). Kontogianis does not clarify the relationship between this and the round bastions which he similarly dates to the fifteenth or early sixteenth century, and which are quite explicitly designed for

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20 Andrews, pp. 18-19
Judging from the simultaneous appearance of both at Rio it is possible that the two types were likewise built at the same time at Koroni, the round bastions performing a specifically military function while the octagonal tower fulfilled, as we have seen, a quite different role as a symbol Imperial power, as well as a more mundane one of magazine or barracks. There certainly would have been very little tactical utility in constructing such a tower “for cannons” inside the enceinte.

In Koroni we also have demonstrated the agglutinative tendency that might be said to be a defining characteristic of later Ottoman fortification. With their expansion into southeastern Europe, as well as the Anatolian coasts, the Ottomans occupied territory that had been settled, and fortified, for millennia. The cities and towns of these regions maintained their strategic importance as well as their physical structures, their fortifications in some cases visibly dating back to the Iron Age. Obliged to maintain and defend these settlements in their turn, so much of what the Ottomans built was by consequence supplementary to an already existing structure. Expense must have been a decisive factor as well. Beyazid could of course have abandoned the existing Venetian, Frankish, and Byzantine walls to construct an entirely new trace, but the immense cost of doing so in money, manpower, and time must have seemed excessive, especially when the existing work was of such high quality, and more importantly, functioned well. Given the ultimately practical nature of military architecture, the overriding Ottoman tendency seems to have been not to fix what was not broken.

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21 Kontogianis, Nikos, “Castle of Koroni”, in Triposkoufi, Anna, and Tsitouri, Amalia, eds., p. 70
22 This is nicely demonstrable in the walls of the steep Citadel of Plovdiv/Filibe, in which Thracian, Roman, Byzantine, and Ottoman layers of masonry are all quite clearly delineated. See Djambov, Hristo, “Srednovekovniet Plovdiv spored arkeologicheski otkritia”, in Srednovekovniet Bulgarski Grad, Sofia, 1964
Çeşme

The fortress of Çeşme on the Aegean coast is the only other securely dated monument of Beyazid’s reign, but even here the agglomerative quality of later Ottoman work is apparent. The fortress forms a long, very regular rectangle descending the steep slope to the water (figs. 664, 665, 666). It is surrounded by a fausse-braie, its crenellations walled up to create musket loops, and a very deep ditch and counterscarp (figs. 667, 668). The two eastern corners on the heights above the harbor are defended by round towers rising to the level of the wall-walk, with three wooden floors internally and a domed roof (figs. 669, 670). These may be Fatih’s and related to the corner towers of Kale-i Sultaniyye, rising as they do to the level of the curtains (see fig. 664). Like those of Kale-i Sultaniyye, both have two superimposed openings in their inner faces. Internally both had splayed casemates on the ground and first floors all of which have been blocked, perhaps with the addition of Beyazid’s fausse-braie immediately outside (fig. 671). Such casemates for cannon would suggest at least a late fifteenth-century date for both. The two square flanking towers rising to the same level in the north wall on the other hand are atypical of Fatih’s buildings although the general impression is probably too regular for previous Saruhan or Karaman work; a corresponding pair probably existed on the south front, one of which has been converted into a mosque (figs. 672, 673, 674).

The two identical round bastions at the west, waterfront end of the fortress are unmistakably the work of Beyazid II (figs. 675, 676). These block the ends of the ditch and join the fausse-braie with its fine cloisonné gatehouse (probably once a tower) (fig. 23 Yüksel dates it to 1508 on the basis of an inscription found above the inner gate. Yüksel, İ. Aydın, Osmanlı Mimârisinde II. Bâyezid, Yavuz Selim Devri (886-926): V, İstanbul, 1983. Another inscription on the fountain just inside the inner gate identifies the architect as “Mimâr Mehmed bin Ahmed bin Muallim” (Yüksel, V, pp. 99-100); it is notable that no such architect appears in the list of Royal Architects rewarded by Beyazid. See Necipoğlu, 2005, Appendix IV, p. 563
to which they are probably contemporary – the arrangement envelops the entire primitive fortification. Each had internally splayed arched embrasures framed on the exterior with local purple stone, now converted to doors; their placement low in the un-entrenched exterior precisely recalls the bastions of Rio and Koroni (fig. 678). The interior of each bastion is domed but without the massive pier of that at Koroni, although they do possess a hole in the summit of the dome allowing gun smoke to escape (fig. 679). Guns must equally have been mounted on their terraces, which were decorated by non-functioning continuous machicolation or a corbel frieze; this is the first instance of these in an Ottoman fortification that I am aware of (figs. 680, 681, 682). The new sea wall linking the two bastions in front of the original fortifications was additionally supplied with several ground-level embrasures for cannon and musket loops on the wall-walk above, creating a very strong front defending the harbor and one to some extent replicating the sea-wall of Kale-i Sultaniyye (figs. 683, 684, and see plan fig. 666).

