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THE ART OF WAR DURING THE OTTOMAN-HABSBURG LONG WAR
(1593-1606) ACCORDING TO NARRATIVE SOURCES.

by

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A dissertation submitted in conformity with the requirements
For the degree of Doctor of Philosophy
Graduate Department of Near and Middle Eastern Civilizations
University of Toronto

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Doctor of Philosophy, 2004

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Abstract

The intention of this thesis is to discuss various aspects of both Ottoman and Habsburg warfare during the last decade of the sixteenth century. Various arguments have been explored regarding the so-called Military revolution and the role military technology played in early modern warfare. The seemingly ineffective way the Ottomans waged war at the end of the sixteenth century was due to negligence and disorganization in their army rather than to mere technological issues. Both Ottoman and Christian narrative sources, many of them written by actual eyewitnesses, do not give clear historical evidence regarding the alleged Ottoman technological backwardness. A series of serious economic, financial, and socio-political crises undermined the former effectiveness of the Ottoman military machine. On the other side, the progress of warfare in western Europe cannot be accounted for only by certain technological developments; there were economic and even cultural changes that played vital roles.

Weaponry did not play a crucial part in early modern Ottoman-Habsburg conflict. The main emphasis should not be put on guns but rather on different types of social organization that shaped the use of various weapons. Even Ottoman sources make it clear that Ottoman military difficulties were woven deeply into the social fabric.
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a) The Focus of the Dissertation and Outline of Subsequent Chapters.

This dissertation, in describing actual war practices, tries to investigate various military aspects of this prolonged conflict between the Ottomans and the Habsburgs, which took place primarily in Hungary from 1593 to 1606. No detailed treatment of all the military events that occurred during this war is given in subsequent chapters, although until recently no monograph was published on this topic.\(^1\) Through the utilization of historical narratives, it seems better to give a comprehensive account of contemporary military practices and various war techniques employed by the two opposing powers. Basically, this thesis is a search for knowledge concerning a series of specific military issues and is based on numerous fascinating observations made mostly by late sixteenth century authors. The primary goal is to explore and articulate how the various narrative primary sources can help to create a fairly reliable picture concerning several selected aspects of late sixteenth century warfare as they appear in the Habsburg-Ottoman conflict. The main focus has been on contemporary methods of warfare, with special emphasis on data provided by the historical narrative accounts from both sides.

One of the questions, the late sixteenth century Ottoman military techniques and methods, has clearly been one of the least studied matters in world historiography. As is

\(^1\) Jan Paul Niederkorn, a present day Austrian historian, wrote an excellent book about the Long War. See his *Die Europäischen Mächte und der "Lange Türkengieg" Kaiser Rudolfs II. (1593-1606)* (Wien: Verlag Der Österreichischen Akademie Der Wissenschaften, 1993). The author’s well documented, thorough work, however, treats almost exclusively the international political and diplomatic relations; specific military issues have not been discussed in his book. The most recent work on the Long War is that written by László Tóth Sándor, *A Mezőkeresztesi csata és a tizenöt éves háború* [The Battle of Mezőkeresztes and the Fifteen Years War] (Szeged; Belveder Meridionale, 2000). (Henceforth quoted as Mezőkeresztes). The author gives a fairly detailed account of all the significant military events took place during this conflict.
noted later, in European historiography, various military issues in early modern warfare, for example, the French Religious Wars, the Dutch Independence War, the Italian Wars etc., have been analyzed meticulously in numerous scholarly works available in many different languages. The Ottoman military history, on the other hand, cannot offer a wide range of publications to counterbalance the flood of scholarly books dealing generally with European military developments. There is a striking quantitative difference between the published scholarly works related to Ottoman military history and those pertaining to various military issues of European warfare. One may note that a close scrutiny of the existing methods of the late sixteenth century warfare will not advance new historical material; the primary goal is rather to pull together the information available in the narrative literature that could further enhance our better understanding of the Long War.

One of the really inspirational works that provided the first stimulus for writing this dissertation was an article by Caroline Finkel.\(^2\) In this article, she mentioned the problem of the alleged "superior technology" in the hands of various European armies, which the Ottomans had to counter in Hungary during this long armed conflict.\(^3\) This alleged superiority in weaponry seems to be a noteworthy problem that definitely deserves further research. It is necessary to point out here that, throughout this thesis, credit has been given equally to the available narrative written sources of both sides. While most of the Ottoman historical accounts are more or less known to international scholarship, many features of these works concerning various military methods and tactics have not


\(^3\) Ibid., p. 451. Finkel very carefully chooses her words when she tells us in her footnote (no. 2, on the same page) that the problem "of whether Ottoman or Habsburg weaponry and tactics were superior at this time has so far not received serious attention; although it is at present accepted that the Habsburgs had the edge, [however,] research on the Ottoman side will doubtless cause a revision of this view."
been explored completely by modern historians. In contrast, contemporary Hungarian historical chronicles concerning early modern warfare are still unexplored narrative materials.\textsuperscript{4} It is imperative to note, however, that none of the narrative sources is or could be wholly adequate; they are frequently erratic and unbalanced. There is no full-length narrative focusing entirely on the events of the Long War. Therefore, important works written by numerous scholars, such as Halil Inalcık, Rhoads Murphy, Caroline Finkel, József Kelenik, Gábor Ágoston, Pál Fodor etc., have been included in all the major arguments. In subsequent chapters the utilization of the content of various historical chronicles enjoys the priority, though the significant contribution of modern secondary literature has always been acknowledged.\textsuperscript{5}

It should noted that a variety of scholarly articles that were previously written by mainly Austrian historians often gave us a rather one-sided judgement regarding this very important historical period. Without providing a convincing amount of concrete evidence, most of the authors generally agreed that the Imperial forces had the technical advantage over the Ottomans during the Long War, which is considered a milestone in the long history of Ottoman-Habsburg hostilities. The final political outcome of the Long War has been considered by Austrian historians as an advantageous result for the Habsburg side. The Treaty of Zsitvatorok (1606) clearly shows, at least according to the majority of modern Austrian historians, that the period of Ottoman domination had come to an

\textsuperscript{4} Because of the extreme richness of primary sources, it has proven almost impossible to read and analyze all the available written materials concerning the complete military history of the Long War. Thus, it has been sometimes necessary to be quite selective in the events described and topics treated in the subsequent chapters, since it is unfeasible to cover every possible military issue within the confines of a dissertation. One may note here that, for instance, the thorough utilization of Spanish, Italian, or French sources alone would clearly require a multi-volume work. In the light of this fact, this thesis is rather a selective exploration of the existing primary materials and a perusal of the related secondary scholarly effort as well.

\textsuperscript{5} It starts in Chapter Two, where all the major arguments concerning military superiority, and the diffusion of various military technologies will be examined.
end, since further political negotiation with the Habsburg emperors soon afterwards was made on an equal footing. The Ottoman Empire also lost its previous political and military impetus in early modern Hungary. One can also observe that the German word *Wendepunkt* has been emphasized quite strongly over and over again in scholarly writings regarding the subsequent Habsburg-Ottoman political relationship.6

The direct *casus belli* of the Long War, the Battle of Sziszek (modern Sisak in Croatia), which was fought on June 22, 1593, has also been considered in certain scholarly circles as an obvious sign of the emerging military superiority of early modern European powers.7 It is interesting to note here that Karl Teply, one of the distinguished modern Austrian scholars, went as far as to state that the Habsburgs were able to stop the Ottoman expansion, even though, because of the so-called *Bruderzwists*, the well known internal conflict between Emperor Rudolf II (1576-1608) and his younger brother Archduke Matthias (1608-19), the Habsburg dynasty could fight only with half strength in this war.8

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6 Harald Heppner even inserted this word in the title of his article. See his “Der Lange Türkenkrieg (1593-1606) – Ein Wendepunkt Im Habsburgisch-Osmanschen Gegensatz,” *Osmanlı Araştırmaları Dergisi/The Journal of Ottoman Studies* II (1981). The distinguished historian William H. McNeill also stated in his book that, due to the high quality weapons and excellent training, the West-European armies in the sixteenth century “began to outstrip those of other parts of the civilized world.” During the Long War, the battlefield superiority of the Habsburg forces became clear for the first time when they employed well disciplined infantry with effective firepower. See his influential work, *The Pursuit of Power. Technology, Armed Force, and Society since A.D. 1000* (Chicago: Chicago University Press, 1984), p. 98.

7 One proper example is the scholarly symposium held on the occasion of the 400th anniversary of the Habsburg victory at Sziszek. The symposium took place in Zagreb during June 17-18, 1993, under the joint sponsorship of the President of the Croatian Republic and the Minister of Science and Technology. One could hear during this conference, among other things, that the imperial victory was not a miracle, but rather the glory of the latest achievements in European warfare. It was also emphasized that the three "revolutionary" military phenomena, namely, the spread of the Italian type of fortification, the mass deployment of firearms, and the dynamic increase in army size, were present even in the Danubian Monarchy, [sic] too. One should consult Tibor Ács' succinct report on the symposium, "A Sziszki Csata, 1593. Tudományos tanácskozás, Zágráb-Sziszek, 1993. Junius 17-18," [The Battle of Sisak, 1593. Scholarly Symposium in Zagreb-Sisak, June 17-18, 1993] *Hádtörténelmi Közlemények* 106 (1993/4), p. 191.

The focus of this dissertation, however, will be not so much analysis of the Peace of Zsitvatorok and its international implications as close scrutiny of the main military characteristics of the Long War, and investigation of the actual Habsburg and Ottoman military characteristics that dominated the warfare of these two powers. The word "actual" must be emphasized here; the potential military advantages, whatever their natures, often could not be realized in full because of the "interference of contingent circumstances." For that reason, besides the examination of important military issues, such as siege techniques, battle tactics, army organization or weaponry, the effects of some of those "contingent circumstances" (weather conditions, epidemics etc.) have also been observed. All the principal discussions are dealt with in separate chapters; each chapter poses the most important questions regarding late sixteenth century warfare. As noted above, the chosen method is to interrogate various historical accounts in order to answer the question about how much the alleged Western technological advantage determined the outcomes of different military enterprises in siege warfare and on the battlefields. Whenever possible, the different aspects of the European warfare will be viewed in comparative perspective, first of all vis-à-vis the Ottoman way of handling concrete military problems.

in der historischen Forschung (Wien: Franz Deuticke, 1983), p. 32. On the same page Teply has also quoted Hammer's famous but historically false statement that Zsitvatorok was the "torch signalling the end of Turkish yoke." Joseph Hammer-Purgstall's original view was expressed in his monumental historical monograph, Geschichte des Osmanischen Reiches (Graz: Akademische Druck - U. Verlagsanstalt, 1963, reprint), vol. IV, p. 393. Suffice it to mention here one more article from the impressive body of Austrian publications that came to the same conclusion concerning the final outcome of the Long War: Walter Leitsch, "Rudolf II. und Südosteuropa 1593-1606," East European Quarterly 26 (1972), pp. 163-87. Rhoads Murphy, Ottoman warfare, 1500-1700 (London: UCL Press, 1999), p. 15. Murphy rightly argues on the same page in his pioneering work that less investigated factors of war like weather conditions, road accidents, inhospitable landscapes, frequent and devastating epidemics, etc., in general had largely determined the final outcome of late medieval and early modern warfare. Therefore, even in the case of the best weaponry, the "tactical advantage to be gained from superior hardware remained largely theoretical." Because of the aforementioned "other factors," the thirteen arduous years of war seem to have been a somewhat inconclusive struggle for control over Central Europe, no matter which side might have had technological superiority.
A definite priority has been given to contemporary sources in order to present a few military issues through the eyes of actual historical witnesses and, as far as possible, to experience the witnesses’ own perception of those problems. This thesis does, however, not intend to be a comprehensive history of warfare in Central Europe in the 1590s, but it rather should be viewed as an attempt to call attention to minor, and sometimes quite specific, details provided by numerous narrative accounts. These historical sources from both the Ottoman and Christian sides help to go beyond true, but occasionally quite general statements, or sometimes simplistic frameworks that one can encounter in the course of late sixteenth century military history.¹⁰

Chapter Two starts with an examination of the Military Revolution and the controversial scholarly debate regarding it. A general inquiry into the main problems of the Military Revolution in order to attempt to give a more or less reliable picture of the nature of sixteenth century warfare is necessary to the structure of this dissertation. Otherwise, the main subject, the late sixteenth century Ottoman-Habsburg war, would be treated in isolation, and any discussion about it would lack coherence. The first section of Chapter Two is followed by a short discussion focused on the problem of Ottoman diffusion of contemporary innovations. The closing segment of the same chapter deals with the immediate antecedents of the Long War and prepares the ground for more specific questions, such as the issue of siege warfare, which is the subject of Chapter

¹⁰ These are, for instance, the “technocentric” approach promoting the idea of technological determinism, or a politically charged dogma, according to which there was already in the sixteenth century Europe an advanced West, and a backward East, thus revolution in warfare could not emerge east of Vienna. Likewise, in subsequent chapters it is demonstrated that mere technological issues did not play a crucial role during the Long War, and also, it proves to be anachronistic to talk about a genuine western method of warfare in 1590s. Two of the latest articles, which strongly emphasize those points, are: John Stone, “Technology, Society, and the Infantry Revolution of the Fourteenth Century,” The Journal of Military History 68 (2004/2), pp. 360-80, and Michael C. Paul, “The Military Revolution in Russia, 1550-1682,” The Journal of Military History 68 (2004/1), pp. 9-46.
Three. It is imperative to point out here again that the main emphasis throughout this dissertation is put on demonstration of various aspects of early modern Ottoman and Central European warfare, such as siege techniques, battle tactics, skill and discipline, etc. Thus, the long sequence of military events in the Long War is not treated in chronological order. A strict chronological method would be rather inappropriate when a number of factors, sometimes rather vaguely related, are pointing in numerous different directions.

It should also be mentioned that, in early modern European warfare, various kinds of firearms became the dominant force either on the different battlefields or in lengthy siege warfare.\textsuperscript{11} Because of the great increase of firepower, large-scale battles became less common phenomenon. Indeed, the days of spectacular, decisive battles (such as Chaldiran 1514, Marangho 1515, Pavia 1525, or Mohács a year later) had come to an end by the second half of that century. Gone also were the days when more than a dozen fortified cities and strongholds could be wrested from an enemy in a single campaigning season. Warfare in Europe, at least after the second half of the sixteenth century, became a laborious and time-consuming conflict dominated by sieges and countersieges. Naturally the Long War, which followed contemporary European military patterns, was basically also a static warfare.

Characteristically, long series of sieges can be considered the principal feature of military engagements; they demanded of the Ottomans and Habsburgs alike an exorbitant expenditure in men and war matériel. Because of the slower pace of early modern

\textsuperscript{11} It is a well known fact that both cannons and different types of hand held guns had already been used by numerous European armies even before the 1500s. But, in earlier times, "their effect was limited by design failings which were not satisfactorily cured until the early sixteenth century." See David Eltsi' well focused work, \textit{The Military Revolution in Sixteenth-Century Europe} (London- New York: I. B. Tauris Publishers, 1995), p. 43.
warfare, winter campaigning became a common phenomenon during the Long War, with its appalling demands on troops, horses, and logistics. In extended campaigning seasons, the vicissitudes of winter started to play an increasing role in the outcome of various military engagements.\textsuperscript{12}

In Chapter Three, there is an attempt made to describe in detail the major characteristics of siege warfare in the Long War. It may be paradoxical that siege dominated early modern warfare, just as in medieval times the fortified places and walled cities played a crucial role. New types of spear shaped bastions emerged, representing the so-called \textit{trace italienne} type of military architecture, which, in most cases, could withstand a concentration of enemy artillery fire. The first modern fortifications were completed by 1525, mostly around major Italian cities.\textsuperscript{13} In early modern Hungary, however, the situation was somewhat different. The Habsburg government, which was suffering from an acute financial crisis, could employ only a few leading Italian engineers to update the existing Hungarian defence line. Thus, by the beginning of the Long War, only the most important frontier cities were more or less refortified, and even these projects were an enormous capital undertaking for Vienna. Up to the second half of the sixteenth century, the Habsburg establishment had clearly failed to develop an adequate response to the military challenge represented by the dynamic Ottoman state. During the

\textsuperscript{12} J. R. Hale mentions in his fascinating book, \textit{War and Society in Renaissance Europe 1450-1620} (London: Fontana Press, 1985), p. 46, that freezing to death became a real danger for besieging soldiers, as happened in Metz in 1552. The author also mentions that, in the 1570s, skates became a standard part of the equipment for the Spanish infantry squadrons. In several cases, cold weather also became a dominant factor during the Long War. More details about this will be given in Chapter Four.

\textsuperscript{13} John M. Bridgman, "Gunpowder and Governmental Power: War in Early Modern Europe (1494-1825)," in: L. L. Farrar, Jr. (ed.), \textit{War. A Political and Social Study} (Santa Barbara-Oxford: ABC Clio Press Inc., 1978), p. 108. The author also adds on the same page that the sophisticated military architecture required highly skilled, well educated engineers. In this way, the new type of military architecture in Europe quite significantly contributed to the escalating cost of war at the turn of the seventeenth century.
twenty-five years of official peace (1568-93), the Habsburgs had in fact waged a protracted war against the Ottomans along the Hungarian frontier lines.

On the Ottoman side of the frontier area, as is noted later in Chapter Three, there was hardly any trace of Ottoman built *trace italienne* type of fortification at significant strongholds. After capturing a Hungarian fortress, the Ottomans were eager to repair immediately the damages they caused during the siege, but they were much less enthusiastic about modernization or new construction. Generally it is true that, in warfare, one opponent should try to match the other, but the Ottoman leadership apparently had no desperate need to imitate this Western innovation in military architecture, since in siege warfare, the Ottomans could unquestionably keep parity with the Habsburgs in Hungary without constructing a delicate network of fortresses in the latest *trace italienne* style. Chapter Three also contains a section on palisade forts for the simple reason that most of the smaller towns or places without vital strategic importance were usually fortified in *palanka* style. The great majority of the Ottoman-held fortresses represented the palisade type of military architecture; however, those places generally had formidable firepower, and, in case of siege, even in a hopeless military situation, they could usually but not always expect certain relief forces sent by the nearest stronghold.

The lengthy fortress sieges in early modern Hungary were not necessarily disadvantageous for the Ottoman army. In prolonged sieges that went on sometimes for months, the relative inaccuracy of cannons and various firearms was not as important a

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factor as it was in open battle engagements. According to Duffy, following Marsigli's thoughts, the Ottoman gunners (topçular) "habitually overloaded their badly-cast guns," and fired much more ammunition than their European foes did. The heavy charges, however, due to the strong recoil effect, very soon wrecked the planks of the cannon platforms, "which greatly militated against accuracy." On the other hand, one may note that the constant practice of overloading the barrel had one definite advantage. Different projectiles streaked from the muzzle at extraordinary speeds and could easily cause serious damage even in a massive, recently modernized fortress wall.

Another important military problem in this thesis is the skills of both Imperial and Ottoman soldiers and their fighting techniques. Without doubt, the technological standards of firearms are very important aspects of combat and well worth study. Nonetheless, tactical matters should also be taken into consideration, since the role of technology in early modern warfare is not always obvious. Regardless of arms and armour, no army could function properly under inept military leadership. It was not enough to line up troops in a field and have them attack each other; development in the

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15 See Robert Elgood's richly illustrated and very entertaining book, *Firearms and the Islamic World in the Tareq Rajab Museum, Kuwait* (London-New York: I.B. Tauris Publishers, 1995), p. 38. Elgood rightfully points out that the Ottoman made guns were manufactured with very long barrels, at least by European standards, and were loaded quite slowly by the Ottoman infantry soldiers, "...the sources agree that the *Turks were slow to load* [italics added] and did much better in situations such as sieges where rapid rate of fire was not required, rather than on the battlefield." Unfortunately, Elgood did not tell his readers what specific historical sources he was thinking about. Under siege conditions, where a rapid rate of fire was not an essential requirement, the Ottomans, in general, shot better and longer than their Christian counterparts. The large bore made larger charges possible for the Ottomans, which proved to be advantageous in siege situations, because the burning rate of the black powder was improved, resulting in an increased muzzle velocity.

16 Duffy, *Siege warfare*, p. 213. One must note here, however, that Imperial gunners also overcharged their cannons if they had less powerful gunpowder. The strong recoil effect was unavoidable, thus it militated against accuracy on the Christian side, too.

17 Ibid. Interestingly, R. Heischmann, a leading Austrian military historian at the turn of the twentieth century, recognized too that, for the Ottomans, the siege warfare was generally beneficial; thus he strongly criticized the Imperial military leadership for not forcing the Ottoman armies into more open battles during the Long War. *Die Anfänge Des Stehenden Heeres In Österreich* (Wien: Österreichischer Bundesverlag, 1925), p. 24.
tactical repertoire of a given army became an increasingly important factor in the outcome of various battles and skirmishes. It will be pointed out later that the traditional Ottoman tactics and fighting techniques had become increasingly ineffective in battles against their well disciplined Christian adversaries. It should also be noted that, during the Long War, the Ottomans did not explore new effective means of warfare when their conventional battle tactics failed so dismally and emphatically. One may note here, for instance, that the negative battle experiences in the campaigns of 1594 and 1595 did not lead to noticeable changes in Ottoman military planning.

Chapters Four and Five will engage tactical problems and their military importance in contemporary warfare. Murphy probably rightly states that “the applicability of prevailing technology and the deployability of standard weaponry in real battle situations [italics added] are two important dimensions of study that have been largely overlooked in the debate on Ottoman military technique.” On the Christian side of the conflict, one can get a certain kind of data regarding the skills and the tactical repertoire of the multi-ethnic mercenary forces that fought for the Habsburgs. Any serious inquiry into these military problems on the Ottoman side requires a careful analysis of the available narrative sources.

As one’s research proceeds on this topic, it becomes increasingly clear that these aspects of Ottoman military history have surprisingly been neglected. Numerous thorny matters, such as how the available military technology was actually utilized by the Ottoman military machine, and how Ottoman soldiers actually acquired their skills in

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18 Murphy, *Ottoman warfare*, p. 107. Further along, the author argues in his work (p. 241) that the “investigation of the environmental context of land wars” should also be done by modern scholars to achieve better understanding of the outcome of various military conflicts.
handling up-to-date weapons, are complex questions still waiting to be answered.\textsuperscript{19} It is
evident, however, that the Ottoman government and its military establishment, almost
throughout their entire history, showed openness toward European military technology
and advanced weaponry. They were, in most cases, indeed eager to adopt and apply
available foreign weaponry.\textsuperscript{20}

To demonstrate this phenomenon, it is enough here to refer to Halil Inalcık, who
quoted an Ottoman document that listed different kinds of weapons that were available
around the turn of the seventeenth century from “a vizier’s cebe-hâne” (arsenal).\textsuperscript{21} The
complete list, containing seventy-five different kinds of firearms (tüfeng), ranging from
an Algerian arquebus to a German musket, clearly indicates that the Ottomans did have
access to a wide range of foreign made guns, either through war booty obtained after a
successful siege or field battle, or through international smuggling operations. During the
Long War, the mass recruitment of the Anatolian levends equipped with firearms for

\textsuperscript{19} It is necessary to state that Christian Europe in the sixteenth century saw the emergence of an enormous
literature dealing with different war techniques and weaponry. The question about whether this
phenomenon was in any way related to the Military Revolution is not going to be discussed here, but
suffice it to mention that, in England alone, more than 150 English and several hundred foreign books were
published between 1470 and 1642, covering various specific military topics. A great number of those
military works have been meticulously collected together and published in J. D. Maurice Cockle (ed.), A
Bibliography of English Military Books up to 1642 and of Contemporary Foreign Works (London:
Simpkin & Marshall & Hamilton & Kent, 1900). While, surprisingly, on navy matters it is very hard to
find any specialized study, on weaponry, siege techniques, and tactical formations one can see a real
explosion of contemporary military works. In the Ottoman war literature, on the other hand, one can find
hardly any concrete military treatise from the late sixteenth century that deals with specific technological or
tactical problems. Ottoman chronicles generally ignored the various military problems their armies faced
in war.

\textsuperscript{20} Rhoads Murphy, “The Ottoman Attitude Towards the Adoption of Western Technology: the Role
of the Efrenç Technicians in Civil and Military Applications,” in: Jean-Louis Bacqué-Grammont and Paul
Dumont (eds.), Contributions à l’histoire économique et social de l’empire Ottoman (Louven-Paris:
Editions Peeters, 1983), p. 296. Murphy also adds quite honestly on the next page, however, that it is
actually a very strenuous task to find “hard facts and evidence” about the way the Ottoman military
engineers, officers, or even rank-and-file soldiers applied advanced techniques.

\textsuperscript{21} H. Inalcık, “The Socio-Political Effects of the Diffusion of the Fire-arms in the Middle East,” in: V.J.
Parry and M.E. Yapp, (eds.), War, Technology and Society in the Middle East (London-New York-
Toronto: Oxford University Press, 1975), p. 198. The original document quoted by Inalcik can be found in
the collection of the Maliye Defterleri, no. 1612.
military purposes also demonstrated that the Ottoman leadership had a desperate need for more skilled infantry soldiers. Any inferiority in their weaponry seems to have been a less obvious problem. Though technical innovations were not a striking feature of the Ottoman military character, in the late sixteenth century the Ottomans were still obviously capable of imitating the West by making accurate replicas of its weapons, whenever it was necessary.\footnote{Although one can observe certain Muslim inferiority already in the sixteenth century in the field of metallurgy, this factor could not possibly have crucial consequences in the sixteenth century. This problem is going to be demonstrated in Chapter Four. Suffice it to say here that a new consensus appears to be emerging among present day historians, which tends to blame the Ottoman institutional, social, and cultural backwardness for the ultimate shift in power between Christian Europe and the Ottoman Empire. See G. Ágoston’s article, “Habsburgs and Ottomans: Defense, Military Change and Shifts in Power,” \textit{The Turkish Studies Association Bulletin}, 22 (1998/1), p. 129. Carlo M. Cipolla in his very short article in the early 1970s, had already focused on the problem of a proper social environment, which was capable of adopting and integrating various technical innovations. His article titled “The Diffusion of Innovations in Early Modern Europe,” was published in the journal of \textit{Comparative Studies in Society and History} 14 (1972), pp. 46-52. In the following chapters, the problem of “Ottoman backwardness” and of the alleged Ottoman decline will be discussed in more detail.}

Finally, the concluding chapter compares and contrasts the principal findings with previous assumptions, and also attempts to point out the main differences. The conclusion also includes a brief summary of several objectives that were intended to be established throughout this dissertation. By focusing on different military aspects of the war, such as technology, weaponry, army morale, discipline, leadership, etc., it is possible to make some objective observations regarding the main military characteristics of both opposing sides. It is also expected that, through presentation of concrete historical data concerning the “other factors,” such as weather and geographical conditions, epidemics, and supply and logistic problems,\footnote{Between the sixteenth and the eighteenth centuries, the harsh climatic conditions, along with various epidemics, killed more allied soldiers from Western Europe in Hungary than the Ottoman sabres did. See Tibor Győri, “Adatok A Morbus Hungaricus Történetéhez,” [Glosses to the history of \textit{Morbus Hungaricus}] \textit{Századok XXXIV} (1900), p. 534. This remarkable article, which focuses entirely on the living conditions during military campaigns, will be explored in Chapter Four.} the historical importance of these factors can be demonstrated.
According to Murphy, these rarely studied factors greatly influenced the outcome of many late medieval and early modern military campaigns.

b) Historiography: Brief Comments on Some Principal Primary Sources.

Our knowledge of military affairs in the Long War is derived from different narrative texts, which were composed expressly to describe and explain events to those who had not witnessed them. The greatest challenge one faces reading the Ottoman narrative literature is identifying in what way these materials can be used to interpret military history and its related disciplines. Reading naturally raises this question: in scrutinizing numerous narrative sources, how critical an approach needs to be adopted for the reliable reconstruction of certain military events, and for accurate insight into the various military questions. Also, it is fortunate that, in the discussion of military technology and fighting methods, the actual numbers of the confronting armies do not have crucial importance, and, thus, many difficulties in interpreting historical accounts can be avoided. It is a well known fact that diverse narrative sources are notoriously inaccurate about the actual numbers of combatants in various battles. This is partly due to the fact that both sides vigorously magnified the enemy’s army in order to glorify victories and justify defeats.

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24 On the general problem of “historical criticism” regarding numerous late medieval (early modern) Ottoman chronicles, Jan Schmidt wrote an interesting study, “The Egri-Campaign Of 1596, Military History and the Problem of Sources,” in: A. Tietze (ed.), Habsburgisch-osmanische Beziehungen, CIEPO Colloque (Wien: Verlag des Verbandes der Wissenschaftlichen Gesellschaften Österreichs, 1985), pp. 125-44. Schmidt, focusing on the largest battle fought during the Long War, the Battle of Mezőkeresztes, (sometimes appearing as just Keresztes or Haćovasi in secondary literature), which took place in Hungary between October 23 and 26, 1596, demonstrates quite persuasively that there is clearly a great discrepancy among contemporary Ottoman authors, regardless of whether they were authentic eyewitnesses or not, in “the reconstruction of the actual course of events.” One may also point out here that the main focus has been on different military issues related to the late sixteenth century Ottoman and Habsburg warfare in Hungary. Concrete numbers describing the strength and/or the losses of an army have been cited rarely and very cautiously, since even the most reliable and sober historical accounts tend to exaggerate the enemy’s numerical strength and its losses, while they say almost nothing about, or play down the losses suffered on their own side. This was definitely a common practice, which appears over and over again in the pages of early modern chronicles.
In numerous Ottoman historical narratives, rhetorical terms have been used instead of the expressions of everyday speech. These terms also tend to obscure what was actually happening. Hence, numerous extant Ottoman historical narratives are indirect in their approach to concrete military issues, to say the least.

The variety and complexity of warfare necessitate answers to the key issues to be considered in the history of any particular warfare, such as the general military and political situation, armies and their relations to their governments, tactics and methods of fighting, etc. On topics such as the general political situation or the army's relation to its viziers, a fairly clear picture is given by different Ottoman authors. Other important issues, such as war technology or siege techniques utilized by the opposing sides, have proved to be much more complicated matters. Common knowledge regarding Ottoman military might, for instance, have been challenged by modern scholarly works. The alleged Ottoman decline vis-à-vis several aspects of warfare has become a much debated academic issue. The result is that some writers tend to take an extremely cautious approach.25

In order to open this field to specific, detailed research and to break away from some existing stereotypes, which quite frequently are based on only a part of the accessible historical literature, one has to go back to all available narrative sources. One crucial issue in this dissertation is how the Ottoman historical sources reflect or reinforce the problem of the alleged Ottoman military decline. The chronicles are full of detailed

25 Douglas A. Howard, "Ottoman Historiography and the Literature of 'Decline' of The Sixteenth and Seventeenth Centuries," Journal of Asian History 22 (1988), pp. 53-78. Howard tells us on the opening page of his article that the theory of the Ottoman decline, which started from the late sixteenth century, "rests primarily on the interpretation of contemporary Ottoman political writers." He also adds that this idea, which originated from the Ottoman scribal class, became widely accepted by the following generations of Ottoman intellectuals, and later on by modern European scholars too.
accounts of different wars and military campaigns, but rarely, if ever, do they mention the matter of the technical superiority or inferiority of either side. This absence of concrete descriptions of military technology in the written sources may result from the lack of special interest on the part of Ottoman authors. Therefore, this group of primary sources provides only a sketch of certain aspects of various Ottoman military issues. One may note also that the contemporary chroniclers rarely reported the activities of rank and file soldiers in the trenches. This lack indicates that those routine procedures were relatively unimportant in the chroniclers’ eyes. By recording various military events, early modern Ottoman chroniclers reflect the circumstances in which their works were produced, and their writings are in accordance with the general expectation of their era. It is not surprising that Ottoman histories contain hardly any specific information regarding the enemy; besides the usual simplistic stereotyping views, they usually offer little to help in understanding the main characteristics of Imperial warfare.

If, for instance, one confines oneself to narrative sources concerning siege warfare, where the Ottomans certainly maintained parity with European forces, one finds that sometimes there is nothing left to analyse except a few very general and meaningless statements. Regularly used simplistic or even schematic standard expressions like “meterisler kesilmiş, toplar atıldı” (trenches were dug and the cannons started the shelling)\(^{26}\) say nothing helpful about the special circumstances of a particular siege. One

\(^{26}\) It is necessary to make a note on transliteration because there are several distinctively different systems in use. Eventually, it was decided to employ modern Turkish fonts with the exception of macrons placed on long vowels, following Ferit Devellioğlu’s method presented in his dictionary. The goal is to keep some kind of consistency in transliteration. On this system, see his original *Osmanlıca-Türkçe Ansiklopedik Lügat. Eski ve Yeni Harflerle* (Ankara: Doğuş Ltd. Şti. Matbaas, 1962). It also needs to be mentioned here that the Arabic letter ا (ayn) has been indicated only in various direct quotations taken from Ottoman Turkish or Persian primary sources. Therefore, in the main body of the text, for instance, names such as Ali, or Naima, appear without the letter ayn. In a few cases where a direct Persian quotation is given, the distinguished transliteration system of F. Steingass has been employed. One should consult his well known
may also note here that, in numerous military engagements, only very brief, rather poetic expressions hint to the reader that the Ottoman troops were defeated.\textsuperscript{27}

The narrative sources do not always coincide; indeed, many times they are contradictory about the course of a particular historical event. It is, therefore, a challenging task to attempt to harmonize the different narrative accounts of the same affairs. The general course of events can be surmised by a comparison of the sources, even though certain details present numerous problems. It is possible though, that valuable, but often scattered information in these historical texts to be disengaged from its original context and turned to the previously mentioned purpose. However, direct quotations, regardless of their original languages, appear as they are in order to preserve the flavour and atmosphere of the late sixteenth century environment. These extensive quotations let primary historical sources speak for themselves.

Ottoman chroniclers, who sometimes but not necessarily always were eyewitnesses, range from sober and matter-of-fact memoir-writing soldiers to highly educated literary historians, whose elaborate narrative works have often included inflated rhetoric and panegyric descriptions. It seems that no early modern author could be competent in the different military problems of his period and, at the same time, possess significant knowledge about contemporary historical literature. Only the polymath Kâtip Çelebi (d.

\textsuperscript{27} One of the most frequently used discrete Ottoman expressions to indicate defeat is: "... ve nice teşne diller şerbet-i şehâdet nûş idüb... (many thirsty tongues imbibed the beverage of martyrdom)."
1657) and, to a lesser extent, Peçevi (d. 1649) seem to have been rare exceptions in
Ottoman historiography; both authors (especially Kâtib Çelebi) tried to deal with various
military issues by using some sort of historical criticism. The problem mentioned above
can be easily highlighted through the following list of contemporary authors. At the risk
of oversimplification, early modern Ottoman authors dealing with the various military
events of the Long War can be divided into the following four main categories: 28

1) Chroniclers from a later period, whose works contain mostly general
statements about the various events of the Long War. These writings are
either faithful compilations or summaries of earlier authors’ stories. Although
these Ottoman chronicles sometimes seem to be mere reproductions of
previous works, in some cases they clearly provide distinctive contributions to
the better understanding of a particular campaign or historical event. Here
one must mention first the fairly detailed work of Mustafa Naima (1652-1715)
Tarih-i Naima, and, to a much lesser extent, the Tarih written by Mehmed
Hemdemi Solak-zade, (1590-1657), 29 while the chronicle of the Ottoman
polymath Kâtib Çelebi (1608-1657), Fezleke-i Tarih, is a more complex
case. 30

28 Very brief facts concerning sixteenth and seventeenth century Ottoman chroniclers and their historical
chronicles are given in two modern Turkish books: Bursali Mehmed Tahir Bey, Osmanli Müellifleri. Cilt.
III. Ismail Özen (ed.), (Istanbul: Meral Yaynevi, 1975), and M. Orhan Bayrak, Osmanli Tarihi
Yazarlari (Biyoğrâfi ve Bibliyoğrâfi). (N/P: Osmanli Yaynevi, 1982). One can also consult Orhan
Bayrak’s more recent, enlarged edition of his earlier published work, Osmanli Tarihi Yazarlari,”
(Genişletilmiş Ikinci Baskı) (Istanbul: Milenium Yayınları, 2002).
29 For the exact citation of bibliographical data regarding the works of these historians, see below the
subsequent chapters, where they will first appear as primary historical sources.
30 Kâtib Çelebi possessed an extremely wide academic knowledge, which included both historical works
and special documents such as campaign reports. He was also the first Ottoman historian who not only
utilized, but actually analysed his sources, which included even “infidel” historical chronicles. However,
personal favouritism obviously played an important role in his selection. While his preferred author was
evidently Ibrahim Peçevi, Mustafa Ali’s important work was almost completely ignored by him. Still, one
may note here that Peçevi knew and did utilize Ali’s chronicle. Suraiya Faroqui, Approaching Ottoman
2) “Sophisticated high court literature,” such as Talikâzâde’s (1547–1599) Şehnâme-i Hümâyûn, and (Gelibolu) Mustafa Ali’s (1541-1599) Künhü’l-ahbar. These Ottoman narratives are stylized accounts of various historical events. These works are written in a very delicate, sometimes hard-to-understand flowery language, which makes reading a rather tiresome intellectual venture. Despite their very elaborate style, however, they can still offer many valuable insights concerning various historical aspects of contemporary Ottoman warfare.

3) “The down to earth approach” category of Ottoman chroniclers from the early modern era. These rather unpretentious chronicles were written by eyewitnesses, who, either as a part of the army or of its administrative class, personally participated in numerous Ottoman military engagements. Various writings in this category are not only easy-to-understand texts, but they are also rather valuable historical sources because their authors wrote about their own personal military experiences. One may call their work “straight history,” since the narratives are restricted mostly to historical events, and there is no effort to pursue any particular literary virtuosity. This group of primary sources includes authors such as the very straightforward İbrahim Peçevi’s (1574-1649) Tarih-i Peçevi, though his narration of various historical events in his chronicle is frequently interrupted by anecdotes. One can also often utilize Edirneli Mehmed bin Mehmed (? –1640), who pursued a career as one

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History. An Introduction to the Sources (Cambridge: Cambridge University Press, 1999), pp. 152-3. On page 153, she also adds that Kâtip Çelebi appeared to favour history writing as a branch of scholarship rather than as a literary genre, while Mustafa Ali instead accentuated the literary values of a chronicle.

31 Throughout this thesis, the popular version of his name has been used though his correct name is Peçevi.
of the clerks of the Imperial State Council (Dîvân). Mehmed bin Mehmed’s
well focused chronicle, Niḥbetü’t-tevârîh ve’l-ahbar, is clearly one of the
most uncomplicated Ottoman historical narratives. Other writers from this
group include (Tezkireci) Çâfer Çelebi (?-1611/12),32 whose literary style in
his work, Tarih-i sefer-i Üngûrûs, is sometimes quite elaborate; Ahmed
Hasan Bey-zâde (1565-1636), who has a rather dry descriptive style in his
works, Tarih and Tarih-i âl-i Osman, and hardly emphasizes anything
throughout his writings; the professional artillery man, (Topçular Kâtibi)
Abdûlkadir Efendi (?-1644), whose lengthy historical narrative, Vekâyi-i
Tarihiyye, gives a meticulous, inventory style account of his era.

4) Mustafa Selânikî (1540-1600) has his own category due to his quite
distinctive way of writing about his time. Utilizing exclusively personal
correspondence and various official reports sent by Ottoman army officers to
Istanbul, his voluminous work, Tarih-i Selânikî, is a unique Ottoman
historical source. Although Selânikî never held very high government
positions, his long services in various government departments gave him great
opportunity to meet leading state officials and prominent military
commanders. He could acquire much information concerning contemporary

32 From this group of authors, Çâfer Çelebi, who also used the penname “İyânî”, is the least known person
by far. He has been many times identified as Peçevi’s father, a report that is without any historical
foundation. Anna Horváth’s brief scholarly study deals with his life and his chronicle, “A Contemporary
Ottoman Source on the Wars in Hungary at the End of the 16th Century,” pp. 153-161, in: György Kara
(ed.), Between the Danube and the Caucasus. A Collection of Papers Concerning Oriental Sources on the
History of the Peoples of Central and South-Eastern Europe (Budapest: Akadémiai Kiado, 1987). It
should be noticed here that most recently the Turkish scholar Mehmet Kırıçcioğlu published a copy of
Çâfer Çelebi’s chronicle under the title Tevârîh-i Cedit-i Vildyêt-i Üngûrûs (Osmanlı-Macar Mıcadelesi
Tarihi, 1585-1595), (Istanbul: Kitabevi, [2001]). Kırıçcioğlu gives also a short biography of the Ottoman
author, in which he correctly states that Peçevi’s father was not the person named Çâfer Çelebi. See his
introductory chapter, XVI, footnote no. 3.
state affairs from many members of the central administration. It is not far-
 fetched to state that he probably is one of the most straightforward and
generally quite reliable Ottoman historical sources on the military history of
the Long War. One should also credit this Ottoman author for his simplicity
and lack of pretentious, bombastic literary style.

It should also be mentioned here, once again, that various chroniclers’ personal
relationships to certain political or military figures could sometimes considerably
influence their tone when writing about a particular military campaign. It is adequate to
give only one example of personal sympathy in this genre of literature here. The success
of the Ottoman campaign in 1594 against Győr (Yanık or Yamikkale), “the bulwark of
Vienna,” for instance, has been described by the Ottoman author Ta‘lîkî-zâde, who was
not only an eyewitness but an active participant, as a result of the leadership genius of
Grand Vizier Koca Sinan Pasha. The official court historian (Sehnâmeçi), Ta‘lîkî-zâde,
in his panegyric work, praised the Ottoman Grand Vizier, Koca Sinan Pasha, page after
page in very eloquent language as the sole mastermind behind every triumphant military
move, and as the only architect of the ultimate victory. Since he followed the traditional
path of “high literature,” in his work elevated style and delicacy of the language were
much more important factors than the simple reporting of actual military events.33 On the

33 It is necessary to point out, however, that Ta‘lîkî-zâde’s panegyric work still has numerous and quite
valuable insights into contemporary siege warfare, although the Sehnâme-i Hümdâyîn was certainly not
intended to be a detailed historical narrative. This work did not have to bear any reasonable relation to
actual military realities, though the author did more than the framework of this genre required. At certain
places in his work, Ta‘lîkî-zâde provides a few special references to actual Ottoman military procedures
that are rarely found, if at all, in general Ottoman historical narratives. Undoubtedly, these references are
based exclusively on Ta‘lîkî-zâde’s own personal observations, which reveal the author’s apparent curiosity
about several contemporary military issues. Nevertheless, it is imperative to repeat here that these first
hand observations are deeply buried under his dazzling epic. His chronicle is a perfect example of what
was mentioned earlier, without a very careful reading, at first glance, Ta‘lîkî-zâde’s epic does not seem to
offer much as a primary historical source.
other hand, Mustafa Ali, who did not participate in this Ottoman military undertaking, and who was one of the deadly enemies of Sinan Pasha and a personal antagonist of Ta’iliki-zade at the same time, was delighted to report anything in order to discredit the Grand Vizier.\textsuperscript{34}

Mustafa Ali’s negative line is not surprising; he has long been considered a maverick figure in Ottoman historiography. His chronicle also has an elegant literary style, but his cold, almost neutral attitude towards the central establishment, along with his generally lenient tone towards the European infidels, sharply differentiates him from the rest of the Ottoman authors. One can account for that by Mustafa Ali’s unquestionable integrity and straightforwardness; but most scholars also mention his bitterness and disillusioned life as a motive for his critical tone.\textsuperscript{35}

A near panegyrical literary style also characterizes Câfer Çelebi’s chronicle; a sharply critical tone towards the Ottoman establishment is completely missing from his well focused narrative. As an exemplary and honest but simple member of the state establishment, he does not attempt to find any mitigating factors to explain a particular


\textsuperscript{35} Although Ali held many government positions, he was very embittered that with his talent and knowledge he could not be promoted to a higher post. His ultimate conclusion was that the existing severe Ottoman socio-political troubles were responsible for the relative negligence of his talent. Faroqhi, Approaching Ottoman History, p. 149, and also Schmidt, Mustafa Ali, pp. 3-4. According to Howard, “Ottoman Historiography,” p. 63, Ali’s generally very sharp critical voice was caused by his unaccomplished career, which resulted in the creation of one of his earlier writings titled Nûshâtû’s-selâtîn, “the exemplary work in the emerging genre of the decline treatise.” [italics added] It should be noticed here that Ali’s treatise is usually cited as Nâsihâtû’s-selâtîn in the secondary literature, although Ali himself called it Nûshâtû’s-selâtîn. On this problem one should consult Andreas Tietze, Mustafa Ali’s Counsel For Sultans Of 1581. Edition, Translation, Notes. (Wien: Verlag Der Österreichischen Akademie Der Wissenschaften, 1979), vol. I, p. 8.
Ottoman defeat, nor does he make any endeavour to describe the socio-political background of the war. However, it is interesting to note, parenthetically, that, from his narrative, much valuable, and sometimes even unique, data and perspectives can be extracted. Thus Çâfer Çelebi is definitely one of the important historical sources, which can obviously supplement other, much better known, Ottoman chronicles. Other eyewitness soldiers like Hasan Bey-zâde or Abdülkadir Efendi have certain problems in reconstructing their personal experiences. While authors of later generations like Naima and, especially, Solak-zâde were diligently reproducing many parts of Hasan Bey-zâde’s Tarih, that work is sometimes disappointingly less focused on important military events. Valuable insights concerning siege warfare or military fortification are often given by him rather indirectly in hastily composed accounts; though he was an eyewitness to a couple of Ottoman campaigns, the expected concrete details are difficult to find. In fact, if one concentrates on the records of Hasan Bey-zâde concerning various sieges and battles fought during the Long War, one finds them distressingly meagre.

Abdülkadir Efendi, on the other hand, constantly bombards his readers with various data, which in many cases do not seem to have crucial importance.36 His chronicle, however, is a standard work of reference for late sixteenth century Ottoman warfare, because the work is confined to its purpose, namely, to give knowledge about various Ottoman campaigns and weapons. Understandably, as an active soldier of the artillery corps, he had an inexhaustible knowledge of this field and other war related subjects. His detailed and explicit narrative is entirely based on current events of his time; previous

36 He usually starts a campaign report by giving the names of almost all the Ottoman officers who participated in that engagement. Such lists sometimes can run for several pages. Yet his clear language and his meticulously collected facts make him one of the most enjoyable Ottoman primary sources. As a member of the artillery corps, his account of various Ottoman cannons and other guns is of great historical value.
wars are totally ignored. The author rarely bothered with personal criticism, nor did he express his own thoughts about the contemporary establishment. He did not even make a single reference to religious inspiration, which is unprecedented among Ottoman historical works. Eyewitness accounts are always preferable historical sources, but it is sometimes alleged that the eyewitnesses actually understood little of various military actions. Peçevi, undoubtedly the best known author in this group, does not need any introduction here. His work is a well organized, easy-to-follow impulsive type of narrative, although his principal topics are frequently interrupted by "interesting stories and anecdotes."

As mentioned above, the Hungarian chronicles have probably been the most neglected historical writings amongst the contemporary narrative sources. However, these straightforward works, which contain neither overflowing religious ponderings nor any glorification of the Habsburg emperor and his domain, can give a great inside look into the various military problems that the Christian side had to face during the war. These narrative sources of interest are the works of individuals, all of whom drew on numerous personal experiences. The systematic utilization of this group of primary sources is necessary in order to compensate for the previous one-sided treatment of the Ottoman-Habsburg (Hungarian) confrontation, since a really balanced analysis requires consultation of all relevant historical sources. Although one can easily identify quite a few Hungarian chronicles from the late sixteenth century, three particular authors will be quoted repeatedly throughout this thesis: János Baranyai Decsy (c.1560-1601), Miklós Istvánffy (1538-1615), and István Illésházy (1540-1609).37

37 On these authors' lives and works, an exhaustive treatment can be found in Emma Bartoniek's excellent book, *Fejezetek A XVI-XVII Századi Magyarországi Történetirás Történetéből* [Chapters from the History
Istvánffy's monumental chronicle, *Regni Hungarici Historia*, is one of the most important Christian narratives about the Long War. Fortunately, although he utilized various historical works in order to reconstruct the history of earlier centuries, in the case of the Long War, he recorded his own countless personal experiences. His narrative is an engaging account that illuminates virtually every aspect of contemporary warfare in this watershed period. As a member of the nobility, he received the rank of baron in 1582, and he was well acquainted with the Habsburgs and other leading political and military figures. And as a diplomat, he was one of the three members of the Habsburg committee that officially took over the governance of Erdély (Transylvania) in the name Emperor Rudolf II in 1598. He was also an active military figure, he can rightly be considered a prominent participant in this historical period. His personal association with important personalities gave him a proper opportunity to collect information from the principal Christian figures in all events, civil and military alike. Since he had his own personal land estates in the southwest counties in late medieval Hungary, he was particularly concerned about the military engagements that took place there during the Long War. In his chronicle, Istvánffy quite understandably gives many very detailed descriptions of various events that occurred in that region.

Although he received an excellent humanist education in Padua as a philologist, he did not try to write in a hard-to-understand, medieval Latin style. Although his composition was unquestionably elegant, it remained comprehensible. One may note, however, that Istvánffy did not generally filter the information received from his sources, and his chronicle thus contains many detailed descriptions. Because of his few lengthy

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rhetorical passages, he was nicknamed the “Hungarian Livius” in later literature. The special value of his chronicle is that he basically composed a lengthy military history; to him the essence of the art of history writing was providing detailed description of the cause and the goal of a particular war.

Baranyai Decsy’s work represents a different type of historical narrative. He received an excellent humanist education in Wittenberg and Strasbourg, where, besides philology and philosophy, he studied law. Although his relatively short chronicle, published under the title *Magyar Historia*, (original title: *Commentariorum de Rebus Ungaricis Libri qui extant*), centres on the “Turkish War,” military history is not a particularly prominent subject in Decsy’s historical work. Because of his educational background, the author’s world was the study and utilization of contemporary documents, either official orders or private reports, which were ultimately inserted in great numbers into his narrative work. Nevertheless, he had a passionate interest in Ottoman military and political affairs. When the Transylvanian troops captured Mehmed, the sancakbeyi of Lippa (modern Lipova in Romania), in September 1595, Decsy, in order to satisfy his zealous curiosity about the enemy, rushed immediately to Gyulafehérvár (Alba Iulia), where, on a couple of occasions, he could interview the Ottoman prisoners.

Illésházy, unlike his contemporary chroniclers Istvánffy and Decsy, wrote a personal memoir of the Long War, which he completed, not in elegant Latin, but in a straightforward, rather raw Hungarian without making any attempt to polish the style of his narrative. To Illésházy the “taste and style” of the narrative literature were secondary questions; he just recorded his own personal experiences, disregarding the rules of humanist historical writings. His work, titled simply *Illésházy Nándor Följegyzései 1592-*. 
1603 [The Historical Notes of Palatine Illésházy] concentrates on military actions even to a greater extent than Istvánffy’s history did. This unvarnished narrative is an honest account of the main events of the Long War. For Illésházy, the villains are surprisingly not the Ottomans but usually the German, and, especially, Walloon mercenary soldiers.

The list of early modern Hungarian chroniclers can be supplemented with the name of István Szamosközy (1565?-1612), who had also received a strong humanist education by studying in Heidelberg (1587-90) and in Padua (1590-93). His lengthy narrative, written mostly in elegant Latin, was published as Szamosközy István Történeti Maradványai 1542-1608, [The Historical Remnants of Szamosközy] and is based on his original work, Rerum Ungaricarum Libri. The narrative focuses mainly on the history of his homeland, Transylvania. He was also an author who, like his contemporary Decsy, relied on a substantial number of written documents, which he handled with careful criticism. Since the overwhelming majority of his available sources related to Transylvanian politics, Szamosközy, quite understandably, tended to deal with events and personalities that played essential roles in the history of Transylvania. However, it should be noted here that Szamosközy, as a sixteenth century historical author, has several useful observations regarding the more than decade long Habsburg-Ottoman military confrontation.

Some shorter sixteenth century Hungarian accounts, like those of Watthay or Pécsi Kis, have been rather neglected even in modern Hungarian historiography. These works are not historical chronicles; instead they deal with a given military event or specific historical topic. Ferenc Watthay (1568- died sometime after 1609), who had been the vice-captain of Székesfehérvár in 1602 during the Ottoman siege, was eventually captured by the besiegers and spent four years in prison. Understandably, his
magnificently illustrated diary, Énekes Könyv [Book of Songs], is a particularly useful historical work for the Ottoman campaign of 1602. The original purpose of the philosophical work of Péter Pécsi Kis38 (151? –1577), Exegeticon, was to communicate moral teachings to his generation in order to make his fellow Christians realize that the misery brought by the “pagan Turks” was nothing less that God’s punishment for their wickedness. This kind of religious approach was not unique amongst sixteenth century authors; books containing similar teachings were published by dozens of writers throughout contemporary Europe.

The great historical value of Pécsi Kis’s work lies in its second half, where the author gives a very detailed eyewitness description of the Ottoman army and its camp. He visited the Ottoman camp three times during the campaign of 1541, twice as a spy, and a third time as an official member of the Habsburg delegation led by Siegmund von Heberstein, Imperial Councillor, and General Count Nicklas Salm; Pécsi Kis was able to make numerous interesting observations. His work is, thus, an extremely important source on various aspects of Ottoman military life, ranging from fighting methods through discipline to camp sanitation. As a sixteenth century primary source, the book of Pécsi Kis is rich in argument, well organized and very clear in its language.

There is awareness of the limitations of attempting to draw several historical allusions out of personal correspondence, but in the case of György Thurzó (1568-1617) this method is justifiable, since his letters to his wife contain numerous invaluable details concerning some historical event or a particular problem related to the military. Since he fought in almost every major battle, Thurzó can rightfully be considered one of the most

38 A short information on the life of both Wathay and Pécsy Kis can be found in the preface of their critical editions, respectively. Those books, just like the others, will be introduced in the upcoming chapters.
experienced Hungarian military commanders of his time. His correspondence is indispens­able because he provides a comprehensive personal view of many military events that took place in Hungary during the Long War. Also, the work of enigmatic István Magyari, *Az országokban való sok romlásnak okairól* [About the Many Reasons for the Decay of the Country] could be used as a supplementary primary source. István Magyari is practically an unknown author; neither the year of his birth nor the date of his death is known to scholars. A very few personal notes can be collected from his book, which was first published in 1602. According to these notes, he had been the concionator (court predica­nt) of magnate Ferenc Nádasdy, a prominent Hungarian military figure during the Long War. Magyari’s book is not a historical chronicle; the author wrote a rather lengthy sermon through which, in a rather solemn manner, he intended to convey his religious teachings to his readers. Although his main thoughts concentrate on virtue and personal moral, yet Magyari makes some valuable personal observations regarding the general conditions of various Imperial army camps.

Among other contemporary historical works, Count Giovanni Marco Isolano’s reports regarding many events of the Long War between 1594 and 1602, entitled *Guerre Descritte della Felice Memoria,* etc., is a particularly useful source. As a participant in numerous military engagements, Isolano has a lot to say on various military issues. Additional foreign materials like Wilhelm Dillich’s narrative, *Ungarische Chronica,* or Richard Knolles’ monumental narrative, *The Generall Historie of the Turkes,* etc., sometimes yield very useful supplementary materials concerning various military aspects of the Long War. One may note that, because of the multinational mercenary forces fighting in late sixteenth century Hungary, throughout the continent, and especially in
numerous territories of the Holy Roman Empire, there was a tremendous public demand for written materials reporting on the military events of the Long War. Many authentic campaign reports and personal memoirs were published during this war, and it was also a golden age in Europe for various kinds of “inspiring” anti-Turkish propaganda literature, an identifiable literary genre during this period. This immense interest amongst contemporary Europeans created a ready market for works dealing with the “Turkish War.” The highly publicized events of the Long War further riveted the attention of the readers, who constantly demanded more new literature describing the course of the Ottoman-Habsburg confrontation.

One must also note here that Wilhelm Dillich from Cassel was a pioneer in illustrating a contemporary chronicle with “exciting pictures” in order to satisfy the great contemporary public demands. His work entitled Ungarische Chronica proved to be an instant early modern literary bestseller. Dillich’s vedutas (bird’s-eye views of different early modern Hungarian fortresses) utilized in the introductory section of his chronicle soon became a widely accepted and quite frequently imitated artistic standard in the depiction of Habsburg-Ottoman siege warfare. This happened despite the fact that, in most cases, those etchings and drawings were highly stylized and bore little resemblance to the actual geographical position of different forts, when they are checked against archaeological data or descriptive literary sources.

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40 Galavics Géza, Kössünk Kardot Az Pogány Ellen. Török Hábort és Képzőművészet [Let’s put on the sword against those pagans. Turkish wars and their artistic depictions.] (Budapest: Képzőművészeti Kiadó, 1986), pp. 50-3. It is interesting to note that the illustrations of Dillich, Hans Siebmacher, and W. P. Zimmermann have been reprinted over and over again in almost every modern historical work dealing partially or entirely with the sixteenth and seventeenth century Habsburg-Ottoman wars, although in most cases those graphics and etchings made by these artists are less than accurate depictions of real military
c) Chronological Table of Selected Military Events of the Long War.\textsuperscript{41}

The aim of this chronological table is to help one to navigate among the various events that occurred during the Long War. Thus, only a few annotations are provided along with the main phases of the war. There was no dramatic turning point in the course of this more than a decade long conflict. One could, however, point out four different phases indicating four different observable political and military trends between 1593 and 1606.

The initial phase of the Long War (1593-4), in which period the very energetic Koja Sinan Pasha strategy prevailed. The fell of Veszprém, Palota, and Győr (the greatest Ottoman success in siege warfare during the Long War), made a possible Ottoman attack on Vienna a real danger. The Christian forces took twelve mostly minor forts in northern Hungary, though it could not counterbalance Sinan’s successes in the western part of the country.

1593

June 22. Hasan Pasha from Bosnia was badly defeated at Sziszek, giving the final pretext to the Ottoman leadership to declare war on the Habsburgs. October 7. The Grand Vizier Koca Sinan Pasha, after three days of siege, took the abandoned Veszprém.

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11. Sinan Pasha took also Palota after two days of attack.

November 1. Hardegg’s unsuccessful attack on Székesfehérvár.

---------- 3. Sokolu-zâde Hasan Pasha, beylerbeyi of Buda, and his relieving forces lost the Battle of Székesfehérvár.

November 14 – December 7. “Winter campaign.” The Christian forces led by Christoph Tieffenbach took twelve Ottoman forts in northern Hungary. On November 21, the Ottoman relief troops from Buda and Temesvár were defeated in the Battle of Romhány.

1594

March 7-10. Ottoman Nógrád fell to the Imperial army led by Archduke Mathias and Pálffy.

March 22-23. György Zrínyi successfully attacked Berzence and Csurgó.

At the end of April Tieffenbach started his futile attack on Hatvan. (On July 1 he withdrew his forces, even though the Ottoman relieving forces lost the Battle of Tura On May 1). Meanwhile, during the first week of May the Mathias-led Habsburg army surrounded Esztergom. Due to indecisive command, after a series of unsuccessful assaults, the Christian forces had to withdraw at the end of June.

July 22. The beginning of the siege of Petrinja by Archduke Maximilian. Although the fortress fell after a few days, it was taken back by the pasha of Bosnia in September.

July 19-23. Sinan Pasha successfully besieged Tata. On July 31, his army built up their positions around Győr.

At the beginning of August Sziszek was occupied by the Christian forces.

September 29. The Imperial garrison of Győr abandoned the fortress.

October 4. The retreating Ottomans started their fruitless military venture against Komárom. (Three weeks later they raised the siege).
Second phase of the Long War: a sudden reversal in the tide of Ottoman fortune in 1595. The successful intervention by Transylvania, with the effective military help from the Romanian voivodes, forced the Ottomans into defensive position in Wallachia. Furthermore, the Christian forces, under the very talented leadership of Carl Mansfeld, could take the strategically vital fortress of Esztergom. Unfortunately for the Habsburgs, Mansfeld died soon, thus the Imperial command was taken by the untalented Archduke Maximilian in 1596. The badly led Christian troops could not achieve any significant success, moreover, with the unexpected loss at Mezőkeresztes the Imperial impetus died out. On the Ottoman side, after the death of Sinan Pasha (April, 1596), due to various internal problems, there was no any consistent strategy regarding the course of the war.

1595

July 1. The Imperial army led by Mansfeld arrived at Esztergom, beginning the second Christian siege of this important Ottoman fortress.

August 4 and 27. There were unsuccessful Ottoman attempts to relieve the heavily besieged garrison. Eventually Esztergom capitulated on September 2. A couple of days later the Imperial forces took Visegrád as well.

July 30. Along the southern frontline Zrínyi and Heberstein occupied the abandoned fort of Babócsa. Shortly afterwards in August, Petrinja fell again to the Christian forces.

August 12. György Borbély, commander of the Transylvanian forces, took the fort of Facsád, and was victorious against Süleyman Pasha and his relieving forces coming from Temesvár. (The sancakbeyis of Jenő and Lippa were captured).

Aug 18. Borbély and his Transylvanian troops took Lippa after a short siege. More than a month-long assault resulted in the capitulation of Jenő on October 22.
Meanwhile in Wallachia on August 23 the indecisive Battle of Calugareni took place between Sinan Pasha and Mikhail the Brave.

October 18. Targoviște was taken by the united Transylvanian-Rumanian troops.

------- 25. The Christian army was victorious at Battle of Giorgiu; two days later the Ottoman held fortress also surrendered.

1596

July 25. Schwarzenberg with Pálffy took Vác from the Ottomans.

Middle of May. Hasan Pasha from Temesvár unsuccessfully attacked Lippa.

June 10-16. Zsigmond Báthory, Prince of Transylvania, could not overcome the fiercely resisting Ottoman garrison of Temesvár.

Middle of August. The Habsburg army under the command of Maximilian reached the fortress of Hatvan, which capitulated on September 3.


October 22-26. The Battle of Mezőkeresztes, the largest military engagement of the Long War, which ended ultimately with Ottoman victory.

The long third phase of the Long War: this period between 1597-1604 is characterized by numerous sieges and countersieges, along with dozens of skirmishes. Although the spectacular Christian reoccupation of Győr could have potentially given a new impetus to the Habsburgs, it did not happened. Three unsuccessful sieges against the Ottoman-held Buda did not let the Imperial forces dictate the outcome of the Long War. Also, the very short occupation of Székesfehérvár (taken in 1601 by the Habsburgs and retaken by the
Ottomans the following year), along with the Christian loss of the important fortress of Kanizsa, clearly showed that the Ottoman forces stabilized their positions in Hungary.

1597

May 22-23. Tata was taken again by the Hungarians.

August 13-20. The Imperial forces liberated Pápa, but were unsuccessful under the command of Maximilian at Győr from September 8 to October 3.

October 8-13. Saturci Mehmed retook Tata from the Hungarians.

November 2-9. Indecisive clashes between the Habsburgs and Ottomans around Vác.

October 9-12. Borbély and the Transylvanian troops took Arad, Fellak, and Csanád. However, the attack on Temesvár was unsuccessful.

1598

March 29. Surprise attack carried out by Schwarzenberg and Pálffy on the fortress of Győr. During the summer (July 31-August 2) Schwarzenberg took Tata, while on August 8 and 9 Palota and Veszprém were also returned to Christian control.

June. Fruitless attack by Süleyman Pasha of Temesvár on Csanád. On July 7, the pasha lost a battle to the Transylvanians at Lugos. Saturci was more successful, however, and on September 8 Csanád fell to the Ottomans. Over the next couple of days, a few minor forts were also taken by the Ottomans.

September 29-November 3. Várad withstood Ottoman assault; meanwhile the Habsburgs could not liberate Buda (October 3-November 3).

1599

April 17 and May 10, Schwarzenberg’s unsuccessful petard attacks on Buda and Székesfehérvár, respectively.
September 28. The Ottoman troops led by the Grand Vizier Ibrahim Pasha reoccupied the abandoned Vác.

October 23. The campaign of Újvár by the Ottomans, while the Christian forces raided Ottoman controlled lands south of lake Balaton.

1600

June-August. Walloon uprising in Pápa.

End of August. Babócsa was taken by Grand Vizier Ibrahim Pasha. Some minor forts fallen into Christian hands the previous year were also reoccupied by the Ottomans.

September 8 – October 22. The Ottoman forces successfully besieged Kanizsa.

1601

September 9 – 20. The Christian siege of Székesfehérvár; the troops led by Mercœur finally succeeded.

Middle of October (between 10-15). There were clashes between the Imperial and Ottoman forces near Székesfehérvár. (The main skirmish is usually called the Battle of Sárrét).


1602


October 2 – November 14. Second unsuccessful Imperial attack on the fortress of Buda.

October 7. The fall of Pest into Christian hands.

1603

September 20. The Imperial army under the command of Russworm arrived at Pest.

September 28. The Christian troops victorious at Csepel Island over the Ottoman relief
forces led by Lala Mehmed Pasha. However, the third Habsburg siege of Buda proved to be again a fruitless military venture; on November 10, the Imperial forces were compelled to withdraw.

November 16-19. Russworm’s army liberated the fortress of Hatvan.

The last phase of the Long War: (1604-6), the period of Imperial retreat. With the help of the Bocskai uprising (started in 1604) the Ottoman gained the upper hand in Hungary. In a single year the Habsburgs loss almost all their previous territorial gains (Pest, Hatvan, Vác, and most of all Esztergom).

1604

September 5. Pest was abandoned before the arrival of the Ottoman army led by Lala Mehemd, Grand Vizier. Soon afterwards, the fortresses of both Hatvan and Vác were left empty by their garrisons.

September 18 – October 12. The first Ottoman siege of Esztergom took place.

1605

August 30 – October 3. The second Ottoman siege of Esztergom. The fortress eventually capitulated.

1606

November 11. The Treaty of Zsitvatorok. The Long War between the Habsburgs and Ottoman Empire was officially ended.
CHAPTER II. EARLY MODERN WARFARE AND THE OTTOMANS.

a) The “Military Revolution” Debate and the Problem of Diffusion of Technology.

The following discussion does not intend to advance any new theory or idea; it rather pulls together selectively the available information in order to evaluate sixteenth century European warfare through a detailed overview of the main issues of the “Military Revolution” debate. The military history of late medieval (or early modern) Europe is complicated and complex. It was a historical period in which numerous massive military, and also some quite important socio-political changes took place that eventually resulted in the spectacular ascendancy of early modern Europe. A new kind of warfare started to dominate the western part of the continent, which ultimately helped several European states to emerge, with surprising speed, as major global military powers.¹ This phenomenon has been labelled in scholarly literature as the so-called Military Revolution² in early modern Europe, and its origin, along with its historical consequences, has still very vehemently been debated by numerous modern historians. In the last two decades one can find a great number of books and scholarly articles covering this particular field of research.³ The theory of Military Revolution itself has spawned a

¹ According to the prominent French military historian André Corvisier, between 1500 and 1800, there was an evolutionary progress in Europe from a fundamentally aristocratic “warrior” mentality to an “army” mentality. This development led to numerous military changes throughout the continent. See his Armées et sociétés en Europe de 1494 à 1789. (Vendôme: Presses Universitaires de France, 1976), p. 197.
² One may note here that Michael Roberts originally expounded the idea of a Military Revolution in his inaugural lecture “The Military Revolution, 1560-1660” delivered at Queen’s University of Belfast (Northern Ireland) in January, 1955. His theory of military revolution in early modern Europe was first printed out in Belfast one year later in 1956. A somewhat revised version of his original thoughts appeared in his book, Essays in Swedish History, published more than a decade later (Minneapolis: University of Minnesota Press, 1967). Since that time Roberts’s phrase “Military Revolution” has been effectively integrated by modern scholars into European history and, more frequently, into world military history as well.
³ After the naturally slow evolution of the Military Revolution debate, there was “an explosion of scholarship in the mid-1980s, which can be said to have revolutionized the study of the phenomenon.” C.J.
great scholarly debate that can only be sketched here. By its nature, this chapter deals almost exclusively with various aspects of early modern European warfare, and only sparingly will make a few, rather marginal references to the various socio-political implications of the Military Revolution. Neither could a detailed discussion on various contemporary economic issues be included.

In the vigorous debate about the Military Revolution numerous military historians try to explain, sometimes by quite different ways, the radical changes both in military techniques and technology that gradually gave significant advantage to the West over various non-European powers. John Childs appropriately noted that the definition of “the nature and chronological location of a ‘Military Revolution’” has become a scholarly obsession in the last fifty years or so. As one can see below, scholars had previously tried to give technocentric explanations for the rapid rise of European power, however, recent works challenge these theories pointing out the crucial importance of various economic and socio-political factors in revolutionary changes. In other words, the spectacular successes of the West against the non-European powers had usually been credited to numerous military factors, such as new tactics, effective military leadership, better drilled and disciplined troops, higher standards of technology etc., but presently some scholars, quite correctly one might add, underlined the essential significance of the economic domination of Europe in the creation of its ultimate global hegemony. It


5 As already noted in the previous chapter, some scholars like Stone underline the importance that various technologies are “socially shaped.” This point made several times in his article, “Technology, Society.”
seems to be a consensus that mere military technological superiority itself alone cannot be accountable for the fast, quite dynamic rise of the West. A detailed historiographical analysis on the debate of early modern Military Revolution is beyond the scope of this chapter; thus, the main focus is here rather to summarize the highlights of this extensive academic discussion.

As mentioned above, Michael Roberts’s thesis has clearly drawn great attention but his ideas were hardly challenged until 1976, giving a kind of “new orthodoxy” to the theory of the Military Revolution. In that year Geoffrey Parker wrote an article, which touched off the publication of a great number of works dedicated to this scholarly discussion regarding the various aspects of the Military Revolution. After the publication of Parker’s article, this subject attracted a lot more publicity and a lot more criticism as well. Parker seems to have accepted, at least in general terms, the thesis of the Military

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6 This point has strongly been emphasized a couple of times by William R. Thompson in his article, “The Military Superiority Thesis and the Ascendancy of Western Eurasia in the World System,” Journal of World History 10 (1999/1), pp. 143-178. Thompson, after criticizing a few scholarly views that give excessive importance to advanced European military technology, states (pp. 144-5), “Military superiority, at best, was only one of several factors and, by itself has quite limited explanatory powers.” He also adds in his next sentence, “too much emphasis on military superiority detracts from the ability to juggle systematically the multiple factors at play in the ascendance of western Europe...” For Thompson the main factor rather is “the macroevolution of a global political economy,” which had gradually been dominated by some European powers. He clearly declares the main point of his argument (p. 144) “Ultimately, this macroevolution is a more important key to the finite ascendency of the European region within the world economy than is military superiority.”

7 For the most recent scholarly summarization of the main points of the Military Revolution debate, see Kenneth Chase’s very recent work, Firearms. A Global History to 1700 (Cambridge: University Press, 2003), p. 224, footnote no. 31.


9 Geoffrey Parker’s original article titled “The ‘Military Revolution,’ 1560-1660, - A Myth?” was published in the Journal of Modern History 48 (1976), pp. 195-214. A revised version of this article was first published in the book written by the same author, Spain and the Netherlands 1559-1659: Ten Studies ([London:] Fontana/Collins, 1979), pp. 86-103, and was later reprinted in facsimile in Rogers, Military Revolution Debate, pp. 37-54. Throughout the present chapter the latter version has been utilized.
Revolution, though he sharply criticized Roberts’s own explanation for this historical era of far reaching military changes. As a challenge to Roberts’s thesis both geographically and chronologically, Parker states that much of the progress in European warfare, described by Roberts as typical sixteenth century phenomena, had already characterized warfare during the Renaissance era in Italy.10 Parker’s whole article cannot be discussed here; but by denying the importance of the alleged tactical and strategic innovations, Parker’s main point was to introduce a different, technocentric explanation for the dynamism of the Military Revolution.11

Parker has been one of the prominent advocates of military superiority thesis according to which, advanced technology played a crucial role in the rise of Europe. For him the most notable military development in early modern European warfare was the emergence of the *trace italienne*, the new, revolutionary-type of artillery fortification. This early modern pioneering military architecture could theoretically give a real chance for defending garrisons to withstand the ever-increasing firepower of the attackers.12 By vigorously underlining the historical importance of the *trace italienne* in contemporary

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10 Parker, “The Military Revolution, - a Myth?” p. 38. The author states convincingly that regularly mustered professional standing armies containing smaller infantry units with uniform armament had already been maintained by several Italian states as early as the fifteenth century. Parker also adds (p. 40) that, along with numerous medieval Italian states, both England and France had simultaneously developed professional standing armies during the fifteenth century. Those medieval armies organized into smaller tactical units were capable of combat in either linear, column, or square formations too; thus they clearly preceded the so-called “tactical reforms” of both Gustavus Adolphus (1611-1632), and Maurice of Nassau, Prince of Orange (1567-1625), carried out in the early modern era.

11 Parker has accepted one argument from Roberts’s thesis without any hesitation: the growth in army size. Parker explains this historical phenomenon with two important factors: 1) the growth of the population of Europe, which, in general, almost doubled between 1450 and 1600. 2) “the notable increase in the total wealth of Europe,” which enabled different states to support the escalating military expenditures. Ibid., p. 46.

12 Ibid., p. 42. According to the author, “by 1500 every major European state possessed a powerful artillery park,” thus only the *trace italienne* type of fortresses could stand up to this challenge. To Parker it is obviously not a historical accident that several Italian military architects were the first in applying this new kind of fortification, since in Italy the siege warfare was the most common type of military engagement at the turn of the sixteenth century. On the previous page, Parker also tells us that not various tactical innovations, as Roberts claimed in his work, but the emergence of the *trace italienne* had “the crucial influence on the evolution of strategic thinking in the sixteenth century.”
warfare, Parker introduced the "military technology as a causative factor" in the Military Revolution debate.\textsuperscript{13}

The theory of technological determinism in which, for instance, the \textit{trace italienne} an important causative factor of significant changes in early modern warfare, raised a maelstrom of dissent from a number of military historians. Simon Adams, for instance, who is very sceptical about the revolutionary character of the \textit{trace italienne}, also strongly argues against tactical or technological innovations as the determining causes for any army growth, which, according to him, was an apparent result of changing political and strategic approaches.\textsuperscript{14}

Another scholar, John A. Lynn, has also expressed his deep scepticism about the historical significance of new innovations like the \textit{trace italienne}. Instead of seeking a mere technological explanation, Lynn sees the booming population and robust wealth of Europe as the chief contributors to the development of warfare.\textsuperscript{15} One should note here

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\textsuperscript{13} C. J. Rogers, "The Military Revolution in History," p. 4. One may note here that exactly twenty years after the publication of his article, "The Military Revolution, - a Myth?" Parker, besides the appearance of the \textit{trace italienne}, mentions again the dominant role of firepower and the general increase in army size as the most important military elements in the transition of early modern European warfare, though he cautiously adds, this time, that "the timing of the transformation was slower, and the impact less total, than was once thought." See the second edition of his \textit{The Military Revolution. Military Innovation and the Rise of the West, 1500-1800} (Cambridge: University Press, 1996), p. 43. This book is a slightly revised version of his original book published almost ten years earlier. (See footnote no. 8) Throughout this dissertation, citations have been taken from this revised version of his book.

\textsuperscript{14} One should consult Adams' article, "Tactics or Politics? The Military Revolution' and the Hapsburg Hegemony, 1525-1648," in: John A. Lynn (ed.), \textit{Tools Of War. Instruments, Ideas and Institutions of Warfare, 1445-1871} (Urbana and Chicago: University of Illinois Press, 1990), pp. 28-52. This article has also been reprinted in Rogers, \textit{Military Revolution Debate}, which copy has been utilized in this chapter. Simon Adams' aforementioned statement can be found on page 258. A little earlier, p. 255, Adams informs us that there were no dramatic changes in battle strength between the sixteenth and seventeenth centuries, due to the fact that "Many projections were never realized, and the figures given in state papers are frequently mere paper strengths."

\textsuperscript{15} John A. Lynn. "The \textit{trace italienne} and the Growth of Armies: The French Case," in Rogers, \textit{Military Revolution Debate}, pp. 185-6. This study is the reprinted form of the original article published first in \textit{Journal of Military History} 55 (1991). One may note here that Parker has also recognized the historical importance of the increasing population and wealth in Europe as factors in military changes.
in brackets that even a few early modern political figures openly expressed their serious doubt about the *trace italienne*.

On the other hand, a number of military historians, such as Rogers, basically accepted the importance of *trace italienne* as crucial factors in the European Military Revolution. He argues, however, that the spectacular rise of Europe could not be explained by one single military revolutionary process, and he also points out that noteworthy changes in European warfare were already well underway by the beginning of the fifteenth century. For his alternative elucidation of the radical military changes in Europe, he introduces the concept of “punctuated equilibrium evolution,” stating that “a series of sequential military revolutions,” rather than one and only Military Revolution led ultimately to the dominance of the Western powers.

The first of these military changes was the so-called “Infantry Revolution” initiated by the Swiss pikemen and halberdiers, along with the English longbow-archers, who could eliminate quite effectively the centuries long supremacy of aristocratic cavalry. Several spectacular military victories achieved by those battalions helped to convince

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16 The great Italian polymath, Niccolo Machiavelli, for instance, quite passionately agitated against the construction of new modern fortresses. According to his theory, kingdoms with “good armies” do not need heavily fortified places, while modernized fortresses without formidable armies are inadequate for effective defence. Hence, a particular prince who can raise a strong army does not have to build a modern fortress; and one who cannot should not build any. “...dico che le non sono necessarie a quelli popoli e a quelli regni che hanno buoni eserciti, e a quelli che non hanno buoni eserciti sono inutili; perché i buoni eserciti sanza le fortezze sono sufficienti a defendersi, le fortezze sanza buoni eserciti non ti possono difendere.” See his Discorsi Sopra La Prima Deca Di Tito Livio. Francesco Barusi (ed.), (Roma: Salerno Editrice, 2001), Libro II. Cap. XXIV, p. 475. Further along (p. 477) the author adds “Quel principe dunque che può fare bueno esercito, può fare sanza edificare fortezze; quello che non ha lo esercito buono, non debbe edificare.”

17 Rogers, “Hundred Years War,” pp. 56-7. His theory basically states that both an Infantry Revolution and Artillery Revolution took place in the fifteenth century causing several fundamental military changes in the structure of contemporary European warfare. Rogers’ theory was endorsed by John F. Guilmartin, Jr., “The Military Revolution: Origins and First Test Abroad,” in: Rogers, Military Revolution Debate, p. 307. According to him, various European technological developments like the Artillery Revolution were “preceded by an extended period of incremental development;” thus the theory of the “punctuated equilibrium evolution” is a suitable method to describe these patterns.
numerous European sovereigns to start appreciating infantry power. The second major change came with the historical period of the proliferation of cannons, which has collectively been labelled by Rogers as the “Artillery Revolution,” and made the formerly impenetrable medieval castles very vulnerable to the attacking forces. As an effective counter-measure to the significantly increased firepower, the new trace italienne type of fortresses were developed relatively fast, giving back the former superiority to the defending forces.

For a slightly different, but still technocentric approach, Jeremy Black’s study should be mentioned here, in which the author underlines the process of smooth continuity rather than rapid radical changes in early modern European warfare. Although Black also accepts the late fifteenth and the early sixteenth centuries as a historical period for different changes, to him only the epoch of 1660-1720 altered very dramatically early modern European warfare. According to him, innovations such as the flintlocks and bayonets gave a definite advantage to the Habsburg army, which meanwhile became

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18 This opinion coincides with that of Corvisier, who, in his Armées et sociétés, p. 198, underlines the fact that the former aristocratic “warrior mentality” did not appreciate rough infantry soldiers. “Cette morale guerrière est essentiellement nobiliare. Elle ignore la piété dont on décrit par ailleurs plus souvent la grossièreté et l’âpreté dans les pillages que le courage.” Stone, “Technology, Society,” p. 371, criticizing Rogers’s view on the English Infantry Revolution, strongly emphasizes that tactical changes rather than technological innovations initiated new developments in warfare.
19 Probably Andrew F. Krepinevich the strongest proponent of the innovation-driven revolutions in warfare. According to him since early modern times there were not less than ten revolutionary military changes in history. See his “Cavalry to Computer: The Pattern of Military Revolutions,” National Interest 37 (1994), pp. 30-42. Needless to say his theory is under attack by Stone, “Technology, Society,” pp. 363-4, where the author correctly points out that technological explanations do not provide space for the important socio-political factor of warfare.
21 Ibid., p. 97. Black writes that “the replacement of the pike by the newly-developed socket bayonet,” and “the substitution of the matchlock musket by the flintlock” were the major developments in early modern warfare.
larger and more mobile against the Ottomans during the 1686-99 wars.\textsuperscript{22} As a conclusion, Black questions the correctness of the use of the word of revolution, Black adds that many tactical and technological changes could bring great results at the micro level, but "it is difficult to link these together at the macro level into some all-embracing theory of revolutionary change."\textsuperscript{23}

Black’s closing argument can be supplemented here by Childs’s very recent work, in which the author expressed openly his extreme scepticism about the whole idea of revolutionary changes in warfare; thus he titled the opening chapter of his book “Introduction: Death of the ‘Military Revolution.’"\textsuperscript{24} Childs, in a very concise form, mentions all the theories suggested by Roberts, Parker, and Black, but he also emphasizes that several technological changes and the emergence of some new weapons were slow military advancements, that could only gradually modify various aspects of existing warfare. Thus, a range of "unspectacular" military changes that took centuries to be realized can be called \textit{evolutionary rather than revolutionary}.\textsuperscript{25} [italics added] Finally,

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\textsuperscript{22} Ibid., p. 101. It must be credited to Black that he at least mentioned the name of the Ottomans in his study. The great majority of scholarly works dealing with different aspects of the Military Revolution debate are usually silent about the Ottoman Empire, which makes it evident that the integration of early modern Ottoman warfare into the European military history has yet to be written by modern historians sometime in the future. On the next page Black asserts that the spectacular Habsburg victories in the early eighteen century resulting in the Peace of Passarowitz (1718), in which the Ottomans lost the \textit{vilayet} of Temesvár, their last Hungarian province, signalled the shift in the balance of military power between the two archenemies. (Strangely enough, in his writing Black uses the names of Austria and Turkey as the opposing military powers.)

\textsuperscript{23} His final conclusion is on pp. 110-11. At the end of his article Black emphasizes again that only the flintlock and the socket bayonet can be considered as "truly original innovations."

\textsuperscript{24} Childs, \textit{Warfare In The Seventeenth Century}, pp. 16-7.

\textsuperscript{25} Ibid., p. 17. The author closes his argument on the problem of the Military Revolution by saying that the new military techniques were specially designed for the West European theatre of war. Thus, for instance, neither Poland nor the Ottoman Empire adopted those new military techniques, whereas other countries such as India or China, "although partially receptive to the firearms, did not embrace European organization and tactics." Unfortunately, the author does not explain to his readers on what kind of historical evidence are the Ottomans not even considered "partially receptive to firearms?" It is clear, however, that the overwhelming majority of modern military historians regard the Ottomans more than just "partially receptive to various weapons"; the basic problem they faced was the fact that they could deploy
one must mention again here Stone's very recent article in which the author, quite
correctly one may add, soundly rejects any theory of technological determinism, and
instead, calls for the attention to various social and political factors that greatly
influenced various technological developments.\textsuperscript{26}

One can clearly see from the aforementioned argument that this debate failed to
examine the position of the Ottomans or even that of Central Europe in the general
development of the Military Revolution. Black, for instance, complained with some
justification that while Parker in his book treats quite impressively even the non-
European theatre of war, he "subsequently neglects the Austro-Turkish warfare."\textsuperscript{27} In the
light of the latest publications, however, one can confidently state that the traditional
Western Europe-dominated historical view has been under revision, in which Eastern
Europe and the Ottoman Empire are finally discovered as part of contemporary Europe.\textsuperscript{28}

Ágoston, for instant, has also correctly pointed out in his study, Parker is surprisingly
hesitant to decide whether Hungary, at the beginning of the early modern age, belonged
to the area affected by the Military Revolution.\textsuperscript{29} Parker's oversimplified statement

\textsuperscript{26} See his, "Technology, Society," especially, p. 364, where the author strongly disagrees with Parker's
technology-centred approach.

\textsuperscript{27} Black, "A Military Revolution?" p. 99.

\textsuperscript{28} For Eastern Europe, see Paul's already cited work, "Military Revolution in Russia," in which the
author's careful analysis proves that revolutionary changes could and did take place in Russia too. Citing
the latest works on this topic, Paul states (p.11) "Previously held notions that Russia was a backward,
Asiatic, or medieval society until the reforms of Peter the Great have been largely abandoned for a much
more complex and nuanced view." For the Ottomans, see P.H.H. Vries, "Governing Growth: A
Comparative Analysis of the Role of the State in the Rise of the West," Journal of World History 13
(2002/1), pp. 67-126. In this study the author put the Ottomans in global context when he discusses the
economic, socio-political conditions of the early modern world.

\textsuperscript{29} Ágoston, "Habsburgs and Ottomans," pp. 128-9, footnote no. 9. Ágoston convincingly points out that
Parker in his article, "Military Revolution, a Myth?" stated on page 40 that the Habsburg recruitment and
training of garrisons along the Croatian and Hungarian border was the same as that of the Spanish system in
the West, however, Parker became somewhat hesitant about this problem and observed laconically (pp. 35-
6), that in Habsburg-Ottoman border warfare, "...the main military preoccupations were not battles or
regarding the cattle and prisoners as the main military preoccupation along the Habsburg-Ottoman frontiers still does not necessarily mean that the Military Revolution did not affect this territory. The importance of taking cattle and prisoners can easily be explained by the given financial circumstances; soldiers on both sides of the conflict sometimes suffered from serious shortness of proper funding. One can also note here that sieges or open battles between the two archenemies were prohibited in the Treaty of Edirne (1568), which had provided a very fragile peace until the outbreak of the Long War. It will be demonstrated in detail below in Chapter Three, however, that during the long years of open military conflict from 1593 to 1606, siege warfare, displaying all the important features of contemporary European warfare, definitely played a dominant military role on both sides of the opposing powers.

Also, in the discussion of siege warfare and utilization of different weapons, the general situation on the Habsburg side, in terms of progress of the Military Revolution, is much more obvious than that on the Ottoman. Through their vast resources in Europe, the Habsburgs could comfortably acquire almost any military technology and technique from the new type of fortification to the employment of the latest weapons. One may

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30 Interestingly, Parker tries to prove his point with a wrong example. According to him, (ibid., p. 137), the siege of Günz [sic] in 1532, where the Ottoman army led by Sultan Süleyman I, (1520-1566) had been stopped for twenty-eight days by eight hundred defenders, "proved crucial in preventing the Ottoman army breaking through into Austria. Not surprisingly, Italian architects always found a welcome in the Habsburg borderlands." It is imperative to note here, however, that the siege of Kőszeg (Güns in German) has nothing to do with the European triumph of the *trace italienne*, because the fortress in 1532, even with contemporary Hungarian military architectural standards, was a rather minor obsolete fortified place. Only after the fall of Buda in 1541 did the Habsburgs start to take concrete steps in order to slow down the Ottoman expansion by financing the modernization of the main Hungarian fortresses.

31 Agoston argues in his article, "Habsburgs and Ottomans," p. 129, that the Habsburg led armies, fighting the Ottoman military forces in Hungary at the end of the sixteenth century, "shared the main features and characteristics of the army of Flanders, which according to Parker's view was one of the leading armies of
find more questionable, however, the Ottomans’ general position regarding the above-mentioned Military Revolution; how can they be compared with the rest of Europe?

In the following section the main emphasis is not on the technological innovations of the so-called Military Revolution or, as some scholars have suggested above, Military Evolution. The focus is rather on the examination of to what extent, if at all, one can talk about any sign of Ottoman inferiority concerning contemporary military technology at the turn of the seventeenth century. Also, the subsequent discussion will be centred on the problem of Ottoman ability, or disability, to integrate various technological innovations into their economic and socio-political milieu.  

Traditionally, amongst modern scholars there are numerous advocates of “an inexorable stagnation and decline” in early modern Ottoman Empire, though recently some historians vigorously try to deny it, pointing rightly out that the term “decline” in the case of the Ottomans presents various historical problems. Furthermore, Grant, for instance, even questions the usefulness of this term “decline”, “because it reflects more a
moral judgment passed by Europeans convinced of their superiority than an accurate assessment of Ottoman capabilities after 1571 or 1683.\textsuperscript{34}

Grant, instead of repeating some already well known scholarly phrases about the sixteenth century Ottoman Empire, uses the so-called “Krause-model” in order to locate “Ottoman capabilities on the scale of the international production hierarchy, which includes arms production, arms transfer, and technological diffusion.”\textsuperscript{35} According to this model, in the progress of diffusion and the reproduction of military technology, various countries could be divided into four different categories:

1) Technology I. Just enough skills to operate and maintain different kinds of weapons.

2) Technology II. Sufficient scientific and engineering skills to reproduce or copy basic weapons belonging to the first category.

3) Technology III. Appropriate skills through various military and economic organisations to adapt and refine existing weapons for particular battlefield conditions.

4) Technology IV. Proper economic, social and political structure to create new weaponry utilizing advanced technology.\textsuperscript{36}

To Grant it is clear that the Ottomans belonged to the category of “Technology II,” since they were obviously able “to copy and reproduce existing technologies,” but they could not “capture the underlying process of innovation or adaptation;” thus the

\textsuperscript{34} Ibid., p. 180. This statement, however, is very doubtful in the light of Douglas’ aforementioned article, “Ottoman Historiography,” where the author on pp. 53-78 analyzed a large number of contemporary Ottoman treaties, and clearly demonstrated that the theory of Ottoman decline strongly originated from the central Ottoman scribal class and not from European statesmen or writers.

\textsuperscript{35} Grant, “Rethinking the Ottoman Decline,” p. 181.

Ottomans were basically third-tier arm producers. It is also clear, based on the aforementioned model, that there was no Ottoman technological decline; the Ottomans remained in their third-tier-producer category from the fifteenth century right up to the early nineteenth century, maintaining their original military technological position.  