Undated but among the finest pieces of extant Ottoman military architecture are the two large square towers just behind the round bastions, tied into walls of the older enceinte, the masonry of their corners squared off (figs. 685, 686, 687, 688). Their sheer bulk is vaguely reminiscent of the central tower of Kale-i Sultaniyye, but their interior vaulting is achieved quite differently, their ground and first floors barrel vaulted and a central pier supporting four domes on the second floor (fig. 689, and see plan fig. 666). These must have replaced circular corner towers corresponding to those at the eastern end, but it is difficult to ascertain whether they pre- or postdate the circular bastions below them. Their great height, which gives them the aspect of medieval Norman keeps,

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24 Unless we are to believe that Fatih’s version of the Orta Kapı of the Topkapı Sarayı featured these before its restoration by Süleyman.
is explained by the very broad terreplein between them which has converted whatever
medieval wall was once here into an elevated battery (fig. 690). The towers were clearly
used as magazines servicing the guns mounted here and firing out to sea over the tops of
the bastions, together with which they much created a formidable deterrent indeed. The
very regular splayed embrasures suggest that the entire arrangement is quite late; in any
case it must have seen service against the Russians in 1770.

**Selim I, the Grim**

Of the few securely dated monuments from the brief reign of Yavuz Selim I, the
Grim (1512-1520), the most important is that at Kavala.25 Here we have what is
unmistakably a free-standing round tower, with pronounced talus, bisected by a wall
separating two adjoining enceintes and dominating both in a manner that clearly recalls
precedents set in the reigns of his predecessors.

Goodwin also attempted to tie Selim to the restoration of the citadel at Hoşap, east
of Van, but there is nothing beyond the circumstantial evidence of his various Persian and
Mesopotamian campaigns to confirm this26; the odd irregularly polygonal keep and the
elaborate gateway through a large round tower are moreover dated by inscription to be
the work of Mahmûdî Beyi Sarı Süleyman, a local dynast, of 1642, and thus concurrent

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25 Lowry, using Piri Reis and *tahrir defters*, has unequivocally established this fortress to be a rare product
229-234

26 Goodwin, p. 188. Goodwin holds that “one would expect there to have been a great amount” of military
architecture attributable to Selim, ignoring both the brevity of his reign and the crucial strategic differences
between stabilizing and controlling a frontier through the construction of fortifications and the dynamic
expansionist policy pursued by that conqueror of the Middle East.
with the reign of Ibrahim I (Ibrahim the Mad, 1640-1648) (fig. 691).\(^{27}\) It is one of the finest pieces of rare Ottoman aristocratic military architecture.

**Kânuni Süleyman I, the Magnificent**

It is to the reign of Süleyman I (1520-1566) then that we must turn for our further exploration of the legacy of Mehmed II. Süleyman’s reign is perhaps the most problematic in the history of Ottoman fortification, characterized by ambiguity in dating and an enormously eclectic range of styles in the monuments that are securely dated. In a phenomenon we have described above, the perceived archaism of many of his works have often led to their misattribution. Certainly there can be observed in his works a high degree of continuity in military architecture from the time of Mehmed II, an observation further reinforced by recent examination of palace records by Necipoğlu, who has identified several architects working for Süleyman who also appear in Beyazid II’s book of royal donations. Several of Beyazid’s architects (or their fathers) having also worked for Mehmed II, a clear and unbroken chain of transmission emerges linking the architectures of all four reigns.\(^{28}\)

**The White Tower, Thessaloniki**

The White Tower in Thessaloniki has been one of the most controversial buildings in the Balkans (fig. 692). It has been dated variously to the Latin Empire of

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\(^{27}\) Uluçam, Abdüsselâm, “Hoşap Kalesi”, in *İA*, 18, pp. 247-248

\(^{28}\) Necipoğlu, 2005, pp. 154-155
Thessaloniki\textsuperscript{29}, the brief Venetian period between 1423 and 1430\textsuperscript{30}, the period immediately after the Ottoman conquest of 1430\textsuperscript{31}, and the mid-fifteenth century between 1450 and 1470\textsuperscript{32}. This is despite the statements of Evliya Çelebi attributing the tower to Süleyman and Machiel Kiel’s confirmation of the date of 1536-1537 through the reading of a now-disappeared inscription that appeared above the door of the tower.\textsuperscript{33} This was further supported by the dendrochronological findings of Kuniholm and Striker, who dated the wood used in the construction to 1536.\textsuperscript{34} I have nothing to add on the subject of dating except to observe that the likeness the tower shares with the Burj al-Muqattam, discussed below, confirms beyond any shadow of doubt that the White Tower and its chemise is a work of Süleyman in its entirety.