Furthermore, Grant makes here a very ingenious point by stating that the comparison between the Ottomans and the European first-tier producers, such as England or the Low Countries, is actually a very misleading view, since the immediate rivals of the Ottoman Empire, such as Hungary, Poland, or the medieval states in the Balkans, belonged to the third-tier category as well, while other Muslim countries, such as Egypt or Iran, were far below the Ottomans, sitting at the bottom in the four-tier category. In other words, the Ottoman Empire, regardless of the military technological capacities of the West, was still in a much better position than were its immediate neighbours, thus Istanbul could still maintain its position for centuries with relative ease “as a regionally dominant power.”

Following Grant’s argument one may also ask the following: was there any specific political or military factor which would have forced the Ottomans towards military innovation and creative thinking? Historically, their empire was simply in the right place at the right time; it is actually hard to identify a neighbouring state, which could have forced the Ottomans into a critical life-or-death type of military confrontation. Furthermore, the spectacular Ottoman conquests were often accomplished at the expense of incompetent and anarchic polities in the Balkans and Central Europe. In fact, the

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37 For a quite different opinion, see Inalcik, Economic and Social History, p.22, where the author considers the Treaty of Zsitvatorok, as “the beginning of decline.” According to him, the Ottomans, representing “a traditional Asiatic culture,” were “doomed” even with borrowed Western military technology.

38 Grant, “Rethinking the Ottoman Decline,” pp. 180-1. See also a similar note from Krause's work, Arms And The State, p. 52. “[For the Ottomans]...the failure to rise above third-tier status was irrelevant in the establishment of regional dominance, for there were always states less able to adapt which were passive consumers of weapons.”
integrity of the Ottoman Empire was only once seriously challenged throughout the whole sixteenth century. During the first decade of that century, the so-called Shi‘ite Kızılbaş aggressive, militant socio-political movement in Anatolia shook Ottoman rule at its very foundation. After the bloody but victorious battle at Chaldiran (1514), however, future military confrontations with the Ottomans in the same century were very far from posing any real danger to the unity of the empire.

While it seems quite obvious from his article that Grant wholeheartedly accepts Krause’s model and quotes from Krauze’s work in several cases, he arrives surprisingly at a completely different, and probably incorrect conclusion. Krause highlighted a few times in his book that military technology, which includes both “the science of making weapons and the art of producing them,” should be carefully inspected in a given economic, and socio-political context. For instance, one may correctly argue here that the policy of simple borrowing of various advanced European technology did not necessarily mean an immediate success for the importing state. Different types of “modern” weapons usually could be acquired without great difficulties in late medieval or early modern times; but an appropriate technique to operate those weapons was something else, which could not be easily adopted at once.39

Culturally based tactical developments influenced by strong traditional ethics, for instance, were changing at a very slow rate. Consequently, new “advanced” weapons can dramatically change the existing warfare only if “the values and structures of society

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39 According to Krause, Arms And The State, p. 52, “The Europeans, it turned out, had little to fear from the simple diffusion of technology, as what mattered ultimately was not the technology itself, but the uses to which it was put. [italics added] All third-tier states had difficulty in using new weapons, which required new military skills and forms of organisation and were ill adapted to other socio-cultural milieux...”
enhance its use. Yet, in his otherwise very thought provoking article, Grant quite unexpectedly advanced again the old faulty historical cliché from the field of technological determinism, according to which the Ottoman preference for the production of heavy, monstrous siege guns made them very vulnerable against the European armies in the seventeenth century.

Despite the strong Ottoman domestic cannon production, which was formidable even in the eighteenth century, “the Ottomans’ penchant for big, heavy guns placed them at a disadvantage in mobile field battles against European forces,” who were equipped with smaller fast-firing cannons. It is clearly not an accident that Parker, the champion of the technology-driven history writing, has also pointed out in his influential work that the consistent Ottoman production of huge cannons put them in a disadvantageous military position.

Although the utilization of assorted incendiary weapons will be the subject of a later discussion in Chapter Four, one may note here that any alleged Ottoman decline in their

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40 Gerald M. Berg, “The Sacred Musket: Tactics, Technology, and Power in Eighteenth Century Madagascar,” *Comparative Studies in Society and History* 27 (1985/2), p. 262. As for the Ottomans, it is without question that the utilization of modern military technology, i.e. cannons and various firearms, did not have any considerable effects on their original battlefield tactics dating from medieval times. During numerous clashes and skirmishes, the uncoordinated and less-controlled manoeuvres of the Ottoman troops made them increasingly vulnerable in front of the well-organized heavily armed contingents of their Christian adversaries. In Chapter Four, there is a discussion demonstrating that many Ottoman defeats during the Long War originated from tactical inferiority rather than from any technological backwardness in their military hardware.

41 Grant, “Rethinking the Ottoman Decline,” p. 192. Before this statement, on the previous page, the author argued that the various methods and techniques, i.e. the production and utilization of heavy guns, “that had served the Ottomans so well in the sixteenth century began to be liabilities in the seventeenth century.” Unfortunately, the author did not provide any specific historical example that in which previous military conflicts the alleged large guns “served the Ottomans so well.”

42 Parker, *The Military Revolution: Military Innovation and the Rise of the West*, p. 126. According to the author, the Ottomans, “in three important respects” practiced the early modern warfare in an imperfect way. “First, and best known, the Ottoman [sic] decided to build their artillery big, ...” [italics added] Stone, a strong opponent of the technocentric historical approach, rightly points out in his article, “Technology, Society,” p. 365, that, despite of numerous criticism, military historians still rather reluctant to fully accept the idea that technology “is socially shaped.” “On the contrary, technological determinism still has a habit of popping up in their work from time to time.”
general military might certainly cannot be attributed to a single technological factor, such as the Ottoman preference for the deployment of huge, clumsy siege guns. It is imperative to point out that Ágoston's fundamental scholarly research in the early 1990s on Ottoman ordnance, for instance, made it completely clear that the early modern Ottoman army, contrary to previous popular belief, did not utilize heavier guns in various military engagements than their European adversaries did in the same historical period. Moreover, one must also note here that one particular Ottoman document, which comes down to us from the end of the seventeenth century, shows surprisingly that the Europeans, in fact, produced more heavy guns than the Ottomans did.\footnote{For a convincing scholarly argument against the old, but still somehow popular historical stereotype of Ottoman monster guns, one should consult Ágoston's thorough article, "Ottoman Artillery and European Military Technology in the Fifteenth and Seventeenth Centuries," \textit{Acta Orientalia Academiae Scientiarum Hungaricae}, XLVII (1994), pp. 15-48. The author cites (p. 45) a very valuable Ottoman inventory \textit{(Maliyeden Mâdever Deftler Tesni\ıf)}, No. 15836), which was taken on September 24, 1691, at Belgrade, almost a year after its Ottoman reoccupation from the Habsburgs led by Grand Vizier Mustafa Pasha. This important historical document indicates which gun was an Ottoman or infidel-made weapon. According to this contemporary Ottoman document, not less than seventy-five percent of the Ottoman cannons were actually small guns and only sixteen percent of the guns could be considered as larger cannons. It provides also very interesting information on the Christian side, where these ratios, between light guns and heavy artillery pieces, were eleven percent, and eighty percent, respectively.}{43}

In the light of other archival sources Ágoston rightfully emphasizes the historical fact that the Ottomans, even at the end of the seventeenth century, manufactured all kinds of cannons, and that, furthermore, their ordnance was rather dominated "by small and medium sized guns."\footnote{Ibid., p. 46. Ágoston, in his more recent article, "Habsburgs and Ottomans," p. 138, underlined this statement again.}{44} Murphy has also emphasized the fact that the \textit{sahi zarbzen}, the most common type of Ottoman field cannon, weighed only one \textit{kantar} (roughly 56 kilograms), "which meant that a pair of barrels could be loaded on a packhorse and easily carried in whatever direction the army might decide to take."\footnote{Murphy, \textit{Ottoman warfare}, p. 110. The author adds on the same page that among the Ottomans, "Strategic thinkers... were acutely aware that the trading of diminished firepower for greater manoeuvrability was in most situations a wholly advantageous exchange." Heavy, large calibre guns were
here that the four extremely huge Ottoman cannon-monsters that survived the last five centuries were exclusively made by the Ottomans in the second half of the fifteenth century and that they have been displayed at various points in modern Istanbul.46

One should also keep in mind that the Ottoman Empire, just like previous dominant state formations around the Middle East and eastern Mediterranean region, was not an isolated, monolithic society; thus foreign inventions, including military ones, could, and actually did, spread relatively freely back and forth across the Middle East and the European continent. The fact that Europe had more potential for the realization of various inventions and new technologies did not mean immediate danger to the Ottomans. To a certain extent, the real problem the Ottomans faced was the task of adopting new technologies in an effective way. Needless to say, this progress varied from state to state depending on certain conditions such as each country’s culture and receptivity to novelty. Inventions usually do not just get adopted once and forever; they have to be constantly practiced and transmitted, or advantageous techniques may be forgotten.47

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46 Salim Aydüz, “Mehmed The Conqueror and Fire-arm Technology,” in: Kemal Çiçek, (Editor-in-chief), The Great Ottoman-Turkish Civilization. Vol. III, (Ankara: Yenı Türkiye, 2000), p. 748. According to Aydüz, all four gigantic Ottoman cannons, one of them weighting as much as fifteen tons, were cast from bronze and they have great similarities to each other. Although these guns have no dates or any artistic peculiarities on their surface, it is clear from their structural features that “they are belong [sic] to the time of Mehmed The Conqueror.” They were hastily cast, which indicates that they were produced during one of the sultan’s campaigns. One may also note that it is obvious that the discontinuation in production of these monster guns clearly indicates that the Ottomans had early realized the disadvantages of the large cannons.

47 Cipolla, “Diffusion of Innovations,” p. 46, underlines this statement by saying, “... in order to be effective, an innovation has not only to be conceived but it has also to be put into practice and to be propagated.” One may note here, for instance, the case of the fierce mounted tribal warriors of the Turco-Persian kizilbash organization, which during its formative historical period, the early sixteenth century, did employ a few cannons during the siege of numerous Eastern Anatolian towns, although it did not mean whatsoever that they would have given up or even reformed their deeply rooted military conventions. On this particular problem see Rudi Matthees's very interesting study, “Unwalled cities and Restless Nomads: Firearms and Artillery in Safavid Iran,” in: Charles Melville (ed.), Safavid Persia. The History and Politics of an Islamic Society. (London- New York: I.B. Tauris & Ltd Publishers, 1996), p. 391. Incendiary weapons were also fairly known even to nomadic tribal societies, but it did not mean any noticeable
The fundamental technologies necessary for cannon-founding or gunpowder-making, for instance, were widely available from China through the Muslim lands to Europe, yet “the explanation of why Europeans were first to apply these existing technologies to warfare in a systematic and successful fashion is rooted in the social and economic environment, and is not dependent upon radical technological innovations.” In his aforementioned article Cipolla has also distinctively underlined the importance of a responsive social environment in the adoption of any new instruments, tools or machines. There must be a certain flexibility in the mentality of a given society in order to alter numerous traditionally strong “socio-cultural beliefs and practices” and to remodel the prevailing socio-political structures.

As discussed above, in early modern Europe the emerging standing army employing the military potential of incendiary weapons, and especially the growth in army size, helped the central bureaucratization of the early modern state and ultimately, the birth of

progress in their warfare, horsemen certainly clung to their horses and traditional weapons. Matthee later adds, (p. 393), that Safavid mounted warriors were acquainted with various handguns too, but they were rather reluctant to adopt and practise the arquebus or heavy musket. The clumsy firearms proved to be too cumbersome to handle, depriving the cavalry of its shock effect. Therefore, it is quite understandable that “from the perspective of any horseman looking for an effective weapon they must have seemed a regressive form of technology.”

48 Krause, Arms And The State, p. 20.
49 Cipolla, “Diffusion of Innovations,” p. 51. According to Cipolla, the problem of “what makes an environment responsive and what does not is one of the most formidable problems posed for the historian,” [italics added] However, it is clear for the author that any new technology transplanted into “an alien environment” will not bring noticeable positive changes. J. R. Hale, one of the prominent scholars on Renaissance Europe, emphasizes that in Europe advanced technology was accompanied by “a dynamic morale,” which greatly helped the spectacular European expansion. See his Renaissance Exploration. An authoritative survey of the great age of European discovery. (New York- London: W. W. Norton & Company, 1968), p. 25. Stone, “Technology, Society,” p. 364, also underlines the importance of the “social dimension” of various technological innovations.
50 Cipolla, “Diffusion of Innovations,” p. 51. On pp. 51-2, the author quotes a very characteristic story of a certain Dutchman, Nicholaus Witsen, who wrote his treatise on Dutch shipping in 1671. According to Witsen, for instance, a foreigner can learn practically everything by experience about shipping in Holland, and “still that would not help him, unless he should find a way to inculcate in his workmen the thrifty and neat disposition of the Hollander which is impossible.” In other words, without eager and creative minds, even the most useful technological innovations will not, in the long run, stimulate significant development in any country.
the absolute monarchy; whereas in the case of the Ottoman Empire in a distinctively different economic and socio-political environment, one observes an opposite historical trend. The Ottoman standing army (the so-called kapikulu troops, both cavalry and infantry battalions), the high level of central bureaucratization, and a strong absolutist state at the pinnacle of which stood the sultan with his unquestioned authority, had already existed even before the 1500s.

At its apogee, the centralized and highly bureaucratic Ottoman state could strictly control a highly “variegated social order” by the help of the highly effective bureaucracy, along with the disciplined, well organized army, which had both “a quasi-feudal (timarlı) fighting class and a paid, standing army.” Nevertheless, by the end of the sixteenth century, the first cracks appeared on the body of the huge Ottoman state administration

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51 Although the theory that firearms helped the development of the centralized states in Western Europe gained wide popularity in modern historiography, DeVries, “Gunpowder Weaponry,” pp. 129-130, argues convincingly that this pattern is definitely true for Burgundy or France, where once the gunpowder weaponry was “a locally owned and controlled technology” and later became a state-run and “state-restricted technology,” but that for England, for instance, one cannot find any trace of this model. While English kings used everything possible to control their holdings in France with gunpowder weapons, at home they did not use them against their own subjects during the War of the Roses (1455-85), thus both central control and technological expertise were lost to local political entities. DeVries’ conclusion on this matter is on p. 145. One should mention here Habsburg-Austria as well, where, despite the utilization of the latest weapons, the “absolutism was still in its infancy during the late sixteenth century, largely because of the heterogeneity of their dominions and fiscal dependence on their estates.” Karin J. MacHardy, “The Rise of Absolutism and Noble Rebellion in Early Modern Habsburg Austria, 1570 to 1620,” Comparative Studies In Society And History 34 (1992/3), p. 414. MacHardy adds on the same page that in this historical period the estates were still powerful enough to challenge any centralizing efforts made by the crown: “the estates’ power to grant and collect taxes enabled the nobility to slow down administrative centralization and to prevent the introduction of a standing army until the eighteenth century.” On the estates versus crown rivalry she quotes from Friedlich Walter’s very detailed book, Österreichische Verfassung- und Verwaltungsgeschichte von 1500-1955 (Wien, H. Böhlaus Nachf., 1972), pp. 32-4. The special value of Karin J. MacHardy’s article is the fact that the author utilizes a very wide range of contemporary Austrian scholarly literature in the depiction of early modern Habsburg rule.

52 Guilmartin aptly notes in his article, “The Military Revolution: Origins and First Test Abroad,” p. 303 that it is not a simple task to fit the Ottoman Turks into the structure of the Military Revolution; however, in the early adoption of different kinds of firearms the Ottomans paralleled many European states, while in the creation of an effective and “well-articulated” bureaucracy, they actually left early modern Europe behind.

53 Avigdor Levy, “Military Reform and the Problem of Centralization in the Ottoman Empire in the Eighteenth Century,” Middle Eastern Studies, 18 (1982), pp. 227-228. This interesting article, however, deals in great detail with various difficulties the Ottomans faced in their later effort to modernize their social, military, and political structure.
and its main pillar, the army. *De jure*, the sultans and their establishment still had complete control over the whole Ottoman society. *De facto*, however, the state corruption and the declining discipline in the army seriously challenged the already weakened central authority. This political situation can possibly explain why the Ottomans, in general, were able only to acquire or copy several advanced European military technologies in the late sixteenth century without changing their fundamental socio-political structure. The weakening central authority was not able to override certain cultural and institutional principles; and this proved to be a warning sign of deepening political trouble at the end of the sixteenth century.\(^{54}\) One can rightfully argue that to a certain extent military tactics or the various techniques of utilizing either old or new weapons can be considered "as the cultural component of technology."\(^{55}\)

This "cultural component of technology" created a fundamental dilemma for the Ottomans, as they seem to have not been able to grasp the historical importance of the changing environment in contemporary warfare. One may also note here the growing financial difficulties with the *timar* system and the resulting pressure on its beneficiaries, the *sipahis*. Unlike in most European states, in the Ottoman Empire the diminishing role

\(^{54}\) Guilmartin states in his study, "The Military Revolution: Origins and First Test Abroad," p. 323, that the Ottoman difficulties "were surely woven deeply into the social fabric." Thus, he believes that mere technological problems themselves, like weaponry, probably did not play a crucial role in early modern times in the European-Ottoman conflict. It is interesting to note, however, that, for some unexplained reason, Guilmartin considers the Ottomans as very "receptive to military innovations" only from the fall of Constantinople (1453) to the first unsuccessful siege of Vienna (1529). Although the author does not directly state it, his statement suggests that the Ottomans already lost their original impetus during the Suleyman era.

\(^{55}\) Berg, "The Sacred Musket," p. 264. The author also asserts quite confidently, "Muskets were not inherently more deadly than spears; all depended on the organization of their use." In other words, the main emphasis should not be put on guns but rather on different types of social organization that shaped the use of various weapons. In his study, for instance, Berg clearly demonstrated that a certain Merina tribe from the isolated highland interior took over the whole island of Madagascar in the eighteenth century, due to their flexible way of integrating firearms, and military technology into their social organization. Other tribes and ethnic groups of Madagascar, however, even those who were living on the coastline and had regular direct contacts with European arms merchants, bought and utilized only the various types of European firearms without adjusting their existing socio-political structures to a new warfare.
of medieval cavalry was too slowly realized, and, thus the necessary socio-political and institutional changes were delayed.\footnote{On this topic one should read the argument of Kemal H. Karpat, "The Stages Of Ottoman History. A Structural Comparative Approach," in: Kemal H. Karpat (ed.), \textit{The Ottoman State and its Place in World History}. (Leiden: E. J. Brill, 1974), p. 89. Karpat is reasonably correct in saying that the disintegration of the \textit{timar} system "was an inevitable step toward the evolution of other forms of social and political organization." [italics added] This evolution was not, however, carried on by the Ottoman establishment missing the chance to keep up with the leading European states. Both the \textit{timar} system and the \textit{sipahis} as a military organization outlived their usefulness; they had to be reformed in order to follow the prevailing military patterns.}

In Europe, for instance, the emergence of the pike-wielding infantry troops had already diminished the military importance of the once mighty knight-based feudal cavalry in the fifteenth century. After the introduction of pistols to replace the lance as the main cavalry weapon, the obsolete heavy cavalry practically ceased to exist as a notable military force.\footnote{Bert S. Hall, \textit{Weapons and Warfare in Renaissance Europe. Gunpowder, Technology, and Tactics}. (Baltimore: The John Hopkins University Press, 1997), p. 213.} The knights did not disappear from the battlefields, rather they went through a process of transformation; the former heroic warriors, who had been subjects of countless contemporary romantic novels, became skilled military officers throughout the continent.

The Ottoman state with its military might still remained a very formidable political factor to be reckoned with in European politics, though one can say that the late sixteenth century and the early seventeenth century was the historical period when the Ottomans chose to follow what ultimately proved to be an "unsuccessful trajectory."\footnote{According to Guilmarth, "The Military revolution: Origins and First Test Abroad," p. 303, Ottoman failure to match various innovations is "apparent only with the wisdom of hindsight;" it was not clear until the end of the seventeenth century, "if even then," that the Ottoman state was on the wrong track of development. Once again, if one refers here to Howard's article, it can be said that, in the light of contemporary Ottoman treaties, this statement is rather questionable.} Any discussion about the seeming Ottoman unawareness of the issue of socio-political reforms is beyond the ambit of this chapter. While Karpat hints at certain economic difficulties as an important factor, it remains questionable as to what would have happened to the
Ottoman socio-political and military structures had there not been serious economic difficulties.\(^59\) It can be said, however, that the Ottoman political leadership probably realized the obsolete nature of the sipahi military institution and timar system as its supporting base, but when this urgent socio-political problem required firm actions the state establishment in Istanbul turned out to be quite hesitant.

What kind of reforms could have been implemented remains an open question,\(^60\) though there is a scholarly opinion suggesting that the existing timars should have been converted “from the cavalry service to service with firearms,” or at least, the various provincial ayans should have been ordered to provide a fixed number of musketeers for the service of the central government.\(^61\)

One may argue, and it will certainly be more obvious in the following chapters, that contrary to popular belief, the Ottomans did not suffer from any kind of serious technological backwardness compared with other contemporary early modern European states at the end of the sixteenth century. Generally, the Ottoman Empire was capable of procuring and producing domestically quantities and qualities of military supplies, raw materials, and various military hardware sufficient for its wars. It is imperative to point

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\(^{59}\) Karpat, “The Stages Of Ottoman History,” p. 89. The Turkish scholar states, “somehow, it was absolutely necessary to increase the volume of agricultural production, the chief tax base.” It is a well-known historical fact, however, that agricultural production did not increase at all at the end of the sixteenth century.

\(^{60}\) It is important to mention here that the employment of the light raiding cavalry forces (aknclar) in battle engagements had already been “curtailed due to the spread of changes in military tactics introduced during the sixteenth century.” Rhoades Murphy, The Functioning of the Ottoman Army under Murad IV (1623-1639/1032-1049): Key to the Understanding of the Relationship between Center and Periphery in Seventeenth-Century Turkey, (Unpublished Ph. D. Dissertation. University of Chicago, 1979), vol. I, p. 9. The sudden dismissal of a large number of sipahis, after the battle of Mezokeresztes in 1596, also was an indication that some changes were inevitable. Karpat, “The Stages Of Ottoman History,” p. 90, raises the question, “How could the government summarily dismiss such a large number of people holding key positions in the administration of the timars unless the system had outlived its usefulness and the government chose to rid itself of a rather troublesome group?”

out, however, that Ottoman stagnation, or lack of progress in contemporary warfare, was rather the outcome of numerous clusters of interrelated factors. Economically, and in the modernization of socio-political institutions, for instance, the Ottoman political élite failed to keep up with the fast-changing infidel powers, which eventually resulted in an increasing gap in their military might.

The Ottomans, as third-tier military producers, could only continuously import and imitate various foreign weapons and other military equipment, relying heavily on "infidel technologies," which, with the passage of time, inevitably placed them behind their European opponents. In other words, because of the lack of important technological innovations, the Ottoman economy in early modern times could sustain a rather high level of weapons manufacture, but the technology employed had previously been developed elsewhere. In the long run, this practice proved eventually to be detrimental for the Ottoman military might. Quick imitation of new technologies was very rarely, if ever, an adequate instrument to introduce significant socio-political or cultural changes necessary to achieve full progress; without the proper human environment, even

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62 Bernard Lewis makes a good point by stating that, in general, the Ottoman sultans were powerful enough, at least in the classical period, to employ various European military experts (so-called taife-i efrenciyan) to serve their technological needs regardless of the fact that the religious orthodoxy had strongly disapproved of these practices. However, conservative social forces were "strong enough to prevent the emergence of a vigorous indigenous technology" [italics added]. See his, The Muslim Discovery of Europe. (New York-London: W. W. Norton & Company, 1982), p. 225. The lack of technological innovations on the Ottoman side has also been emphasized by Chase, Firearms, p. 97. Although in a historical discussion there is no place for any kind of speculation, one is nevertheless tempted to raise the intriguing theoretical question: what kind of trajectory would the Ottomans have taken if the fiercely independent minded and strong handed ruler Mehmed II had been the Ottoman sultan instead of Murad III (1574-95) or Mehmed III (1595-1603)?

63 At this point, it is worth mentioning the case of early modern Japan. The gunpowder-based weapons emerged much later in Japan (1543) than they did in the Ottoman Empire. The Japanese, utilizing their great manufacturing potential, became keen users, and mass producers of both cannons and hand-held weapons. By the late sixteenth century, gunpowder-based guns became more common weapons in Japan than in any other region of the contemporary world. The Japanese, however, unlike the late sixteenth century Ottomans, not only manufactured guns in large quantity, but also improved, sometimes quite considerably, the quality of those firearms. See Noel Perrin, Giving up the Gun, Japan's Reversion to the Sword, 1543-1879. (Boston: David R. Godine, 1979), p. 25.
revolutionary technology could not initiate any great alteration in the existing state order.\textsuperscript{64}

As a brief conclusion, it may be repeated here that neither the spectacular ascendancy of the West nor the Ottoman lack of progress could be explained by a single factor. In late medieval or early modern historical times mere technological advantages, including military superiority, were not strong enough factors alone to justify the stunning rise of some European powers. Therefore, the very complex and rather controversial European historical phenomenon, called the Military Revolution cannot simply be narrowed down to certain technological or tactical issues.\textsuperscript{65} Revolutionary innovations were all part of a wider process of military, commercial, financial and cultural change. Why such changes happened and what facilitated them are questions beyond the scope of the present discussion; however, it is obvious that for the right answer one must explore numerous innovations in their various economic and social contexts.\textsuperscript{66}

\textsuperscript{64} Thomas Arnold’s interesting thoughts can be read in his magnificently illustrated recent work, \textit{Renaissance at War}, (London: Cassell & Co, 2001), p. 18. It is clear that sometimes even highly organized sophisticated societies, like that of the Ottoman Empire, failed “to make the choices that we find obvious.” The author aptly notes, “More important – more powerful – than any new item of technology is the place of that technology in the minds of its users. [italics added] People, not things, make revolutions.”

\textsuperscript{65} According to Thompson, “Military Superiority Thesis,” p. 148, “The main problem with the military superiority thesis is that its proponents argue that an edge in coercive technology and organization was the most important factor.” Earlier in his work (p. 144) the author correctly noted that the emergence of an European dominated “global political economy” fuelled fast development in Europe. This idea is endorsed by Inaleck, \textit{Economic and Social History}, p. 53, where he states, “...it was European market expansion and competition which stimulated new technologies producing cheaper and better quality goods.”

\textsuperscript{66} Levy, “Military Reform,” p. 230, has brought up a good example to point out that the Ottomans were apparently reluctant “to tamper with the institutional structure of their military.” The rejection of the deployment of pikes in the seventeenth century and bayonets in the eighteen century, despite their devastating effects on the Ottoman army in open field battles, demonstrated the Ottoman reluctance to carry out the necessary technological improvements. Both weapons could have been replicated by Muslim craftsmen without noticeable difficulties, yet the Ottomans did not produce those weapons, due to their strong rejection by the army. The reason for this was the simple fact that these weapons also required tactical changes, such as deployment in close infantry squares and oblongs. This change in tactics, however, would have also meant eventual change in the military structure. Thus the Ottoman soldiers refused to utilize these weapons as infidel arms, “and their objection to institutional change was expressed in cultural-religious terms.”
Nonetheless, there is still a vigorous scholarly argument about the military importance of different technological innovations in various historical eras. Opponents of this argument emphasize the significance of the social and economic environment, in which any technological innovation is a "product of a particular concatenation of social and economic forces." Although as indicated at the beginning of this chapter the effect and primary causes of the Military Revolution are still very vehemently discussed by numerous historians, there seems to be a new consensus among scholars that the rise of early modern Europe was greatly determined by its increasingly dominant economic and financial power.

The trend of commercialization, that is, the growing importance of global commercial networks, was undeniably dominated by some European states. Initially, this domination did not pose an immediate danger for the existence of the Ottoman Empire, but later on, because of the expanding economies of the West, the Ottoman domestic market, through various trade treaties and capitulations (imtiyazlar), became more and more controlled by European commercial interests. In the long run, the expanded foreign commercial activities (such as those of the French, Dutch and English) proved to be rather deleterious to the Ottoman indigenous merchants and also prevented the establishment of a strong, effective and, more importantly, domestic industrial base.  

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67 A few different scholarly opinions regarding this historical argument are quoted by Krause in his book, *Arms And The State*, p. 20.
68 That point is strongly emphasized by Inalcik, *Economic and Social History*, p. 50. According to him, the Ottomans never really had a clear economic doctrine similar to the European mercantilism, thus import was encouraged without providing protection to domestic industrial production. Even the traditionally important industries, like the silk manufacturing in Bursa, were let alone against foreign products. This policy also considered capitulations and trade privileges as beneficial economic factors, thus these privileges were "gladly granted to the European mercantilist nations as serving the empire's interest." *Ibid.*, pp. 50-1.
It should be noted here, for instance, that Ottoman textile exports had earlier consisted largely of manufactured products, such as silk clothes and various cotton goods, but by the end of the sixteenth century this trade was reversed, leaving the Ottomans importers of European manufactured textiles and exporters of various raw materials. This policy slowly but firmly undermined the empire’s domestic industrial capacity.

The rapidly expanding global arms transfer and production system as well helped the commercialization of warfare in which mercenaries, with multinational backgrounds and various types of weapons, became widely available “to any ruler with sufficient financial resources, a process that took root in Italy in the fourteenth century.” In the fast changing world of money economy, regiments and other military contingents became business properties that could freely be sold and bought, or even inherited. However, frequent financial difficulties, a particularly obvious problem at the Habsburg court, put a serious limitation on expanding armies.

The spreading networks of the private military entrepreneurs in different parts of early modern Europe helped various rulers in recruitment of their troops, and in return, both the entrepreneurs and their recruited soldiers were partially paid by those states.

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69 Ibid., p. 50.
70 Ibid. The Ottoman “pseudo-mercantilism,” (Inalcı uses here van Klaveren’s term), did not really care about the Western commercial competition, or about the domestic industrial decline. Van Klaveren’s original thoughts can be found his, “Fiskalismus, Merkantilismus, Korruption. Drei Aspekte der Finanz- und Wirtschaftspolitik,” Vierteljahrsschrift für Sozial- und Wirtschaftsgeschichte 47 (1960).
71 Krause, Arms And The State, p. 36. The author adds on the same page that the eventual commercialization of war also helped to maintain “the commercialization of weapons manufacture and supply.” The author goes on by saying that “the qualitative increase in trade... permitted a wide exchange of goods across the continent and around the globe. This growth of a market economy stimulated arms production, as some centres were able to generate the surplus production without which no large-scale arms trade could have emerged.” The French scholar Corvisier has also strongly emphasized the fact that after the sixteenth century, armies of considerable size were available only for those European monarchs who had strong financial resources. Armées et sociétés, p. 212
72 Ibid., p. 55. In the French scholar’s own words, “En effet, régiments et companies étaient devenus de véritables biens dont la propriété, à défaut du commandement, était transmissible par héritage, cessible par vente, cumulable.”
Due to the irregular payments during the Long War, their significant source of revenue, however, still came from plundering of the surrounding countryside and forced contributions that had, as one can see in the subsequent chapters, particularly on the Habsburg side during the Long War, a devastating economic effect on the local population.

b) The Antecedents of the Long War.

There had been a very fragile peace accord between the Ottomans and the Habsburgs before the outbreak of open hostilities in 1593. The Treaty of Edirne was originally signed after lengthy negotiations on February 17, 1568, and even though it was renewed at regular intervals in 1574, in 1583, and in 1590, the agreement did not end the long series of minor military undertakings against each other’s territories, where, to the great discomfort of the local population, these military actions became everyday occurrences. Numerous scholars tend to call this historical period from 1568 to 1593, the era of Kleinkrieg, in which small scale raids, counterraids, kidnappings, and random skirmishes did not significantly alter the existing ill defined frontlines, but rather represented a constant bone of contention between the two confronting military powers. The period of Kleinkrieg had practically turned a large part of late medieval Hungary into a buffer

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74 According to Géza Pálffy, one cannot simply speak of any concrete borderline between the two empires in the late sixteenth century. See his very informative work, A Császár város védelmében. A Győri Főkapitányváros Története 1526-1598. [For the Protection of the Imperial City. The History of the Chief Captaincy of Györ 1526-1598.] (Győr: Győr-Moson-Sopron Megye Győri Levéltárának Kiadványa, 1999), p. 158.

75 As mentioned earlier in this chapter, this historical period was characterized by Parker as a small-scale war, where the main military preoccupation was to seize “cattle and prisoners.” Thus it was not an appropriate historical epoch to be scrutinized for the various effects of the Military Revolution in Central Europe.
zone for both empires. Prolonged defence of a long frontier line, or of extended frontier region, to be more exact, created a tremendous cost in human lives and financial resources as well. Because of the constant raiding activities on both sides, the mutual sale and repurchase of prisoners became one of the most flourishing businesses. Strictly speaking, the common village life right beside the frontier line was not too much different from that of a “civilian hinterland.” The mutual harassing of each other’s territories was a strategy which clearly resulted in the obvious economic dissipation of the surrounding area as the frontier regions incurred substantial damage, subject as they were to regular devastation. For the Habsburgs the most important political priority was to keep the Austrian Hereditary Provinces and Bohemia protected from Ottoman incursions. The opposing powers seem to have regarded the existing situation as an armistice rather than a genuine peace. Through twenty-five uneasy years the official peace was, however, formally maintained, because both sides in this conflict, for different political reasons, did not have “the will and the strength” necessary for the initiation of a new war.

According to Finkel, in the preservation of the decades long peace an important role was played by the Habsburg policy makers, who, “in the name of the reclusive Rudolf II, carefully maintained diplomatic relations with the Porte by delivering the annual

77 Caroline Finkel, The Administration of Warfare: the Military Campaigns in Hungary, 1593-1606. (Wien: WVNO, 1988), p. 8. On the period of Kleinkrieg, see also Gustav Bayerle’s preface in his work, Ottoman Diplomacy In Hungary. Letters from the Pashas of Buda 1590-1593. (Bloomington: Indiana University, 1972), pp. 4-5. Understandably, the peace treaty strictly forbade sieges and major military campaigns; small scale military ventures, however, became an organic part of frontier life. Despite the countless vehement mutual accusations and protests, both opposing sides did not make any serious effort to curb their pillaging troops. In one of the letters written by Sinan Pasha to Archduke Matthias, for instance, while the pasha bitterly complained about the Christian marauding raid, easily justified the Ottoman attack on Szent Márton (Samarin) by saying that it is impossible to avoid minor clashes. Ibid., document no. 41, dated May 12, 1591, pp. 86-9.
tribute. This statement, however, can hardly be supported by contemporary documentary sources; moreover, it is a quite obvious historical fact apparent in the correspondence of the pashas of Buda that the Habsburg rulers never really rushed to pay their annual tribute to the Ottoman sultans during the long period of peace. Because of the tremendous pressure on the beylerbeyis from Istanbul to make the Habsburgs pay, the pashas of Buda were usually in a quite vulnerable political position, and for that reason they constantly complained to Vienna that the annual payment was in arrears. Their tense letters suggest that a couple of times the two opposing imperial powers actually were on the brink of new war because of the very long delays of the tribute payment.

This historical correspondence between the two conflicting military powers, which has still not fully been explored in secondary literature, sheds a very interesting light on the general military and political milieu, which existed along the frontier line in the late sixteenth century. One cannot find a wide variety of topics in this diplomatic correspondence; frequent complaints about the delayed Habsburg tribute payment,

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79 A great number of these letters, written by the pashas exclusively in Hungarian language, survived the following centuries and were published by S. Takáts- F. Eckhard- Gy. Szekfű, (eds.), A Budai Basáék Magyar Nyelvű Levelezése I. 1553-1589. [The Hungarian Correspondence of the Pashas of Buda 1553-1589] (Budapest: Magyar Tudományos Akadémia, 1915), pp. 1-518. More than half a century later Gustav Bayerle published the continuation of these important Ottoman documentary sources as Ottoman Diplomacy In Hungary, which is the edition of the correspondence of the pashas of Buda between 1590-93 (pp. 19-192). Bayerle underlines the historical fact (p.8) that the text of the pashas’ letters to leading Habsburg political figures are “rather repetitious;” more than half of them deal with the problem of delayed payment. The pashas used a great variety of diplomatic tools: they warned or sometimes openly threatened the Habsburgs, while other times they simply begged, or promised everything for the tribute. The author adds on the next page that in four years the two opposing powers were “brought to the brink of war three times” because of the delayed delivery of the Habsburg tribute. Bayerle also notes that the delay of the tribute payments “was expertly used by the Habsburgs as a diplomatic tool. Next to military retaliation this was almost their sole weapon against the pasha of Buda…”

80 From the dozens of Ottoman complaints regarding the delayed tribute, one may randomly pick up a few examples from the collection published by Takáts- Eckhard and Szekfű in their work, A Budai Basáék. In document no. 116, from September 23, 1576 (pp. 123-4), Sokollu Mustafa Pasha wrote to Archduke Carl (d. 1590) expressing very politely his anxiety over the Habsburg reluctance to send the payment. In document no. 118, dated October 3, 1576, (pp.126-7), Mustafa Pasha repeated his request warning the archduke that the recurring Turkish raids were justifiable military acts in order to press for the delayed
along with the usual disputes over marauding activities, seizure of certain men and
different goods etc., was the exclusive content of those letters. Because of the great
distances and difficult road conditions, the overwhelming majority of minor military
incidents usually were not directly reported to either capital. Instead, both opposing
powers utilized diplomatic channels on a regular basis between Vienna and Buda in order
to relieve political tensions. After analyzing the correspondence of the pashas of Buda,
it is quite clear, however, that the actual political conditions left little doubt about the
outbreak of a future war. The general political and military situation in early modern
Hungary “was inexorably developing into a full scale conflict” regardless of what
political goals were pursued by different court circles.

Because of the unstable military situation in the frontier regions, neither opponent
was able to gain complete control over its Hungarian territories; thus, during the long
peace years, the less-protected local population on both sides of the frontier region had
been suffering from this devastating political condition paying regular contributions to
both military powers. The fact that both opposing sides, year after year, claimed and

tribute. The much more dynamic and bellicose Sinan Pasha on May 28, 1587, openly threatened Archduke
Ernst (d. 1595) with a new war if he did not have the willingness to send their tribute. Ibid., document no.
344, (pp. 381-2). The possibility of an open war, however, does not seem to have frightened the Habsburg
court circles, because the process of tribute transfer did not get faster at all in the following years.
Furthermore, one can read in Ferhad Pasha’s letter dated January 8, 1590, that the annual Habsburg tribute
was actually withheld for two years by the imperial government in Vienna. The letter is in Bayerle’s work,
Ottoman Diplomacy In Hungary, document no. 1, pp. 19-20.

81 Ibid., p. 5.
82 Ibid., p. 10. Bayerle adds on the next page that the Ottomans could not integrate the previously occupied
Hungarian territories into their empire, since “the entire Buda province remained a permanent frontier
zone.” One should also note that, in the light of the pashas’ correspondence, Rhoads Murphy’s statement
that between the two enemies “a condition of open war... was not anticipated,” is not very convincing,
since in his next sentence he admits that the actual war had already started in 1592, “as the private war of
Hasan Pasha of Bosnia.” Nonetheless, he correctly points out that the open war was not “very
enthusiastically supported by wider court circles on either side of the conflict.” Ottoman warfare, p. 7.
Finkel, on the other hand, accurately emphasizes in her work the prevailing role of Grand Vizier Koca
Sinan Pasha’s personal ambition in the renewal of the open war conflict, stating that he “was a dominant
voice in the shaping of policy at this time.” The Administration of Warfare, p. 10.
exercised the right to levy taxes, usually both governmental and manorial, characterized well the existing volatile conditions in the frontier territories. Since the Hungarian frontier was never permanently pacified, raiders, freebooters seem to have prospered rather than otherwise, despite considerable Ottoman military efforts. One should keep in mind that even major places, such as Szeged (Segedin), the centre of a sancak (subdivision of a province) and a significant commercial town situated deep inside the Ottoman-held Hungarian territory, was forced to pay regular tax to Eger (Eğri).¹³

The contemporary Ottoman author, Çâfer Çelebi, makes some unusual observations in his historical work regarding the average frontier life in the mid 1580s. According to his surprising note, in 1585 order and security prevailed in the sub-provinces of Buda, local subjects (reâyâ), however, were suffering from frequent atrocities and the numerous extraordinary taxes imposed by the Ottoman governor (vâlí) and judges (hükkâm). The subjugated folk fled to Habsburg-controlled territories and complained to “the evil king,” who encouraged further raids against Ottoman held lands. This statement is a unique one, since it almost justifies countermeasures made by the opposite side.¹⁴

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¹³ Ferenc Szakály, Magyar Adóztatás A Török Hatalmában. [Hungarian tax collection in Turkish-Hungary.] (Budapest: Akadémiai Kiadó, 1981), p. 97. Hatvan, another Ottoman sancak centre, made a deal with the soldiers of Eger, by agreeing to pay annually thirty-two gold ducats for their “good intention.” The author rightfully points out, p. 10, that, in general, the Ottomans could not keep away the troops of the former Hungarian feudal landlords. Moreover, as Szakály notices on p. 14, even some magnates of Transylvania maintained the right to tax their former territories extending their taxation activities as far as Temesvár. As a matter of fact, one may say that because of the lack of military consolidation on either side of the frontier region, both Ottomans and Habsburgs played strategically rather contradictory military roles in Hungary, finding it much easier to attack regularly each other’s territory than effectively to defend their own from the enemy.

¹⁴ This interesting historical episode can be found in Çâfer Çelebi’s sometimes very detailed chronicle, which unfortunately stopped the narration of military events after October 1594. See his Tarhi-i Sefer-i Üngürüs, (Budapest, Magyar Tudományos Akadémia), Török 0.90, fol. 3a. “Ve eyâlet-i Budun’a tâbi’ olan Peçûy ve Sigevâr ve Mohaç ve Seksar sancâklarında wâki’ olan varoş ve kürâda ayende vü revende sâlim ü emîn mahâllere mûrûr idûb, sene dokuz yüz doksan üç [the year of 1585 in Christian calendars] târîhine gelince ebna-i sebliden, bir ferde dâru’l-harb keferesinden çokluk zarar u zïyân erişmeyûb herkes emû ü emân ve râhat u itimân üzere menâzûlî ü merâhillerine mûrûr u ubûr iderlëdî. Lâkin târîh-i mezbûrûdâ ilä yevminä hâzâ vâlî-i vilâyet olanlarn mezâlîm-i bîsûrî ve teklîf-i bî-ziûmarlardan vilâyet-i mezbûre re’âyäsun ekserî periâkende vü perîsân ve dâru’l-harbde evtân dûtûb kirâlî bed-fî’âle varub
Most aspects of common village life were greatly subordinated to the requirements of defence. The volatile nature of the frontier life was well reflected in the Ottomans' general attitude too; feeling increasingly vulnerable in the countryside, many of the Ottoman fief holders (timarlı sipahileri) frequently moved to live in a nearby fortress. In this way, the relationship between the sipahi soldiers and the population of local villages "became tenuous." Sometimes the Ottoman fief holders with the garrison troops could not feel safe even in fortified places due to the constant siege-like conditions around the forts. The weakening of direct Ottoman control over the Hungarian rural areas encouraged local peoples from the villages to refuse to pay their taxes to the sipahis. In 1591, in the county of Esztergom alone, there were seventy-six villages that did not go to the Ottoman registrar to negotiate their tax payments; thus they seriously undermined the fundamental financial base of the local fief-holding sipahi class. Bayerle is probably

85 Bayerle, Ottoman Diplomacy In Hungary, p. 11. The author correctly points out that the general absence of the sipahis from their Hungarian villages greatly contributed to the "growing rate of desertion by the peasants [which] indicated to the Turks that they were losing their ascendancy at the all important village level."

86 Ibid., document no. 66, dated October 24, 1591, pp. 128-30. In this letter Sinan Pasha bitterly complained about this situation, stating that many Ottoman garrisons in the region could not even open their fortress gate to check their vicinities, and that the inhabitants of local villages thus practically got out of effective Ottoman control.

87 Ibid., document no. 68, pp. 130-1. In this letter dated October 27, 1591, Sinan Pasha politely asked Archduke Ernst to order his captains to send the village elders to the registrar because the villagers' taxes were vital for the sipahis soldiers in order to maintain up their guns, clothes and equipments. This was not a new political phenomenon in Ottoman-held Hungary, however, twelve years earlier Kara Üveys Pasha from Buda complained to Archduke Ernst that not less than sixty-seven villages in the sancak of Szolnok refused to pay any tax to the sipahis for approximately three or four years. Takáts- Erhard- Szekfü, A Budai Basád, document no. 164, dated August 12, 1579, pp. 176-7. It must be note here, however, that the problem of Ottoman balance-sheet in the province of Buda is more complicated than it was previously thought. Until the early 1580s, the Ottoman governors could sustain financial consolidation. On this topic see, Agoston, "The Cost of the Ottoman Fortress-System in Hungary in the Sixteenth and Seventeenth Centuries," in: David-Fodor, Ottomans, Hungarians, and Habsburgs, pp. 195-228. On page 199, the author states that although periodical deficits occurred, for a better understanding the actual situation, former assumptions "should, at least partly, be revised." Inalcık, Economic and Social History, p. 305, also says regarding this topic that the Ottoman presence in Buda was costly, but sometimes there were dramatic increases (as much as fourfold) in revenue collection between 1552 and 1580.
right when he notes that this slow but steady decay of the economic base of Ottoman society could not be incessantly tolerated by the central leadership in Istanbul.88

Needless to say, the imperial troops were not the only ones to harass the Hungarian countryside; one could also see customary Ottoman incursions into Habsburg-controlled territories. The Ottoman troops, through their frequent raiding activities, significantly extended their sphere of influence in the region of the Captain-Generalate of Győr between 1570 and 1580.89 Furthermore, under the new leadership of General Karl Ludwig von Zelking, the freshly appointed Captain General of Győr, troops from this main fortress suffered a devastating defeat by the Ottoman raiders led by Ali Bey from Székesfehérvár (Istolni Belgrad) in August 1577.90 Many mining towns in Upper Hungary were also subject to constant Muslim attacks, and, furthermore, the Bey of Fülek (modern Filekovo in Slovakia) with his raiding troops pillaged even as far away as Polish territories.91

While most of the letters in the correspondence between the two archenemies carried great political magnitude, in some cases, however, one can find that two high-ranking

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88 Bayerle, Ottoman Diplomacy In Hungary, p. 11. He adds on the same page that it was quite imperative for the Ottomans to make a serious attempt to halt the “erosion of their economic base” in order to maintain their establishment in Hungary. This suggests that the Ottoman court circles eventually could have used the economic degradation of their sipahi troops as a legitimate casus belli against the Habsburgs. Ultimately the heavy defeat of Hasan Pasha of Bosnia at Sziszek (Sisak) on June 22, 1593, provided the necessary pretext for the Ottomans to launch a new full-scale war against Habsburg-controlled Hungary.

89 On the mutual marauding activities one can find dozens of concrete historical examples from practically every year in the correspondence of the pashas of Buda from both the Takáts- Eckhard- Szekfű’s edition and Bayerle’s book. There was virtually not a single year between 1573 and 1593, in which various military atrocities, on both sides did not happen.

90 Pálffy, A Császárváros Védelmében, p. 164. In Vienna the news of military loss deeply shocked the imperial Hofskriegrat, which had previously heavily fortified Győr. In general, this region was regarded as the best organized district of early modern Hungary in the Habsburg defence system.

91 One complaining letter sent by the Polish king Sigismund II (1548-1572) to Selim II (1566-74) in 1571 has survived in the Mühimme Defteri collection. See document 12. 262 in 12 Numaralı Mühimme Defteri (978-979/1570-1572), Çilt III. <Tıpłbaşmas> (Ankara: T.C. Başbakanlık Devlet Arşivleri Genel Müdürlüğü. Osmanlı Arşivi Daire Başkanı. Yayın No: 33, 1996). “Filek begi taraflandan Leyh vilayetine tabi’ ba’zi yerlere dahl ı tecavüz olunduğun ilâm idib...” As mentioned above in the introductory chapter, every direct quotation is given as it is found in its original place without any attempt at emending language flaws such as misspellings, accent irregularities, or any misuse of grammatical rules.
statesmen argued over very peculiar things. One may also note that, while suspicion, hatred and other hostile feelings existed between the two conflicting sides, nevertheless it can be demonstrated through numerous documents among the pashas’ letters that there was still plenty of room for reconciliation and personal cooperation among the leading historical figures from both Ottoman and Habsburg political circles.

It is a rather surprising historical fact, for instance, that the pashas of Buda, regardless of constant finger pointing and mutual accusations in various military acts, asked, without hesitation, for various kinds of building materials from the enemy on a regular basis. Mustafa Pasha even went so far as to ask Ferdinand Samaria de Speciacasa, Captain of Komárom (Komarn or Komarna), to send him shingles and various lumber products for the construction of a local mosque (cami). In 1582, Ali Pasha sent directly to Archduke Ernst a letter in which he asked for shingles, nails, and various lumber products in order to renovate a cami and a tower in Esztergom (Ostorgon). Interestingly enough, the pasha even explained to the archduke at the beginning of his letter that it was a routine procedure on the part of the Habsburgs to help the Ottomans out in hard times.

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92 As an example one may note here that on April 27, 1590, there was a diplomatic correspondence between Ferhad Pasha and Archduke Ernst concerning a horse stolen by a band of Ottoman raiders in the previous year. Bayerle, Ottoman Diplomacy In Hungary, document no. 16, pp. 40-1.
93 Mustafa Pasha’s letter, dated April 9, 1578, is in Takáts- Eckhard- Szekfű, A Budai Basók, document no. 144, p. 153. The pasha asks the captain very nicely to send twenty logs, as soon as possible, because they want to build a certain mosque for themselves. “...touaba jm mastan akarunk valamy mcytöth cinaltatry, vgian jgön kerwkn hogi mönnel hamarabb lehet hué szalath kwlgwiw kdl...” Almost a month later, on May 5, 1578, Mustafa Pasha sent also a letter to Archduke Ernst, in which he was vehemently grumbling about frequent Christian raids into various Ottoman-controlled regions in Upper Hungary. At the end of his letter, however, the pasha quietly asked for bricks from the Habsburg archduke for a certain Ottoman construction.
94 Ibid., document no. 230, dated September 5, 1582, pp. 258-9. According to the pasha of Buda, in the time of earlier pashas and monarchs, if a frontier stronghold of the mighty Padishah had suffered from the shortage of certain building materials, the Ottoman officials simply sent a letter to His Majesty (i.e. the Habsburg emperor), who afterwards dispatched the necessary materials. “Ennek előtte való passak es kiralyok ideieben, mikor az hattalmas czaszar veg hazaiiban fabol vagy mibeöl fogjatkozas volt, w feölsgeöket megh latogattak leuelök altal, es e feölsgeöök kwdeöetek, ...” Ali pasha repeated his letter four months later, in which he even gave the precise measures of the requested building materials. Ibid., document no. 249, p. 275.
More surprisingly, a strange kind of black market also existed between certain local military and political leaders even during the lengthy war hostilities. Both the Hungarian Diet and the Habsburg Hofkriegsrat strictly forbade any commercial ties between Christian functionaries and their Ottoman counterparts, yet various office holders usually exchanged gifts quite regularly. One can mention here the case of the tiniest vilayet of Pápa, which existed only for three years without having any sancaks, and where the beylerbeys were heavily involved in exchanging various commodities.\(^{55}\) One should point out that, in early 1597, when Semender Pasha took over Idris Pasha’s position, he continued immediately both the raiding and commercial activities of his predecessor.\(^{56}\) These carefully maintained, mutually beneficial, but highly illegal commercial ties\(^{57}\) between enemies could, in some rare cases, nourish a kind of solidarity and friendship as well. Istvánffy reports that a bizarre episode took place at Várpalota (Polata), where a

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\(^{55}\) Idris Pasha, the first governor of this smallest Ottoman province, often received fancy, ornamented arms from the local Hungarian magnate Ferenc Batthyány, the future Captain General of the Transdanubian region (1604–09). The pasha reciprocated this gesture by sending some pedigree horses and various valuable clothes. Moreover, when he received a few pieces of armour from Batthyányi, he instructed the Hungarian magnate that only large size armour would fit him. He also assured his “beloved neighbour and friend,” in the post scriptum section of the letter, that he was going to send the requested butter as soon as possible. These historical examples are given by Géza Pálfy in his very detailed book, *A Pápai Vár Felszabadításának Négszáz Éves Emlékezete 1597-1997.* [Memory on the 400th Anniversary of the Liberation of the Fortress of Pápa.] Editor István Herrmann. (Pápa, 1997), p. 23. The original undated letter, written in Hungarian in 1596, can be found in *Magyar Országos Levéltár,* (Henceforth MOL), P 1314 Batthyány cs. Lt. No. 20 720, and was published by Pálfy as document no. 13, p. 108.


\(^{57}\) Idris Pasha, in one of his letters addressed to Batthyány, honestly noted that he had earlier discreetly sent various Turkish goods to Hungarian magnates in order to avoid any unnecessary attention of the Ottoman controlled side. The original document, dated sometime between September 20 and October 13 in 1596, is available in *MOL* P 1314 Batthyány cs. Lt. No. 20 722. This letter has also been published by Pálfy, *Pápai Vár,* document no. 10, p. 104. The author informs us (p. 23) that these illegal commercial ties included firearms trading, too. He refers here to a certain Abdurrahman Ağá from Esztergom, who, in 1592, asked Miklós Pálfy, the Captain General of Upper-Hungary, to send him a few gilded small rifles because his friends urgently needed those guns in Istanbul. The original letter has been published by Pál Jedlička, “ XVI. Századi török-magyar levelek Pálfy Miklóshoz. (A gr. Pálfy-család levéltárából).” [Turkish and Hungarian correspondence to Miklós Pálfy, from the family archive of Count Pálfy.] In: *Történelmi Tár,* 1881, document no. XXVI, p. 702. Illegal commercial ties were not maintained exclusively by leading political figures; because of the constant requisitions, in 1596 the peasants from the region of Sárvár were forced to be involved in various smuggling operations with the Ottoman garrisons of Győr and Pápa in order to improve their living conditions. See Pálfy, *A Császárváros Védelmében,* p. 220, for the archival references.
certain number of Ottoman soldiers actually saved the life of the Hungarian captain of the fortress.\footnote{See Miklós Istvánffy's very detailed, fundamental contemporary historical chronicle on the Long War, \textit{Regni Hungarici Historia}. (Coloniae Agrippinae: J.W. Friessem, 1685), p. 395. According to the Hungarian chronicler, Péter Ormándy, the Captain of Várpalota, after only two days of Ottoman bombardment, surrendered with his garrison on the condition of a guaranteed safe conduct. Although his request was granted immediately by the Ottoman grand vizier, the Janissary troops soon started to attack the civilians leaving with their luggage, and Ormándy himself was knocked down from his horse. However, "his Turkish acquaintances," who were numerous in the Ottoman camp, not only saved the captain's life but also gave him a horse on the condition that he was going to send it back right after his arrival at Pápa. "... à notis Turcis, quois complures habebat, füisset defenefs à quibus etiam equum, quo Papam uñque veheretur, eà conditione accepit, ut eum indè remittendum curaret."} 

Occasional personal cooperation between leading political and military figures were not enough, however, to slow down the escalating violence and disturbances; consequently, the return to open war hostilities was clearly the logical outcome of the two decades-long period of relative peace. From 1591, the "private war" of Hasan Pasha, which included not only raiding settlements and pillaging villages, but also besieging and taking Habsburg-held fortresses, ultimately led to the outbreak of a new war between the two archenemies. Although it is an undeniable fact that the Ottoman political leadership was the first one to declare war on the Habsburgs,\footnote{After the arrival of the news of Hasan Pasha's death (July 4, 1593), the Sublime Porte in Istanbul immediately declared war on the Habsburg Empire. See the historically correct statement in the chronicle of Mustafa Naima, \textit{Tarih-i Naima}. (Istanbul: Matba'a-i 'Amire, 1281/1864), vol. I, p. 83. "... der-i devlete ülak ile bu haber-i muvahhış vürûd itüükde... macar seferine sexeb-i hâdis oldı."} Murphy sees a certain Ottoman unpreparedness in Sinan's mobilization against the Habsburgs in 1593, and according to him, only in the summer of 1594 were the Ottomans able to mobilize a large military force, which could "pursue the war with conviction."\footnote{Murphy, \textit{Ottoman warfare}, p. 7. For an opposite opinion see Finkel, who correctly emphasizes that Sinan Pasha's extremely fast response to Hasan Pasaha's death (he was mustering his troops on July 19, 1593), "could not have been possible unless the imperial manufactories of military equipment had been kept in production in the three years since there had been peace with Persia." \textit{The Administration of Warfare}, p. 12. She also says that, because of the constant delay of tribute payment, Sinan's patience came to an end, and he had already ordered the mobilization of the troops from Rumelia in early 1593. The original order can be found at Başbakanlık Arşivi, \textit{Mühimme Defteri} 70/118, and quoted by Finkel, p. 11. One may also note that Murphy himself admits (p. 7) that the open support of Hasan Pasha from Istanbul did not indicate any particular desire for maintaining the existing peace: "the dispatching of imperial troops}
In reality Grand Vizier Koca Sinan was well aware of the late season for a major
campaign; understandably, he did not wait for a complete mobilization, but started the
first Ottoman campaign of the Long War with a relatively limited number of troops.
According to Abdülkadir Efendi, a well informed contemporary Ottoman artillerist
(topçu), troops from ten sancaks of Anatolia, under the leadership of Saturci Mehmed
Pasha, were able to catch up with the fast moving Sinan only at Belgrade.\textsuperscript{101} In Sinan’s
strategy the first Ottoman campaign served rather as a military warm-up move before he
could realize his extremely ambitious plan for the conquest of not only west Hungary but
also of Vienna itself. Pongrác Sennyei, the special envoy of the Principality of
Transylvania, met the exceedingly self-confident Sinan at Mohács (Mohács), where he
learned that the grand vizier was very certain that the Ottoman victory was going to be
easy. Sinan left no doubt for the Transylvanians that after the occupation of Veszprém
(Besprim) and Várpalota, he was going to attack Vienna and even Prague in the following
spring.\textsuperscript{102}

\footnotesize{from other provinces in support of such frontier raiding with the clear authorization of the Grand Vezier
left no room for ambiguity about Ottoman intentions.” [italics added]}

\textsuperscript{101} See Töpçüler Kâtip Abdülkadir Efendi’s important and very informative work, \textit{Vekâyi-i Tarîhiyye},
(Wien: Österreichische Nationalbibliothek Ms. MXT.130), fol. 10a. Abdûlkadir’s statement is confirmed
by a letter written by then second vizier Ferhad Pasha, in which the Ottoman statesman informed the Doge
of Venice (Pasquale Cicogna), in April of 1594, that Sinan did not wait for any reinforcement and rushed to
Hungary with a relatively small army. The original document is in the Venetian State Archive, Documenti
turchi, busta 9, no. 1056, and quoted by Maria Pia Pedani Fabris, \textit{I “Documenti Turchi” dell’Archivio di
Stato di Venezia}. (Roma: Ministero per I beni Culturali e Ambientali Ufficio Centrale per I beni

\textsuperscript{102} The envoy’s personal report can be found in Baronyai Decsy’s contemporary chronicle, \textit{Baronyai
Decsy János Magyar Historiája 1592-1598}. [The Hungarian Chronicle of János B. Decsy 1592-1598.]
(Commentarium de Rebus Ungaricis Libri qui existant.) Ferencz Toldy, (ed.), (Buda: A Magyar
Tudományos Akadémia Történelmi Bizottsága, 1866), p. 65. (Henceforth Decsy, \textit{Magyar Historia}). The
long siege of Gör (Yanik) did not leave time for Koca Sinan to attack Vienna; however, next year, on the
accession of Mehmed III (January, 1595), the Grand Vizier announced in the celebrating Imperial Council
(Dívân) that preparations should be taken for the next campaign led against Peç, a loan word originally
from Bécs, the Hungarian name of Vienna. See the contemporary Ottoman author Ta’lîkh-zâde’s work,
\textit{Ta’lîkh-zâde’s Şehnâme-i Hümâyûn. A history of the Ottoman campaign into Hungary 1593-1594}.
“… bu devlet-i ‘ulyânun niyyet-i nevâ-yi tehni’eti ile [sic] Peç üzerine leşker çeküb, …”}
The stormy two and a half decades-long period of peace that existed in Hungary between 1568 and 1593 had hardly given any special historical example to illustrate the essence of the much debated military developments of late sixteenth century Europe, unless one counts the slow but continuous process of Habsburg-led fortress modernization in early modern Hungary following the main characteristics of the *trace italienne* style. This particular problem is further discussed in the following chapter. Endless raids and ambushes carried out regularly on both sides followed a well established pattern. This sort of warfare had actually been offensive in its nature, concentrating on fomenting general insecurity and uncertainty on either side of the ill-defined frontier line.

Understandably, frequent raiding missions and marauding campaigns did not mirror the general patterns of development in early modern warfare. The importance of the infantry had been negligible during the peace period, due to the simple fact that in numerous incursions only the fast moving light cavalry forces could obviously play a prevailing role for both conflicting sides. One may also notice here that besides the raiding activities which can truly be considered very frequent occurrences, there was another common phenomenon along the frontier lines: personal duels fought mostly with lance and swords for fame and glory that could be acquired by only bravery. In these combats there was no particular need for firearms, infantry soldiers carrying arquebuses being generally despised by the frontier mounted warriors. Small, lightly armed, and very mobile cavalry squadrons frequently rode out to challenge each other’s personal strength
in various individual joust-like combat, indicating that medieval tournaments had not yet been forgotten in Central Europe.\(^\text{103}\)

In the subsequent three chapters an attempt is made to give a detailed exegesis of various contemporary narrative texts, for by focusing on some concrete military issues concerning both conflicting powers, one can show how the aforementioned Military Revolution of early modern Europe affected the Central European military landscape. In doing so it is important to emphasize that the analyses of various narrative historical sources can give a relatively reliable historical insight into late sixteenth century warfare. The contemporary narrative accounts can also help to prove or disprove the theory regarding the alleged technological disparity between the Ottoman troops and Habsburg led armies. Likewise, these historical sources can shed light on the actual application of weaponry on both sides, a problem which seems to be a more important issue than technology itself. By examining numerous sieges and combats that occurred during the Long War, it is possible to observe all of the major differences and parallels that existed between early modern Habsburg and Ottoman warfare.

\(^{103}\) According to Eltis, *The Military Revolution in Sixteenth-Century Europe*, p.2, throughout Europe the spirit of medieval chivalry had not been dead in the sixteenth century. Single combats were still “as much a sixteenth-century preoccupation as a medieval one.” From the period of *Kleinkrieg*, one may mention here two pieces of correspondence written by Sinan Pasha of Buda in 1591. In the first letter, dated September 20, the Ottoman governor responded to the complaining letter sent by Archduke Ernst regarding an Ottoman provocation which took place at Komarom. In that episode certain “Turks from Esztergom” called out the Hungarian garrison for one-on-one duel. However, in an earlier letter, dated on July 29 in the same year, the pasha of Buda protested against the Christian side by stating that Hungarian riders lanced the gate of the fortress of Székesfehérvár, which was an obvious sign of provocation. The two documents have been published in Bayerle’s book, *Ottoman Diplomacy In Hungary*, as documents no. 50, and 57, pp. 101 and 116, respectively. István Szamoskőzy, in his lengthy narrative “Rerum Ungaricarum Liber Quartus,” also deals in detail with single one-on-one types of combat fought between Turkish and Hungarian individuals. His work was published as Szamoskőzy István *Történeti Maradványai 1566-1603. Az Erdélyi Fejedelmek Birtokában Volt Eredeti Peldányról* [The Historical Remnants of I. Szamoskőzy 1566-1603. Based on the Original Copy, which was in the Possession of the Princes of Transylvania] Sándor Szilágyi (ed.), (Budapest: A Magyar Tudományos Akadémia Könyvkiadó Hivatala, 1876), vol. I, (1566-1586). (Henceforth Szamoskőzy, *Történeti Maradványok*). From p. 237 to p. 243, Szamoskőzy, under the section titled “Memorabilis inter Turcam et Ungarum in duellum prouocatio,” gives numerous references to various kinds of duels with concrete historical examples.
CHAPTER III. SIEGE WARFARE IN THE LONG WAR.

a) The Importance of Siege Warfare in the Ottoman-Habsburg Conflict.

The purpose of this chapter is to present a comparative study of various sieges that occurred between 1593 and 1606 by presenting a detailed picture of various selected historical accounts. Naturally, all sieges cannot be mentioned here, and citing them all is not really necessary for the examination of how the two opposing sides utilized various military techniques in their siege warfare. Instead, emphasis has been placed on those sieges and countersieges that best illustrate contemporary military techniques and the conduct of war. It is also possible to compare various kinds of siege techniques and different tactical moves employed by the two opposing sides, with a focus on the presumed Ottoman technological inferiority. The present discussion is based on a wide range of historical works written mainly but not exclusively by contemporary authors. Most of these available materials are published accounts, while a few works remain in their original manuscript form. All of the narrative sources are generally highly unreliable about dates, and they also tend to inflate the number of soldiers of the opposing army. One may also note here that various problems concerning the precise dating of certain historical events or the exact number of troops involved in a given military engagement will not be discussed here, there is considerable archival material that can shed light on the aforementioned problems. Sieges and countersieges were indisputably the most important military engagements during the arduous thirteen years of Habsburg-Ottoman military confrontation. Warfare, in general, lost much of its mobility, and, throughout Europe, it became instead a long series of protracted sieges. During the Long War, the
two confronting sides conducted a long series of sieges and countersieges year after year. Siege warfare was the most fundamental military action when warfare was a matter of conquest. The spectacular mobile campaigns of Süleyman the Magnificent had by then become only memories of a bygone era. The actual fighting itself was now less fluid in character than it had been during the first decades of the sixteenth century. The period under study (late sixteenth century) witnessed the general transition in Europe from cavalry based armed forces to the new, infantry dominated armies and to a new pattern of conflict in which siege warfare predominated.

One must also note that the massive use of firearms became the main characteristic of contemporary warfare.\(^{1}\) During the period of the Long War, the various European military contingents had already had a great reliance on massive gunfire. In siege warfare, firearms and incendiary weapons took the central place in the strategy of both the defenders and the attackers. During assaults, it was crucial for the besieging gunners and artillery corps to keep the fortress defenders off the wall. If they failed to do so, any approach to the walls by the attacking troops proved to be practically impossible. Numerous sieges demonstrated a general necessity for more and more infantry troops well trained in the use of different firearms, and for various specialist corps experienced and highly skilled in military engineering and other essential war techniques.

During the Long War, in the course of endless sieges and countersieges, the two opposing sides had almost an identical success rate. Numerous minor strongholds, even larger fortresses, changed hands at least a couple times. A theatre of war of seemingly endless fortress battles was created. This seems to suggest that even if there was an

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\(^{1}\) The next chapter will be dealing with the aspects of the changing method of warfare; thus the importance of various kinds of firearms and other incendiary weaponry will be discussed later.
alleged European superiority in the art of war - for instance, the Imperial troops might have had an advantage over their Ottoman adversaries in battlefield tactics - in siege warfare, because of many other important conditions, the general military situation was rather favourable for the Ottomans.

Laying siege to a massive modernized fortress proved to be a very arduous and exhausting military venture for both sides. A system of entrenchment had to be dug in order to bring the attackers and adequate artillery firepower close to the walls of a particular fortress, a process which, in most cases, proved to be a very time-consuming and laborious task. This enormous excavation project, which generally followed a standard procedure, included the creation of three parallel trenches, starting with the first one about five hundred meters away from one side of the stronghold. In case of successful attacks the besiegers could later advance by digging the second and third parallels roughly two hundred meters apart from each other. Usually, under the protection of steady bombardment from the rear, several approach trenches (saps) were dug, moving them constantly forward until an additional parallel trench could be established even

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2 Throughout this thesis the word Ottoman has been used consistently, since the usage of the adjective "Turkish" in a sixteenth century military context would be highly inaccurate. On the opposite side, various words such as Imperial, Christian, European, Allied, or Habsburg army are used interchangeably, due to the fact that these armies, throughout the history of the Long War, or at least in most parts of it, represented a great melange of troops of various ethnic backgrounds coming from almost all countries of contemporary Europe.

3 Such conditions included: the strength of the fortification, quality of the weapons and military equipment, methods of transportation, maintenance of the supply line(s), and several environmental and geographical factors. These circumstances, as will be demonstrated later on, did contribute equally to victory or defeat. Murphy rightly argues that a potential superiority in weaponry was rarely realized in full, because of what he calls "the interference of contingent circumstances." He also points out that the reliability of even the highest quality weapons was rather limited. He says that "...the tactical advantage to be gained from superior hardware remained largely theoretical." *Ottoman warfare*, p. 15. Murphy’s view can also be supplemented by Hale’s statement, which also strongly emphasizes the crucial nature of certain “other factors.” He gives two concrete historical examples: because of the extreme importance of several circumstances, Famagusta in 1571 and Rouen in 1591-2 could hold out for months against “a vastly superior and almost constantly cannonading” Ottoman and English army respectively. According to him morale played the most important role in the outcome of the siege. *War and Society*, p. 48.
closer to the fortress wall. Theoretically, infantry columns could make a successful assault on a fortified place under the cover of gunfire from the approach trenches without the support of heavy artillery, but this actually happened only in the case of minor forts.

The heavy labour of digging trenches, along with the construction of several mounds of earth and other siege works, required great discipline, dedication, and organizing skill. In these military matters, the Ottoman soldiers usually proved to be more effective than their European adversaries. During major sieges in Hungary, the Ottoman army, in general, dug more complex systems of zig-zag approach trenches with their escape routes (sikan yollari) than their European adversaries did. However, average saps proceeded at a very slow rate: only fifty yards (slightly more than forty-five meters) a day was the usual speed of advancement.

The earth dug out from the first parallel trench was thrown up in order to form the parapets along the forward edge of the siegeworks. To the besieging forces, these mounds, besides the wickerwork gabions, were the best way to protect their artillery

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4 Endre Marosi, one of the experts on late medieval (early modern) Hungarian military architecture, observed that the Ottoman forces, in general, seem to have had better capability in siege warfare. According to his own calculations, the Ottoman besieging armies needed usually fifty-seventy percent (!) less time to take a particular enemy stronghold than did the Imperial forces during the Long War. See his XVI. Századi Váratok, [Our Fortresses in the Sixteenth Century] (Budapest- Miskolc: Borsod- Abaúj-Zemplén megyei Levélór, 1991), p. 33. Contemporary Hungarian preacher, István Magyari, an eyewitness to numerous sieges, quite vehemently criticizes the Imperial soldiers who do not take siege warfare seriously. According to the author, the Christian side should learn a lot from the “Turks.” See his, Az országokban való sok römlésönknek okairól [About the many reasons for the Decay of the Country] Tamás Katona (ed.), (Budapest: Magyar Helicon, 1978), p. 173.

5 Murphy, The Functioning of the Ottoman Army, vol. I, p. 145, and this statement is repeated in his Ottoman warfare, pp. 116-7. It is interesting to note that the evaluation of the complicated Ottoman system of entrenchment is not always clear in scholarly literature. One may cite here Child’s work, Warfare In The Seventeenth Century, p. 126, where the author tells us that the “Turkish” siege techniques were “antediluvian,” thus it was not an accident that the Ottoman siege of Candia (Iraklion) “lasted for 21 years despite the city's obsolete 16th century inner enceinte.” According to Childs “the siege more closely resembled a blockade than a sustained attack.” Further along (p. 144) however, the author surprisingly made a sharp turn by stating that Sébastien de Vauban (1633-1707), the chief engineer of Louis XIV (164-1714) and father of modern military engineering, learned “from Ottoman methods at the siege of Candia,” and this knowledge was utilized later at the siege of Maastricht in 1673. Vauban linked “the saps with 13 wide trenches dug at intervals parallel to the selected ‘front.’” This episode may indicate that the early modern Ottoman siege techniques were not quite so “antediluvian” after all.
pieces. Gabions, that is, cylindrical baskets filled with earth or sand, could absorb the impact of cannon shots and provide additional effective defence for the besieging artillerymen. These structures, which were used by the thousands during an average siege, were less than a meter high, and it took generally about three hours to build one, when the work was done by “two or more skilful and well-paid men.” A gabion farci, or sap roller, on the other hand was a massive, almost two meter-long horizontally positioned structure laid in front of the sappers. By stacking a couple of layers of gabions on top of one another, the resulting sap rollers could also be used during sieges as elevation devices for altering the position of gun batteries to match the height of the fortress wall. As a historical curiosity, one may note that, more than two decades after the end of the Long War, during the siege of Baghdad in 1630, the assaulting Ottoman army under the command of Hüsev Pasha used seven layers of gabions, placed one on top of the other in order to elevate cannon to the requisite level.

6 Christopher Duffy, Fire and Stone. The Science of Fortress Warfare 1660-1860 (London- Vancouver: David & Charles Newton Abbot, 1975), p. 105. Due to the demanding nature of this work, usually skilled miners and sappers manufactured gabions. Sandbags, however, were a quick and cheap alternative to the gabions. Because the process of manufacturing gabions was a “maddeningly tedious business,” Duffy wondered why “The preference was so often given to the gabions.” Ibid., p. 107. On the same page in his work, the author added that, on the other hand, the making of fascines, i.e., bundles of branches compressed into a cylinder, bound together by withes and used to top the gabions, did not require any particularly skilled specialists, thus, “Cavalrymen and other unintelligent forms of life [italics added] were usually up to this undemanding work.”

7 Ibid., p. 105.


9 Murphy, in his dissertation, The Functioning of the Ottoman Army, vol. II, p. 395, extracted a longer passage from Nuri's historical chronicle, in which the contemporary author described the Ottoman siege of Baghdad in great detail, which took place in 1630. The original Ottoman-Turkish text can be found in the manuscript of İyâeddîn İbrahim Nuri, Tevarîh-i Feth-i Bagdad, (Vienna H. O. 78, fols. 146b-48a). According to the Ottoman author, the top of the gabions were covered by earth and afterwards one layer of board was laid on top where later the sipahis hauled the cannons up with hawssers. “Ardından toprak ile doldurub, düz yeyiklerinde tahtalar döşeyib topları onların üstünden palamarlar ile timar sipahiileri çektik çekib atalar. Merhum Hüsev Paşa zamanı yedi kat çi̇t bir biri izerine konun [italics added] atalar idi.” Earlier in his thesis, (vol. I, p. 148), Murphy underlined the importance of high ramparts (tabya) by stating that these constructed mounds, standing on the far side of the moat, equalled the height of the fortress wall; thus, with the cannons on the top of these structures, the Ottoman attackers could dominate the covered way, (an area between the fortress wall and the edge of the moat).
Since the walls of Győr proved to be impregnable, Decsy, in his contemporary chronicle, also states that certain "hills were rolled under the walls" during the Ottoman siege of Győr in 1594. Through the help of these earth filled *gabion farcis*, the Ottoman contingent managed, after four to six weeks of "tremendously tiresome work," to build up several mounds of "astonishing height." From the top of those man-made hills, the Ottoman artillery could comfortably bombard the fortress walls at a very close range, and afterwards a scaling ladder attack also became possible. More than fifty years earlier, Sinan Çavuş, the official chronicler of the Ottoman campaign of 1543, had reported in his work that, after a futile assault on the breached wall of Esztergom, the besieging Ottoman forces could also build up artificial eminences with the help of earth-filled sacks at some distance from the fortress. These man-made hills proved to be a very effective platform for the Janissaries to control the enemy's movement in and around the stronghold.

One should keep in mind that a network of different siege works had to be maintained and manned for perhaps months until either the garrison surrendered because of famine, or, alternatively, the besieging forces were able to breach the wall by close range

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10 Decsy’s statement can be read in his *Magyar Historia*, p. 134. "...nec ulla alia ratione superari posse viderentur, confusus tantae hominum multitudini aggerem, tumulumque ex egesta terra faciendum, et muris advoluendum curavit. [italics added] Id quamvis ingenti labore fieret, tamen quator servex hebdomadaram spatio id opus absolvit, et tumulos aggeresque admirandae magnitudinis, ita moenibus admovit, ut ex propinquo iam ea tormentis bellicis peti, imo et scalis superari posse credentur." Richard Knolles, in his monumental historical chronicle, *The Generall Historie of the Turkes*, etc., (Oxford: Adam Islip, 1610), p. 1041, also mentions that the original artillery assault on Győr caused little damage in its walls.

11 See the magnificently illustrated chronicle of Sinan Çavuş, *Tarih-i Feth-i Şikloş, Esterghon ve Isot [n] i-Belgrad Or Süleymannname* (Istanbul: The Historical Research Foundation, Istanbul Research Center, 1987), fol. 105a. "... emr olunduki hisâr-i üstüvârâ havâle çevâlllardan kulle peydâ olunub üzerinde dilâverân tüfeng-endâz u mübârizan-i ceng-sâz yeniçeriler turub kûffîr-i hâksûrûn yollarn sed[ê] ve hamlelerin redd ideler." One may note here that the Ottoman besieging forces utilized the same method against Székesfehérvár, which fell to Süleyman's army almost a month later. Since the earth-filled palisade walls of the Hungarian fortress proved to be "stronger than stone," the Ottoman troops, after filling up the wet moat, built up high towers made of earth-filled bags in order to break the garrison's resistance.

"Hisâr-i üstüvârâ handek-i ‘amik memlû olmak üçün fezâ-i hisâra odûn götürüb döksünler, ve toprakdan mûrtefi’ kulleler bünyây olunmak üçün çevâllar cem’ olunub toprâgla toldurub hâzîr eylesünler ... diyû emr olunub.” Ibid., fols. 127b-128a.
bombardment or mining. There are a few examples in this chapter that demonstrate that practical aspects of siege-craft such as digging great networks of trenches or long mine shafts were not notable strengths among the various European mercenary armies. Building out their earthworks was a type of manual labour, which European mercenaries had always considered below their dignity. This kind of military activity could only be carried out in an army where internal discipline was strictly enforced by various military commanders. As a matter of fact, only a few talented Imperial commanders, like Count Carl Mansfeld during the second Christian siege of Esztergom in 1595, were able to maintain uncompromisingly strict discipline among the mercenaries in the multinational Habsburg army.

One may also note here that some siege techniques, along with various military procedures and fighting methods employed by different contemporary European powers, could be transmitted to the Ottomans by mercenary soldiers. These persons, coming from a rather wide range of ethnic backgrounds, played a vital role in keeping the sultan’s army technologically updated. The European artillerymen, for instance, constituted an essential and enduring element in the Ottoman technical services utilized for siege warfare during the historical period under discussion in this chapter. They were needed to support the Ottomans’ struggle to keep up with the quality of European cannons.

As mentioned in the previous chapter, the political leadership in Istanbul seems to have been less concerned with technological inventions or military engineering

\[12\] The Ottoman-held stronghold of Nógrád (Ottoman Novigrad) in northern Hungary, for instance, had a very highly skilled renegade German as chief-cannoneer. When he was shot dead by the besieging Hungarian troops on March 10, 1594, the Ottoman garrison stopped offering any further resistance and the defenders decided to give up the fortress immediately. This episode is given by Knolles in his narrative, *The Generall Historie*, p. 1030. In addition to Knolles, Istvánffy mentions in his chronicle that, after the sudden death of the commander of the artillery corps, the *alay bey* of the sipahis came out of the fortress of Nógrád to negotiate the conditions of the surrender. *Regni Hungariani Historia*, p. 404.
innovations of the early modern era than their European adversaries were, although Ottoman military technical methods must have been much more vigorous and up-to-date than was previously thought. For a very long time, their tremendous diligence and remarkable capability in adopting foreign technologies allowed them to keep up, more or less, with other European military powers. The Ottomans, through the help of foreign masters and indigenous craftsmen, pursued the practice of making replicas of contemporary military hardware and had long striven to keep abreast of the new innovations. Religious conservatism on the part of ulama circles did not yet affect adversely the Ottoman army at the end of the sixteenth century.\textsuperscript{13}

The Habsburg defence system, which was furnished with its own military apparatus, was, after 1587, financed increasingly by several taxes imposed on the Austrian Hereditary Provinces of Carniola, Carinthia, and Styria.\textsuperscript{14} During the military conference (Hauptgrenzberatung) which took place between August 1 and September 24 in 1577, several reforms were accepted in order to strengthen the Christian garrisons and improve the general conditions in the frontier area. Two opposing opinions clashed during the conference. On one side of the argument stood Lazareus Freiherr von Schwendi (1522-84), the great diplomat and very experienced former Captain-General of Upper Hungary (1565-68), who was agitating effectively for the concept of “active border defence,”

\textsuperscript{13} Halil Inalcık suggests that the practice of adopting useful military technologies generally did not raise any serious religious objection, because of its vital importance in contemporary warfare. See his The Ottoman Empire. The Classical Age 1300-1600 (London: Phoenix, 1994), p. 180. On the preceding page, however, he indicates that rational sciences, in general, were suppressed by religious fanaticism. As mentioned in the previous chapter, this retrograde social force, nonetheless, was definitely strong enough to prevent the emergence of an indigenous Ottoman military engineering corps.

\textsuperscript{14} It is enough here to refer to the fort of Petrinja (Yeni Hisar). This strategically very important southern Imperial stronghold, until its fall to the Ottomans, was entirely financed from the province of Styria. See Géza Pálffy's article, “The Hungarian-Habsburg Border Defence Systems” in: Géza Dávid and Pál Fodor (eds.), Ottomans, Hungarians, And Habsburgs In Central Europe. The Military Confines in the Era of Ottoman Conquest (Leiden-Boston-Köln: Brill, 2000), p. 55. (Henceforth Dávid-Fodor, Ottomans, Hungarians, and Habsburgs.)
while, on the other side, his successor, Hans Rueber von Püchsendorf (1568-84), tried enthusiastically, in vain, to persuade the Habsburg dynasty to bring an international military coalition together in order to launch a large scale offensive war against the Ottoman Empire.\textsuperscript{15} It was realized very soon, however, that any plan to expel the Ottoman forces from Hungary would require tremendous financial spending by the dynasty.

Understandably, under the given economic and political conditions, the Habsburg military leadership yielded to Schwendi’s realistic plan, which called for the construction of a more controllable Imperial defensive line that exploited Hungary’s rich network of natural water systems.\textsuperscript{16} This way, the Austrian Hereditary Provinces could be protected from a possible Ottoman attack by a chain of fortified places, guardhouses, and a few larger fortresses manned with a relatively small cadre of mercenary troops. By the second half of the sixteenth century, the Italian style artillery fortress, referred to as \textit{trace italienne}, had also become a standard feature in the Hungarian defence line.\textsuperscript{17} Medieval military architecture with its tall, thin walls not only offered an immense target area, but

\textsuperscript{15} Pálfy, \textit{A Császárváros Védelmében}, p. 167. Pálfy mentions on the next page that another suggestion made by Rueber was accepted by the Aulic War Council (\textit{Hofkriegsrat}). The Captain-General called for the renewal of an earlier Habsburg practice of sending the sons of Lower Austrian aristocracy to Győr to serve as cavalry soldiers. This seemed to be the best school for the young aristocrats to master the skills of frontier defence. This training system, which had previously been employed in 1546, 1556-7, and 1564-6, was also seen by the imperial military advisers as an effective remedy for the acute shortages of experienced army officers. Pálfy, in order to demonstrate this problem, states in his footnote no. 12, p. 169, that Ferranto Samaria, one of the experienced, highly qualified military officers, could serve simultaneously between 1581 and 1589 as captain of both Veszprém and Érsekújvár (Újvár) though the two fortified places were a hundred kilometres apart. One may note here that this system of training resembled the Spanish military practice, according to which new young recruits, instead of serving at the front lines, were sent first to serve a year or two in various garrisons of Italy in order to learn the necessary military drill. Parker, “Military Revolution-A Myth?” p. 40.

\textsuperscript{16} The information about the so-called military conference was taken from Pálfy’s book, \textit{A Császárváros Védelmében}, p. 167.

\textsuperscript{17} József Kelenik, one of the modern Hungarian military historians, tells us in his essay “The Military Revolution in Hungary”, in: Dávid-Fodor, \textit{Ottomans, Hungarians, and Habsburgs}, p. 118, that since the majority of the sixteenth century Hungarian fortresses were constructed or reconstructed according to the principles of the \textit{trace italienne} system, the early modern Hungarian war theatre should also be considered as one of the areas that launched the so-called Military Revolution.
also it was too fragile to resist artillery fire. \textsuperscript{18} Massive, usually quadrilateral, angled bastions offered greater security than medieval castles did, because these solid stone or brick structures could provide spacious platforms for even heavy artillery, which, in most cases, proved to be quite effective weapons against the besieging enemy. \textsuperscript{19}

The two shorter sides of the angled bastion (the flanks) offered also suitable places for the armed garrison, who could lay down enfilading fire at close range against any attacking enemy forces if they penetrated the defences.\textsuperscript{20} The protection of the fortress gates had vital importance since the artillery of the besieging enemy usually concentrated its fire on the gates, which were perhaps the most vulnerable points of any strongholds.\textsuperscript{21}

\textsuperscript{18} According to Eltis, \textit{The Military Revolution in Sixteenth-Century Europe}, p. 82, “A good siege-train could demolish 120 feet of old fashioned wall in under twenty-four hours.” It took much longer, however, for the besieging forces to damage a new \textit{trace italienne} type of fortification. Eltis, on the same page, also adds as a historical example: “At Alkmaar in the early 1570s, Alva’s men were willing to expend 7,000 cannon balls to achieve a single breach.” Richard Norwood, one of the contemporary authors on siege warfare, calculated 1,000 cannon shots for one breach in the fortress wall. His very detailed meticulous study was published first in the seventeenth century as \textit{Fortification: or, Architecture military: unfolding the principal mysteries thereof, in the resolution of sundry questions and problems} by R. N. (London: T. Cotes and A. Crooke, 1639). Reprint: (Amsterdam: Theatrum Orbis Terrarum and New York: Da Cabo Press, 1973), p. 135.

\textsuperscript{19} Understandably, only the most significant and the best-fortified strongholds had the necessary military hardware to ward off the enemy’s battering guns. Kelenik mentions “The Military Revolution in Hungary,” p. 137, a nationwide register, which was put together in 1577. (The original location is in the \textit{Kriegsarchiv, Alte Feldakten}, 1577/13/3). According to this inventory, there were five fortresses in 1577 (Szatmár, Eger, Kassa, Komárom, and Győr) that had artillery powerful enough to challenge the battering guns during a siege. Kelenik adds on the same page that minor fortresses or \textit{palanka} strongholds had modest, but still satisfactory artillery power. (Usually these smaller or medium size forts were equipped with light \textit{culverin} type of cannons.) The author states (p. 140) that it is very difficult to determine the strength of the imperial artillery, since guns were frequently destroyed and replaced during wars, but according to “cautious estimates,” annually about 100-150 field cannons of various sizes were available in the Hungarian theatre of war “in addition to the pieces in the fortresses.”

\textsuperscript{20} According to John Lynn, “The \textit{Trace Italienne},” p. 174, the artillery firepower of a given garrison was actually the most effective defensive tool. “Far more than the bastion, the characteristics of artillery determined the patterns of siege warfare.”

\textsuperscript{21} It will be enough here to refer to Topçular Kâtibi Abdülkadir Efendi, who, as an active member of the Ottoman Artillery Corps, recorded his personal experience regarding the Ottoman siege of Eger in 1596. According to him the Ottoman artillerymen (\textit{topçular}), contrary to the popular belief, from the very beginning quite systematically bombarded the gates and other weak points of the fortress. “... ve Rûmîli Beğlerbegi vezir Hasan Paşa dört büyük bombardısha ve dört sâhih kurub sahrâda kal'ann kâpuların doğub...” \textit{Vekâyi-i Tarihiye}, fol. 72 a.
During the twenty-five year long official "period of peace" stretching from 1568 to 1593 which preceded the Long War, the Habsburg-maintained Hungarian defence system, at least in general, had functioned quite properly against various Ottoman forays and predatory incursions. In early modern Hungary even several strongholds of modest size possessed enough firepower to hold at bay raiding Ottoman troops of a few hundred soldiers; but, as one can see later in this chapter, these Hungarian fortresses, most of the cases, were unable to withstand long, systematic sieges carried out by fully equipped, well trained Ottoman besieging forces without fast and effective outside help.

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22 For a quite different scholarly opinion, see Duffy, Siege warfare, p. 202. According to him, the Habsburg controlled northern Hungarian defence line was not "particularly convincing," and the only reason that Upper Hungary did not eventually fall to the Ottomans was the fact that this area was a "roundabout route for the Turks to take" if they were on their way to Vienna. It is necessary to note that that was the exact reason for the Habsburgs' reluctance to modernize that area. Their main concern was the protection of the imperial capital; thus they developed fortresses of vital military importance, such as Győr or Komárom and their surrounding areas. However, Duffy admits (p. 203) that the Habsburgs' "assiduously re-fortified" regions that could possibly play a primary role in the imperial defence line. Nevertheless, Marosi, Váraink, (p. 31) rightly points out that one has to keep in mind that the complete lack of outer defensive works was one obvious shortcoming of the Habsburg modernized late medieval Hungarian fortresses. Beyond a sloped ditch or moat, which was often dug around the entire perimeter, one could hardly find any contemporary standard architectural features such as glacis, covered ways, redoubts, circular sconces, or Ravelin around even such strategically very important strongholds as Győr, Eger, or Komárom. Because of the lack of these essential defensive works, the sortie remained, at least in numerous cases, the only effective military option for the Christian defending troops to block the advance of the besieging enemy. Duffy's surprising statement that sortie was a kind of Turkish defensive military specialty certainly did not apply to the Central European landscape of war, where, as mentioned above, the opposite side was also forced to used sorties in order to hold off the besiegers. Duffy's note is in his Siege warfare, p. 218. It should be mentioned that the most successful sortie operation was carried out by the Ottoman garrison during the first Christian siege of Győr in 1597. According to Illésházy, the Ottoman garrison raided various Christian positions every single day, making any advance toward the fortress walls impossible. Occasionally, the defenders of Győr, both infantry and cavalry troops, dressed up in German clothes and launched attacks, which understandably took the German contingents by a complete surprise. See his memoirs, Gr. Illésházy István Főjegyzéseit 1592-1603 és Hídvégi Mikó Ferencz Historiája 1594-1613 Bíró Sámuel Folytatásával [Historical Memoirs of Count I. Illésházy 1592-1603 and the History of F. H. Mikó 1594-1613 with the Continuation by S. Bíró], Gábor Kazinczy (ed.), (Pest, 1866), p. 48. (Henceforth Illésházy, Főjegyzések). It is also imperative to point out here that the sortie as an effective military method of active defence had already widely been used during numerous sieges in antiquity. One may refer here to Vegetius, who, in his military manual written in late antiquity, suggested that the besiegers during sieges should protect themselves by a ditch, because the sortie was a favourite surprise move made regularly by garrison troops. Flavius Vegetius Renatus, Epitoma Rei Militaris (ed. and trans. by Leo F. Stelten), (New York- Bern- Frankfurt am Main- Paris: Peter Lang, 1990), p. 266.