The tower is a tall, freestanding cylinder 33 m. tall with a 23 m. diameter, making it larger even than the Tower of Saruca Pasha at Rumeli Hisari. There are seven internal storeys, the lowest brick domed, those above with wood floors (fig. 693), reached by a broad ramping stairway in the thickness of the walls. The walls are 7 m. thick. A central

\textsuperscript{29} Ebhardt, Bodo, Der Wehrbau Europas in Mittelalter: versuch einer gesamtdarstellung der europäischen burgen, III, Berlin, 1939, pp. 696-697. In a classic example of a specialist confounded by the problems in dating Ottoman buildings on the basis of style, Wilhelm II’s great restorer (Ebhardt was responsible for the recreation of a Hohenstaufen castle at Haut-Koenigsbourg between 1900 and 1908) very understandably compared the White Tower to the Philippian Tour de Constance at Aigues-Mortes, a monument we have similarly encountered in this study. He did so without understanding the longstanding Philippian precedent within the Ottoman tradition that we have enumerated herein, as well as the tendency toward “archaism” (actually a function of decorum, as we have described) in later Ottoman military architecture.


\textsuperscript{31} Tafrali, O., Topographie de Thessalonique, Paris, 1913, pp. 50-51. Tafrali stated that the work was undertaken by Venetian master builders.


\textsuperscript{33} Kiel, Machiel, “A Note on the Exact Date of Construction of the White Tower of Thessaloniki” in Balkan Studies 14, Thessaloniki, 1973, pp. 352-357. The inscription was destroyed in 1912 and was deciphered by Kiel from a photograph preserved in the German Archaeological Institute of Athens. The tower and its inscription are recorded by Evliya Çelebi in Seyahatname, VIII, p. 67; as well as the “White Castle” (kal’a-i Esed) he also calls the tower the “Kelemereye kal’asi”.

\textsuperscript{34} Kuniholm and Striker, 1987, p. 395
drum rises above the terrace in precisely the manner of the towers of Yedikule and Rumeli Hisari; brackets in the wall indicate that this was once capped by a bipartite conical roof in exactly the same way as these earlier towers. Although the ramping staircase is easily wide enough to have allowed the passage of cannon, there are no embrasures within the body of the tower for weapons that large; we may surmise that the tower was used for storing ordnance, but it seems unlikely again that guns were permanently mounted within it. The body of the tower is articulated by a pronounced torus molding about two-thirds up its height, the parapets additionally decorated with nonfunctioning continuous machicolation (fig. 694). Both features, and particularly the torus molding, appear to be taken directly from the Venetian tradition, unsurprising given the amount of contact the Ottomans had had by this time with Venetian fortifications – it seems that such elements may already have taken a place in the Ottoman vocabulary by the reign of Beyazid II. Further decoration consists of several brick and stone cartouches in the lower part of the exterior, all with the same diaper pattern (figs. 695, 696). These echo similar motifs we have seen in Fatih’s fortress and are perhaps masons’ signatures; a similar motif apparently appears in the walls of the katholikon of the Monastery of Koutloumoussiou on Mount Athos. Small sunburst embrasures for light arms like those we have seen in the walls of the Topkapı Sarayi also appear in the ground floor level (fig. 697).

The base of the tower was once additionally defended by an irregular polygonal chemise demolished in 1917. This is shown in early photographs and has additionally been recently unearthed through excavation (figs. 698, 699). It had walls 4-5 m. thick.

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35 From a conversation with Professor Slobodan Ćurčić in Thessaloniki, July, 2007
and featured large rectangular casemates clearly designed to accommodate carriage-mounted guns (fig. 700). These were perhaps later walled up as they do not appear in nineteenth-century photographs (see fig. 698). Several octagonal turrets like larger versions of the *echaugettes* of the seventeenth century surmounted its walls. Braun, Faucherre, and Spieser hold that this is the sixteenth-century work added by Süleyman to an existing, earlier tower\textsuperscript{37} but given the comparison with Burj al-Muqattam given below it can only be said that on the contrary this was part and parcel of a single, Süleymanic project.