23 Marosi, Váraink, p. 31. According to the author there was only a limited possibility for protracted resistance because, in general, the Ottoman siege methods were superior to the system of Hungarian defence works. [italics added] The Ottomans, during the sieges of major Christian strongholds, could
In the course of the Long War, the utilization of *trace italienne*-style fortresses usually made sieges longer, because the well protected defenders of the largest and certainly the most significant strongholds in a few cases could hold on even for several months. During the long and very exhausting thirteen years of war, the Imperial military leadership had to face critical situations only twice. These were occasions when the Ottoman forces might manage to cut through their borderlines.\(^24\)

The new Italian-type fortresses, however, had a very serious drawback from the point of view of the central government: they were quite expensive and difficult to build, and, once built, their regular maintenance proved to be rather costly.\(^25\) While the Habsburgs made fairly considerable efforts to improve the quality of the strategically most important Hungarian fortresses (for example, Nagykanizsa, Győr, or Komárom), the staggering cost of modernization not surprisingly forced a halt to numerous projects.\(^26\) The construction regularly employ a few dozens of wall battering heavy guns, whose firepower could usually not be withstood by most of the Hungarian fortresses.

\(^{24}\) The first crisis occurred in 1594, when Sinan Pasha took Győr, which had been considered by the Habsburg political leadership as "the key to Vienna." The Hofkriegsrat hastily transferred a noteworthy amount of money to Magyaróvár (Altenburg) trying to make it, rather ineffectively, a reliable Hungarian bulwark in front of Vienna. ÖNB Handschriftensammlung cod. 10775. fols. 17-32, quoted by Pálffy, "Hungarian-Habsburg Border Defence," p. 55. The second crisis followed the fall of Nagykanizsa, because only a few very obsolete medieval style castles existed in its hinterland. See Kelenik, "The Military Revolution in Hungary," p. 138. Despite these crises on the Habsburg side, the Ottomans were not in a position to take full advantage of them.

\(^{25}\) Parker states, *The Military Revolution: Military Innovation and the Rise of the West*, p. 12, that the "stunning cost" of the construction of the new *trace italienne* type of fortresses forced several governments of even wealthy Italian powers, like those of the Papal State or the Republic of Venice, to reduce the original number of new bastions intended to be built in *trace italienne* style. Needless to say, new fortification projects were tremendous financial burdens for smaller Italian states with limited military budgets. One may mention here the following case of Siena, which, facing foreign invasion by imperial and Tuscan troops, decided to launch an impressive fortification project in 1553. When the invasion came in 1554, the city of Siena could hold on for fifteen months against the invading forces, but unfortunately for the city-state, no financial reserve was left to raise the mercenary troops necessary to relieve the hard-pressed city. It became obvious very soon to each Italian state formation that spending a large proportion of total revenues on fortifications deprived the state "of the possibility of buying and maintaining the troops without which fortifications were of very limited use." On this particular problem see, David Parrott's thorough article, "The Utility of Fortifications in Early Modern Europe: Italian Princes and Their Citadels, 1540-1640," *War in History* 7 (2000/2), p. 132.

\(^{26}\) It is enough to mention here the concrete case of the strategically very important Hungarian fortress of Eger: because of serious financial difficulties, only about thirty percent of the original modernization plan
of a *trace italienne* type of stronghold proved to be the most expensive item in every government’s military budget. Clearly the acute lack of proper funding was a very significant obstacle in building an up-to-date defensive system. Therefore, not surprisingly, fortresses of secondary strategic importance were hastily repaired rather than rebuilt.

For the Ottomans, this was the typical procedure; most of their strongholds had earlier served as medieval Hungarian fortified places. Thus, after the Ottoman occupation, the victorious troops quickly repaired those forts without substantially modifying their original structures. Only a very few Ottoman-held strongholds were occasionally reconstructed. Understandably, during the long years of active war, modernization or enlargement of any kind had been out of question for both opposing sides, because the long and laborious siege warfare demanded an exorbitant expenditure in men and materiel.²⁷

Were the Ottomans aware of the military importance of the new, *trace italienne* type of fortification? Unfortunately, it is nearly impossible to give a complete answer to this question due to the fact that the science of Ottoman military architecture (*istihkam*) is still a virtually unknown field of scholarly research. It is also true that vernacular literary sources concerning architecture, and especially military architecture, are notable for their scarcity. Unlike numerous early modern European military accounts, no contemporary Ottoman treatise on military fortification survived the following centuries, even though a

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²⁷ Ironically, while, on the one hand, these military campaigns usually were rather raiding missions, (see footnote no. 41 below), requiring only a limited number of troops, on the other, the few months-long sieges propelled soldiers’ numbers on both opposing sides constantly upward.
few works might have been written by Ottoman authors. It is imperative to point out here that a unique contemporary manuscript by a certain Çâfer Efendi from the early seventeenth century has come down to us, and thus it has been considered “the only systematic Ottoman account of the life of an imperial architect.” This otherwise very meticulous work does not, however, give any information at all on the early modern Ottoman military architecture to the great disappointment of readers.

In general, one may note that Ottoman leaders were apparently less eager to follow the latest patterns of development in fortress architecture than their Christian counterparts were. European eyewitness accounts usually reported with great surprise that major Ottoman held strongholds were apparently in a decayed state. Stephan Gerlach, one of the members of the Habsburg diplomatic mission in 1573, and the French diplomat Blondel, more than a century later in 1684, wrote basically the same statement: Ottoman fortresses, even those with crucial strategic importance in Hungary, were found to be in

\[28\] From the rich contemporary European literature it is enough to cite here Richard Norwood’s book, *Fortification*, while on the Ottoman side one can only mention a certain vanished work entitled *Hüner-nâme-i Ali paşa*, which was composed in 1584, and listed by Kâtîb Çelebi in his book, *Kesfi‘z-ziman*. This Ottoman manuscript is mentioned by Murphy in his dissertation, *The Functioning of the Ottoman Army*, vol. I, p. 141.

\[29\] It is tempting to speculate, as Bursalı Mehmed Tâhir did in his work, *Osmanlı Müellifleri*, vol. III, p. 42, that Çâfer Efendi and Çâfer Çelebi represented the same historical person, but in truth they were different individuals. On this issue see Kiricioğlu’s correct words, Çâfer Ilyâni, *Tevârîh-i Cedid-i Vildâyet-i Üngûrûs*, XXXII.

\[30\] *Risâle-i Mi‘mâriyye. An Early-Seventeenth Century Ottoman Treatise On Architecture*. Facsimile with Translation and Notes by Michael Crane. (Leiden- New York- Kobenhavn- Köln: E.J. Brill, 1987), p. 3. One can read in the introductory section, pp. 5-6, that this treatise was written by Çâfer Efendi in 1614-5, and belongs to the genre of *tezkere* (biographical memoirs) dealing with the life of the Ottoman architect Mehmed Âğa. Crane also adds that the present *risale* is an important contemporary work on “the science related to surveying, and a compilation of terms having to do with architecture, the building trades and music.” The author, Çâfer Efendi, tells us that the central character of his treatise, a certain Mehmed Âğa, was commissioned by Sultan Murad III (1574-95), sometime after 1590, to inspect all the important strongholds and other fortified places in Rumelia. The Ottoman officer not only examined various forts across the Balkans, but eventually reached far away places such as Spain and Malta (?) On his way back to Istanbul, he had also inspected numerous fortresses and garrisons in the Ottoman frontier provinces of Buda and Temesvár, yet curiously enough not a single word is reported about the conditions of those strategically very important fortified places in Çâfer Efendi’s treatise. Ibid., fol. 23r.
astonishingly neglected conditions. Gianfranco Morosini, the Venetian Ambassador to Istanbul, rightly pointed out in 1585 that the Ottoman state placed confidence in its army rather than in its fortress system. For Morosini, it was clear that the numerical strength or the quality of the fortresses did not play a crucial role in Ottoman strategic thinking.

Csaba Csorba, after coming to the conclusion that the outworks and the promontories around the very important fortress of Esztergom were very obsolete, made a quite good point by stating that the fundamental Ottoman strategy in Hungary focused on territorial expansion and offensive campaigns. Thus, less emphasis was put on the conditions of various features of military architecture. In addition to Csorba’s thoughts, one should

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31 Comments made by Gerlach and Blondel have been quoted by Duffy in his Siege Warfare, p. 215. Duffy called Gerlach envoy, but he was actually only court predicant (concionator); the real Habsburg envoy in 1573 was David Ungnad, who later became the head of the Imperial Hofkriegsrat. Gerlach was guided by a “high ranking Turk” inside the fortress of Esztergom, which he found in a rather neglected, ruinous state. Ungnád Dávid Konstantinápolyi Utazásai. [D. Ungnad’s Travels to Constantinople] Kovács László János, (ed.), (Budapest: Szépirodalmi Könyvkiadó, 1986), p. 107. (Henceforth Ungnad, Travels). Further along, on page 113, Gerlach states that the “Turks” let decay even the most impressive Hungarian strongholds such as Esztergom, Visegrád, and Buda.

32 “La sicurtà di questo paese non consiste in numero di fortezze, né in qualità di siti rotri; perché i Turchi, dalli confini in poi, in tutto il resto del loro impero non attendono a fortificare,…” Eugenio Alberi, (ed.), Le Relazioni Degli Ambasciatori Veneti Al Senato Durante Il Secolo Decimosesto. Serie III. – Volume III. (Firenze: Società Editrice Fiorentina, 1885), p. 257. The partial English translation of reports sent by Morosini and Bernado (quoted below) has been available in James C. Davis’s book, Pursuit of Power: Venetian ambassadors’ reports on Spain, Turkey, and France in the age Of Philip II, 1560-1600. (New York: Harper & Row [1970]). The English translation of the quotation given above is on p. 129. However, throughout this thesis, all direct quotations taken from the Venetian ambassadors’ reports have been presented in their original Italian available in the Albery collection. It may also be noted that the Ottomans’ surprisingly relaxed attitude towards the modernization of their fortresses did not change in the following centuries. Almost two hundred years later, Henry Grenville, the British ambassador in Istanbul from 1761 to 65, also emphasized in his report to the British government that the Ottoman strongholds generally were in miserable condition. “J’ai dit ci-dessus que les Fortifications des Villes sont dans un miserable Etat, on en peut juger par le Trait suivant que Je ne rapprocher os pas, si Je n’etois assur qu’il est vrai, et qui, tout singulier qu’il le seroit ailleurs, n’a rien qui surpreme ici.” Henry Grenville’s report has been published under the title, Observations sur l’état actuel de l’Empire Ottoman. Andrew Ehrenkreutz, (ed.), (Ann Arbor: The University of Michigan Press, 1965), p. 1. Grenville on the same page also talked about his observation, according to which, the Ottomans usually tended to care about their fortified places only during various war conflicts when many of their fortresses were directly threatened by the besieging enemy. “Il seroit inutile de faire une Enumeration de toutes les Villes fortes de l’Empire Ottoman; mais on peut remarquer en general qu’excepté dans le Tems [sic] d’un Siege actuel, ou prochain, Les Turcs ne se sont jamais avisés de faire de Fortifications nouvelles, ou d’augmenter celles d’aucune Place;…”

33 Csaba Csorba, Esztergom Hadí Krónikája. [The War Chronicle of Esztergom.] (Budapest: Zrínyi Katonai Kiadó, 1978), p. 131. According to author, for the Ottomans, their relatively high number of
keep in mind that the Habsburg side was quite concerned with the problems of general security along its border regions. As mentioned above, Schwendi's precepts, which focused on the development of a reliable network of fortresses utilizing the benefits of local geographical conditions, were practical and efficacious. The precepts clearly demonstrate that his plan was based upon the supposition that the Imperial troops usually acted on the defensive.

b) The Military Role of the Palankas.

A much cheaper and faster method of defence was the creation of a wide network of small palisade forts, which in various primary sources are frequently referred to as palankas or parkans. Istvánffy, who is probably the most important source amongst the Hungarian historians of this period, called the palankas, which played a salient role in the defence system throughout the country in the sixteenth century, the "Hungarian type of strongholds" (de more Pannonicarum munitionum).\(^{34}\) The palanka forts were very practical military structures with a great variety in their designs. These fortified places could range from simple wooden watchtowers to complex fortifications with citadels, curtain walls, and extensive outworks. According to the Ottoman author Hasan Bey-zâde, the strategically very important Hungarian stronghold Nagykanizsa also had earth filled palisade walls, which could effectively resist even the heavy, Ottoman wall battering garrison troops, their strong artillery, and their hope for the fast arrival of a relief army were the main concerns in their strategic planning.

\(^{34}\) Quoted by József Holub, *Istvánffy Miklós Historiája Hadtörténelmi Szempontból*. [The history of Nicolas Istvánffy as a source of military history] (Szekszárd: Molnár-féle nyomdai műintézet részvénytársaság, 1909), p. 125. (Henceforth Holub, *Istvánffy Historiája*). This work is one of the very few scholarly efforts to analyze a contemporary chronicle as a source of knowledge on various issues of late medieval warfare. The author on the same page also notes that these military structures, unlike the massive modern Italian-style fortresses, required neither brick nor lime, which were in great shortage in early modern Hungary.
(kale kup) cannons, since the various projectiles fired by the assailants had simply sunk into the earth fillings.  

In most cases, these forts were rather simple structures of military architecture consisting of a single timber and wattle fencing, and the outside face covered by canvas and clay. Some of them perhaps had an external ditch and a wooden turret located over the main gate, with a few musket embrasures. The more significant palanka usually had a double stockade filled with earth or other shock absorbent materials. Ordinarily, their timber curtain walls were tied together against the pressure of the earth filling by strengthening transverse beams. Similarly these fortresses also had, usually at their corners, earth filled gun towers in a circular shape, which were large enough to hold even two cannons. These siege towers in some cases were impervious to incendiaries since,

35 See Ahmed Hasan Bey-zade’s unpublished historical chronicle, Tarih-i d-l-i Osmân. Österreichische Bibliothek, MSS. (OR 37), fols. 36a-36b. “...çıdan olan cüdrân-i erbaasi topağında tohma olub, top-i kal’a-kup te’sr eylemeniyüb... her atılan top-i kal’a-kup yuvalaşi türab-i cidâra gömülb gedik açılmaz idi.” Evliya Çelebi, examining the palisade walls of Temesvár (Timişoara Romania) more than fifty years later, came to the same conclusion: palanka walls were cannon-resistant structure because they absorbed the projectiles. Evliya Çelebi Seyahatnâmesi, vol. V, (İstanbul: İkdâm Matba’ası, 1315/1896), p. 390.

36 Istvánffy tells us, Regni Hungarici Historia, p. 448, that Hatvan, one of the Ottoman held strongholds in Hungary, had a triple palisade wall covered by clay, “...vallum quod triplici roborum serie, ac se pimpimento ob ducto argilla munitum est.” On the same page, the author also informs us that in 1596, when the Imperial forces, led by Archduke Maximilian himself, put the Ottoman held Hatvan under siege, thirty-six large, wall-battering cannons were needed to breach these triple walls. The Imperial military leadership had obviously learned from the bad experience of 1594, when the massive walls and Ottoman garrison’s heroic efforts could effectively repulse numerous attacks. One must note, however, that the Ottomans reconstructed the fortress of Hatvan after the Long War and that, at the time, the expression of “triple palisade wall” meant three separated defensive lines. In 1686, a certain Imperial military engineer Strackwitz surveyed the stronghold of Hatvan and among his drawings one can find an image of multiple but separated palisade defensive walls. Strackwitz’s survey is discussed by István Sugár, “A Török Végvárszövetszer Északkelet-Magyarországon” [A Turkish Frontier Fortress System In Northeast Hungary,] in: Bodó-Szabó (eds.), Magyar Török Végváarak, pp. 236-8.

37 Istvánffy, Regni Hungarici Historia, p. 409, also reports that during the Christian siege of Petrovja, in which the author himself participated, the massive double-stockade walls pinned together with iron transverse bars proved to be quite resistant to cannon shots. “...vallum munitionis tormentis verberabatur, sed quod illud duplex erat, & crassioribus roboribus bipedaliim ferreorum clavorum confinitione constabat, parum proficiebatur, ...” The confident Ottoman garrison fought back vigorously until an accident helped the attackers to overtake the fastness.

38 Larger palanka structures in some cases could have several wooden bastions between two corners that were also capable of holding several lighter cannons. Notes made by Holub, Istvánffy Historiája, pp. 127 and 129, respectively.
though they were made of wood, they were also covered with thick sheets of leather, which were kept constantly wet.

The Ottoman garrison of Petrinja supplemented the palanka fortress with a wooden tower, which was held together by strong transverse iron bars. The tower was supplied with a large cannon capable of shooting twenty pound projectiles, and the whole structure was guarded by twenty-five garrison soldiers equipped with firearms.³⁹ Needless to say, these stronger, more complex palanka strongholds on both the Ottoman and Habsburg sides cost significantly more to build and maintain.

Numerous reed-embraced, wattle palisade forts came into existence along important routes or approaches to larger fortified cities.⁴⁰ These military structures were effective enough to hold up against brief forays or raiding border marauders, thus satisfying the needs of local defence.⁴¹ It is also instructive to note that these forts were made of timber, fascines and earth could also be assembled very speedily in case of emergency, which

³⁹ Istvánffy, Regni Hungarici Historia, p. 410. The construction of the wooden tower proved to be a good tactical move since its firepower, at least for a while, was capable of holding off infantry attacks and could seriously endanger the cannon positions. Moreover, according to the author, the Christian soldiers even in their tent could not be safe because of the constant fire coming from the tower of that palanka. “...si qui proprius subissent, sclopetorum glandibus cominüs feriendo atque caedendo castra adeò inquietabant, ut nostri nec in tentoriis àvolitantium pilarum vi ac ictibus tuti essent, neque aggeres & tormenta idoneis in locis collocari posse videneretur.”

⁴⁰ The same tendency can be observed on the Ottoman side as well. Suffice it to mention here as an example the geographical position of the Ottoman held city of Esztergom: without the occupation of its two strategically very important palankas (Cígerdelen and Tepedelen), no army could hope for the surrender of the main fortress. Also see Klára Hegyi, “The Ottoman Network of Fortresses in Hungary,” in: Dávid-Fodor, Ottomans, Hungarians, and Habsburgs, p. 167.

⁴¹ One must keep in mind that there were minor local clashes and small scale confrontations between armies with seldom more than a few thousand actual fighting troops. Sieges and countersieges also characterized the Long War. Confrontations had occurred on a regular basis even during the so-called peace era. Mutual raids and ambushes became not only the typical pattern of armed conflict, but also the standard feature of everyday life in the military quiescence that ensued after 1568. Murphy, Ottoman warfare, (p. 8) tells us that huge armies financed by the royal court never became the norm in Hungary during the sixteenth and seventeenth centuries. For most of this period, small, sometimes private armies were the active participants in those minor combats. Many Hungarian and Croatian magnates, usually from the borderland regions, not only led these contingents, but also to a large extent financed them. The reason for this in many cases was financial, not just patriotic. Those magnates had several large estates, which lay directly in the frontier regions, and where they played a major role in the protection of those southern territories.
was another great advantage of this kind of military architecture. In medieval Hungary, many smaller provincial towns were usually fortified in *palanka* style, yet one could find quite a few stone-built larger fortresses that were themselves surrounded by palisade barriers, which represented either the first or occasionally the second line of defence. In these fortresses, the Christian defenders could take advantage of the combination of both types of military architecture. These palisade barriers sometimes were supported by earthen ramparts that could also be cheaply and quite easily thrown up; they were able to offer a reliable resistance against artillery attacks.

Under optimal circumstances, log and earth defensive works could absorb thousands of artillery rounds without much damage. In case of a direct assault carried out by the besiegers, these ramparts tended to be as hard to climb as the solid stone-made walls. The only significant drawback to this method was the rampart itself, because when the earth dried out the whole formation started to disintegrate at great speed.

It would of course be misleading to pass over the many shared elements in the Habsburg and Ottoman military defence systems. One must mention here that the *palanka* style military architecture played a very important defensive role on the Ottoman side of the front line too. While no one can find any particular sign of significant stone-made fortress construction carried out by the Ottomans in Hungary during the second half

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42 When the Hungarians retook the palisade fort of Babócsa (Ottoman Boboğa), György Zrínyi rebuilt the completely destroyed *palanka* fortress in just seven days. Istvánffy, *Regni Hungarici Historia*, p. 432. Ta’liki-zâde complains that, during the glorious reign of Sultan Süleyman, the infidels were unable to build up any network of *palankas*, because as soon as they started to construct one, someone from the Ottoman frontier commanders was ordered to destroy that structure immediately. *Sehnâme-i Hûmâyûn*, fol. 15b, p. 44. “...ve eğer küffâr kendü diyârlarında bir palanka binâsına mübaşeret eylese, serhad umerası der-i devlete inêhâ eyleyüb, hedmine fermân sâdir olub, bârûsî olmadın yikulurdu.”

43 According to Eltis, *The Military Revolution in Sixteenth-Century Europe*, p. 76, “Earth served as well against cannon shot as stone and brick and its cost could be ten times less.”

44 Duffy, *Fire and Stone*, p. 27, makes a good point in stating that various masonry works, in general, were costly but enduring structures, while the earthworks and palisade ramparts were relatively cheap to construct but more expensive to maintain.
of the sixteenth century,\textsuperscript{45} there were definitely numerous palisade strongholds of various sizes, which were vigorously constructed throughout the Ottoman held territories.\textsuperscript{46} 

*Palanka*-type forts were cheap and simple to construct; they required minimal knowledge of architectural engineering. These Ottoman built palisade structures could either stand as sole military fortresses or else form part of the suburban enceintes of a larger, well fortified city. These structures made a parallel in the Ottoman context with a European military feature. The intense Ottoman *palanka* construction soon exhausted the available

\textsuperscript{45} There are still only a very few scholarly articles on this topic. One of them is written by Pál Fodor, in which work the author tried to provide a kind of inside look into the maintenance system of Ottoman held Hungarian fortresses. Although the author focused on a wider time frame, some references are given regarding the Ottoman maintenance works carried out in the late sixteenth century. See his pioneering article “Bauarbeiten der Türken an den Burgen in Ungarn im 16-17. Jahrhundert,” *Acta Orientalia Academiae Scientiarum Hungaricae* XXXV (1981/1), pp. 55-88. One may bring up a concrete example here: Fodor mentions (p. 74) that in 1572 the renovation of a few important fortresses such as Esztergom, Székesfehérvár and Szigetvár took place. However, the Ottoman document (*Mühimme Defteri*, no. 16, 343), in which carpenters and hand workers were ordered from various southern *sanjaks* (subdivisions of province) to carry out the project, clearly indicates that this particular restoration effort was dealing with the *palanka* system of the aforementioned fortresses rather than their more complex, and much more expensive masonry work.

\textsuperscript{46} The Ottomans also constructed palisade strongholds in a rather fast manner. In August of 1595, Sinan Pasha, during the otherwise unsuccessful Wallachian campaign, reinforced both Bucharest (*Bükreş*) and Tırovoşt (*Tırgovişte* or *Tirgoviste* in Ottoman Turkish) with new *palanka* fortresses. According to Naima the construction of the stronghold of *Tırovoşt* with double stockade and a “deep ditch” took only one month. *Tarih-i Naima*, vol. I, p. 136. “...[Sinan] *Bükreş*' gibi buna dahi ağadın kal’a yapmaga başlayub iki kât kal’a ve etrafi ‘amık handek kesilüb bir mhäda temâm olundu.” Naima also tells us earlier (p. 132), that the construction of the palisade fortress of Bucharest, which was based on the old Alexander monastery, took only twelve days to finish. According to Count Isolano, a prominent Colonel of the Habsburg army, who participated in many military engagements during the Long War, Sinan Pasha, by ordering the construction of the two *palankas* with strong bastions, intended to give more protection for the Ottoman troops operating in Wallachia. Isolano’s work can be found in a seventeenth-century codex, in the Bayerische Staatsbibliothek, Cod. It. 35, with the original title of *Guerre Descritte della Felice Memoria dei Sig. Conte Giovanni Marco Isolano, Governatore et Colonello in Alba Regale per S. M. Cesarea* etc. In this thesis the much more accessible Hungarian translation has been utilized: “Giovanni Marco Isolano Gr­őf Ezeredes Feljegyzései A Magyarországi Török Hábóürül 1594-1602”, [The Historical notes of Count Colonel G. M. Isolano Regarding The Turkish War In Hungary 1594-1602], Kálmán Benda (ed.), *Hadıtor ténelmi Közlemények XXX* (1983/4), p. 658. (Henceforth Feljegyzések A Török Hábóürül). Isolano was also a well qualified, highly praised fortress surveyor, who was appointed to command the Christian garrison of Székesfehérvár at the end of 1601. *Wathay Ferenc Énekes Könyve*. [The Songbook of P. Wathay] Facsimile Edition. Lajos Nagy (ed.), (Budapest: Magyar Helikon, 1976), fol. 15b. (Henceforth Wathay, *Énekes Könyv*). Wathay, who was the vice-captain of the fortress, tells us that Isolano did his best with his men to repair the badly damaged stronghold, which was taken back after fifty-eight years of Ottoman occupation in September, 1601. Despite the feverish work, the fortress walls still had numerous breaches when the Ottoman army under the command of Grand Vizier Yemişçi Hasan Pasha started to besiege it on August, 1602. Not surprisingly, after a relatively short time, the fortress could not withstand the Ottoman attacks and fell eventually on August 29.
forested region between Esztergom and Buda, and created a noteworthy shortage of lumber products, which, as indicated in the last section of Chapter Two, forced the pashas of Buda to ask for those materials in their sometimes quite hostile letters addressed to the Habsburg archdukes.

According to Hegyi, in the construction of fortified places, the Ottomans’ strategy was to defend the line of the Danube, which had paramount importance for them, and to create a reliable defensive belt around Buda and Pest.47 The Ottoman fortification of the Danube line started to be constructed in the late 1540s, and this project was still in progress in the 1660s.48 The first palanka was named “Korkmaz,” however, in different contemporary Ottoman chronicles, this palisade fort, used by the Ottoman armies as a very important stopping station (menzil) on the way to Buda, was very well known and quite frequently cited as “Cankurtaran.”49 In the northern frontier region, after the

47 Hegyi, “The Ottoman Network,” p. 166. Pálfy mentions, A Császárváros Védelmében, pp. 160-1, that, because of the extreme strategic importance of Buda, the Ottomans were very eager to strengthen the regions around Esztergom and Székesfehérvár, where, besides the construction of a few palankas, they usually tried to build out a network of minor forts from the abandoned medieval Hungarian castles and monasteries. Pálfy also adds that, at Battyán (just southwest of Székesfehérvár), there was an Ottoman built watchtower (kule), which could be a significant fort since it appeared in a 1563 map.

48 For a general introduction to the early modern Ottoman forts in Hungary, see Burcu Özgüven, Osmanlı Macaristan’nda Kentler, Kaleler. (Istanbul: Ege Yayınlari, 2001). This work is richly illustrated with graphics, sketches, plans, copies of etchings etc. One should keep in mind that, as indicated by Csorba, “Veduták és tervrajzok,” pp. 131-41, in the introductory chapter, most of the contemporary artworks are far from being the exact depictions of forts and their surrounding regions, however, they can still give an idea to the readers to visualize the early modern Hungarian military architecture and the nearby landscape.

49 Hegyi, “The Ottoman Network,” p. 166. According to Attila Gaál, an archaeologist who excavated a few sites of Ottoman palankas, these structures were generally constructed at a distance of twenty kilometres from each other along the Danube line, following more or less the ancient Roman limes line. Almost all Ottoman palankas had an old medieval stone-made building as their core, which were surrounded by a hastily built single palisade wall. These forts, regarding their average size, could not even be considered as secondary fortified places, yet they had the very important duty of guarding the strategically vital Eszék-Buda main military road, and also of providing security to ferries and custom houses. Attila Gaál, “Türök Palánkvárák A Buda-Eszéki Út Tolna Megyei Szakaszán,” [Turkish palankas along the Buda-Eszék road in the county of Tolna.] in: Bodó-Szabó (eds.), Magyar Török Végvára, p. 185. On the next page the author adds that the Ottomans, throughout their military presence in Hungary, vigorously protected and maintained these minor forts, and they disappeared only in 1686, when the retreating Turkish forces left behind two thousand Tatar horsemen to burn down systematically the entire Ottoman palanka line. The palanka-type of fortification system itself, however, survived for centuries on the Ottoman side. According to the British ambassador Grenville, writing his report in the second half of
occupation of Drégely in 1552, instead of repairing the very badly damaged fortress, the Ottomans constructed an entirely new palanka fort known as Diregel.\(^{50}\)

The strategically very important Ottoman held stronghold of Székesfehérvár had three suburbs protected by palisade barriers. When the Christian forces approached those fortified outskirts in late October 1593, the defenders set one of them on fire (the so-called Beşlia suburb) with an abundant quantity of hay and dried grasses. This Ottoman move, according to Istvánffy’s historical chronicle, served two purposes: First, the high columns of fire warned the defending Ottoman garrisons of the surrounding area that the enemy had arrived; and second, the intense light of the burning suburb helped the defenders to decimate the looting Imperial troops with their firearms.\(^{51}\)

Even though next day the assailing Christian forces could take the other two suburbs of Székesfehérvár with relative ease,\(^{52}\) the inner fortress proved to be so sturdy that Hardegg, the Captain-General of Győr, realized that, without a siege very costly in both men and matériel, the stronghold could not be taken; thus, after only two days of attack,

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\(^{50}\) Hegyi, “The Ottoman Network,” p. 167. She states (p. 169) that in official Ottoman documents this fort, unlike many other minor strongholds, was always mentioned as kale-yi Diregel, which might indicate that the Ottoman garrison did have some sort of stone-made fort after all. This could explain the statement made by Illésházy, Főjegyzések, p. 8, in which he says as an eye witness of the siege in December 1593, that the Turkish garrison first set the palanka on fire, and when the besieging Hungarian soldiers extinguished it, the defenders burned down both the town and the fortress and fled without offering any resistance.

\(^{51}\) Istvánffy, Regni Hungarici Historia, p. 397. Warning fires, called Kreidfeuer in German, had also been employed by the Imperial side, too. Since the so-called Defence Orders of the fifteenth and sixteenth centuries, frontier regions under constant danger of Ottoman incursion had a well functioning warning system. In the Austrian territories a delicate network of “shooting and fire stations” were set up in order to alarm the local population and military forces in case of enemy invasion. J. Frank Pichler, “Captain John Smith In The Light Of Styrian Sources,” The Virginia Magazine 65 (1957/3), p. 347.

\(^{52}\) Decsy, Magyar Historia, p. 77.
he was forced to withdraw from Székesfehérvár.\footnote{According to Istvánffy, Regni Hungarici Historia, p. 397, who was an eyewitness of the siege, the Ottoman defenders strengthened the inner gate with logs and earth in palanka style, which could have easily withstood much more intensive artillery fire. “...[portam] ab inclusibus hostibus terra&cespite, roboribusque interjectis adeo eart munita, ut vel ingentium tormentorum ictus facile sustineret...” However, Istvánffy tells us on the same page that, because of the sloppy attitude of Hardegg regarding the preparation of that campaign, the besieging Christian forces had only a few light cannons “falciorum minorum”, none of the large wall-battering guns had arrived in time. Anticipating further Christian attacks, the Ottoman defenders between 1596-9, and in 1601, tried to strengthen even more their existing palisade defence system. Fodor, “Bauarbeiten der Türk’en,” p. 80.} Although on November 3 at Pákozd, just north of Székesfehérvár, Hardegg defeated decisively the Ottoman relieving forces led by the beylerbeyi of Buda, the exhausted and very desperate Turkish garrison could survive due to Hardegg’s reluctance to attack the city again. As mentioned earlier, because of his superficial preparation, his army lacked the heavy artillery needed to create the multiple breaches considered vital if the assault on Székesfehérvár was to succeed; thus, there was simply no possibility of carrying out a lengthy siege. Hardegg’s mentality is well reflected in a statement he made, namely, that his mandate was not sieges but only fighting the enemy forces on the battlefield in order to chase them away from the province.\footnote{Decsy, Magyar Historia, p. 81. “...solus Hardekius sibi curam belli commissam asserere, non ad urbes obsidendas se profectum, sed ad rem foris cum hostibus gerendam, [italics added] ad propellendos eos a finibus, ad provinciam ab eorum metu liberandum...”}

Needless to say the earth filled double stockade did not always prove to be an indestructible obstacle for the attacking army. In the case of Szabatka (modern Sobotka, in Slovakia), for instance, the Imperial troops under the command of Christoph Tieffenbach,\footnote{Although his name more often appears in the secondary literature as Teuffenbach, I have been using the Tieffenbach form, since this was the way he signed his own name. See Mórf Vitéz Kárpáthy Kravjánszky dr., Vác És Hatvan A Hesszú Török Hányorú Idejében, [Vác and Hatvan During the Period of the Long Turkish War] (Budapest: Királyi Magyar Egyetemi Nyomda, 1936), p. 3, footnote no. 2. (Henceforth Kárpáthy Kravjánszky, Vác És Hatvan).} the Captain-General of Upper Hungary stationed in Kassa (modern Košice, in Slovakia), were well prepared for siege operations. After three days of very heavy cannonade, the palisade walls of the fortress started to disintegrate, and the
Ottoman garrison was forced to flee to the inner citadel. Only one infantry charge was subsequently needed to take the citadel too, and on November 18, 1593, the remaining defenders were put to the sword.

The Ottoman forces, like their Imperial antagonists on the other side of the front line, strengthened numerous old, medieval stone forts with the addition of *palanka* outworks. In these cases, the *palanka* meant the only outwork of a larger fortified place, because the Ottoman military engineers, just like their imperial foes, did not use the regular system of glacis or covered ways, which became a standard feature in Western Europe. Besides the wooden forts, the only other fieldworks observable to a contemporary traveller were usually simple, rather shallow 100-150 cm deep ditches (either wet or dry) dug around these fortifications, with the earth thrown forward to form a not very impressive parapet. Wet moats were usually preferred to the dry ones because they impeded the mining operations carried out by the attackers and also provided better protection against any kind of surprise assault on the fortress. In medieval Hungary, many fortified places were located near natural water obstacles like rivers or marshlands, which could provide a steady supply of water. On the other hand, one must note that water filled moats caused serious sanitary problems for the defenders, due to the fact that garbage and human waste usually ended up in them, making ditches into huge cesspools.

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56 Istvánffy states, *Regni Hungarici Historia*, p. 399, that Ottoman soldiers from the neighbouring town Fülek (Filek) had recently built the fortress. Thus the stronghold was in very good shape, surrounded by the newly constructed double stockade, while the stone-made citadel was protected by a wide moat.

57 It is necessary to note that in the critical edition of Ta'lîkî-zâde, (p. 30), the town of Szabadka was misidentified. There is a place where Ta'lîkî-zâde, *Şehnâme-i Hümayûn*, fols. 26b-30a, pp. 170-80, gave “a long and impassioned” account of the intense fighting at Subotica, which was “an Ottoman town to the east of the Danube north of Belgrade.” [italics added] It must be pointed out, however, that Ta'lîkî-zâde’s میروحتی is Szabadka in northern Hungary (modern Sobotka in Slovakia). Ibrahim Peçevi, in his historical work *Tarih-i Peçevi*, 2 vols. (Istanbul: Matba’â-i ‘Amire, 1283/1867), vol. II, p. 140, mentions that the majority of women and children fled to Pest before the siege. “Palanka-i mezburda olan guzât affâl u avrâm ekserini Peşte‘ye kâşurdular.” It is obvious that had the siege taken place at Subotica, the women and children would have fled to Belgrade. The siege mentioned very briefly by Tóth, *Mezőkeresztes*, p. 143. The author did not notice the misidentification of Szabatka.
One proper example here to demonstrate the employment of a *palanka* outwork is the fortress of Nógrád, where a massive, Ottoman made, double earth filled stockade of stout tree trunks reinforced the old stone-made fortress.\(^{58}\) This palisade structure, surrounded by a ten-meter-wide deep ditch, represented a complex defensive system. A geographical factor, however, gave a great disadvantage to this stronghold, which could not be overcome by the boldly fighting Ottoman garrison. The surrounding heights, where the local vineyards were located, overlooked the whole defence structure and provided an excellent, ready made gun platform for the besieging enemy.\(^{59}\) Therefore, in case of heavy bombardment, which in fact happened to the fortress in March 1594, Nógrád was incapable of withstanding a long siege. Although the Ottoman defenders on March 7 bravely made the first move and placed under heavy fire the arriving Christian troops, led initially by the Hungarian commander Pálffy, and then by Archduke Mathias himself, three days of intensive cannonade by the Imperial forces quickly shattered the stronghold.\(^{60}\)

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\(^{59}\) Ibid., Various geographical factors of Long War will be further explored in Chapter Four.

\(^{60}\) According to the well informed Knolles, *The Generall Historie*, p. 1030, the besieging forces even in the valley “cast up a great mount...to shoot the castle from the proper heights”, while the Ottoman author Peçevi, in his *Tarih-i Peçevi*, vol. II, p. 141, talks only about the heavy wall-battering cannons, “[küffär]... Novgrad kal’asna düşdüler ve azım toplar kurub dökmeğe mübaşeret itdiler.” The Ottoman author also adds on the same page that Hasan Pasha and most of his troops in Buda were still injured due to the Battle of Székesfehérvár, which Peçevi correctly calls the Battle of Istoni Belgrád. Thus the Ottoman commander of the nearby Buda could not send any relieving army. “Hasan paşa ve Budun askeri dahi Istoni Belgrád mühâberesinin zahl hördesi olmakla indâdina gemediler...” One may mention that the Grand Vizier, Sinan Pasha, did order his son up from the Sirem region, where his winter camp was located, to give military help to the northern Ottoman garrisons. Mehmed Pasha with his very modest army of a few thousand troops, however, reached Buda late. The town of Nógrád was burned down by the *sancak beyi* himself, while the *palanka* structure, after showing signs of cracking, was set on fire by the besiegers. The hopeless fight was eventually terminated on March 10, when, as mentioned earlier (p. 83, footnote 12 above), the German chief cannoneer in the Ottoman’s service was killed, and the rest of the Ottoman defenders gave up the fortress.
It is necessary to point out that the main military function of the various *palankas* was to guard certain strategically important areas in Hungary; thus, without fast, effective help from the outside, they could only temporarily resist larger besieging armies. For that reason, after the fall of the important fortress of Fülek, seat of the *sancakbeyi* (district governor) of *liva-i Filek*, not surprisingly, numerous minor Ottoman forts in the surrounding area were taken by the attacking Christian forces without any notable fight. In analysing various sieges, it is always interesting to address the questions of soldierly conduct and troop behaviour as seen by either participating side or just contemporary observers. Sources on both sides generally agree that, after learning about the defeat of the Ottoman relieving forces and the fall of Fülek, the garrisons of the minor strongholds fell into panic and set off a kind of chain reaction of surrender in which the Christian forces retook twelve minor Ottoman forts in just three weeks.

Murphy correctly states that it would be a great mistake to regard every Ottoman move from the point of “secular desires for world dominance or spiritual motives such as the triumph of Islam.”

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61 On palanks’ military role one should consult Hegyi, “The Ottoman Network,” pp. 166-9. A good historical example is given by Abdülkadir Efendi: Grand Vizier Ibrahim Pasha in 1600 ordered the construction of a palisade fortress at Eszék (Ösek, modern Osijek), where the Ottoman troops always crossed the river Drava on their way to Buda or Western Hungary. The primary task of the new palanka fortress was to keep various Christian raiding parties away from the bridge. “Dahi Ösek c situación dine bir cedid palanka binası mühimdir ve tufanklı hisar erleri tahrir eder – deyip fermán idüb. Ekser-i kefere-i fecereden Ösek köprüsüne zarar mukarrerdir. İhtiraz lüzmddir.” *Veküyi-i Tarihiyye*, foll. 129b.

62 In the case of the first Imperial siege of Hatvan in 1594, the spectacular defeat of the Ottoman relief forces led by Mehmed Pasha, *Beypbeyi* of Rumelia, and Hasan Pasha, the governor of Buda, did not alter the fierce fighting spirit of the Ottoman garrison. This behaviour stunned the attackers, because even Püçevi at one place, *Tarih-i Püçevi*, vol. II, p. 143, regarded this defeat as a more serious loss than the one the Ottomans suffered under Székesfehérvár about six months earlier. “Bu muharebe daha üç dört binn adam rahi-i adim dutub rübeysi şehadete kadam bārdi. Nihayet Istom Belgrād muhārebbeinden aşğa bu da bir bed nämlik old.” The defenders of the fortress, however, probably put their trust in the massive triple walls (see footnote 36 above), and could survive a two month-long heavy siege. On the stubborn Ottoman resistance see also Decsy, *Magyar Historia*, p. 102.

63 Murphy, *Ottoman warfare*, p. 1.
Nagykaniszsa, the defending Ottoman garrison soldiers offered more vehement resistance than the enemy expected (which historical fact, as one can see later in this chapter, was recognized even by the chroniclers on the opposing side). In completely hopeless military situations, however, the Ottoman fortress defenders, just like any other soldiers in Europe, usually fled without initiating any heroic resistance effort.\(^{64}\)

The aforementioned Fülek, as the strongest Ottoman fortified place in northern Hungary, would ensure that any siege would be costly in time and lives for the Imperialists. This place had three different lines of defence. Outside, a deep ditch and a palisade fence surrounded the small provincial town, while inside, an earth filled double stockade bulwark offered refuge for the defenders. As the last resort for the defending garrison, there was a stone-made citadel built slightly above the town on solid rocks.\(^{65}\) As mentioned earlier, Tieffenbach and his Imperial army, after the occupation of Szabadka

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\(^{64}\) Câfer Çelebi reports in his chronicle, \textit{Tarih-i Sefer-i Üngürüs}, fol. 36a, that when the garrisons of small forts realized that they could not get any further military help, the Ottoman defenders left their place and scattered around the surrounding region. "... Gelevi(?) ve Boyak (Bujak) ve Derbend(?) ve Holok (Hollókő) ve Ipol (Ipoly) nám kül’in istihlåsına mu ‘ävenet ü müzâheret olunmadığı ecelden asker-i İslâm canlıbinden her birisi ümmüdilerin kat’ idûb ka’t’aların birâbug, parâkende vü perîsân âhar diyârda evtân idündüler.” A few names of the Ottoman forts fallen to the Christian forces are mentioned by Mehmed ibn Mehmed, \textit{Nuhbeti-i-tevârîh ve ‘l-âhîbâr} (İstanbul: Takvimhane-i ‘Amire, [1859]), p. 168, and almost all of them mentioned by Kâtip Çelebi, \textit{Fezleke-i Tarih}, (İstanbul: Ceride-i Havadis Matba’a,s, 1287/1870), vol. I, p. 20. Töth, \textit{Mezőkeresztés}, p. 144, gives a list of twelve castles and \textit{palankas} that were taken back by the Imperial troops. Among these places was the fastness of Divény (Divin), which was simply abandoned by its Ottoman garrison regardless of the fact that this place was greatly fortified. See Decsy, \textit{Magyar Historia}, p. 88. “Ita arx egregie munita, vacua, desertaque, in potestatem eorum venit.” One can see the same trend in the following year; when two prominent Hungarian commanders, György Zrínyi and Ferenc Nádasdy unexpectedly attacked the southern Ottoman fortress of Berzence (Berzeng), which is briefly mentioned as Berenvâr in Kâtip Çelebi’s chronicle, \textit{Fezleke}, vol. I, p. 28. The surprised Ottoman garrison set on fire the fort and fled on the very next day (March 23). See also Illésházy, \textit{Főjegyzések}, p. 8, and Istvánffy, \textit{Regni Hungarici Historia}, p. 405, respectively. According to Istvánffy, the fortress was well equipped by both guns and victuals, the besiegers managed to drag seven wall-battering guns and the same number of culverina cannons out of the flames. During the next couple of days, garrisons of smaller Ottoman forts such as Segesd (Şeges) or Szöcsény (Söçen) had also burned down their places before they fled without offering any resistance. Knolles erroneously thought, \textit{The Generall Historie}, p. 1030, that a “safe easie way layd open euon to Ziget,” because the strong palisade fort of Babócza on the way of Szigetvár was not taken that time.