The White Tower is in every sense an archetypal Philippian-type tower and a direct descendent of Mehmed II’s early works, following closely on the heels of Platamonas and Beyazid’s octagonal tower with turreted chemise at Rio. Standing at a vulnerable corner of the enceinte it was intended to defend this sensitive position in the sea walls from artillery assault while countering that threat with the cannon mounted in its chemise, again, a direct descendent of those of the Galata Tower and Kilid-ül Bahr, modified to accommodate artillery. It is interesting to note the marked similitude between the White Tower and true Philippian towers of the thirteenth century. It is almost an exact replica, for instance, of the Tour de la Chaîne closing off the harbor of La Rochelle, of between 1382 and 1410, the internal cylinder and pepper pot roof of which have collapsed; even the scarcement here is in the same position as the torus molding on the White Tower (fig. 701).\textsuperscript{38} Beyond their similar general appearance, the walls of the White Tower, at 7 m., were not appreciably thicker than those of the Tour de Constance (5 m.) or the donjon of Coucy (8 m.); such close comparisons starkly demonstrate the

\textsuperscript{37} Braun, et al., 1987, p. 269-270

\textsuperscript{38} This was the very kind of resemblance that wrong-footed Bodo Ebhardt. See Faucherre, N., and Bonnin, J-C., *The Towers of La Rochelle*, Paris, 2004, pp. 34-45
enormous threat of the counterweight trebuchet in the Middle Ages and the bare margin of advantage had over it by gunpowder artillery even into the sixteenth century.

**Burj al-Muqattam, Citadel of Cairo**

The White Tower has a heretofore unrecognized twin in the Burj al-Muqattam in the Citadel of Cairo, to which it is identical in almost all respects including the torus molding and the non-functional machicolation (fig. 702).\(^{39}\) Besides the lack of a chemise at the Burj al-Muqattam, which is contiguous with the existing Ayyubid walls, one difference is the appearance of a slight batter in the base of the tower below the torus frieze in the Burj Muqattam which does not appear in the White Tower. Because of the difference in gradient, the entry of the Burj al-Muqattam is into the approximate height of the second floor of the White Tower; here begin the distinctive “keyhole” embrasures on the exterior of the Burj al-Muqattam also not seen on the White Tower (fig. 703).\(^ {40}\) Their fenestration and internal arrangements are exactly the same. The Burj al-Muqattam was one of a pair: the other, the Burj al-Wastani (the Middle Tower), was probably identical

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\(^{39}\) The tower is discussed in Creswell, K. A. C., 1959, p. 8. Creswell compared the tower to one of those at Yedikule, and dated it very correctly to between 1517 and 1617. The tower is also briefly discussed in Rabbat, Nasser O., *The Citadel of Cairo: A New Interpretation of Royal Mamluk Architecture*, New York, 1995. I do not agree with Rabbat’s identification of the “Tower of İbrahim Pasha” mentioned by Evliya Çelebi with the Burj al-Muqattam (p. 29). Evliya’s “Tower of Ibrahim Pasha” clearly stood within the enceinte opposite the residence of the Pasha (“Ve bir kulle-i bâlâ dahi paşa sarâyına nâzır İbrahim Pasha kullesi derler”, Evliya Çelebi, *Seyahatnâme X*, p. 97). The “Burj al-Qulla” Rabbat mentions as being compared to the Galata Tower by Evliya does not appear in the Kahraman, Dağlı, and Dankoff edition of Evliya: the tower is only described as “bir köşesinde Galata kullesi gibi on tabaka bir serâmed kulle” (“a ten-storey main tower like the Galata Tower standing at a corner”) – unquestionably the Burj al-Muqattam. Rabbat also mistakenly calls İbrahim Pasha the *vali* of Egypt, “before he assumed the position of Grand Vizier for Suleyman the Magnificent” (p. 29). İbrahim had already been made Grand Vizier in 1524, and arrogated himself the title of *beylerbeyi* of Egypt upon his arrival in Cairo. See Emecen, Feridun, “İbrahim Paşa, makbul” in *İA*, pp. 333-335

\(^{40}\) The difference in the embrasures between two otherwise practically identical monuments should probably be seen as the influence of local workshops on their construction. The cut-stone keyhole embrasure is rarely seen in the European provinces of the Ottoman Empire (the octagonal towers of the Gate of Salutations/Bab-üs Selam are an exception), just as the Byzantinizing brick “sunburst” embrasure is not, to my knowledge, seen in Egypt.
but has been truncated at the level of the torus frieze. They stand at opposite ends of the south wall of the north enclosure of the Citadel and constitute part of the Ottoman overhaul of this front that added the Bab al-Qulla between them (fig., and see plan of Citadel fig. 350).

Evliya Çelebi gives a detailed description of the tower, tellingly comparing it to the Galata Tower, and attributes both the Burj al-Muqattam and the Burj al-Wastani to the ill-fated Grand Vizier İbrahim Pasha, who undertook the strengthening of the Citadel during his time in Egypt in 1524-1525 probably as a precaution against the independent-minded Mamluks who had rallied behind the rebel Ahmed Pasha. If this date is correct, the Burj al-Muqattam is then almost certainly the work of the great Sinan’s predecessor in the office of Chief Imperial Architect, Ali b. Alaüddin, better known by his lakaps (byname) Acem (Persian) Ali/Alisi or Esir (Slave) Ali, the architect of the Selimiye in Istanbul of 1522. Very little is known about his life and career. Probably an artisan brought back from Persia by Selim in 1514, he has been called “a great architectural magpie” for his extremely eclectic (and often doubtfully attributable) oeuvre.

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41 Immediately following his marriage to Süleyman’s sister Hattice in 1523. He was sent to restore order after the revolt of his arch-enemy Ahmed Pasha. Known as Makbul, Maktul, (the Beloved, the Killed), İbrahim Pasha was strangled on Süleyman’s orders in 1536. See Gökbilgin, Tayyib, “İbrahim Pasha” in EI, III, p. 998-999. Evliya Çelebi’s account of the fortifications of the Citadel are given in Seyahatname X, p. 97.

42 Built by Süleyman to commemorate his father Selim I. See Goodwin, pp. 184-187.

43 Ertuğrul makes the unsubstantiated claim that he was an Azeri Turk. Ertuğrul, Özkan, “Acem Ali”, in İA, p. 322; Ünsal claims he was a Turk, which, as Goodwin points out (p. 187) does not explain either of his lakaps, “Persian” or “Slave”. Ünsal, Behçet, Turkish Islamic Architecture in Seljuk and Ottoman Times, 1071-1923, London, 1959, p. 96. Necipoğlu believes he may have been a Christian because of the different patronymics used in each of his two known vakfiyes (deeds of endowment), Alaüddin Ali Bey b. Abdülkerim and Alaüddin Ali Bey b. Abdülvehhab. These are published in Kunter, Halim Baki, “Mimar Ali Bey’ın Bilinmeyen Iki Vakfiyesi”, in V. Türk Tarih Kongresi, III. Seksiyon, Ankara, 1960, pp. 438-442.

44 Goodwin, p. 187.
It is notable that Acem Ali has long been attributed with the construction of the Gate of Salutations or Middle Gate (Orta Kapı/Bab-üs Selam) of the Topkapı Sarayı, a work we have established to actually be of Mehmed II restored by Süleyman in 1524-1525 under the supervision of this architect (fig. 705). We may venture here that the continuous machicolation on the gate (functioning above the gate, non-functioning in the octagonal towers) may in fact be original work of Acem Ali, added during the restoration along with the marble facing, for as we have discussed, continuous machicolation, whether functional or decorative, was unknown in Mehmed’s fortifications (fig. 706). It appears in the Burj al-Muqattam, just as it does on the White Tower, in almost precisely the same manner as on the Gate of Salutations, making Acem Ali’s authorship more convincing still.

Indeed, the general appearance of the Bab al-Qulla in Cairo is remarkably similar to that of the Gate of Salutations, the entrance of each flanked by polygonal towers (those of the Bab al-Qulla may also once have been capped with conical roofs) with a corbelled structure above, in the case of the Bab al-Qulla a neat cumba or projecting window (see figs. 704, 705). It may have been that İbrahim Pasha specifically intended that the entrance to the inner Citadel take on the Imperial iconography of the Topkapı Sarayı, although whether out of duty to his Sultan or out of personal vanity is not clear; his arrogation of Imperial trappings were an important cause of his eventual downfall. It should be further remarked that İbrahim Pasha was put directly in charge of the restoration of the Topkapı Palace between 1525 and 1529 upon his return from Egypt, and thus the Chief Imperial Architect and the ambitious Grand Vizier seem to have had

46 Necipoğlu, 1991, p. 51
quite a long history of working together on major Imperial projects. İbrahim’s palace
next to the Hippodrome, a gift of Süleyman’s upon his marriage in 1524, may indeed
have been built by Acem Ali. Acem Ali died in 1538 and is buried in the mosque he
founded at Yenikapi.

Attribution to Sinan

Both Kiel and Babinger believe the White Tower to be an unattributed early work
of Sinan’s before his appointment to the office of Chief Imperial Architect in 1539.
Both cite as evidence the passing comment made by Evliya Çelebi with reference to the
central tower of Vlorë/Valona/Avlonya, which Evliya compares to the White Tower (he
visited Thessaloniki first), attributing both works to the great master.