\(^{65}\) Decsy, \textit{Magyar Historia}, p. 87.
on November 18, 1593, arrived at Fülek on the following day and immediately put the fortress under siege (November 19-27).

The Ottoman leaders were well aware of the strategic importance of Fülek, and so relieving forces were sent to the region both from Buda and Temesvár, respectively. The two armies combined could have had from ten to fifteen thousand soldiers, which can be considered significant help, since the Imperial army had about the same amount of troops. However, through a surprise attack on November 21, Tieffénbach managed to inflict heavy losses on the Ottoman relieving forces, and this rapid victory left the fortress of Fülek completely isolated from the outside world. After a couple of days of heavy bombardment, the Ottoman garrison, running short of supplies and practically left alone, found any further resistance a hopeless military venture. Thus on November 27, on the condition of guaranteed safe conduct, the garrison surrendered to Tieffénbach.

In a few cases, a palisade wall could serve the defenders as a quickly built emergency protection against besieging hostile troops. The Ottoman garrison of Temesvár used it very effectively in May 1596 against the attacking Transylvanian army led by Prince Zsigmond (Sigismund) Báthory. While the suburb of the fortress was given up without

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66 Tóth, Mezőkeresztes, p. 143. Kátib Çelebi briefly mentions the Ottoman relieving forces that tried to save their Upper Hungarian fortified places, “... serhad heylerinden Kara Ah bey, ve Zülfikär bey ve Osman bey Vâc etrâfinda olan asker ile Fülek yârđumna varub...” Fezeleke, vol. I, p. 20.
67 The Ottoman author Selânikî considered the surrender as a shameful act, although he knew that the supply shortage forced the defenders to give up, “…bi-gayret ü hamiyetîlik ile âlemdede leke ve bednâmîlk ihtiyar idüp esbâb ve âlâ-i darb u harbden barut ve zahire yokdur diyû [italics added] ka’âyî birâğub gitmek ile a’dâ-i dîn-i müşrikin ka’âyî zabt...” Selânîkî Mustafa Efendi, Tarih-i Selânîkî, 2 vols. Mehmet Işirli (ed.), (İstanbul: Edebiyat Fakültesi Basmevi, 1989), vol. I, fol. 192b, p. 344. According to another generally reliable Ottoman author, Kâtib Çelebi, Fezeleke, vol. I, p. 20, the Muslim defenders carelessly shot out all their projectiles and, thus standing helpless, they were forced to give up the fortress on the promise of safe conduct. “…Müslûmânlar topların fenâye vîrdûkden sonra nâçâr kalub...âman târîkî ile hîsâri eleyûyû...” It must be credited to Kâtib Çelebi that Istvánffy also states in his historical work, Regni Ungarici Historia, p. 400, that the enemy was firing very intensively on the Christian besieging forces. He also admits on the same page, however, that a serious epidemic (actually scurvy due to the malnutrition) broke out amongst the Ottoman defenders, which, quite understandably, devastated their fighting morale very soon.
any notable fight, the surrounded defenders vigorously protected the inner military stronghold. The garrison, trusting in the massive walls and extensive surrounding swamps, offered very fierce resistance. Only after a heavy bombardment could the Transylvanian artillery make a breach in the wall of the citadel. However, before the general infantry assault was ordered, the Ottoman garrison, instead of trying to patch the breach, could in a matter of hours build up a protective palanka barrier behind the crumbled wall. From behind this fencelike structure, the Ottoman defenders inflicted heavy losses on the attackers, who did not dare to try to make another attempt before they left the fort soon afterwards.  

One should note here, however, that on the opposite side of the same frontier region, Christian soldiers in the fortress of Nagyvárads (Varad) used a similar effective method of defence in 1598. According to Eltis, The Military Revolution in Sixteenth-Century Europe, p. 30, in early modern times not only the trace italienne type strongholds could vigorously resist the besiegers. Sometimes even a relatively obsolete fortified place could function well, if in that particular fortress there was a sufficient number of firearms, and if there was also large enough space behind the walls to build up an internal trench line in order to hold off the assailants around the area of the breach. In the author’s words, “An outdated fortification furnished with ad hoc improvements, artillery, arquebusiers and musketeers served just as well. The only inhibiting factor was the room available to dig internal trenches for the defenders to defend breaches made in the old-fashioned walls of the fortress they were defending.”

One can read Mehmêd bêh Mehmêd’s statement in his Nuhbêti Tepâr, p. 198, “...lağım attılab, gedik açılmägä der akub yürüüş olub, lakin melâ‘înlar divârîn öte yüzüne çitden bir divâr dahi itmekle dahl-i kal’a olumadı.” It is interesting to note that in West European warfare the defenders built a defensive trench behind the breach, which was variously called “a retirata, a retrenchment or a half-moon.” Eltis, The Military Revolution in Sixteenth-Century Europe, p. 87. He adds on the same page that, “In it, ...[there] would be posted men with firearms able to fire point-blank into the breach.” It is no wonder that Isolano, the Italian captain of Székesfehérvár in 1602, ordered the construction of a retirata in order to withstand the Ottoman bombardment. This defensive earthwork, “as good as a palisade,” proved to be very effective against the attacking troops, though, because of its modest height, turned out to be less protective against the hostile cannonade. See Wathay, Énekés Könyv, fol. 18a. Duffy mentions, Siege warfare, p. 15, that in 1500, the defenders of the city of Pisa used inner ditch and earthen bank, which withstood the
c) Various Siege Techniques Utilized by Both Armies.

Garrisons at the fortresses on both sides of the Habsburg-Ottoman front line were composed mainly of turbulent, hard-to-handle types of individuals due to the fact that they were often neglected, and very irregularly paid even by the Ottoman central government. The case of acute financial difficulties on the Habsburg side is a well known historical fact; it is enough to refer here to the spectacular desertion of the Walloon mercenary troops who were the defenders of the fortress of Pápa in 1600. On the Ottoman side, the military establishment could employ, at least in most of the large important fortresses, highly skilled professional soldiers equipped with modern weaponry, who usually offered very fierce resistance to the besieging Imperial army no matter how badly they were outnumbered.

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71 Finkel, "The Desertion of the Pápa Garrison," pp. 451-71. See also the supplementary notes made by Sahin-Tóth Péter, "À Propos d’un Article de C. F. Finkel: Quelques Notations Supplementaires Concernant les Mercenaires de Pápa," Turcica 26 (1994), pp. 249-60. Regarding the opposite side, Finkel mentions that the Ottoman frontier garrisons had also experienced great troubles, sometimes due to the lack of proper funding. By the summer of 1595, for instance, the kul soldiers serving as the garrison of Szigetvár "had not been paid for a year or a year and half", which obviously did not help the fighting spirit of the these soldiers. Idem., The Administration of Warfare, p. 94. This long delay of payment to the garrison troops is particularly telling since Szigetvár had been promoted to beylerbeyilik status in the previous year. On the administration of Szigetvár see Géza Dávid’s informative article, "Die Bege von Szigetvár im 16. Jahrhundert", Wiener Zeitschrift für die Kunde des Morgenlandes 82 (1992), pp. 73-96. On the other hand, kul soldiers participating in campaigns were, more or less, paid regularly. Abdülkadı Efendi mentions at least a dozen times the distribution of salaries in cash (mevâcibler) to Janissaries and other kul troops. A very few examples are enough to be mentioned here: Masar of Hicri 1006 paid in Rıbbâldâhir (fol. 96b), Recce and Reşen of the same year paid in Zilhicce (fol. 100b), Masar of Hicri 1008 paid after Ruz-t Kasım (fol. 126a), etc.

72 It was obviously a different case at the smaller forts in the late autumn of 1594, when “evil martolos soldiers” from eight or nine abandoned forts, led by the alay bey of Szécsény started to pillage Ottoman held settlements in the vicinity of Vác (Vâc). Eventually, the whole gang was trounced and scattered by the kethûda of the beylerbeyi of Buda, and five of the leaders were hanged in Buda. See Kâtip Çelebi, Fezleke, vol. I, p. 21. Murphy writes, Ottoman warfare (endnote no. 19, p. 213) that there was a certain “Ottoman unpreparedness for full scale war in Hungary” after a couple of decades of relative peace; it took a while for the Ottomans to get used to the new military situation. Murphy demonstrates this “Ottoman unpreparedness” by quoting Selâniif, who reported that, at the end of 1593, mainly “the emergency recruits of meryol tâ’ifesî (forced recruits from the peasantry),” with very limited military value, were primarily serving along the borderline between Esztergom and Hatvan. It is necessary to note here that the Ottoman author did give the reason for employment of the meryol tâ’ifesî, which was somehow omitted by Murphy.
Finkel’s statement about the reoccupation of Győr in 1598 by the joint Habsburg-Hungarian forces, which was “accomplished with little resistance from the garrison,” must be supplemented here with some information provided by a few contemporary narrative sources. It is definitely true that the Christian soldiers, thanks to their effective use of their secret siege weapon, the petard, could carry out a surprise attack on the Ottoman defenders of Győr. It is also a historical fact that the Imperial attackers could virtually enter the fortress without any resistance from inside the fortress. However, it is imperative to point out that the Ottoman garrison resisted very vehemently and forced the attackers to engage in a costly heavy fight. Furthermore, despite the rapid surprise attack by the Christian forces, the stunned Ottoman defenders of Győr not only offered a tenacious and fierce resistance, but also showed a remarkable capacity for recovery.⁷³

According to Selânîki, the Ottomans drafted six thousand kul-ögli soldiers for the defence of the aforementioned region. However, it became obvious very soon that these poor, “naked” troops were not willing to fight the infidels without satisfactory compensation. The majority of them demanded not only proper clothes but livelihood (dirlik) as well. The Ottoman leadership, understandably, for financial reasons, rejected this demand made by the designated soldiers and, as an emergency solution, started to recruit peasants for military purposes. Selânîki, Tarih-i Selânîki, vol. I, p. 347, fol. 194a. “...alt Tin nefer yeniden kul-ögli yazub vilâyet-i Budun ve Estorgon ve Harvan muhâfazasi içün âdem tedârûk eyledüklerin bildürmüsler. Yeni yazilan çıplak leşker düşmen-i din mukâbelesinde mukâteleye mukâvevet idemiyeci rûşen iç zâhidir. Ekseri âriyel libâs ve yarak ile dirlige tâlib olmislardur. Serhadd-i mansûre hidmetine dahi tahammülleri yokdur. Cebeci yazilanlar hûd esnebi [sic] çift-boyan maryol tâ‘ifedur.”

When the author refers to the fall of Győr, The Administration of Warfare, p. 69, which was, according to her, easily retaken by the Imperialists, she gives it as an example of the declining morale of the Ottoman garrison corps. Janissaries in the fortress were involved in typical urban life, neglecting their routine military duties; moreover, most of them were also married and living, or at least spending a considerable amount of time, in other Hungarian towns like Székesfehérvár, Pécs (Peçuy), or Koppány (Kopan); thus, the strongest contemporary Hungarian fortress was almost empty at the time of the Habsburg attack. While Finkel’s narrative source, Tarih-i Peçevi mentions (vol. II, p. 211) that many soldiers lived actually outside of the town, any reference to the alleged “little resistance” offered by the Ottomans cannot be found in his writing. Moreover, Peçevi tells us on the same page that at one point the badly outnumbered garrison could almost expel the attackers. (“Hattâ bir kere yine ihrâc idecek mertebeye getürmişler.”) It must definitely be credited to Peçevi that he did not use exaggerated rhetoric; the Ottoman soldiers were really close to expelling the besiegers entirely from the fortress. This statement can be confirmed by objective Christian sources as well. Decsy, for example, Magyar Historia, p. 316, frankly admits that the Ottomans undertook real heroic efforts to save this strategically very important fortress. According to him the attacking forces were three times pushed back up to the gate, and there was no doubt that they would have been completely ejected if the Christian lancers had not intervened reversing the tide of the skirmish. Yet it was necessary for the Imperial forces to haul a few cannons into the fortress to overcome the very fiercely resisting Ottoman garrison. “... ut tribus vicibus nostros ad portam usque propulsaverint, procul dubio tota urbe
In the case of modern or at least modernized fortresses even a relatively small garrison could hold out as long as its supplies lasted or as long as it could avoid demoralization. Therefore, not surprisingly, the besieging forces attached paramount importance to the use of stratagems for undermining the defenders’ fighting spirit through either intimidation or various kinds of promises designed to win over a certain number of soldiers. In a very few cases even a small, insignificant fort could offer an unpleasant surprise to an overconfidently marching army.

One can refer here to an interesting episode which took place during the northern campaign of the Imperial troops in late autumn 1593. For the campaigning Christian army there was no need for any particular frightening tactic due to the fact that the garrisons of minor Ottoman palisade forts abandoned their posts even before the attacking army arrived. The unchallenged Imperial army was, however, greatly surprised by the Ottoman garrison at the insignificant fort of Szandavár (Sontâ), which welcomed the arriving forces with cannon fire. This unexpected brave resistance stunned the Christian army, which in late November did not dare to set up camp and start a full siege.

74 The promise of safe conduct upon surrender sounded more than satisfactory many times to demoralized defenders who had decided to terminate their fight. Moreover, in 1596, shortly before the fall of Eger, when the Ottoman troops were occupied with mining around the inner fortress, 250 mostly Italian soldiers had abandoned their posts and fled to the enemy’s camp, where they even became Muslims. Decsy, Magyar Historia, p. 270. “Interim CCL miliites, quorume plerique Itali fuerant, clam ex arce elapsi in castra hostium transfugerunt, eorumque religionem amplexi, apostatae facti sunt.” Mehmed bin Mehmed also reports, Nuhbeti ‘i Tavârîh, p. 228, that, after the Ottoman re-occupation of Esztergom in 1605, a certain number of “Frangis” (no specification is given about their nationalities) became mercenaries in the Ottoman service. Finkel, “The Desertion of the Pâpa Garrison,” p. 452, found evidence that “a number of ‘Austrian’ ” from the fort of Visegrád (Viegrad) had already served on the Ottoman side during the siege. “Kezalik tâ’ife-i Frenk taraf-i Islânâda hidmet idenlere mulhak olub, anlara dahi ulûfe tayin olundu.” From the opposite side, one should mention Kâtib Celebi, who writes in his chronicle, Fezleke, vol. I, p. 20, that, after the fall of the Ottoman stronghold of Filek in late autumn, 1593, 200 Muslim civilians, without specifying their ethnic background, became renegades and remained in the freshly occupied city. “Iki üç yüz kadar ricâl ve nisâ Filekde kalb mürteded oldular.”
Thus, this minor fort was the only place in the surrounding region that did not fall into Habsburg hands.\textsuperscript{75}

While both armies generally abstained from the systematic destruction of gardens and other cultivated lands, in a few cases various detachments of troops were deputed by the besieging army to ravage the surrounding area. The goal was to cut off the defenders’ supplies entirely and leave the fortress isolated from the outside world. Tatar contingents in Ottoman service were frequently used for pillaging the countryside,\textsuperscript{76} since Ottoman commanders were aware of the general difficulty of maintaining the Imperial army’s supply lines. In case of a Christian siege, the Ottoman garrison tried to exploit scorched earth tactics in order to decrease the chance of a prolonged siege. Putting crops to the torch, slaughtering livestock, and razing or burning nearby buildings were actions that could be very effective in the demoralization of hostile troops.

In 1594, the Ottoman defensive forces of Nógrád not only set the suburb on fire, but also burned all nearby wheat silos. Following this act, haystacks were collected, and all surrounding fruit trees and even the fences of the gardens were cut out with “barbarian wilderness” to prevent the approaching Christian army from utilizing any local resources.\textsuperscript{77} Later that year, the Ottoman garrison of Esztergom used the same method to demoralize

\textsuperscript{75} Kâtib Çelebi, \textit{Fezleke}, vol. I, p. 20. According to him, most of the defending Ottoman soldiers fled to the nearby mountains and only the local commander, whom the author called rather exaggeratedly \textit{dizdâr}, remained with a few men in the fort. “Sontâ kal’asımın askeri dañi kurbanda olan dâglara firâr edüb, içinde hemân dizdâr ile bir kaç nefs kaldî. Dûğman asker kurbına geldikde toplara ateş itdîler. ‘İçinde asker var’ - diyû üzere varmayub ol zaman hemân yâlnîz bir hisâr kûrtuldî.”

\textsuperscript{76} Mária Ivánics, \textit{A Krími Kánság a tizenötôiés háborúban} [The Crimean Khanate in the Fifteen Years War] (Budapest: Akadémiai Kiadó, 1994), p. 161. The light Tatar cavalry squadrons presented little military value during sieges, though they could be used effectively to desolate the surrounding area. Ivánics notes, (pp. 161-2) that during the first Christian siege of Buda in 1598, Tatar horsemen were ordered up from Várad at once in order to rob and burn settlements in Pest.

\textsuperscript{77} The story is told by Istvânnffy, \textit{Regni Hungarici Historia}, p. 403, “...simul cum horreis & frugibus, ac foeni straminisque cumulis, quos foris congerretur, tantâ vi & saevitiâ, ut etiam in hortos, eorumque sepimentae & arbores fructiferas, ne nostris usui esse possent, excisendas, barbarâ feritate debaccharentur; ...”
the attacking Imperial troops; the extensive suburb with its storehouses was completely burned down before the Imperial besieging forces could take any advantage of them.\textsuperscript{78}

One year later, in 1595, Grand Vizier Koca Sinan Pasha, after learning about the rapid fall of the fortress of Tığovişte (October 18), decided not to leave anything for the approaching Christian troops, and ordered the immediate burning down of the fortress of Bucharest, which had been built by him a short time earlier.\textsuperscript{79}

Usually starvation proved to be the most effective form of siege-craft that the attacking forces could use; there was simply not any garrison, either Ottoman or European, that could withstand a prolonged shortage of food. In most cases, water played an even more crucial role than food did.\textsuperscript{80} The absence of water, or a severe shortage of water had a devastating effect on any garrison, since water was used not only for drinking purposes but also for breadmaking and extinguishing fires.\textsuperscript{81} If the attacking forces were able to maintain their own supplies, which, in numerous cases, also turned out to be an enormous military task, the best siege strategy was simply to starve out the enemy.

\textsuperscript{78} Ibid., p. 406. "Turcae cûm nostros castra metantes conspexissent, exemplû subrubia, quae latè patebant, ac horrea & io genus aedifica injecto igne concremârunt, ..."


\textsuperscript{80} Even Vegetius, writing his military manual in late antiquity, saw very well the extreme importance of the water and food supply. Under general siege conditions, either side could hardly expect victory without a sufficient supply of provision. The lack of food and water could not be supplemented by any military skills, "...quibus malis nulla arte succurritur; ..." \textit{Epitoma Rei Militaris}, p. 270.

\textsuperscript{81} A good example of this can be taken from Peçevi’s eyewitness account of the second Imperial siege of the Ottoman-held Esztergom in 1595. According to the author, the two thousand shots a day (a very heavy bombardment) did not break the fighting spirit of the Ottoman defenders. However, the severe food shortage, and, after the fall of the waterfront suburb, the desiccated cistern (sahiranc), did have a devastating effect on the garrison’s morale. In \textit{Tarih-i Peçevi}, vol. II, pp. 181-2, one can read Peçevi’s graphic description of the suffering of the injured Ottoman soldiers dying for water. The account underlines the crucial role of basic commodities in the life of the average defender. Facing the reality that there was no more hope for any outside relief, the Janissaries shortly afterwards forced the Ottoman commanders to negotiate the conditions of surrender. According to another Ottoman source, Mehmed bin Mehemed, after a month of siege there had already been severe water shortage in the fortress and a single draught of water cost one gold ducat. "... otuz gün muhâsara kaldı: bir içim bir altına sâtıld.” \textit{Nuhbetü'l-tevârîh}, p. 181.
It was usually an obligatory military move to impose a complete encirclement on a particular stronghold; without this the tactic of starving the enemy into surrender could not possibly work. One should note here in brackets, however, that the full encirclement of a given stronghold involved no systematic picketing on the part of the besieging forces; the surrounding areas were not sealed off. In many cases, defenders seem to have encountered little difficulty in slipping through hostile lines.82

In 1594, the complete encirclement of a hostile fortress played no prominent role in either Habsburg or Ottoman military planning; both opposing armies were quite overconfident about their artillery powers and followed a clearly erroneous siege strategy. The Imperial troops during the first Christian siege of Esztergom had never really made any considerable effort to occupy Cigerdelen palanka on the opposite side of the Danube; thus the Ottoman garrison could maintain its communication and supply lines with Buda. The strong cannonade and the great number of self-sacrificing individual actions during various assaults on the fortress of Esztergom proved to be rather useless military tactics, and the besieging Imperial forces, which suffered significant losses, were forced to terminate their siege. Shortly afterwards, the besieging Ottoman forces before Győr, at the beginning of the operation also had not surrounded the fortress completely and had started the siege with the same faulty and rather fruitless tactic, that is, exclusive reliance on strong, continuous artillery fire. However, when Grand Vizier Sinan Pasha, whose

82 Suffice it to give here two concrete examples: during the second Christian siege of Esztergom in 1595, despite very heavy perpetual bombardment and continuous attacks, the Ottoman garrison could manage to send a number of soldiers to Buda to ask for help. "...kal'aya bin beş yüz top ururdu [Italics added] kal'adan serdâra âdamlar eçiler varub feryâd itdüler." Ibid., p. 181. In the second example, another Ottoman author, Ahmed Hasan Bey-zâde, reported that in 1598, during the first Christian siege of Buda, the fortress garrison suffered from heavy onslaught. This most important Ottoman stronghold received more than a thousand cannon shots a day, yet the defenders managed to send out soldiers in order to call for succour from the Ottoman serdar, Sâurç Mehmed Pasha. Tarih-i al-i Osman, fol. 28b. "...Budundan feryâdclar gelüb, 'kefere-i fecere ...kal'a-i Budun dihi mubahâsara edüb her gün binden ziya'ade top urub' diyû ..."
controversial personality rather divided the contemporary Ottoman chroniclers, realized
the flaw in the position of the Ottoman troops, he did not hesitate to change tactics and
provoke a battle with the Imperial forces in order to surround Győr completely. When
that was done, the surrender of the strongest fortress in Hungary was just matter of time.
Without hope of receiving any outside help, the garrison soon terminated its resistance to
the besieging forces.\(^83\)

Various planned activities carried out by the attacking forces were directed against
the hostile garrison in order to change attitudes and morale. Through this activity, a given
military objective could be achieved faster. There was sometimes a considerable effort
made by both sides to try to influence the emotions and behaviour of the opposing army.
Military commanders did not hesitate to use the tools of psychological warfare, because
they were related to army morale; the importance of morale was always apparent to both
sides. The most common form of these tactics was an attempt to demoralize by fomenting
anxiety and discontent among the hostile defending forces. In a few cases, for instance,
both the Ottoman and Christian military forces, displayed the heads or the dead bodies of
enemy soldiers during the siege as a possible tool to demoralize the garrison.\(^84\)

\(^{83}\) See Pálfy, *A Császárváros Védelmében*, p. 209. The author has flattering words about Sinan’s tactic.
\(^{84}\) Istvánfyll tells us, *Regni Hungarici Historia*, p. 430, that in 1595, during the second siege of Ottoman
held Esztergom, the Christian forces made Abdullah, the former commander of Koppany, stand alive in an
advancing trench from where he was seen by the defenders. According to the chronicler this move greatly
helped to achieve the final victory. “Mágnun tamen momentum ad totius victoriae accessum attulit
Abudalhies capti, & in aggeres tormentarios producti conspicus. …” On the same page, however, he
correctly gives the water shortage as a possible answer for the Ottoman surrender. “…sive jam amissa urbe
aquaria, sitiis incommoda & aquae penuriam veritus, …” This statement coincides with Pechevi’s explicit
description mentioned above. Six years later during the unsuccessful Imperial siege of Nagykanizsa in
1601, the Christian troops utilized this kind of tactic again. On that occasion the severed heads of [Mankir
Kuç] Mehmed Pasha of Buda and of Mehmed the former kethidâ of Grand Vizier Ibrahim Pasha were
displayed in front of the defenders, demonstrating that there was no hope for rescue by outside help. Kâtib
Çelebi, *Fezleke*, vol. I, p. 156. “…serdâr Yemisçi Hasan Paşa Ustuni Belgrad altında bozuldu ve kal’a
alayüp döndü. Mehmed kethidânın ve Budun Paşasî Mehmed Paşanın başlarının bizim serdârımıza
tebriken gönderdi” - diyû kal’a karşıusuna dike kodular.” Istvánfyll confirms this event too, *Regni
Hungarici Historia*, p. 502. One may also interpret Ta’lîkî-zâde’s enigmatic, and grammatically probably
At minor forts like Csurgó in 1594, less dramatic efforts proved to be successful in wearing down the enemy; the besieging Christian troops used a different method of intimidation. The Hungarian artillerymen, following the order of their commander György Zrínyi, shot their guns one by one instead of firing their cannons simultaneously, which was the customary modus operandi. The continuous thunder of the cannon shots created the illusion that the defending Ottoman garrison was facing a strong, well equipped army. Not surprisingly, their commander, Hasan Ağa, quickly set the small fort on fire and fled with his soldiers.\(^85\)

In case of a bigger stronghold where various scaring tactics did not work, the besiegers usually had to negotiate a moat before tackling the enceinte of the fortification. If the moat was too deep or wide to be easily crossed, or if it blocked the advance of the siege machines, it had to be filled in with shrubs, brushwood, or fascines before an assault became possible. If it was water filled and fed by a nearby river, the moat sometimes had to be drained first, and this could take days if not weeks of hard work. In quite a few cases, where the geographical setting permitted, there could be two protective moats, either outside or inside a fortress. Evidently, the exterior moat surrounded the

\(^{85}\) Istvánffy, Regni Hungarici Historia, p. 405.
whole fortified place, while the interior moat was supposed to cover the inside citadel of the fortress.

In 1596, during the second Imperial siege of the Ottoman held fortress of Hatvan, the besiegers, instead of draining the wet moat away, made in their camp three small boats covered with oxen hides, which were later carried on wheels by the soldiers to the moat of the fortress. This was done under the supervision of Albert Prinzenstein, the very innovative commander of the carpenters (Fabrum Praefectus). The crew of the boats were supposed to make a surprise attack in order to chase the Ottoman garrison away from the wall.  

The Ottoman chronicle, Ta‘likzâde, gives a short description of efforts made by the Ottoman military forces in 1594 in order to dam up the river Râba (Iraba suyu in Ta‘likzâde’s work), which formed the southern side moat of the fortress of Győr, in order to advance their earthwork in every direction and to encircle completely the fortress after the retreat of the Imperial forces. Firstly, the Ottoman soldiers were ordered to stuff sacks with earth, leaves, and shrubs, and, along with skins of sheep and oxen filled up with soil, these sacks were dumped into the moat. When eventually there turned out to be an insufficient quantity of materials for their purpose, fallen and dispensable animals were thrown in by the troops, followed by the corpses of hostile troops in order to fill in the ditch.  

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86 Istvânffy, Regni Hungarici Historia, p. 448. “Ad expugnandam ejus pertinaciam Albertus quoque Princenstanius, fabrum praefectus, tria navigia in castris fabricavit, crafloribus tabulatis, ac coriis bubulis madefactis superne tecta, quae in Sagivam [i.e. River Zagyva] ac fossas arcis, rotarum lapsibus seu scutulis subjectis intruderentur, ac ex illis hostes maenibus eminus arceri possent.” The author adds on the same page that the surprise attack could not break the fierce resistance of the garrison, and that, after a three hour-long ferocious fight, the besiegers were forced to retreat from the walls.

87 Şehnâme-i Humâyûn, fol. 77a, p. 295. According to the Ottoman author, not less than 862 dead bodies were used during this operation. “… Müsülmanân birer leşi birer leşi [sic] göttürüb, beşer beşer getürüb, sekiz yüz altmış iki lâşe-i lâ-şey’i birakildi.”
One may also note that the process of draining depended on the weather conditions too; the wet fall season was not particularly favourable to the attacking army. In the southeast frontier region of the war, the well maintained Ottoman-held stronghold of Jenő (Yanova) was surrounded by a wet moat fed by the river Körös. When the Transylvanian forces started to besiege the fortress in the second half of September 1595, it became very soon painfully obvious to the assailing troops that, without draining the moat off, they could not successfully storm that particular Ottoman stronghold. Therefore, the Christian besiegers, following a well designed plan, dug a delicate subterranean tunnel system in order to divert the river Körös. The project was almost successfully completed, when the river, because of a couple of days of heavy rain, suddenly flooded the whole area, making further underground digging completely useless.88

In medieval times, when a besieging military force could finally reach the walls of a stronghold, the escalade was a popular and quite uncomplicated fast method of assault against a castle. The escalade involved the scaling of walls by means of ladders. Attackers in early modern times, however, due to the proliferation of firearms, found themselves in an extremely vulnerable position while climbing the ladders, since they had no protection other than their body armour and had to depend entirely on heavy covering fire from friendly gunners. If the escalade attack could not take the garrison by complete surprise, well defended fortresses could very easily make escalade attacks impractical or even suicidal military ventures for the besiegers. From the safety of the small bank called the “banquette,” which served as a firing step for the armed defenders, the soldiers of the

88 Decsy, Magyar Historia, p. 225. The author bitterly notes that, because of the constant rain, all the efforts made by the Transylvanians were wasted. “Et cum processisset res non temere coepta feliciter, inundatus praeter omnium opinionem ex assiduis pluviis Chrysius, omnes illos nostrorum conatus irritos fecit.”
garrison had a very advantageous position, and they could ordinarily check the enemy’s escalade attacks.\textsuperscript{89}

As a historical curiosity, one may mention here that, in sixteenth century warfare in Central Europe, there were quite a few occasions when the attackers were not scared off by the defensive firepower. Enthusiastic Ottoman besieging troops during the 1543 campaign, for instance, some fifty years before the outbreak of the Long War, used several not particularly successful escalade attacks against both the external walls and citadel of Siklós (Șikloș), regardless of the fact that the Hungarian garrison was well equipped with both cannons and firearms.\textsuperscript{90} It is a rather surprising historical fact that, during various sieges of the Long War, both military powers still used the escalade as an active method of assault against forts.\textsuperscript{91}

\textsuperscript{89} Marosi, \textit{Váraink}, p. 31.

\textsuperscript{90} The register of various guns has been provided by Sinan Çavuş, \textit{Süleymanname}, fols. 81a-b. The Ottoman escalade attack was mentioned by the author earlier (fol. 78b). This episode was not a unique Ottoman phenomenon. Duffy aptly notes that in Western warfare one can find similar examples. “Until about the middle of the seventeenth century many commanders were willing to throw away hundreds or even thousands of lives by attempting open escalade against a waiting enemy.” \textit{Fire and Stone}, p. 97.

\textsuperscript{91} In a variety of narrative sources, one can find quite a few, rather scattered references to the usage of escalade. For instance, Istvánffy tells us, \textit{Regni Hungarici Historia}, p. 410, that, in 1594, after four days of constant cannonade, the Imperial troops successfully used an escalade attack against the palisade tower of Petrinja. The Ottoman defenders, equipped with spears, lances, and firearms, killed and wounded many intruders, while other attackers were set on fire by burning gunpowder. “...qui intós erant, illos hastis & lanceis detrudere, ac sclopetis vulnerare aut interficere niterentur, multique e scandentium numero incensi sulphurei pulveris ignibus in eos conjectis crudeliter amburerentur,...” After very vigorous fighting the defenders were eventually overpowered, and the tower was taken by the assailants. Istvánffy, further along (p. 432) discusses also the second Christian siege of Petrinja, which took place in the following year. At the beginning of the siege, scaling ladders were utilized by the infantry troops without any particular success. The defenders of the fort were able to hold off the attackers effectively by using spears and shooting both bullets and arrows. “At peditis appositis scalis propugnaculum, ...consendere conati, à Turcis magna vi, hastis, sagitis, & sclopetis, alisque telis in subeuntes confertim jactis detruduntur.” On the Ottoman side, Ta’llik-zade reports the utilization of escalade by the Muslim troops during the second Ottoman siege of Tata in 1594, following a strong cannonade, which breached the not particularly strong fortress wall. After the heavy bombardment, which revealed signs of weakness among the “insignificant infidels,” the Pasha [of Anatolia] ordered an escalade attack against the fortress wall. “...ve bil-cümle küffār-i düm zebbān olmak nişānı göründi. Der hâl, Hazret-i Paşa...nerdbânlar emr eleyûb, iki nerdân dahi Anatoli sipâhîlere tahmil eleyûb;” \textit{Sehnâmê-i Hümayûn}, fol. 39a, p. 203. Another reference is given by Abdülkadir Efendi, \textit{Voküdi-i Tarihiyye}, fol. 136a. In 1600, the Ottoman forces had also at one point used the escalade against the fortress of Nagykanyizsa shortly before the retreat of the Imperial relieving forces. “Ve bir defa gazîlar serden geçdiler ile...nehirlerdenübür ederler, geduklara ve [sic] lağımlar atılıb bir
During prolonged sieges, when progress was particularly slow, the assailants, in addition to projectile-firing heavy guns, could also resort to mining as an appropriate weapon to bring down fortification walls. Throughout the war, mining operations were utilized as much as various heavy guns in order to open a breach in the defence system. Multiple underground assaults against the besieged fortresses, especially by the Ottoman troops, always played a prominent role in siege operations during the Long War. Occasionally, miners from the besieging forces worked above the ground level, when the simplest form of mining was employed. This consisted of attacking the foot of the stronghold wall with picks, spikes, hammers, knives, and many other possible tools. However, when the nature of the soil of the surrounding area permitted, miners would go deep underground in order to attack the foundations of the fortress wall. Fortifications built in places with high natural watertables were in a lucky position, due to the fact that this kind of natural environment could make any mining a virtually impossible military venture.

At some places like Győr, which occupied an extremely important position at the junction of three different waterways, traditional mining techniques could be carried out

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92 The mining operation as an effective siege technique was a well-known, very ancient military venture in Europe. It is a historical fact that the Greek author Aeneas as early as fourth century B.C. had already written a treatise for fortress garrisons in order to deal with mining attacks. Kenneth Wiggins, Anatomy of a Siege. King John’s Castle, Limerick, 1642. (Woodbridge: The Boydell Press, 2001), p. 7.

93 There were two basic kinds of mining attacks throughout the middle ages and early modern times: gallery mining, which took place underground, and covered mining, which as mentioned above was carried out on ground level. Ibid., p. 6. Needless to say, the covered mining was usually less dangerous for the defenders of a given fortress. The attackers were, in general, in a very vulnerable position under the fortified walls, thus they could seldom be as successful as the underground attackers were during a siege. Wiggins also points out that the frequent use of gunpowder “revolutionized mining operations” since the underground explosions usually had a devastating effect on the fortress walls, opening up huge breaches, while earlier mining attacks had simply sunk or burnt a particular section of the wall. On the ancient technique of burning out the foundation of the fortress walls, one should consult Vegetius’ description in his manual, Epitoma Rei Militaris, p. 214.
only with great difficulty. During Győr’s siege in 1594, which was one of the largest siege operations undertaken by the Ottomans throughout the whole war, Grand Vizier Koca Sinan Pasha had to find several creative ways to deal with different geographical obstacles. The northern walls of the fortress facing the river Danube were naturally well protected; because of the significant distance, the besiegers with cannons could not effectively attack that part of the stronghold. For that reason, Sinan Pasha appointed a special Ottoman military unit, which surprisingly did not include experts like sappers (lağmçlar) or miners (kumbarçlar), but rather simple folk such as camp followers (lixae), who might actually have been top arabacilar and drudges (caloes). This unusual company quietly reached the walls in small boats during the night. At first with scalpels (scalpellum) and small hand knives (cultellus), they made cavities in the brick walls. Afterwards, entering these cave-like holes, the Ottomans drilled the foundation of the wall and filled up the cavities with gunpowder. The powder was ignited at a given signal. With various mining operations, Sinan Pasha tried, quite successfully, to speed up the destruction of several bastions; this situation, which, after the shameful retreat of the Imperial army led by Archduke Mathias, soon demoralized the helpless, abandoned garrison.

94 The surprising historical fact is that while the Ottoman army had 1,000 senior, and 400 junior artillerists in its camp, for an unknown reason only fifty humbaracis were ordered up for service. Abdülkadir Efendi, Vekāy-i Tarihîye, fol. 20a. “...bin nefer topçu-ı ‘atik u dört yüz nefr-i cedil topçu... elli nefer humbaraci... sefere me’mür idiller.” According to Istvánfly, Regni Hungarici Historia, p. 413, Sinan Pasha sent carpenters (fabrîs) under the fortress walls.

95 Decsy, Magyar Historia, p. 137. “...delectos ex calonibus ac lixis audaciosse cimbis, ac scaphis imponit, istrumentisque ad subrubendos muros, excavandisque lapides idoneis instruit. Mox captata occasione silentio noctis eos muris cimicis strepitum adnavigare iubet, et primum quidem scalpellis, cultellisque, ad id iam antea factis, lateritios muros excavare, deinde excavatis ita moenibus se insinuare, ac torcularibus ferreis, alisque machinis fundamenta eorum subruere mandat. Illi feliciter mandata executi, factas in muris cavernas, pulvere tormentario complent, et dato eius rei signo succundunt.” Decsy also adds on the same page that during the infantry assault the following morning, the undermined bastion collapsed with thunderous noise.
One may note here that, while besieged garrisons on both sides used countermining operations quite frequently, inside the fortress they rarely made any trap in order to blow up the attacking hostile forces. There are only a couple of rare exceptions to this from the period of the Long War. One of them happened during that same Ottoman siege of Győr, shortly before the Imperial garrison surrendered to the besiegers. One particular Ottoman mining attempt remained undetected by the Christian defenders, and its explosion created a substantial opening in the fortress wall. However, before the besieging soldiers could storm this section of the fortress, the garrison was fast enough to dig a large pit behind the ruined wall, fill it up with gunpowder, and, finally, cover it with murg. The invading enemy was unaware of this danger, which resulted in their immediate death as they entered the fort.ºº

In an earlier case, after the fall of Veszprém in 1593, in the hope of rich booty, several soldiers from the Ottoman army rushed in and were killed instantly by a hidden mine. This incident may have been just an accident.ºº Four years later, a few hundred

ºº Ta’lik-i-zade, Sehnâme-i Hümâyûn, fol. 80b, p. 304. “... der hâl küffâr-i bâhî barut aîçuğu divârun arinda bir ‘azîm hafîre kazub; anlar dahi için barutla toldurub, üzere hâk ile yeksân eylediler. Gëdviken yürüyiş oldukda, Müsulmân kal’aya girdiği hinde âtes virüb, kuvvet-i barud ile murg-i seffûd gibi done done harîk, yana yana Tunaya garîk olalar, be-vûhûd.” Istvánffy also mentions, Regni Hungarici Historia, p. 416, that shortly before the surrender, an undetected Turkish mine exploded, creating great confusion amongst the garrison soldiers. However, he is silent about the successful countermining effort made by the defenders. Four years later, when the Christian forces carried out a surprise attack on Győr, the Ottoman garrison did not have time to set up any booby trap. After fierce fighting, a group of defenders realized that there was no way out; thus, as a last possible solution, they set the gunpowder on fire, and many soldiers on both sides suffered a terrible death. “... desperata salute vindictae studio pulverem tormentarium in vallo inflammatur, ac fortiter vi eius ita disiecereunt, ut tam se quam complures nostrorum tetra morte afficerent.” Decsy, Magyar Historia, pp. 316-7. This suicidal action has also been mentioned by Istvánffy, Regni Hungarici Historia, p. 467. According to Iltész, Följegyzések, p. 54, the defenders, after realizing that they could not save a bastion, set the gunpowder on fire, which was stored inside the bastion under their feet.

ºº Knolles, The Generall Historie, p. 1025. “The Turks entred the citie... striving who should get first in, ...when suddenly the powder in the mines tooke fire, and blowing up the verie foundations of the walls and bulwarkes, slew a number of the Turks that were within the danger thereof, ...” However, according to the Ottoman chronicle, Tarih-i Selâncî, vol. I, fol. 187a, p. 335, the fleeing garrison intentionally planted explosives for the occupying troops near the gate. “...ve melâ’in berûde kal’a kapusî alunda nîhânî barut koyub ve leşker-i İslâm gaflet ile kapudan gîrub giderken kurdukları fitik kazâ-i ilâhî ile baruta yetişüb
impatient Italian and Walloon soldiers met exactly the same fate after the capitulation of the Ottoman garrison in the fortress of Pépa. Within eight days the besiegers, with a steady cannonade, brought several portions of the palisade wall down in ruins and filled up the ditch with the debris. Thus, Semender Pasha, the Beylerbeyi of Pépa, the smallest and the shortest-lived beylerbeyilik of the Ottoman Empire, surrendered the fortress to the Habsburgs on the promise of safe conduct. Driven by an insatiable desire for plunder, the aforementioned mainly Italian and Walloon troops rushed in, even before the whole Ottoman garrison could leave the stronghold. While they were killing the remaining Ottoman soldiers, a sudden explosion in the gunpowder storehouse instantly killed more than 300 of them. It is clear that this was an accident rather than an Ottoman plot for revenge.98

In another case, Illésházy mentions that the Ottoman defenders of Székesfehérvár buried gunpowder all over the city, which was supposed to be ignited during the siege in 1601. However, an enormous explosion occurred only after the garrison fled. This fact

98 Illésházy, Főjegyzések, pp. 45-6. The author also adds that the furious Imperialists butchered 300 Ottoman soldiers and captured those, including Semender Pasha the Beylerbeyi of Pépa, who had already left the fort. Later, however, they were all released by Archduke Maximilian’s order because no one could prove during the immediate investigation that the explosion was not an accident. The Imperial commanders had to realize that probably the burning match of the rifle of a looting mercenary caused the blast.

According to Istvánffy, the careless German mercenaries blew up the fort. Count Isolano, himself an Italian, surprisingly does not write about the accident, but states very honestly that most of the soldiers from the Ottoman garrison were robbed and killed despite the safe conduct granted earlier. “Feljegyzések A Török Háborúról,” p. 664. Pálffy, A Pápai Vár, p. 74, firmly states that the burning match of a mercenary’s musket was responsible for the blast. It is also interesting to note, parenthetically, that Selânikî, usually a reliable Ottoman historical source, does not mention the explosion in the fortress, and only reports the massacre. His colourful story about the siege, i.e. the Christian attackers disguised as supply carriers and taking the fort of Pépa and the neighbouring Szentmárton (Samartin) by this trick, is without historical foundation. “… kal’a-i Papa ve Samartin a’dâ-i dîn tebdîl-i sûret idûb, arabalara zahâ’îr yükleynûb, <kal’a>’lara zabîre getûrdûk> diyûb, hilekârlîk ile kal’a kapusun gasfet ile açûrûb, içêrû girûb, bulunan ehl-i İslâm ile katîl idûb, a’dâ kal’ayî zabt eyledükleri haberî geldi.” Tarih-i Selânikî, vol. II, fol. 376b, p. 693.
indicates that the explosion might have been caused by the entering Imperial troops.\footnote{Illésházy, 
Főjegyzések, p. 95. According to him, the great blast destroyed the cathedral and a significant part of the city, and killed off numerous German soldiers. Istvánffy, Regni Hungarici Historia, p. 503, wrote about the explosion as well, stating that the Walloon troops were pillaging in the newly occupied town when the hidden gunpowder deposits in the temple and in some private houses exploded, burning down many buildings.}

Two years later, in 1603, when the Ottoman forces were approaching the fort, the Imperial garrison of Pest abandoned its positions without offering any resistance, though it left three hidden mines behind for the entering hostile army. No particular damage was done among the Ottoman troops, however. This was because a sick man, whose ethnic background is not given by any author, informed the Ottomans, who were able to locate and extinguish the burning fuse.\footnote{Kâtib Çelebi, Fezleke, vol. I, p. 246. "Laikin düşman kasd-ı zarar u azm-ı tahrîb-ı hisâr ile üç yerden lağım edüb gidıklerini ka’dâ kalmuş bir hasta adam haber virmekle lağımları arayub bıldular." The almost identical statement can be read in Mehmed bin Mehmed’s Nuhbet-i-tevârîh, p. 223.}

Returning to the discussion of various mining operations carried out during numerous sieges of the Long War, it should be mentioned that, in several cases, when miners were working on the surface directly at the base of the walls, they utilized the protection of large metal shields and the shelter of a penthouse called “vineas” against the hostile firepower of the garrison.\footnote{Decsy mentions in his chronicle, Magyar Historia, p. 67, that in 1593, at Veszprém, the besieging Ottoman forces on the first day build up their well protected earth works, which included protective roofs. “Mox castris ex praescripto gentis firmissime munitis, vineas et aggeres iaciunt, primumque diem ii operibus absoluendis consumunt.”}

These structures, highly popular in medieval times for the protection of sappers working against the fortress walls, were usually simple timber made galleries with pointed roofs, which were mostly made of iron.\footnote{One may note that the protection of sappers by wooden shelter had already been utilized in antiquity. The besieging armies were equipped by various “protective machines,” such as vineae, plutei, or agger were made of wood and covered at the sides by interwoven pliant twigs. Against fire and flammable materials, these contraptions were covered with raw leathers, goat hairs, or coarse clothes. Vegetius, Epitoma Rei Militaris, pp. 248-50.} The Ottoman version of these military edifices was the domuzdamı, which was built primarily for the protection
of miners and gunners placed on the ramparts. For the besieging armies this technique also gave an effective shelter for gunners who continued the business of bombarding the fortress walls in the forward positions of their earthworks.