I find this attribution somewhat doubtful. Certainly neither tower appears in either
the Tühfet-ül Mimarin or the Tezkiret-ül Ebniye, the standard lists of Sinan’s buildings,
although this is relatively common for works of military architecture. It is certain,
however, that Sinan was not Chief Imperial Architect in 1536-1537, whereas Acem Ali
most certainly was. The comparison with the Burj al-Muqattam of 1524-1525, almost
certainly a work of Acem Ali, and the Gate of Salutations of the later 1520’s, makes this
more convincing still: in 1524 Sinan would have been but a common Janissary freshly

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47 For Acem Ali’s work on the Topkapı Sarayı see Necipoğlu, 1991, p. 23, 80-82, 146, 194
48 Ertuğrul, p. 322. The Palace of İbrahim Pasha, now the Museum of Islamic Art, is one of the finest (and
only) surviving pieces of non-Imperial residential architecture from the sixteenth century.
49 His deeds of trust are dated 1525 and 1537, corresponding almost precisely with the dates of construction
of the two towers in question. Goodwin puts his death a year earlier, in 1537 (p. 187). See Kunter, op. cit.
50 Kiel, 1973, p. 354 and Babinger, Franz, Aufsätze und Abhandlungen zur Geschichte Südosteuropas und
der Levant II, Munich, 1966, p. 73, f. n. 4. Kiel dates Sinan’s appointment to 1538, as usual (e.g. Kuran,
points out that Lütfi Pasha who offered him the job did not become Grand Vizier until 1539. Necipoğlu,
2005, p. 133
51 Evliya Çelebi, Seyahatname VIII, p. 313
returned from Rhodes.\textsuperscript{52} Finally, Kiel’s and Babinger’s dating of the tower at Vlorë to 1537 is contradicted by Apollon Baçe, who opts for a date of 1531, again, probably too early for Sinan and well within Acem Ali’s incumbency.\textsuperscript{53} This is not a case of taking Evliya’s word in one case and not in another: it is notable that in his detailed discussion of the White Tower itself and his recording of its inscription, Evliya makes no mention of Sinan’s involvement, issuing the attribution only in connection to another monument he visited afterward.\textsuperscript{54} The involvement of the by then legendary Sinan in both projects would seem more likely to have been a bit of hearsay picked up upon his arrival in Vlorë.

In any case the appearance of two identical monuments, the White Tower and the Burj al-Muqattam, at opposite ends of the Empire speaks volumes for the centralization of architectural projects during the early sixteenth century. Even if Sinan was in some way involved with the construction of the White Tower and that at Vlorë, perhaps as a military engineer, the presence of an exact replica of the White Tower in Cairo confirms that by the 1520’s, the plans for such large Imperial projects were being sent out from the central office of the \textit{Hass Mimarlık Ocağı} (Corps of Royal Architects), and were exceedingly standardized. Even Acem Ali, the ruling head of this body and the putative designer of the Burj al-Muqattam, was probably, by the 1530’s, simply signing off on a template to be reproduced wherever it had been deemed necessary to build such a tower, projects perhaps carried out on-site by engineers the likes of Sinan. This would very

\begin{itemize}
\item \textsuperscript{52} Konyalı’s misidentification of Sinan as having been a freed slave in the household of İbrahim Pasha was due to a confusion concerning the “Sinan” of a \textit{vakfiyye} (deed of trust) of 1563 and should not be allowed to cloud the issue. This latter Sinan was a namesake of the great architect and served as the second building supervisor of the Süleymaniye. Konyalı, İbrahim Hakkı, \textit{Mimar Koca Sinan, Vakfiyyeleri, Hayır Eserleri, Hayatı, Padişaha Vekaleti, Azatlık Kağıdı, Alım Satım Hüccetleri}, Istanbul, 1948. The misidentification is repeated in Ateş, İbrahim, ed., \textit{Mimar Sinan Vakfı}, Istanbul, 1990. See Necipoğlu, p. 129. Sinan was certainly not in Egypt with İbrahim Pasha.
\item \textsuperscript{53} Baçe, Apollon, “Kalaja e Vlores”, in \textit{Monumentet 5-6}, Tirana, 1973, pp. 43-57
\item \textsuperscript{54} Evliya Çelebi, \textit{Seyahatname}, \textit{VIII}, p. 67
\end{itemize}
much fit with the Kiel’s own study of the process behind the construction of the fortress of Anavarin-i Cedid (Pilos/Niokastro) in 1572-1577, which clearly indicates that the plan for the new fortress was dispatched from the capital. In this case an architect was sent from the capital apparently to work with another who was already on-site.55

Decorum versus “Obsolescence”

It is extremely instructive to compare the Burj Muqattam and the White Tower with the southeast corner tower of Kilid-ül Bahr that we have already encountered (see fig. 476). All three monuments are securely attributable to Süleyman and the White Tower and the tower at Kilid-ül Bahr are separated by only five years (1536 and 1541). The appointment of Sinan to the office of Chief Imperial Architect in 1539 of course intervenes, and there is an immediate temptation to suggest that the genius of Sinan brought about an immediate change in Ottoman military architecture upon his elevation to the office: the southeast tower of Kilid-ül Bahr is clearly of a different conception altogether, being purpose-built for mounting and resisting artillery, and the only real similarity between this and the two earlier buildings being the torus frieze. With its twin moldings and talus the tower is almost a direct copy of any number of contemporary Italian buildings including the later generation of Genoese towers in Corsica, as we have seen. Kiel suggests just such a caesura in the development of Ottoman fortification in his statement that “[the White Tower] is a prominent example of a group of defensive works

55 Kiel, Machiel, “Construction of the Ottoman Castle of Anavarin-i Cedid”, Appendix IV of Zarinebaf, F., Bennet, J., and Davis, J., A Historical and Economic Geography of Ottoman Greece: The Southwestern Morea in the 18th Century, Princeton, 2005, pp. 265-281. A mühimme defter (Register of Important Matters) addressed to the Bey of the Morea dated September 8, 1573 specifically states that “[t]he plan of the castle to be built has previously been dispatched with the messenger (çavuş) Hızır” (Kiel’s trans., p. 267).
characteristic for the Ottoman military architecture precisely. The type emerged in the 15th century and was continued till about the middle of the 16th century when the improvement of the heavy siege gun induced the military architects to adapt their works to a new situation.56

Our examination of the monuments of Beyazid II demonstrates this to be patently untrue. The Ottomans were already building state-of-the-art round bastions by the end of the fifteenth century, just as they continued to build very large independently fortified round and polygonal towers, often in the same instance. This is clearly demonstrated into Süleyman’s reign by the fortress of Vlorë/Valona/Avlonya in southern Albania, which as we have noted may have been an early work of Sinan’s, although its dating of 1537 (or 1531, according to Baçe) again corresponds to the incumbency of Acem Ali in the office of Chief Imperial Architect. Demolished in 1906, it is known only from its detailed description by Evliya Çelebi.57 A reconstruction has been attempted by Machiel Kiel on the basis of that description (fig. 707).58 From Kiel’s reconstruction we can draw several key conclusions. The fortress was shaped like an eight-pointed star, a wet moat surrounding it on all sides. Clearly we have here reflected the elaborate polygonal themes of Yedikule, Kilid-ül Bahr, and Rio, as the presence of bastions at each corner indicate that functionally this was not a prototypical “star-fort” or bastioned trace as was just beginning to emerge in Italy in the same decade.59 Rather, it would seem that these served the same purpose as did the round bastions at Smederevo/Semendere, Rio, and

56 Kiel, 1973, p. 354
57 Evliya Çelebi, Seyahatname, VIII, pp. 312-313. See also Dankoff, R., and Elsie, R., Evliya Çelebi in Albania and Adjacent Regions (Kosovo, Montenegro, Ohrid), Leiden, 2000, pp. 134-135
58 Kiel, 1990, pp. 269-275, 288
59 Kiel has the bastions as polygonal but this is not specified by Evliya, who describes them only as “sekvı tabıyıقيامîleri var kim her biri birer sedd-i Yącūc ve sedd-i Mačūc olup her birinde yedişer ‘aded serâmên balyemez topları var” (“eight large bastions like the walls of Gog and Magog, each with seven great long-range battering guns”, Evliya Çelebi, Seyahatname, VIII, p. 312, my trans.)
Koroni: seven enormous balyemez guns on each side covered the wet moat, supplemented in the manner of all three of Fatih’s coastal fortifications with embrasures at ground level covering the entrance to the Gulf of Avlonya.

At the center of the enceinte stood a tall tower, this “of seven stories [sic], built entirely from neatly cut stone covered with a conical cap. On the very top there is a gilded alem.” While I take leave to question Evliya Çelebi’s attribution of both this and the White Tower to Sinan, it is clear that the Philippian-type tower withdrawn into the enceinte continued to figure prominently in Ottoman military architecture into the reign of Süleyman, again, no longer performing the active military role undertaken by the bastions. Functionally the tower was mainly for storage: Evliya states that the unfortunate fortress commander resided within, in the company of the fortress’ supply of gunpowder. But just as the Burj al-Muqattam dominated the Citadel of Cairo and signified the reassertion of Imperial Ottoman dominion over the restive Mamluks, the central tower of Vlorë, with its massive body, pointed roof, and gilded alem asserted Süleyman’s presence in the Adriatic. It was also a direct reference to first truly Imperial fortresses built by his great-grandfather.