To counteract incendiary weapons, fortress garrisons and besiegers alike relied, throughout the entire siege, heavily on various kinds of wet hides covering shields made of either metal or wood. These wet animal skins sometimes covered the mostly wooden-made siege structures and sometimes even soldiers in order to protect them from torches thrown down from the hostile fortress. Even strong cannon fire from the besiegers' side could not always provide satisfactory protection for miners working directly at the foot of the fortress wall. At the siege of Nógrád in 1594, the Imperial artillery kept the double walled outer palisade fort under constant heavy fire, yet the miners failed to weaken its foundation. The very vigilant Ottoman garrison, besides using their firearms,
simply rolled down stones that scared off the attackers by killing some of them and injuring many others.\textsuperscript{106}

A more involved mining method required a great expenditure of hard physical labour from an army. In this case, considerable subtlety was utilized as the miners began to dig and construct their underground tunnel from a covered position, well behind the moat and preferably out of the range of the enemy’s firepower. Afterwards, they proceeded to move slowly ahead under the fortress moat to the foundations of the walls. Once they reached their goal, the miners propped up the end of their wooden timber tunnel, and filled it with gunpowder or another highly flammable material, and set it on fire.\textsuperscript{107}

One of the miners’ primary fears was that the defending forces might detect the miners and dig a countermine, even though the miners were well concealed. The way to detect the miners’ presence was to set a small bowl of water on the walls or in a previously prepared countermine and watch for the water ripple. If the garrison of the fortress was lucky enough to detect underground mining activities by the hostile forces, a countermine still had to be dug in order to intercept them or blow up the third parallel. The main objective of the defenders usually was to drive off the miners by smoking them out or by sending a small armed contingent after them. The contingent would break into the attackers’ gallery and try to engage them in a violent, hand-to-hand subterranean skirmish. If the defenders were victorious, the besiegers’ mine was then destroyed immediately.\textsuperscript{108}

\textsuperscript{106} Istvánffy, \textit{Regni Hungarici Historia}, p. 404.
\textsuperscript{107} Both the “theory and practice” of mining utilizing gunpowder became soon “a matter of science and sophistication” replacing the old method of burnt-prop mine. Wiggins, \textit{Anatomy of a Siege}, p. 220. He also adds, “The tapered gallery, cranked neck and expertly conceived powder chamber were innovations that revolutionized the art of military mining.”
\textsuperscript{108} The act of countermining was at least as dangerous as the attackers’ mining activity. In 1596, when the Ottoman forces besieged the strategically extremely valuable stronghold of Eger, the Christian garrison,
As mentioned earlier, the underground mine attack had always been an important phase of an Ottoman siege during the Long War. Usually supported by strong and continuous artillery fire, Ottoman miners tried to blow up a particular bastion or one part of the wall foundation at almost every major siege. Their arch-shaped subterranean galleries seem to have been considerably smaller than the works made by their European counterparts. At the siege of Eger in 1596, the Ottoman miners’ underground works were impressive. According to the contemporary author Decsy, the besieging forces undermined the inner fort in fourteen different places. In his chronicle, the Ottoman historian Selânikî credited the successful siege to the effective mining operation rather than to heavy cannonade, which came from all directions.

after a short resistance, burned the suburb and fled to the fortress. The besiegers immediately set up artillery batteries in the freshly occupied city and started to bombard the fort. Meanwhile, from the northern direction, the Ottomans were digging a tunnel to the fortress wall, taking advantage of the fact that the defenders’ attention was distracted by the heavy bombardment. This method had regularly been used by the besieging forces. However, the advancing miners were somehow detected by the garrison, and a countermine was hastily constructed. The besiegers blew up the tunnel at once, which ultimately did not damage the walls, but killed instantly everyone in the nearby countermine. “Sed quum hostes fomiuceus pulverem sulphureum succendissent, maenia quidem, quod flammae viam, qua exhalarent, sibi reperissent, parum detrimenti sensere; sed ii, qui subterrante labori incumbebant, violento ejus impetu discerpti, puncto temporis interiere...” Istvánffy, Regni Hungarici Historia, p. 450.

Duffy’s statement, Siege warfare, p. 214, can be considered as too harsh regarding the Ottoman mining galleries. “The galleries were... only three or four feet high, which was very cramped by Western standards, but well-suited to the Turkish cross-legged attitude of working.” [italics added] The low galleries were not necessarily inferior structures, since as an Armenian mason told Marsigli, who was Duffy’s source in this case, it was difficult to load the mine in a narrow place like this, “but in compensation they could be pretty sure that the charge would work well, for they did not have such a large space to block up with sandbags and wool sacks.” The original place is in Conte di Marsigli, Stato Militare dell’Imperio Ottomano (L’État Militaire de l’Empire Ottoman), (The Hague-Amsterdam, 1732), vol. I, p. 37, and quoted by Duffy, pp. 214-5.

Deczy, Magyar Historia, p. 270.

See his Tarih-i Selânikî, vol. II, fol. 344b, p. 635. “... ve on birinci gün lağımla gedik açılıp düş kal’a (i.e. the city of Eger) yürüyüş ile feth olub...” According to the Ottoman author, the citadel of the fortress (iç kal’a) also fell due to the effective Ottoman mining attack. “...nice yerden lağımlar salub, ...onuncu gün (i.e. after the fall of the city) melâ’ın-i hâsrîn feryâd-i el-amâna başlayub lağımla tamam gedik açılıb... feth u zafer müyesser olub...” According to Mehem bin Mehmêd, Nusbett-i-tevârîh, p. 186, on the seventh day the besiegers had already made a breach in fortress wall by exploding a mine, but this opening proved to be too narrow. “Yedinci gün Mehemêd paşa kolondan lağım atılıb, açılan gedikden içeriye girmegê ziyâr İkdâm olund. Lâkîn gedik dar olmakla kal’a dâhul müyesser olmadi.” Kâtip Çelebi, Fezleke, vol. I, p. 80, speaks about the intensive Ottoman mining attacks in details, but he, unlike other authors, honestly admits that on the eleventh day, when the city fell, many besiegers died due their own mine attack. “Lağım eyledikde asker savulmağa meçel olmub hayli kimse macrûh u şehid oldu.”
During an attack against a fort, a wide variety of weapons and equipment was usually utilized by the besiegers, but, as far as can be ascertained, fire, in diverse forms, was the most compelling weapon against both palisade walls and various stone works. Fire attack was a quite frequently used method of assault because it proved to be quite effective in burning palisade walls and wooden towers. Fire could also be employed to crack stone-made fortress walls.\textsuperscript{112}

Likewise, at various sieges, there were several incendiary devices utilized by the assailants, though the contemporary narrative literature is usually vague about these weapons. Many kinds of fireballs, for instance, were employed in various forms and used as a kind of medieval napalm bomb or Molotov cocktail hurled at the defenders. In most cases, however, these tools were not more than simple sealed containers, possibly made of thin jar shaped pottery and filled with gunpowder and highly flammable either solid or liquid chemical substances. These would shatter on impact, scattering their contents on their target.\textsuperscript{113}

John Smith, who later became Sir John Smith, the Governor General of Virginia and New England, spent almost a year in his very adventurous life in Habsburg service against the Ottomans. During the ultimately successful Christian siege of Székesfehérvár in September 1601, Smith demonstrated his advanced knowledge in chemistry by creating effective “fiery dragons” that were used against the garrison by the allied

\textsuperscript{112} Decsy mentions, \textit{Magyar Historia}, p. 227, that following heavy bombardment, and after the doomed river diversion effort by the Transylvanian besiegers (see p. 115 above), there was only one more method left to break the vehemently resisting Ottoman garrison’s fighting spirit at Jenö in 1595. The desperate attackers built up a huge pile made of branches and shrubs, which eventually reached the top of the fortress wall, “Mox, ne spatium obsessis daret, iubet ingentem ex proximis sylvis materiam comportari, eaque munitiones arcis aequari.” The last effort finally paid off: fearing of a devastating fire, the brave Ottoman defenders finally gave up their fight and the more than a month-long siege came to an end.

\textsuperscript{113} The concoction of these chemical substances included saltpetre, pitch, sulphur, resin, turpentine etc. The pots were usually laced with cords soaked in sulphur.
forces.\textsuperscript{114} Fiery dragons and similar kinds of explosives had the same effectiveness that Greek fire had, and were mostly used against different defensive features, but they could also be designed as occasional anti-personnel weapons against a fortress garrison. In 1598, the defenders of the fortress of Nagyvár (Varad) utilized this kind of weaponry very successfully against Ottoman troops, who, after a heavy bombardment, were storming the breached walls.\textsuperscript{115}

In certain cases, the employment of fireballs and other small explosives as weapons turned out to be more effective than the use of heavy artillery guns. As mentioned earlier, the Habsburg military leadership learned the hard lesson of 1594, and brought not less than thirty-six cannons to Hatvan in 1596. Yet more than two weeks of constant Imperial cannonade did not appear to cause any significant damage in the triple palisade walls. On September 3, however, an unspecified fiery device landed on a house inside the fortress, creating panic among the Ottoman defenders. Many garrison soldiers left their positions and rushed to try to extinguish the ferocious fire. The attacking Christian forces, taking advantage of this situation, stormed the fortress walls, and, after a vicious hand-to-hand

\textsuperscript{114} The following description of this weapon comes from the inventor himself: "Taking earthenware pots to the number of 40 or 50, and sufficient gunpowder, pitch, brimstone, and turpentine, Smith fitted quartered musket-bullets to the pots with strong waxed cloth and inflammably impregnated woven hemp or cotton wick. Simple slings were then made, and when the time came the pots were ignited and lobbed over into the city." Philip L. Barbour (ed.), \textit{The Three Worlds of Captain John Smith}. (Boston: Houghton Mifflin Company, 1964), p. 34. It is interesting to note that John Smith, before his involvement in the Long War in the summer of 1601, in Graz had originally been recommended by the Jesuits to Hans Jacob Khissl, the Lieutenant Colonel of the Arsenal, as a recognized pyrotechnical expert. He probably acquired his knowledge in the Low Countries, where he had previously been a mercenary. See J. Franz Pichler, "Captain John Smith in the Light of Syrian Sources," p. 335.

\textsuperscript{115} The story told by Istvánffy, \textit{Regni Hungarici Historia}, p. 473. According to him, in this action, a certain defender called Szulestey played the main role. He hurled at the attacking soldiers various earthen tubes and linen bags. Those objects filled with gunpowder were ignited by an attached blazing cord, and they caused heavy casualties among the besiegers by dismembering and burning the invading soldiers. "Es [i.e. Szulestey] enim tubis fictilibus & saculis lineis pulvere sulphureo repleitis, & in hostes jactis impigre rem gerebat, qui dum funiculo ardente indito ignem concepsisse, magna in hostibus strage editâ crudeliter saeviebat, ut plurimi discerptis membris in vestigio occurrenter, multi semiambusi in fossas praeceptarentur."
combat, indiscriminately massacred everyone. In October 1595, the besieging allied forces, which consisted of Transylvanian, Wallachian, and Moldavian troops, found another successful way to smoke the Ottoman defenders out of the fortress of Tergoviște. After filling up the fortress moat with reeds, the assailing soldiers approached the bottom of the wall and, taking advantage of the favourable environmental conditions, utilized locally obtained natural oil to burn down the fort. The ignition of a certain mixture of katrân (liquid pitch) and petroleum created a ferocious fire, which very quickly engulfed the whole palisade fortress.

The central argument of this chapter can be summarized as follows. It might be true that in Habsburg controlled territories all across early modern Europe, the overall military developments were more vigorous and deeply rooted than in those of the Ottomans. In siege warfare during the Long War, however, any alleged Ottoman inferiority could hardly be detected, regardless of whether one accepts or rejects Geoffrey Parker’s statement on this matter. Numerous far-reaching changes in various aspects of contemporary European warfare did not create any noteworthy military disparity between the two empires. As mentioned in Chapter Two, the Ottomans might have experienced certain cultural, economic, and socio-political backwardness, or maybe “disadvantage” is

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116 Isolano, “Feljegyzések A Török Háborúról,” p. 660. It is interesting to note that the tone of the author suggests that the fall of Hatvan was an accident rather than the result of a well planned attack. Illésházy, Főlégzések, p. 29, also reports the fall of the fortress, though he states that the exhausted Ottoman defenders left their positions at the fortress wall and, afterwards, the Christian infantry soldiers could set the fort on fire from the foot of the wall.

117 This story can be found in Selâniki’s narrative, Tarihi Selâniki, vol. II, fol. 192a, p. 533. “...mûr ü melahdan ziyâde küffâr-ı hüksâr [sic] Erdel la’ın ve Mihâl mel’ün ile gelüb kal’ayı muhâsâra eleyüb ve tedârük olanun handaklari sâz ile toldurüb ol vilâyete hâsîl olan neft ü katrân halt eleyüb âteş salub kal’ayı ihrâk bi’n-nâr eyledüükde içinde mahsûr olan leşker-i İslâm avâze-i Allâh Allâh ile çûkub alay-ı küffâr-ı dalalat-şi’î’âra tokunub, cúmlesî bârgânî izzetede şerbet-i şahâdet nûs idûb...”

118 According to Parker, the Ottoman army, during its countless military campaigns “never fully mastered the complexities of siege,” and this was one of its clear shortcomings in early modern European warfare. The Military Revolution: Innovation and the Rise of the West, pp. 127-8.
a better word here, but this disadvantage was not reflected in late sixteenth (early seventeenth) century siege warfare whatsoever.

A number of modern military historians, unlike Geoffrey Parker, rightfully warned everyone not to overemphasize the historical significance of the *trace italienne* type of fortifications. Even the up-to-date *trace italienne* type of strongholds proved incapable of resisting a patient and methodical attack carried out by a determined enemy. There is no need, of course, to repeat here the obvious advantages of the *trace italienne*; modern fortresses had definitely made the siege a prolonged, very costly military adventure. One should point out, however, that these structures were not invulnerable to the attackers; determined, well organized besieging troops, or ill-equipped, divided garrisons on the other side, almost always resulted in the ultimate fall of a particular stronghold.\(^\text{119}\)

Consequently, the lack of newly constructed or thoroughly upgraded fortresses, which would have conformed with the *trace italienne* type of military architecture, did not really hurt the Ottomans at the turn of the seventeenth century. In case of major fortresses they always offered fierce resistance, and it was almost certain that sooner or later a relief force was going to arrive to help out the besieged garrison.

Throughout the thirteen years of extended armed confrontation, both the Imperialists and Ottoman troops utilized basically the same methods and techniques, whether they were besiegers or defenders. In a wide range of technologies required for contemporary siege warfare, such as adequate artillery fire, a systematically built, precise network of

\(^{119}\) Eltis aptly notes, *The Military Revolution in Sixteenth-Century Europe*, p. 29, "old fashioned fortifications," for instance, could still hold out in many sieges throughout the sixteenth and seventeenth centuries, if they had effective defensive firepower. Therefore, "It was not necessary to have a freshly built fortress of Italianate design to survive." Agoston, "Habsburgs and Ottomans," p. 133, has also emphasized the fact that despite the expensive modernization projects carried out by the Habsburgs, the most up-to-date strongholds in Hungary, such as Győr, Eger, and Nagykároly, all fell to the Ottoman armies during the Long War. According to him, the failure of the key fortresses to withstand the enemy's siege can be explained by the effective Ottoman artillery assaults.
trench lines, skilled mining techniques, etc., the Ottoman army hardly showed any sign of inferiority to their European adversaries. Almost all the methods utilized in siege warfare were mostly well known and quite well tested siege techniques designed to reduce a particular fortress or fortified place. Besides firepower, the most frequently used techniques included: starving the defenders into submission by cutting off any possible routes for supplies, using various mining practices in order to breach a certain part of the fortress walls, or mounting some frightening tactics to demoralize the garrison. In several cases, the news of the defeat of a relief force proved to be the most demoralizing factor for the defence force.

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It must be pointed out that only the siege of major strongholds (such as Győr, Székesfehérvár, Várad, Esztergom, Kanizsa, Hatvan, Tata, Veszprém etc.) was taken into consideration. Also, the occupation of abandoned and/or burned down forts was not considered to be included as successful siege in the table. In a nutshell, one can summarize the main factors in the outcome of the main sieges during the Long War as follows:

**Intensive Ottoman bombardment:** Veszprém and Palota (1593), Győr (1594), and Eger (1596), Székesfehérvár (1602).

**Heavy Christian cannonade:** Nógrád (1594), Hatvan (1596), Pápa (1597), Székesfehérvár (1601), Kanizsa (1601).
Ottoman mining activities were effective; Győr (1594), Eger (1596), and Tata (1597). On the Christian side, according to the sources, there was no any major victory, which can be credited to mining. However, the Imperial troops successfully utilized the petard twice, at Tata (1597), and under Győr (1598).

Failed Ottoman attacks: Tata (1593), due to the late season and bad weather. Komárom (1594), harsh weather and epidemics. Várad (1598), continuous raining. Esztergom (1604), very strong defensive fire, effective countermining activities.

CHAPTER IV. BATTLES AND SKIRMISHES IN THE LONG WAR.

a) Incendiary Weapons: Did the Ottomans Lag Behind the Europeans in the Utilization of Firearms?

This chapter seeks to address the important historical role played by various firearms throughout the Long war. In the sixteenth century, cannons and other firearms came to be used in significant numbers and, in most cases, their effects became vital to the outcome of different military engagements. In the second section of the chapter, there is an examination of tactics and various battle orders. The chapter’s closing section deals exclusively with the “other factors” (geographical conditions, weather, epidemics) that could sometimes dramatically change the outcome of a particular campaign. As mentioned earlier in Chapter Two, according to the latest consensus among modern military historians, the theory of the Military Revolution, which has been a prevailing concept for decades, tend now to be viewed instead as a long progress of military evolution in early modern Europe.

Almost from its introduction, gunpowder galvanized many other aspects of early modern European society, and to a certain extent hastened various technological novelties designed to produce more efficient applications. A few previously quoted works offer an insightful reshuffling of long held scholarly assumptions, which had conveniently explained Europe’s impressive rise as being due solely to various military and technological changes. The two main factors in these previously noticed changes were: the proliferation of different kinds of firearms, and the wide ranging deployment of gunpowder for various military purposes. Although it is true that significant changes in
firearm technology took decades if not centuries to become widely available military
tools, their impact on warfare was very decisive in early modern times. As mentioned in
the previous chapters, the widely available cannons and firearms considerably slowed
down the pace of warfare; instead of fast, decisive field battles, the second half of the
sixteenth century featured static warfare.

Although it is quite a difficult, if not an impossible, task to trace the exact pattern of
cannon proliferation throughout the European continent, one may certainly surmise that
the Ottomans acquired their first experimental knowledge about gunpowder and firearms
in the second half of the fourteenth century, at the same time as other European powers.\(^1\)
The very dynamic early Ottoman state had obviously not been insulated from the changes
that took place in European military technology by the turn of the fifteenth century. It
remains an open historical question, however, and, because of the lack of indisputable
contemporary evidence, one can only speculate on whether the Ottoman troops could
have obtained their first cannon sometime before the beginning of the fifteenth century.
The neighbouring region of the Balkans seems to have been an obvious source for the
early Ottoman artillery. The Venetians had been using guns \((sclopi)\) along their
Dalmatian coastline possibly since the early 1350s.\(^2\)

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1 In general, historical sources regarding the development of the Ottoman firearms are rather sketchy, thus
it is hard to establish any well proven theory about the way the Ottomans gained access to the newest guns.
After examining a certain number of both contemporary European and Ottoman narrative sources,
however, Agoston came to the conclusion in his article, “Ottoman Artillery,” p. 24, that those historical
sources “testify to the fact that the Ottomans were acquainted with and used firearms before the close of the
fourteenth century.”

2 On the proliferation of different firearms in the Balkan region see Djurdja Petrović’s long and very
informative article, which has still deservedly been quoted quite often in the secondary literature, “Fire-
arms in the Balkans on the Eve of and after the Ottoman Conquests of the Fourteenth and Fifteenth
Centuries,” in: Parry-Yapp, *War, Technology And Society*, pp. 164-94. According to Petrović, p. 170, the
first written evidence of the use of cannon in the Balkan Peninsula comes from a report describing the
Venetian siege of Kotor on August 13, 1378, when the defending garrison soldiers employed three cannons
against the Venetian fleet.
Despite the strict restrictions repeatedly imposed by the Holy See on the international arms trade with the Ottoman Empire, several Italian states, Venice and Genoa in particular, were apparently prominent arms-exporting countries in the Levantine region.\(^3\)

For that reason, regardless of whether the Ottomans had actually used cannons before the turn of the fifteenth century, it cannot completely be ruled out as a historical possibility that this new technical innovation, the deployment of gunpowder based guns, had at least been known to the Ottoman military machine during the last decades of the fourteenth century.

Furthermore, one can find a few contemporary historical narrative accounts that clearly state that some sorts of field cannons had already been employed by the Ottoman army before the turn of the fifteenth century.\(^4\) The generally trustworthy Ottoman chronicler Mehmed Neşrî, for instance, reports in his historical work that both the Christian and Ottoman military forces utilized some unspecified artillery weapons on the battlefield of Kossovo in 1389, though the military importance of the guns' role in the outcome of this battle remains questionable. It must also be pointed out here that there are

\(^3\) Ibid., p. 176. In the illegal international arms trade a few other cities, such as Ragusa, Ancona and Florence, should also be taken into account. Earlier, Petrović tells us (p. 172) that both Venice and Ragusa played an eminent historical role in the distribution of various firearms in the Balkan region. While the former state provided cannons for the northwest area of the Balkans, the latter republic supplied the central and the southern regions with firearms. Mücteba Ilgül came to the same conclusion in his study, repeating the names of those five cities as the major arms exporters for the Ottoman military. See his “Firearms in the Ottoman State,” in: Kemal Çiçek (ed.), *Ottoman-Turkish Civilization*, p. 727. One must note here, however, that Ilgül’s puzzling statement, “Firearms used by the Turks in the midst of the sixteenth century were all imported [italics added] [and] Venice and Genoa had been the leaders of the seaway arm [sic] trade,” suggests that there was no actual Ottoman domestic gun manufacturing even in the sixteenth century. In 1453, after the fall of Constantinople, the Ottomans had already acquired a cannon foundry in Pera, which was perhaps their first permanent site for cannon production. Furthermore, the Ottomans, like the Portuguese on the opposite edge of Europe, caused the spread of various firearms through several parts of the world despite the fact that the empire itself was a steady arms importer.

several modern scholars who tend to discount the Ottoman chronicler’s statement; they hold that his particular lines here should be considered rather as “a source for the Second Battle of Kosovo” (1448). There is also another contemporary chronicle claiming that some sorts of cannons were employed by the attacking Ottoman forces during the long siege of the Byzantine capital, Constantinople, between 1394 and 1402, but the recent trend has been to point out that the 1420s should reasonably be accepted as the beginning of the systematic use of Ottoman gunpowder based artillery in siege warfare. The Ottomans’ field artillery gained real military importance only in the 1440s during the Hungarian Wars.

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6 Petrović, “Firearms in the Balkans,” (p. 175) mentions an anonymous Bulgarian chronicle dating from the first years of the fifteenth century, which reports that the Ottoman troops, besides the traditional crossbow and various siege-machines, did bombard the Byzantine capital with cannons.

7 According to Heywood, “Fifteenth-Century Ottoman Cannon,” p. 6, the introduction of gunpowder weaponry into the Ottoman military machine still poses many unanswered questions, although it is doubtless that the 1440s were the vital years for both the development and employment of Ottoman firearm technology. On the early Ottoman utilization of artillery weapons, the modern Turkish historian Turgut Işkâl also shows scepticism regarding Neşri’s statement, and he notes that the sixth Ottoman siege of Constantinople in 1422 can be accepted as a reliable date for the emergence of Ottoman ordnance. See his article, “eski Türk Topları ve İstanbul Tophanesinde bulunan Bir Kayit Defteri,” Belçelerle Türk Tarihi Dergisi (1967/1), p. 70. Although Işkâl firmly pronounces that sources can verify the Ottoman utilization of cannon, “...bu silâhdan [i.e. top] faydalandığı değişik kaynaklar doğruluyorlar,” he names none of them.
While it is clearly observable that various gunpowder based weapons had slowly but surely become an integral part of fifteenth century warfare, their early military significance should not be overrated. Even if a few isolated references to the early use of Ottoman cannons can be authenticated, which is quite unlikely in the near future, one can certainly state that those cannons were not as yet a decisive factor in Ottoman warfare. The first cannons were costly and rather clumsy machines and, because of their rather limited numbers, could hardly have played any decisive role in various military engagements. As to the matchlock arquebuses, it is clear that they required a couple of decades of use before they would catch up with the effectiveness of the traditional Turkish bows. There is a clear tendency in modern Turkish historiography to depict the first half of the fifteenth century as a transitional historical period in which the Ottoman military started gradually utilizing different sorts of firearms. The numbers of those early weapons were probably very limited.8

For a long time, mounted warriors who were experts in ambushes and very rapid surprise attacks, continued to use the bow and arrow, which remained the essential weapon that suited their traditional fighting techniques perfectly well. The success of the early Ottoman method of fighting was questionable against a well organized, highly disciplined army in a formal encounter. Fortunately for the Ottomans, they had not really been challenged, since their fourteenth century enemies belonged to a different category.

One may note here as a historical curiosity that Bertrandon De La Broquière of Burgundy, who was certainly one of the keen fifteenth century European observers,

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8 Mücteba Ilgürel, “Osmancı Imparatorluğunda Ateşli Silâhların Yayılışı,” Tarih Dergisi 32 (1979), p. 301. According to him, although establishing the exact historical date of the introduction of firearms into the Ottoman army is an impossible task, it is certain that in 1421, 1430, and 1442, the Ottoman troops used firearms. One may note here that Neşri’s Chronicle was Ilgürel’s source for those historical dates. See Neşri’s narrative, Cihan-nümâ, vol. II, pp. 565, 611, and 639.
expressed his strong belief that a well disciplined and properly armed Christian army from West Europe could overcome the “Turks” with relative ease, because the latter forces were generally poorly armed. According to Broquiére’s personal observation, various Ottoman armies, regardless of their numerical size, were made up of lightly armed soldiers. It should be noted that he was not specific about which army unit he described in his memoir. One may surmise that Broquiére was probably thinking of the auxiliary troops or of raiders (akincilar), who, in the fifteenth century were still a major Ottoman military force. His interesting suggestion about the usage of wheeled ribaulds (ribaudequins), the multi barreled organ guns where several metal tubes were clamped together, as potentially effective weapons against the Ottoman military forces, clearly indicates that this type of gun had already been known and utilized by armies in his homeland, the Duchy of Burgundy.

Nevertheless, throughout the entire fifteenth century, the obvious Ottoman eagerness to adopt any new available European weapon, including the latest firearms technology, cannot be denied. The utilization of different guns and Ottoman military technology in

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9 Broquiére, posing as a pilgrim from the Holy land, but who actually carried out a spying mission commissioned by the Duke of Burgundy, Philip the Good (1419-67), made his many interesting personal observations regarding the Ottomans and their military strength in 1433, when he was on his way home from the Holy Land. According to him, the contemporary Ottoman soldiers were fearless and very brave fighters, but their general weakness was the lack of arms. “Et croy et appert que là où ilz se sont trouvez, ils ont fait vaillamment jusques icy. Mais il me samble que à gens de bon gouvernement, il ne seroit point chose forte ne difficile à les rompre et desconfire veu qu’ilz vont desarmez.” See his quite lengthy but fascinating historical narrative, Le Voyage d'Outremer de Bertrand Don La Broquiére Premier Ecuyer Tranchant Et Conseiller De Philippe Le Bon, Duc De Bourgogne. Publié Et Annoté par Ch, Schefer (Paris: Ernest Leroux. Éditeur, 1892), p. 224. The author goes on to state on the same page, “Et combien qu'ilz soient au cunesfois en grant nombre comme de C ou VIxx ou de IIC mil, se ne sont ilz point la plus part habilliez, comme j'ay dit, de tarquins, de coiffe, de mache et d'espée, et seront la plus part à pié. Et en y a de tels qui n'ont que une grosse machue; ...” [italics added] The words above in italics may have been a reference to the auxiliary troops of yayas.

10 Ibid., p. 226. According to Broquiére, a Christian army about to do combat with the “Turks” should be well equipped, including two or three hundred ribaufauxins on wheels, which can easily be transported from Belgrade to Constantinople, [in order to help the Byzantines.] “…et se pourroit tresbien servir et se le pourroit bien mener aussi II ou III c ribaufauxins sur roes, lesquelz on meneroit de Belgradd jusque à Constantinoble.”
general probably reached their highest level during the long, successful years of the very energetic Mehmed II (1451-81). It should not be forgotten that Mehmed II was one of the most independent minded sovereigns in the more than 600-year-long history of the Ottoman dynasty. Driven by great desire for knowledge, he was possibly the first Ottoman ruler who showed a keen interest both in various military sciences and in artillery technology.\(^{11}\)

While the story of the monstrous wall-battering cannon made by Orban from Transylvania is quite well known, and seems to have been an overquoted historical episode in modern secondary literature, one should rather mention here the fact that the young Ottoman sultan himself, utilizing his obvious wide knowledge in military science, had played a reasonably active role in the construction of a certain piece of ordnance before the city of Constantinople finally fell into his hand on May 29, 1453.\(^{12}\)

Besides the acquisition of weapons through the aforementioned illegal Christian commercial activities in the distribution of firearms, the Ottoman army could easily acquire practically any kind of military hardware as war booty after successful fortress

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\(^{11}\) On the sultan’s very close attention to different military sciences, see Ágoston’s article, “Ottoman Artillery,” p. 25.

\(^{12}\) Any description of this well known siege is unnecessary here. Suffice it to say that, according to the Byzantine eyewitness Kritovoulos, the sultan not only consulted with his own artillerymen regarding various military problems, but he also actually designed a new kind of cannon for his troops. T. Riggs (trans.), *History Of Mehmed The Conqueror By Kritovoulos*, (Westport, Connecticut: Greenwood Press, 1970), pp. 42-3. The Byzantine author tells us (p. 51), that during a meeting between the sovereign and his cannon makers, the latter complained that they were not able to fire cannon balls at the hostile galleons. Then the sultan showed a new mortar type of cannon, which, with the correct ballistic knowledge, could successfully destroy the European battleships. “... he said, if they were willing, it was possible to construct a different sort of gun with a slightly changed design that could fire the stone to a great height, so that when it came down it would hit the ships amidships and sink them.” The sultan also added “they must first aim it and level it, getting the measures by mathematical calculation, [italics added] and then fire on the galleons.” DeVries also cites this episode in his study, “Gunpowder Weapons at the Siege of Constantinople, 1453,” in: Lev Yaacov, (ed.), *War and Society in the Eastern Mediterranean, 7th-15th Centuries*, (Leiden- New York- Köln: E.J. Brill, 1997), p. 346, in order to underline the crucial role played by the Ottoman sultan. According to DeVries, sultan Mehmed’s invention can be called “the first Turkish mortar.” Further along (p. 360), the author calls the sultan’s new design “essentially a long-range mortar.” Işıkal, “Eski Türk Toplan,” p. 68, also emphasizes that the young sultan had great knowledge on gunnery and was an expert on ballistics, but he, once again, does not mention his primary sources.
sieges or field battles. Throughout the entire history of warfare, it has understandably been a customary practice for the victorious troops to obtain valuable weapons and various equipment from the defeated army.\textsuperscript{13} The Ottomans were particularly eager to acquire the latest European gunpowder based weapons; one may mention that, just after the fall of Székesfehérvár in the summer of 1543, the victorious Muslim troops were very eager to obtain immediately all the handguns that had previously been used in the fortress by the Hungarian garrison.\textsuperscript{14}

Of the numerous examples given by contemporary historical sources, one should mention two concrete cases here. Firstly, Sinan Çavuş, the official Ottoman chronicler of the 1543 campaign of Sultan Süleyman against Hungary, reports in his information-rich, straightforward narrative that all the accessible Christian armour and weapons in the fortress of Esztergom, which had fallen to the Ottomans on August 8, shortly before the occupation of Székesfehérvár, were meticulously collected and registered by the entering Ottoman army.\textsuperscript{15} Secondly, another important Ottoman narrative source, Selânikî, reports in his thorough work that in July 1595, after the unsuccessful Wallachian attack on the

\textsuperscript{13} Parry notes in his very richly documented meticulous article that the Ottomans, by the help of the renegade soldiers and through the imitation of materiel de guerre obtained from hostile armies, “had long striven to keep abreast of the latest innovations made in the European practice of war.” The author also adds that this “routine mimesis had served them well in the fifteenth and sixteenth centuries.” V. J. Parry, “La Manière de combattre,” in: Parry-Yapp, War, Technology And Society, p. 255.

\textsuperscript{14} Ibid., pp. 250-51. The original source quoted by Parry was a sixteenth century historical work written by Paolo Giovio, Dell’Istorie del Suo Tempo. (L. Domenici trans), (Venezia, 1560), vol. II, p. 711. Hall also mentions in his work, Weapons and Warfare, p. 193, that the Ottoman war booty included wheellock pistols, which were considered as new weapons since they became available in great number in early modern Europe only in the 1540s. DeVries, “Gunpowder Weapons,” p. 354, emphasizes as well that for the Ottomans the period of 1440-1443 was a very important historical phase in acquiring hand-held gunpowder weapons.

\textsuperscript{15} Sinan Çavuş, Sülçeymenûme, fol. 108a. The Ottoman author gives the entire list of Christian armour and weaponry acquired by the victorious troops of Sultan Süleyman: “… defterdâri varub, yirmi iki top bağoluşka ve yedi top kolumbûra [sic] ve on zarban ve iki prangû ve iki demûr top ve iki kumbâra topu ve seksan beş şakâlûş ve altı yüz otuz iki tüfeng ve yedi yüz yirmi yedi kûrda ve üç yüz doksan harbi ve elli sekiz zırh ve on beş kölcâk ve dört tölga ve yüz otuz yedi çevşen deftere alub…”
city of Vidin, the victorious Hasan Pasha acquired significant numbers of firearms in addition to the enemy's flags and drums.  

Examining the structure of the Ottoman army during its formative period, one may note that, unlike other contemporary Muslim armies, the Ottomans were able to establish quite early a well-trained, highly disciplined standing infantry unit, which later played a crucial military role in numerous field battles. If one wishes to view the initial Ottoman military development from a comparative perspective, it seems certain that all the basic military changes that took place in late fourteenth and early fifteenth century Europe were reflected in Ottoman warfare as well. Their army was apparently similar in most respects to the fighting forces of other contemporary European states.

In other words, the early Ottoman leadership proved to possess the political flexibility needed to adapt fully to a new kind of warfare. This flexibility is well reflected in the reform of the cavalry based army, which had been the overwhelming military force for centuries, if not for a millennium, in every nomadic Turkic society. Although various cavalry regiments undeniably remained the prevailing forces in their frequent military conflicts, the Ottoman army was significantly altered in its composition during the first half of the fifteenth century. With the emergence of the artillery and standing infantry corps, the Ottoman military organization lost its original nomadic structure, and became a formidable, complex military entity. It warrants repeating, however, that the cavalry units retained their dominant military role in Ottoman warfare.

In the utilization of a variety of artillery pieces, the Ottomans also paralleled contemporary European military development. The specialists of the Artillery Corps,

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which came into existence sometime in the 1440s, learned rather quickly that in siege warfare, the heavy wall battering guns were suitable, while in field battles, the mobile, easily transportable light cannons were the only effective weapons. Writing in 1513, the important Greek source Theodore Spandones already noted that, because of the tremendous difficulties in transportation, the Ottomans discontinued the large-scale production of giant guns.¹⁷ Unlike the early colossal cannons that weighed a few tons and were mounted on immobile platforms, lighter ordnance could be transported on wheeled carriages. In this way, the artillery corps could keep up with the marching army. The howitzer, a unique mixture of the mortar and the field gun, was also greatly appreciated, since this weapon could be transported with relative ease by even fast moving raiding troops in the course of an excursion into hostile territory. It is certain that, during a given campaign, cannons of numerous calibres were employed; however, their categorization is

¹⁷ According to Spoundanès, large numbers of foreign experts, including canoniers and founders came from several countries to Istanbul in order to demonstrate to the Ottomans “as much how to manufacture and mount artillery as to how to use it.” Spoundanès’s statement underlines the fact that, through the active involvement of numerous European specialists, the Ottomans had the opportunity to become accustomed to all the important characteristics of artillery technology used in contemporary Europe. The Greek author’s lines have been quoted by Colin Imber in his latest book, The Ottoman Empire, 1300-1650. The Structure of Power (Houndsmill: Palgrave, Macmillan, 2002), p.272. Early heavy siege guns were often cast in situ and, when the siege came to an end, were cut into smaller pieces and carried away by the Artillery Corps. One may note here, parenthetically, that the presence of foreign experts in the Ottoman army was a well known fact to their European adversaries. Illusions about the reliability of Ottoman soldiers of Christian origin several times led to grave miscalculations among the European commanders. It may sound surprising but it is a fact that Pál Tomory, the Archbishop of the Hungarian town Kalocsa, and commander-in-chief of the allied European forces at Mohács in 1526, secretly counted the hostile Ottoman troops with Christian background. These included mostly Germans and Italians who were operating the Ottoman cannons on the battlefield of Mohács. “...ad haec occulta etiam quaedam Pauli Thomory cum magna hostiliis exercitus parte consilia, cum his scilicet, qui vel Christiani ipsi vel Christianis parentibus nati erant et qui tormentorum bellicorum apud hostem curam habebant partim Germani partim Italici generis.” This episode has been related by István Brodarics, the Royal Chancellor and Bishop of Szerém, who personally participated in the Battle of Mohács. His original memoir was published as De conflictu Hungarorum cum Turcis ad Mohat verissima descriptio (Krakow, 1527). Throughout this thesis another copy has been utilized: De conflictu Hungarorum cum Solymano Turcarum imperatore ad Mohach historia verissima, in: Stjepan Sršan (ed.), Stjepan Brodarić, Mohačka Bitka 1526 [S. Brodarić, The Battle of Mohács 1526] (Vinkovci: Dukat, 1999), p. 77.
not an easy task because the narrative literature is rather vague about the accurate names and the exact measurements of guns.\textsuperscript{18}

In the Ottoman army, the Janissaries originally were equipped with traditional Turkic weapons, which, among others, included bows, swords, and javelins. While the early Janissary soldiers were probably predominantly capable archers,\textsuperscript{19} the Ottoman leadership was able to take the opportunity later to introduce the systematic use of gunpowder based weapons among the infantry corps. During the long and militarily mostly successful reign of Murad II (1421-51), hand held matchlock rifles started to be gradually adopted by the Janissaries. In the period of constant warfare with the Hungarians from 1440 to 1456, the Janissaries increasingly became a very effective infantry force with a formidable firepower.\textsuperscript{20} In the subsequent decades, numerous spectacular Ottoman victories over their rival Muslim military powers, such as the Akkoyunlus, the Mamluks, and the Safavids, can truly be attributed to their competent utilization of the latest arquebuses and other firearms.

By the turn of the sixteenth century, the general respect for the Janissary soldiers vis-à-vis their training, discipline, and endurance in campaigns was probably second to none both in Europe and in the Middle East. One may point out here that even several quite hostile historical sources, which otherwise strongly and repeatedly condemned the

\textsuperscript{18} Ágoston indicates in his study, "Ottoman Artillery," p. 32, the general confusion concerning the different types of cannons described by various historical accounts. "...our sight is greatly blurred by the chaos existing in the relating literature regarding the Turkish names of guns used in narrative sources." According to Murphy, *Ottoman warfare*, p. 109, from the mid-sixteenth century, the 11-22 okka range, (approximately 30-60 pound shots), "was a category commonly required for Ottoman deployment in Hungary."

\textsuperscript{19} According to Broquiére, *Le Voyage d’Outremer*, p. 228, the "Turkish" infantry could not maintain a strong push on foot due to lack of any valuable lance. He considered the archers as their best infantry force, though they could not shoot as far and as strongly as their Christian counterparts. "...ilz ne sont point armez soutenir ung grant fas à poulser à pié, et aussi ilz n’ont nules lances qui riens vaillent; et le plus fort de leur fait est de leurs archiers, lesquelz ne tirent point si loing ne se fort comme font les nostres."

\textsuperscript{20} On this topic one should consult Heywood’s relevant thoughts (footnote no. 7, p. 134 above), and also Ágoston’s study, "Ottoman Artillery," p. 24.
Ottomans and their military establishment, had expressed spontaneous admiration for the proficiency of the Janissary troops, and for the way the Ottoman infantry soldiers were generally handling their guns. The effectiveness of the Janissary troops was a very important military factor in numerous successful Ottoman campaigns, since the steady development of handguns made infantry troops a decisive force in sixteenth century warfare. Péter Pécsi Kis, an often unknown though very important sixteenth century Hungarian source regarding various fields of contemporary Ottoman warfare, not only had a chance to observe the Ottoman camp at Buda in 1541, but also received a very detailed description of numerous Ottoman war techniques from one of his childhood friends then serving in the Ottoman scribal class.

According to Pécsi Kis, the Janissaries, the most valuable elite troops whose number was correctly given between twelve and thirteen thousand, were, along with their double-edged sabres, equipped with long barrelled light arquebuses, which they handled in a masterly manner. Although one of the author’s aims in his work was to give certain moral teaching, which was quite a common phenomenon among his contemporaries, in

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21 One may mention here the relatively less quoted historical narrative of the Persian Hasan-ı Rümlü, who, naturally, as a determined Safavid follower, had always been highly critical toward the Ottomans, and simply called them infidels in a despising manner. However, the sole occasion throughout his long work when Rümlü reluctantly admitted Ottoman superiority was his acknowledgement of the skill of the Janissaries along with that of the artillerists (topcular). According to him, the Janissary soldiers could hit the smallest thing from a mile distance [sic]. Rümlü’s following passage cannot be taken at face value because he obviously exaggerated the capability of the Ottoman infantry troops and that of the Artillery Corps; his lines, however, demonstrate quite properly the high opinion of the hostile sources concerning those Ottoman army units. "...wa Tshâh [i.e. Ottomans] dar andâkhtân-i top wa tufâng wa r'âda (?) wa zarbuzañ tâ an martaba mahârat wa iqtiår darand ki jaz'-i latîjazâ râ dar intidâd-i ashi‘at-i naşârî az yek mîl jây hadaf îşâbat mî-sâzand wa nuqţa'-i mawhum râ beshâm khujiut başârî az yek farsang râh ba nishâna mî-andâzand." A Chronicle Of The Early Safawis. Ahsâmî Tawârîkh Of Hasan-ı Rümlü, C. N. Seddon (ed.) (Baroda: Oriental Institute, 1931), vol. I, (Persian text), pp. 144-5.

22 “Janîcheri autem sunt pedites rei bellicae exercitatisissimi ad unum usque archibusari praestantissimi doudecim aut ad summum tredecim millia peditem singuli archibusum longum et leve frameam atque bipennem petro dorsum in cingulo habentes.” Péter Pécsi Kis, Exegeticon. József Bessenyeyi (ed.), (Budapest: Akadémiai Kiadó, 1993), p. 54. The author goes on to state that, for the Ottomans, the outcome of a war depended on the Janissaries. "Nam tota spes belli in solis ipsis janîcheris pendet..."
concrete military matters he did not present any invocations for divine help. Instead he repeated himself by emphasizing the extraordinary military role usually played by the Janissaries in Ottoman warfare. For that reason, he advises his fellow Christians, with “honest Christian consciousness,” that these Janissaries armed with arquebuses should somehow be overcome since all “Turkish military hope” rested upon them.\footnote{Ibid., The Hungarian author is rather convinced that with diligence and by the proper use of contemporary military art, the European troops were able to defeat the Janissaries, and this would greatly reduce the general Ottoman expectation in war. “...ut tota spes bellorum in ipsi solis janycheris et pendet et speratur. Aliquae (dico christiana et sincera conscientia) si soli ipsi janycherii archibuseri gratia divina per christianos in campo quavis ratione prostrerentur, quae facilime arte bellica industriaque militari disrupi posset, statim tota spes et firmamentum bellorum confusi fugateque penitus annichilaretur.”}

Unlike the practice among the Janissary infantry troops, progress in the mass use of firearms was rather slow in various cavalry regiments. This had grave consequences for the Ottomans in the late sixteenth century, since the sipahi and the Kapikulu cavalry squadrons had generally been the mainstay of the Ottoman military machine. Representing ancient Turkic war traditions, these forces were accustomed to a relatively short campaigning season, and were clearly slower than their mounted European adversaries in the adoption of changes that occurred in early modern warfare. In general, the lack of firearms made the Ottoman cavalry corps very vulnerable to the effects of hostile fire during the course of the Long War. Ottoman mounted soldiers also found themselves unable to cope with the increasingly disciplined European infantry troops that were armed with more and more effective handguns.