60 “Ve tâ ortasında Süleymân Şâh qulesi var, yedi qat serâmed gâyet musanna’ qulle-yi bâlâdur kim sâfî mutarraq seng-binâ olup üstü qurşum örtülü külâh qubbedir, tâ zirve-yi a’lâsinda mutallâ ‘alemî vardr.” Evliya Çelebi, Seyahatname, VIII, p. 313. An alem is a crescent symbol as found on the roofs of mosques and the Galata Tower. Evliya Çelebi, Kiel trans., 1990, p. 268
61 Evliya, Seyahatname VIII, p. 312
62 We have already discussed the contemporary and almost identical phenomenon in Francis I’s work at the Château d’If; Francis being a close ally of Süleyman during the same period, the Philippian tradition had clearly exerted itself on both sides of the “sacrilegious alliance between Lily and Crescent” (Kinross, John, The Ottoman Centuries, New York, 1977, p. 174).
Anavarin-i Cedid/Pilos/Niokastro

The future of the very tall, independently fortified tower was nevertheless very much in doubt. While in a coastal setting it might continue to perform a functional role as a lookout or lantern, the appearance of cheaper and more powerful cannon made such towers more and more of a liability, even when placed at the center of an enceinte. Whether or not he was responsible for the White Tower and Vlorë, it was left to Sinan during his long career (1539-1588) to steer Ottoman fortification into the new age of the pointed bastion, and it is in his later buildings that we can discern that gradual cessation of the great influence had upon Ottoman fortification by the buildings of Mehmed the Conqueror.

Contrary to so much Western opinion, we can confidently conclude that Sinan did indeed bring the pointed bastion into the Ottoman architectural lexicon, although unfortunately not in the bulk produced by his European counterparts. The towers added to Kilid-ül Bahr and Kale-i Sultanıyye (almost certainly his work as well, although attributable to the reign of Selim II) demonstrate that a certain Italian idiom in the form of torus moldings and squat, battered proportions had already entered the Ottoman vocabulary by the 1540’s, and perhaps even earlier, if our dating of Durrës and the Chain Tower is to be accepted. Anavarin-i Cedid (Pilos/Niokastro) of 1572-1577 was a wholehearted embrace of the new ideas coming out of the Peninsula and, as with the Selimiye in Edirne, is more a credit to its architect than to its patron, Selim II, the Sot (figs. 708, 709, and see fig. 22). Built to replace the outdated defenses of

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Duffy contends that even into the eighteenth century, “[g]iven the peculiar circumstances of coastal fortification, there was still a place for isolated and tall towers of a kind that would have been considered decidedly old-fashioned in inland warfare” (p. 155). Such were the Genoese towers of Corsica and their successors, the early nineteenth-century Martello towers of the English south coast and the Malakov Tower at Sebastopol that caused the Allies such grief in 1855.
Anavarin/Navarino\textsuperscript{64}, the fortress was built entirely \textit{de novo}, and featured, in addition to a large walled lower town, a star-shaped citadel with five pointed bastions that compares comfortably with any of the contemporary works of Paciotto d’Urbino (fig. 710). It is a testament to the adaptability, practicality, and open-mindedness of Sinan and the department that he created that the citadel was to be expressly “in Frankish style”\textsuperscript{65} just a year after the crushing defeat at Lepanto: critics of Ottoman military architecture as blinkered and backward-looking would be well reminded of this.

Although it is perhaps unique in being an outstanding work of masonry, Anavarin-i Cedid is the forerunner of the large network of earth-bastioned (or heavily mixed earth- and masonry-bastioned) fortifications undertaken by the Ottomans on their increasingly static northern frontiers. Such works, primarily in the southern Ukraine, are a vital component the history of Ottoman military architecture, and are part of the same tradition that so tenaciously defended Pleven/Plevna in 1877 (fig. 711).\textsuperscript{66} They have largely escaped scholarly attention and as a consequence of their materials are under threat of subsidence and obliteration. If studied, they stand to substantially refigure our knowledge and preconceptions of Ottoman military architecture. For the moment, they must remain part of a further, unwritten chapter of that history.

\textsuperscript{64} Known after the construction of the new fortress as Anavarin-i Atik, or Palæo Navarino.

\textsuperscript{65} \textit{[B]inâ olınacak kal’e firenk üslubında,} (“The fortress to be built is in the Frankish style”), in \textit{mühimme defter} 22, p. 323, no. 642, 11 \textit{Cemaziyüllevvel} 981 (September 8, 1573) in Kiel, in Zarinebaf, et al., eds., p. 267, 276

\textsuperscript{66} Caroline Finkel and Victor Ostapchuk form the cutting edge of inquiry into this vast and unexplored scholarly and geographical terrain. Unfortunately both are primarily historians working with Ukrainian archaeologists not specializing in the Ottoman past, and thus their investigations into both Özi and Akkerman remain fettered by an inability to accurately analyze the Ottoman remains from an architectural historical perspective. See Finkel and Ostapchuk, 2005, pp. 150-188
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The Independently Fortified Tower:
An International Type in Ottoman Military Architecture, 1452-1462

Volume II: Illustrations

Denwood Nathan Stacy Holmes

A Dissertation Presented to the Faculty of Princeton University in
Candidacy for the Degree of Doctor of Philosophy

Recommended for Acceptance by the Department of Art and Archaeology

[Adviser: Thomas Leisten]

January, 2012
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