At the beginning of the sixteenth century, it became apparent that various kinds of handguns represented the future of warfare; thus, not surprisingly, by the end of that century, archery made its way out of the battlefields. Yet, among the Ottoman mounted troops, as frequently indicated in Ottoman historical narratives, the archery weapon still
remained a standard military tool.²⁴ Basically, the armament both of the Hungarian and
Ottoman forces in Hungary was determined by the nature of the enemy, although, as the
sixteenth century progressed, various handguns gained more and more acceptance among
the Hungarian horsemen.²⁵

It is necessary to point out that the Ottoman government made several attempts to arm
its mounted soldiers with pistols, but those unchivalrous arms eventually became widely
accepted weapons among the sipahi troops only during the long siege of Candia (1645-
69). Even more cumbersome slow loading weapons, such as the arquebus or musket,
were even less popular with mounted troops throughout the sixteenth century. One can
find an appropriate historical example among the writings of the Habsburg ambassador in
Istanbul, Ogier Ghiselin De Busbecq, who related in one of his famous letters the
following oft-quoted typical story of how the filth and unreliability of gunpowder based
weapons created a strong reluctance among the Ottoman cavalry troops to utilize firearms
during their military campaigns in the mid-sixteenth century. According to him, the
Grand Vizier Rustem Pasha, after listening to some of his military advisers, decided to
equip and train a selected squadron of 200 mounted soldiers with muskets during the

²⁴ Surprisingly, even the Janissaries stubbornly kept their archery weapon. Abdülkadir Efendi, reports in
his work, Vekâyi-i Tarihiyye, fol. 22a, that the Janissary troops were, besides their firearms, equipped with
bows and arrows during the Ottoman siege of Győr in 1594. “...yenici ocaklarına... tufeng ü harbalar ve
tir u kemânlar u bârut u kuruşun ve reşete-i penbe tevzi olunur...” Further along in his chronicle (fol. 57b)
Abdülkadir also reports that during the preparation for the campaign of Eger in 1596, 4,000 firearms
(tufeng) and 1,000 archery weapons (tir u kemânlar) were distributed among the Janissaries.
²⁵ This trend probably had to do with the increasing number of arquebuses and wheellock pistols available
in early modern Hungary. In the Imperial armies the proportion of handguns was very high. See Kelenik’s
statements in footnotes no. 37 and 38 respectively, on page 150, below. It is interesting to note that one of
many etchings from Wilhelm Dillich’s work depicts a hajdu (Heydugt), an irregular horseman, and even he
was equipped with arquebus. See, Ungarische Chronica (Cassel, 1606), p. 56. One should note that the
proliferation of firearms became a common phenomenon in Transylvania too. In 1595, when Prince
Zsigmond Báthori and his army came to Wallachia in order to help the Romanian uprising initiated by the
voivode Michael the Brave (1593-1601), all of his troops (both infantry and cavalry) were equipped by
firearms. One should consult Selâniki’s relevant lines, Tarih-i Selâniki, vol. I, fol. 228b, p. 412.
“[Mihal]... Erdel la’in cânibinden yardım gelen onbeş bin nefer tufengci macar küssâriyle gelüb Yerköyi
kal’asını çarşın urub yağıma eyledi. Ehl-ı İslâm’dan çok kimsenün evlâd-i sizan esir ü girtfâr olub...”
preparation for a new campaign against the Persians, "in order to inspire the enemy with terror and cause great slaughter."²⁶

Despite the obvious failure of Rustem Pasha’s reform, there are, however, quite a few historical examples that one can find in order to demonstrate that, even before the middle of the seventeenth century, certain Ottoman cavalry units in very limited numbers sporadically utilized firearms against hostile armies.²⁷ During the period of Hadım (eunuch) Süleyman Pasha’s campaign against Aden (Yemen) in 1538, according to the Ottoman official’s own correspondence, there is apparent historical evidence of early deployment of mounted troops equipped with firearms. Since those cavalry soldiers came with Süleyman Pasha from Egypt, one can correctly surmise that, soon after the Ottoman annexation of Egypt in 1517, there must have been a military unit there, which was probably organized by the Ottoman military command from local militias, served on horseback, and possessed a certain arquebus type of gun.²⁸ During various military

²⁶ Edward Seymour Forster (trans.), The Turkish Letters Of Ogier Ghieselin De Busbecq (Oxford: Clarendon Press, 1927), p. 123. Rustem Pasha’s innovation failed to achieve any noticeable success; the Ottoman army did not complete even half of its journey to Persia, when the cavalry squadron mentioned above started to experience serious difficulties with its firearms. According to Busbecq, “The usefulness of the muskets began to be impaired. Every day some part would be broken or lost, and there were few who could repair them. Thus the majority of the muskets had become quite useless, and the men wished they had never brought the weapons.” Ibid., p. 124. This historical episode has frequently been cited by modern scholars in order to demonstrate the reluctance of the Ottoman cavalry troops to adopt firearms. Most recently Chase, Firearms, p. 96, quoted Busbecq’s renowned letter.

²⁷ Although Elgood, Firearms and the Islamic World, p. 45, firmly states that the sultan’s household cavalry, the Sipahi di Paga, (which is the so-called kapıkuşu sâvarları squadron in Ottoman Turkish), during the Long War, began to arm itself with the tezaruolo, a kind of short barreled arquebus type of firearm, he does not provide the primary literature from which his information came. Elgood only says flatly that “Venetian sources” recorded the presence of the arm-bearing household cavalry. It is almost certain that his statement was taken from N. Barozzi- G. Berchet’s monumental collection of reports written by Venetian ambassadors, Le Relazioni degli Stati Europei lette al Senato dagli Ambasciatori Veneziani nel secolo decimosesto, ser 5: Turchia, (Venizia, 1866), where in vol. I, p. 265, for instance, one can find a reference to these Sipahi di Paga armed with firearms.

²⁸ Among the numerous letters sent by Süleyman Pasha to Istanbul, there was one written from Aden (Yemen), in which the Ottoman campaign commander (serdâr) mentioned that, among his troops camped at the fort, there were a hundred cavalry soldiers armed with guns. They came from Ottoman controlled Egypt. “…Msur kullanının gönnülü kölününden yüz nefer ve atlu tüfekci zümresinden daha yüz nefer [italics added] …cumle beş yüz nefer kul olur mezbur Behrâm Bey bendelerile bile konulub…” Fevzi
engagements in the Long War, the Ottoman chronicler Abdulkadir Efendi had occasionally reported the presence of a highly valued Janissary battalion of a few hundred soldiers, armed with unspecified firearms (vaguely called only tüfeng), from the city of Damascus, which, quite incidentally, comprised only horsemen. 29 In his work, Selânikî, another Ottoman historian, also mentions quite a few times these specific Janissary squadrons of Damascus that were equipped with firearms and, during the Long War, occasionally joined the campaigning Ottoman armies in Hungary. 30

Before one focuses on the following discussion dealing with the range of battles and skirmishes between the two foes, it should be mentioned here that, in the mass deployment of firearms, which was one of the main characteristics of the Military Revolution, the Ottoman military establishment, at least to a certain extent, was on the right track. It became evident that, when hostile European powers acquired new and

Kurtoğlu, “Hadım Süleyman Paşamın Mektupları ve Belgradin Muhasara Pilâni,” Belleten IV (1940), p. 67. The facsimile of this letter is also given on plate (levha) VII. The Ottoman pasha also reported in his correspondence that additional troops, including five hundred cavalry soldiers equipped with firearms, were appointed in order to guard and protect the surrounding area. “...ve etrafta olan memleketi huzâ ve harâset etmek için dergâhı mu'alla'dan bir gönüllü ağası ve bir azap ağası ve beş yüz nefer gönûller ve beş yüz nefer atlu tüfekci ..."ta'yın olunub." Ibid., 68, the original hand written text on levha VIII.

29 Abdulkadir Efendi, Vekâyl-i Tarhîyye, fol. 129b, mentioned 500 mounted Janissaries at Eszék (Ösek), where the Ottoman army was temporarily stationed before marching on toward Kanizsa in 1600. “...ve Şâm-ı şerif kullarından tüfengli süvârî beş yüz nefsât ordu-i hümayunda karâr etdiler,” Previously, the Ottoman author had also noted their presence a few times. It is enough here to cite him on two special occasions: in the course of his lengthy account regarding the preparation for the campaign of 1596, “...ve Şâm-ı şerif eyâletinden beş yüz nefsât tûfenkî kul... sefer-i hümayuna ma’murlardır,” and in his earlier narrative on the Wallachian campaign of 1595, “...Şâm-ı şerif kullarından beş yüz nefer Eflâk seferine ma’mur olduklarında...” Ibid., fols. 52a and 32a, respectively.

30 The Ottoman author first mentioned them during the preparation for Sinan Pasha’s campaign against Gyôr in 1594. On that occasion, 600 highly valued mounted gunmen joined the main army. “...alû yüz nefer at üstüneden tüfeng-endâzîk ile yarar kullanur ve her biri bahadîrlık ve dîlâverîk ile nam-ver yarar növkârî benâm yiğitler sefer getmek re’y ibûz arz eylemişlerdir.” Tarhî-i Selânikî, vol. I, fol. 233a, p. 420. When Selânikî spoke of different Ottoman military contingents, which were about to leave for the Hungarian campaign of 1596, under the personal leadership of Sultan Mehmed III, he mentioned again this Janissary squadron. “...ve anlarun arîncâ Şâm yeniçerîleri alay bayrağı ki kadîmîden huccûçî-i zevî’-i ibîthâc hizmetinde ve darab u harbde at üstünden tüfeng-endâzîkla nâm-dâr, bahadîrlîkda yarar yoldaşlar ile yürüdüler.” Ibid., vol. II, fol. 331a, p. 610. Later in his work, (vol. II, fol. 345a, p. 635), Selânikî also adds that after the fall of Eger this squadron, without mentioning their precise weaponry, was sent out for patrolling mission. “...Çiğala-zâde Sinan Pasha... Şâm askeri ile... âsâkir-i mansûreye karavulluk hizmetinde olub...”
effective weapons, the Ottoman central command had to do likewise. Furthermore, even prior to the 1500s, and certainly before similar action by the European powers, a large formidable standing army, with a powerful artillery corps and the highly skilled, well armed Janissary troops, had been utilized by the sultan in times of military conflict.

Sixteenth century Ottoman development in warfare, however, was slow in its progress and rather limited in its nature. Besides the lack of pikemen in the infantry division, the Ottoman cavalry, with the unique exception of the mounted Janissaries from Damascus, did not have regular squadrons armed either with arquebuses or wheelock pistols. Although the Janissaries proved to be the most reliable elite troops in the Ottoman military machine, they fought in an army still dominated, even in the last decade of the sixteenth century, by light cavalry forces. These troops were obviously unsuitable to meet well trained, heavily armed (including firearms) cavalry squadrons in shock action.\(^{31}\)

Their primary duties should have been patrol service, forays, scouting missions, etc. It is true that the military leadership in Istanbul made a few not very convincing attempts to neutralize the growing firepower of the Habsburg forces.

The increasing number of Janissary soldiers, along with the newly emerging units of arms-bearing sekbâns and of saricas (young landless villagers equipped with firearms) were intended to counterbalance the dominance of the Christian forces on the battlefields.\(^{32}\)

Throughout the Long War, the growing demand for musketeers (tûfenken-daz) was relatively cheaply satisfied by the recruitment of reâyâ, who could quickly

\(^{31}\) Parry, “La Manière de combattre,” aptly notes that, “It was, in short, trough the sword and not through the terzarolo, [short-barrelled arquebus] the carbine, or the pistol that the Turkish horsemen excelled in battle.”

\(^{32}\) According to Naima, Tarih-i Naima, vol. I, p. 257, sekbân units fought very effectively during the Battle of Sârât in 1601, (for the description of this battle, see pp. 167-8 below) saving the serdâr from falling into Christian captivity. “Serdâr bozub almaga karî olmuş idi. Hak te’âlâ hafiez eyledi. …Mehmed kethûdâ sekbân tabûr kurbunda… tûfeng ile çok kâfir kirdular.”
learn the operation of firearms.\textsuperscript{33} However, the growing number of infantry troops equipped with various firearms did not necessarily bring higher quality to Ottoman warfare.\textsuperscript{34}

From the tactical perspective, it is important to point out that numerous armed, but tactically poorly trained, new military units actually lowered the formerly high Ottoman standard of combat.\textsuperscript{35} One should also keep in mind that these troops filled the immediate need for infantry soldiers carrying firearms, and, consequently, they were not on a permanent payroll, unlike the Janissary Corps. Since their next assignment was always uncertain, their continuous training remained an unresolved problem. In the case of the cavalry, there was no sign that the Ottoman establishment had ever seriously considered an overhaul during the Long War. By the last decades of the sixteenth century, it became clear that the role of the light cavalry squadrons armed with cold weapons had changed considerably. These forces were appreciated essentially as raiders or scouts; their valued role in the pursuit of defeated enemies as well, should not be ignored. The changing face of the cavalry was generally overlooked by the Ottoman strategists, and this negligence proved to be very unfortunate for their military undertakings, since, on the Christian side, the mass deployment of firearms applied to both the cavalry and infantry regiments. In

\textsuperscript{33} Finkel, The Administration of Warfare, p. 37. On the formation of sekban and sarucu units Inalcik's classical study still has numerous valuable information, "Military and Fiscal Transformation in the Ottoman Empire, 1600-1700," Archivum Ottomanicum (1980), pp. 292-3. Ilgörel states in his study, "Ateşli Silahların Yayılışı," p. 304, that, since 1559, more and more firearms had accumulated in the hands of rural subjects (rebäts). Nevertheless, since, in the Ottoman army, the cavalry units still vastly outnumbered the infantry squadrons, the overall strength of the Ottoman firepower remained somewhat limited. Therefore, Finkel correctly points out further along in her book, The Administration of Warfare, p. 46, that the size of various sekban contingents should not be considered significant. Numerous eyewitness accounts seem to confirm her statement; one only rarely reads about the noticeable size of sekban units fighting in any battle during the Long War.


\textsuperscript{35} The general problem of personal skills of soldiers on both sides will be further explored in the following chapter.
contrast the Ottoman light cavalry without firearms could execute only a very limited range of manoeuvres on the battlefields.

An interesting episode from the Long War, told by Istvánffy, indicates that even hastily recruited auxiliary Hungarian troops were equipped with firearms. As a matter of fact, during the Long War, various allied forces in Hungary “had proportionally greater fire power than those of the Low Countries after the tactical reforms of the Princes of Orange.” The standard weaponry of the allied cavalry forces included short barrelled (roughly fifty-sixty cm in length) wheellock pistols that were exclusively used in close range combat. One may mention here the surprising historical fact that more than two thirds of all skirmishes and clashes fought on open fields or around various strongholds

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36 According to Istvánffy, *Regni Hungarici Historia*, p. 414, in late summer of 1594 during the Ottoman siege of Győr, Archduke Mathias’ relief army started melting away due to significant desertion. The archduke ordered the emergency recruitment of both cavalry and infantry troops from the surrounding regions. Shortly afterwards forty thousand irregular troops were gathered. (The number given is forty thousand but this is only a figure denoting a large number.) Most of them were evidently miserable paupers from the countryside, yet even these “soldiers” were well equipped with handguns and other weapons. “Conluxere ex Ungaria ad mandatum principis die conducta, in castra circiter XL. millia equitum & peidum magna celeritate, quorum major pars collectititia quidem è plebe & ex agris erat; tamem & sclopetis & armis satis bene instructa, ...” [Italics added]

37 Kelenik, “Military Revolution in Hungary,” p. 118. Kelenik’s pioneering scholarly research, which focused on the Bestallungen (military contracts) type of documents located in the Kriegsarchiv in Vienna, produced numerous articles in which the author came to the conclusion that the proportion of the firearms in the Imperial army, even by contemporary European standards, was quite high. At the end of his study (p. 153), for instance, Kelenik states that, during the period of the Long War, two thirds of the infantry divisions carried handguns, while the cavalry was entirely equipped with some sort of firearms.

38 Because of their small calibre (roughly between eleven and fourteen millimetres), these handguns were effective only to twenty-five or, at maximum, thirty metres. József Kelenik, “A Kézi Lőfegeverek Jelentősége A Hadügyi Forradalom Kibontakozásában. A Császári-Királyi Hadsereg Fegyverzetének Jellege Magyarországon A Tizenötéves Háború Éveiben.” [The Importance of Small-Arms in the development of the Military Revolution. The Character of the Arms of the Imperial-Royal Army in Hungary during the Fifteen Years’ War] *Hadörténelmi Közlémenyek* 104 (1991/3), p. 94. Kelenik in his other valuable study “Military Revolution in Hungary,” p. 136, also emphasizes the fact that the light small-calibre pistols became a standard weapon of the foreign cavalry. Earlier in this work (p. 124), the author mentioned that different wheellock pistols spread so rapidly that by the 1550s and 1560s the complete tactical repertoire of the German cavalry was based on the utilization of these weapons. On the Ottoman side, for certain reasons that beyond the ambit of the present discussion, the manufacture or even the maintenance of precision metal works, like clockworks or wheellock pistols were not satisfactorily resolved. On this topic, see Elgood, *Firearms and the Islamic World*, p. 45. The author adds on the same page that in spite of frequent heavy casualties suffered by the cavalry, the Ottomans adopted pistols only when the snapshaunch lock became available for them.
during the Long War ended ultimately with European victory. This concrete statistical figure suggests that the Habsburg led coalition forces might have been more effective in the overall utilization of contemporary weapons.\textsuperscript{39} However, the word "utilization" ought to be underlined here since, as mentioned in Chapter Two, simple technological disparity, if there was any, had definitely not been enough to explain why the Imperial forces had the upper hand on the battlefield.

Instead of trying to find any available technological detail that would suggest a kind of Ottoman inferiority, it is enough to refer briefly to metallurgy as perhaps the only field of military related technology, where the European powers apparently had a certain edge over their Muslim adversaries.\textsuperscript{40} A. Williams, one of leading authorities on late medieval/early modern European metallurgy technology, almost twenty years after the

\textsuperscript{39} According to the Hungarian historian, László Nagy, "Erdély és a Tizenötvégi Háború," [Transylvania and the Fifteen Year’s War] Századok (1982/4), p. 680, during the Long war, the allied Christian forces maintained a significantly better battle record: sixty-three of the eighty-three military engagements that occurred throughout the thirteen years of fighting ended with Ottoman defeats. However, it is imperative to point out here that the overwhelming majority of these military engagements was small-scale skirmishes, thus this sort of defeat did not really weaken the Ottomans’ positions in early modern Hungary during the Long War.

\textsuperscript{40} In the fifteenth and sixteenth centuries, Europe and the Ottoman Empire followed a different pattern in metallurgy technology. Although Muslim armours like gorget plates were high quality forging works, their hardness was considerably below that of the European plates. On this topic, see the pioneering work of Alan Williams, \textit{The Metallurgy Of Muslim Armour. Seminar On Early Islamic Science}. (Manchester: University of Manchester, 1978), pp. 4-5, for a few concrete examples. Further along (p. 14) Williams mentions that gorget made in South Germany in the first half of the sixteenth century was about four times harder than the Ottoman version. However, it must be noted, at least parenthetically, that the Ottomans could have produced a better type of armour. One can consider it a conundrum that the so-called medium-carbon steel was not found in various Muslim armours, though recipes for the manufacture of this sort of steel and for its heat treatment had been known for three or four centuries prior to the Long War. Williams, in his booklet on page 16, mentions a treatise written by Murda Ibn Ali al-Tarsusi (A.D. 1193), who gave the detailed description of this kind of steel in the context of making swords. Parker in his work, \textit{The Military Revolution: Military Innovation and the Rise of the West}, p. 128, also mentions the Ottoman inadequacy in metallurgy. According to him, after the European victory at Lepanto in 1571, the Venetian fleet alone captured 225 Ottoman bronze canons, of which almost all had to be later melted down and recast because of the low quality metal. Parker, without referring to Williams’ research, adds that the results of chemical analysis of iron convincingly proved that the western-made iron and steel were “notably stronger” than their Islamic equivalents.
publication of his book (footnote no. 40 above), used stronger words to describe the European metallurgical superiority over the Ottomans.\footnote{See his study, “Ottoman Military Technology: The Metallurgy Of Turkish Armour,” in: Yaacov (ed.), \textit{War and Society}, pp. 363-97. In the “Technical Appendix,” which runs between pp. 377 and 391, the author presents numerous scientific samples regarding the quality of “Turkish armour.” On page 375, Williams categorically states that the Ottomans represented “a medieval army, clad in mail, confronted an early modern army clad in armour plate.” The author also adds that he had previously studied some Turkish-made swords, guns and armours, and came to the conclusion that the metallurgy of those items “\textit{is generally very simple being made of wrought iron or low-carbon steel}...” [italics added]}

There should be some observations made about the fundamental fighting methods of the Ottoman army, which remained basically the same for centuries. In the course of the Long War, this rigid, unchanging tactical structure of their combat forces created many serious difficulties on the battlefield. One may emphasize here that the obvious tactical disparity between the two powers could be considered a possible reason for the noticeable Ottoman ineffectiveness on numerous battlefields. Since any study of late sixteenth century Ottoman fighting methods has virtually been a \textit{terra incognita} in the secondary literature, a few pages are here devoted to exploring, at least briefly, this interesting topic.

In the following subchapter, an attempt is made to demonstrate that a clearly observable tactical inferiority, rather than any significant technological backwardness, caused many Ottoman failures on various battlefields. The dominant power of the gunpowder based weapons required far-reaching alterations in both military planning and combat tactics, two fields in warfare where the Ottomans failed to adjust to the surrounding world. Yet, it is necessary to point out here, because it is also another obvious historical fact, that the allied forces, regardless of their convincing success on the battlefields, were clearly unable to uproot the Ottomans from their positions in Hungary. For certain reasons that will be further explored in the closing chapter, even a clear
tactical superiority on the battlefield was evidently not sufficient to ensure the ultimate Habsburg victory at the end of the Long War.

b) The Role of Weaponry and Tactics in Various Battle Engagements.

As discussed above, the Ottoman troops, in the light of strict statistical data, were in a disadvantageous position on the battlefields against the Habsburg led coalition forces during the thirteen-year-long fighting. This fact, however, can hardly be explained by an alleged inequality in sixteenth century weapons technology between the Ottomans and their European adversaries. Technological innovations definitely came from various parts of Europe, but the Ottomans could imitate models of contemporary European firearms, and they could also quite often find a vast bonanza of abandoned up-to-date weapons and armour cast aside by the fleeing forces. In this way, no new gun could possibly remain concealed from the Ottoman military establishment. One should also point out that not necessarily in everything did the Ottomans need to copy the West; their domestically manufactured arquebuses, for instance, served the Janissary troops well.42

Consequently, Rhoads Murphy, who can be considered as one of the strongest opponents of technological determination in late medieval (early modern) history, is probably correct when he states that the deployment of superior weaponry, at least in sixteenth century warfare, by one of the fighting sides provided only a potential military advantage over the other.43 Perhaps the story of the petard should be mentioned here as a

42 Following the European fighting method, the Ottomans differentiated between heavy siege muskets and lighter guns used on battlefields. Ágoston, “Ottoman Warfare,” p. 126. According to the author, the heavy matchlock-muskets (fitilli tüfekler) generally were made with a 130-60 cm-long cylinder shaped barrel, while the field-matchlock guns were about 120-35 cm in length. Muslim firearms, in general, tended to be longer than the European ones.
43 Murphy, Ottoman warfare, p. 15. As already mentioned in the introductory chapter, the author rightly emphasizes the crucial importance of various war conditions, which, in general, had great impact on the
concrete historical example of the problem of the employment of “superior” military technology during the epoch of the Long War.

The petard as an offensive weapon was definitely not an innovation created during the Long War; although the exact origin of this potentially very effective bomb is still being debated, it is quite clear that the petard had sporadically been used in a few parts of Europe prior to the Ottoman-Habsburg armed conflict.\(^{44}\) Somehow the Ottoman soldiers were unaware of the petard, or at least they had never utilized this “early modern high tech weapon” against any particular Christian stronghold during the Long War. This was true even though Hungarian raiders attacked Ottoman held forts with petards as early as 1586. Shortly after the winter, on March 16, 1586, soldiers from the garrison of Pápa had allegedly simultaneously exploded the three gates of Ottoman held Koppány; still, curiously enough, the new explosive did not catch the Ottomans’ attention.\(^{45}\)

\(^{44}\) A comprehensive introduction to the interesting history of the petard, including the description of different categories of this weapon, can be found in János Kalmar’s article, “A Petárda A XVI-XVII. Század Várostomainak Szolgálatában,” [The Petard in the Sixteenth-Seventeenth-Century Siege Warfare] Hadtörténelmi Közlemények XL (1939), pp. 187-189. The author also provides numerous illustrations in his article. See also another article written by the same author, “A Petárda Szerepe Győr 1598. Evi Visszavivásánál,” [The Role of Petard in the Re-occupation of Győr in 1598] Arrabona 3 (1961), pp. 84 and 86, respectively. For very brief description of petard see footnote no. 46, below.

\(^{45}\) Sándor Takáts, “Magyar Tüzes- És Lövő Szerszámok,” [Hungarian Fiery Devices and Shotguns] Századok XLII (1908), p. 55. The author in his article gives numerous archival references in order to demonstrate the wide-ranging use of various incendiary devices by different fortress garrisons in early modern Hungary. While the utilization of numerous explosives is well documented, the authenticity of the early appearance of the petard has been questioned by József Kelenik. According to him, in Hungary the first use of the petard took place at Tata in 1597, because any previous petard attack would have drawn great attention on the Ottoman side of the frontier region. Kelenik, “Tata Helye És Szerepe A Végvári Rendszerben A 16-dik Század Utolsó Harmadában,” [The Place and Role of Tata in the Frontier Defence System in the Last Third of the Sixteenth Century] in: László Fatuska –Dr. Éva Fülöp –ifj. László Gyüsszi (eds.), Tata A Tizenötöves Háborúban. [Tata during the Fifteen Years’ War] Annales Tatuinenses I. (Tata, 1998), p. 50. One should note here that the well informed Ottoman chronicler, Câfer Çelebi, who, undeniably, wrote one of the most detailed Ottoman accounts about the events which occurred in the 1580s, somehow fails to mention the appearance of any new weapon on the Christian side during its attack on the
The greatest advantage that petards could give to their users was their fast, shocking effect on the surprised garrison, since any unexpected attack on a particular stronghold did not give time to the defending garrison forces to block the way of the assailants flooding into the fort. Since they could be mobile by attaching them to various kinds of carts or wagons, petards could be transported relatively quietly to the fortress gates by attacking troops without catching the attention of the defenders. Once the petard was attached or hung on the gate, the master of this weapon (petardier) ignited the fuse and fled the scene. The powerful explosion of the petard could easily tear apart the strongest iron framed fortress entrance, and allow the assaulting troops to storm through the giant opening.

Through the successful utilization of petards, the besieging forces could save themselves from annoyingly time-consuming, labour intensive trench diggings. Thus, this sort of weapon was supposed to be a rather fast and effective alternative to the costly, full blown sieges that, in many cases in the late sixteenth century, lasted for a couple of months. The petard worked effectively only if it was used in a surprise attack. Since this weapon was, at least according to the narrative accounts, still new to the Ottomans during

fort of Koppány. "Nađaj-oğlu [Nádasdy] näm la'în üç bin düşmen-i bed-âyîn ile Budun vilâyetine tabî' olan Kopan näm kasaba'a bir vakt-i seherde ale'l-gafle basub içinde sâkin olan ehl-i İslâm'i ve üç yüzden mütecâviz pâkfze kizâgâzların ve avert oglâncıkların esir ü garet... ol mahalle sancağı beyi Recep Bey nekbe-i şi'âra ve kuffâr-ı hâksâra esir ü giriîfîr olduğundan..." Tarih-i Sefer-i Üngûris, fol. 4b.

46 It should be pointed out here, however, that the petards, manufactured in at least half a dozen different kinds of shapes, were not particularly light explosive devices. The most common type of petard came with a hollow mortar or bell shape. Five kilograms of gunpowder usually required about forty kilograms of metal as covering material. Above that, every additional five kilograms of explosive material required another ten kilograms of extra metal for the container; thus, during a particular surprise attack, if the besieging commando troops used one hundred kilograms of gunpowder as the explosive inserted previously into the metal bell (made either of bronze or iron), the petard had to weigh at least 230 kilograms. See Kalmár, "Petârda Szerepe," p. 88. For that very reason, it is quite understandable that commanders usually preferred to use tricks in order to bring the petard as quickly as possible to the gate without trying to attach it to the entrance. (See the two concrete historical examples given below.)
the first half of the Long War, the Christian commanders transported and kept this device in extremely secret conditions.\(^{47}\)

It is important to point out here, however, that the great disadvantage of the petard was the fact that this kind of weapon could be used as an effective striking force only under ideal weather conditions, usually cloudy nights. In bright moonlight, the garrison had a good chance of discovering the plot and, by opening fire on the attackers, could easily chase them away. In May 1597 and March 1598, the Christian allied forces had successfully attacked Tata and Győr, respectively. In both cases the assailants, in 1597 led by Miklós Pálfy, and in 1598 under the joint command of Pálfy and Adolph von Schwarzenberg, were able, with the help of Turkish-speaking Christian soldiers, to pretend under the cover of a dark, cloudy sky that they were Ottoman troops carrying supplies from Buda. While the attention of the fortress guards was diverted, the petards fastened to carts were pushed to the gates and detonated. Through the huge opening caused by the explosion, the attackers could move in, and, in the ensuing hand-to-hand fighting, both Ottoman-held strongholds fell to the Imperial troops.\(^{48}\)

\(^{47}\) In 1595, during the second Christian siege of Esztergom, Istvánffy, who was the personal acquaintance of many leading military commanders, could simply not give the exact description of the petard in his chronicle because of the great secrecy that surrounded this weapon. In the Christian camp no one was allowed from the allied forces to see it, in order to prevent any spying for the enemy. “... sed cujus formam à nobis, quamquam omnibus his bellis & expeditionibus versatis vix com modè describi posse putemus, quod illud in arcano servari, nec cuquam ostendi soleat, ne ad hostes transferatur.” Regni Hungarici Historia, p. 425. According to the sometimes very accurate Peçevi, Tarih-i Peçevi, (vol. II, p. 211) the petard (ağac top) was also kept in great secrecy in 1598, before the successful Christian attack against Győr average soldiers could not see it. “...ve ağac topun örtüler kendi askerine bile göstermezler ve Yank kapusına getürürler...”

\(^{48}\) On the siege of Tata in 1597, see Tóth, Mezőkeresztes, p. 266, and Keleník, “Tata Helye,” pp. 51-4. About the Imperial attack on Győr in 1598, Peçevi’s account, Tarih-i Peçevi, pp. 211-2, gives some valuable information. Istvánffy, Regni Hungarici Historia, p. 458, erroneously states that the first time was 1597, when the allied forces brought the petard to Hungary in order to use it against Ottoman held fortresses. As mentioned above, Istvánffy recorded earlier (p. 425) that the besieging Christian troops at Esztergom had already had the petard in their arsenal in 1595, though, due to the rainy weather, it could not be used against the Ottoman garrison.
The magic of the petard, however, was rather a short-lived phenomenon in Habsburg warfare. In 1599, the Imperial forces also tried to utilize two petards against one of the suburbs of Székesfehérvár, with hope for another rapid victory. The surrounding marshy environment of the place, however, did not favour a delicate field operation; not surprisingly, therefore, the attackers had the misfortune to attract the attention of the Ottoman defenders, who were able to put the approaching soldiers under intensive cannonade.\textsuperscript{49} The French mercenary soldiers who were operating the petards that night panicked and fled. Although one petard went off, the other one was captured by the garrison, and thus the Ottomans became familiar with this “secret” weapon.\textsuperscript{50}

Afterwards, until 1601, besieging Christian forces, especially those commanded by Schwarzenberg, who became obsessed with petards, on numerous occasions still attempted to surprise various Ottoman garrisons by petard attacks carried out usually during the night. However, all assaults were doomed to fail since the Ottoman defenders were alert enough to organize effective vigilant guards around the fortress gates.\textsuperscript{51} That same year, even marauding hajduk (heyduks), after they set on fire the Ottoman held city

\textsuperscript{49} Kelenik, “The Military Revolution in Hungary,” p. 153, laconically only states that the petard, “was ineffective against the city gate,” while the garrison put the attackers under heavy fire.

\textsuperscript{50} The story is told by the Hungarian chronicler Istvánffy, Regni Hungarici Historia, p. 479, who bitterly complained in his narrative that after this incident the petard became practically a useless weapon. “...eo eventu, ut in posterum sequentibus bellis nullus ejus machinae usus esse potuerit.” According to Count Isolano, “Feljegyzések A Török Háborúról,” p. 667, the Christian attack did not surprise the Ottoman defenders though one of the gates was blown away by a petard and, after short but intensive fighting, the garrison was forced to withdraw to the citadel. From among the Ottoman historical sources Mehmed bin Mehmed, Nuhbetü i-tevârîh, tells us in his narrative (p. 201) that two pieces of these explosives fell into Ottoman hands. One may mention here as a curiosity that Peçevi in his chronicle, Tarih-i Peçevi, vol. II, pp. 212-3, gives his readers a quite detailed and surprisingly accurate description of the structure of a petard.

\textsuperscript{51} A Venetian report from Prague by the Ambassador Piero Duodo also correctly emphasized that, since the painful loss of Győr in 1598, the Ottomans were able to defend themselves from any petard attack. Dispacci Germania, [Filza] 29, August 27, 1599, quoted by Mór Kárpáthy Kravjánszky, Vác És Hatvan, p. 14. The great value of this very brief work is that it focuses on the Dispacci series, which, with thousands of other Italian documents, are still completely unexplored in the secondary literature dealing with any aspect of the Long War. The author usually did not identify the ambassador’s name in his work; thus throughout this thesis R. Morozzo della Rocca’s guide, Dispacci Degli Ambasciatori Al Senato. Indice (Roma: Archivio Di Stato Di Venezia, 1959), has been utilized.
of Szolnok, also tried to use a petard against the fortress. The local garrison, however, was well aware of their endeavour; and, with concentrated cannon fire, the attackers were chased away, and the petard fell eventually into the hands of the garrison.\footnote{Sepsí Laczkó Máté, “Sepsí Laczkó Máté Lórándffy Mihály Udvari Concionatora Krónikája És Emlékezetre Meltó Hazai Doloagoknak Rövid Megjegyzései 1521-1624,” [The Chronicle of M.L. Sepsí, the Court Concionator of M. Lórándffy, and his Brief Notes on Domestic Affairs Worth Remembering] in: Gróf Mikó Imre, (ed.), Erdélyi Történelmi Adatok, [Transylvanian Historical Data] vol. III, p. 37. (Henceforth cited as Sepsí Laczkó, Krónika).}

One may suggest again here that, in the process of finding the reason for the allied superiority on the battlefield, a wider perspective should be examined. It seems certain that, not various “wonder weapons,” but rather the shifting importance in land warfare from cavalry dominated manoeuvres to positional warfare gave the Habsburg led forces an edge. In positional warfare, the main emphasis was put on artillery fire and infantry regiments armed with various firearms. That factor considerably weakened the battle strength of the Ottoman army, which was still essentially dominated by the lightly armed \textit{sipahi} cavalry forces even at the end of the sixteenth century.\footnote{According to Kelenik’s research, “The Military Revolution in Hungary,” p. 146, “not a single German, Walloon or Italian horse-soldier carried a lance or pike.” He adds on the same page that on the Imperial side, it is correct to say, firearms were utilized “on a mass scale in the Hungarian theatre of war.”}

On the battlefields, the Habsburg Imperial troops, thanks to their skilled German, Walloon, Italian, or even Hungarian gunners, could gain a clearly observable advantage. Emperor Rudolf II and his brothers, utilizing their enormous European influence, could draw into their service the best possible multinational mercenary units. These units not only possessed up-to-date weapons but also utilized the latest tactical developments. One may add that these battalions actually possessed a complete system of tactics, carefully elaborated to suit the requirements of the age. Semi-professional and occasional medieval armies driven by certain feudal obligations became memories of a bygone era.
By the last decades of the sixteenth century, in the European infantry division, three basic fighting elements took shape: the unit of the arquebusiers, who carried matchlock guns as their main weapons; the squadron of musketeers, equipped usually with matchlock muskets, which were added to the infantry in the second half of the sixteenth century; and, in addition to these troops, there were the pikemen. These military contingents, due to their rigorous training, could act on the battlefield as a co-ordinated group.

The cavalry division on the Imperial side also consisted of three distinguished sections, of whom the arquebusier riders were probably the most effective force against the Ottoman troops during the Long War, since these units combined the mobility of the horsemen and the firepower of the infantry.\(^{54}\) Referring again to the Imperial military contracts mentioned previously, it is noteworthy that these mounted soldiers were equipped with wheellock guns as well.\(^{55}\)

The Hungarian type of cavalry squadrons, which were rather well suited for raids or scouting missions, were more lightly armed, though they too carried at least one handgun. The heavy cavalry squadrons (cuirassiers) with their full armoury, have frequently been mentioned by the Ottoman chroniclers under variously distorted names.\(^{56}\) These horsemen also carried pistols among their weapons and represented an overwhelming

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\(^{54}\) On this one should consult Kelenik, “The Military Revolution in Hungary,” pp. 124-5. On can also note here that it was certainly not an accident that, among the commando troops, who flooded into the fortress of Győr after the successful petard attack in 1598, there were 300 mounted arquebusiers, too. See Ilésházy’s work, Főjegyzések, p. 53.

\(^{55}\) Bestallungen 1593/451, in which German mounted arquebusier troops were required to have, besides swords and a rifle, two pistols. The document is quoted by Kelenik in his important study, “The Military Revolution in Hungary,” p. 131.

\(^{56}\) The best armourers in South Germany and North Italy could make distinct suits of steel, which, with the exception of the armpit and bottom, covered the whole body. These suits of plate armour in some cases could offer protection against pistols, too, and had no parallel in Islamic armoury. Williams, “Ottoman Military Technology,” p. 371.
force against the Ottoman combat lines, though on difficult terrain their effectiveness was rather questionable. In the deployment of the *cuirassier* troops, the geographical location was an important factor, since successful tactics and battle formations had to be adjusted time after time to the local conditions in swampy or hilly areas. Hence, because of different armours and weapons, the arquebusier cavalry and the *cuirassier* troops were required to follow dissimilar battle tactics, although both were considered heavy cavalry.

A unique squadron, called “dragoons” in Western warfare, started to appear on various battlefields in the late sixteenth century; these troops were not cavalry in classical terms, but rather mounted infantry developed from the arquebusier regiments. According to various Ottoman sources, in a few Christian squadrons, sometimes each soldier was equipped with not less than five or six firearms.58

On the Ottoman side, the armours were also distinct from the ones utilized by European armies. In his chronicle, the Ottoman author Câfer Çelebi mentions the armours

57 Quite understandably, for the Janissaries equipped with firearms, the horses of the allied soldiers seemed more vulnerable to gunfire than the heavily armoured riders. Hence, it was not rare that someone lost several horses in a single engagement. György Thurzó, the future Palatine of Hungary, an active participant in the Battle Székesfehérvár, of which more will be said below, noticed that, while just a very few Christian soldiers perished, there were “countless injured mounts, because of the Janissaries.” This note indicates that the Ottoman infantry deliberately tried to shoot the horses rather than waste bullets on the heavily armoured men. Bethlenfalvi Gróf Thurzó György Levelei Nejéhez Czobor-Szent-Mihályi Czobor Erzsébethез. [The correspondence of Count György Thurzó of Bethlenfalva to his wife Elizabeth Czobor of Szentmihály.] Edmund Zichy (ed.), (Budapest: Atheneum R. Társulat, 1876), vol. I, 1590-1600, letter no. XLVI, p. 35. (Henceforth, *Levelek*).

58 This information is given by Câfer Çelebi, who states in chronicle that when the Christian forces arranged their battle order at Sziszek on June 22, 1593, every German “fegveros” soldier carried five-six handguns. (“fegveros” is a Hungarian loan word from *fegyveres,* meaning armed man). “Küffär-i hilekär dahi beş yerde állayın bağılayub ve fegveros nemçeleri her birinin önünde ve yanında beşer ve altşar tufeng ile sâfi pulada gark olub ehl-i İslam askerine karşı gelüb…” Tarh-i Sefer-i Üngürüs, fol. 15a. Another Ottoman chronicler, Mustafa Ali, reports Hungarian troops armed with five-six handguns in the Battle of Tura (May 1, 1594). The Ottoman advance guard could not simply withstand the great push of those troops. “Hemân atları diņç kendeleri günç putperest mel’unlar ateş-i fürţân gibi nümâyân oldılar ve macar tufengleri ile ateş-i kârârın ışıl’alma tutuldular. Bir yâd-res kâfiir beş altı el tufęngi ile zähr ve kerreten ba’de uhrâ ceng ü cidâle mübâşır olub bir mertebe hücum itdiler ki, asker-i İslâmdan çarḥaci nämîndaki bed-dilin evvel mertebede yüzi tersine döndi.” Kûnthâ l’ahbâr (Istanbul) Nuruosmaniye Kütüphanesi. MS. No. 3409, fol. 408a.
were worn by his soldiers on their way to Palota in 1593.\textsuperscript{59} The European armour, perhaps due to its high cost, seems not to have influenced the Ottomans, whose troops, either foot or mounted, usually wore mail shirts, sometimes down to their knees, reinforced occasionally with plates of iron.\textsuperscript{60}

Also, if a number of individual battles are examined, one can certainly call into question much of today’s orthodoxy, since it is rather obvious that, by the early sixteenth century, new weaponry required new tactics, or at least the existing tactics needed to be upgraded. By investigating the outcome of various skirmishes, using this approach one can come to the conclusion that the Long War indeed revealed the obsolete nature of Ottoman military tactics. Whether they were members of the main army or of just a provincial military unit fighting under a beylerbeyi, the Ottoman troops continued to use a wide range of medieval tactics. They followed their quite old traditional battle manoeuvres, such as pretended flight\textsuperscript{61} or a crescent shaped cavalry formation that would outflank the enemy on both sides. These actions were based on the movement of fast but lightly armed horsemen, and the Ottomans met little military success against the well disciplined, heavily armed Imperial army.

On an open field, the Ottoman light cavalry could be ridden down by the Imperial arms-bearing heavy cavalry. The steady infantry battalions, equipped with pikes and firearms, could also not be broken by light horsemen. Moreover, infantry troops were

\textsuperscript{59} See his Tarih-i Sefer-i Üngürüs, 23a. “...ve Rumili ve Budun altına tâbi olan zirh-libâs u çevân-pûş u miğfer –külbâ deryâ-hûrûs ve dilâver bezm-i rezme çâpûkler ve vêgâda mukaddim ve heyçâda çerfe yüzçeriler...”

\textsuperscript{60} “Ottoman Military Technology,” p. 373. According to Williams the greatest advantage European infantry had in this field was the fact that they were wearing armour made of iron plates rather than of mail.

\textsuperscript{61} Busbecq, Turkish Letters, p. 137, called the pretended flight an old military custom, which, according to him, originated from the Parthians. Against lightly armed hostile cavalry soldiers, the ancient tactic of fake withdrawal, followed by a sudden turnaround and heavy arrow attack on the pursuing enemy, had previously worked well for many centuries.
quite often liable to have the Ottoman horses shot before the Ottoman cavalry could come within their own efficacious range. While Janissaries were definitely skilled in positional warfare, and they remained without any doubt elite military troops well into the seventeenth century, certain manoeuvres, like wielding pikes in order to repel cavalry charges, had never become their practice in open field battles.

In previous wars, the strongly fortified position of the Janissaries at the centre of their battle order had presented a practically impenetrable wall against enemies who based their tactics on fast cavalry moves. Utilizing massive wagenburg (tabur) (originally adopted in the mid-fifteenth century from the Hungarians, who had earlier taken it from the Hussites), numerous guncarts were chained tightly together with cannons placed between or above them, the Ottoman army had a reliable protection against hostile attacks in the middle of battlefields.\(^{62}\) Light European cavalry based armies, no matter how many times, and how fiercely they attacked the Ottoman positions, could not overcome the centre protected by the infantry’s firepower; to these enemies, the well organized and highly diversified Ottoman military machine had simply been invincible.\(^{63}\)

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\(^{62}\) Pécsi Kis, *Exegeticon*, p. 53, remarks about the Janissaries, calling them the third battle order after the advance cavalry flank and the infantry irregulars, that their impenetrable fortified position on the battlefield greatly contributed to the Ottoman successes in various combats. The author admires their fortress-like position on the field, and emphasizes that from behind this massive structure they, “in a manly manner,” frequently fire cannons and arquebuses, causing terrible losses to the enemy. “...ex eaque munitione tanquam *ex fortissimo præsidio atque propugnaculo viriliter bombardarum atque archibuserum suorum frequentissima iaculatione* [italics added] mirum in modum feriunt hostes...” Pécsi Kis also appropriately mentions in his treatise (p. 54) that in different battles the Janissary forces utilized light field cannons (Falcons) inside their heavily fortified position in order to defend themselves. “Nam ex parte interiori campestribus falconibus janyccherorum quasi antemuralia pro eorum defendione in toto circuitu fortissime esse muniunt.”

\(^{63}\) Hasan-i Rûmüli, *Ahsamu 't-Tawarikh*, vol. I, pp. 144-5, had also realized that the Persian army, made up exclusively of cavalry forces, was no match for the Ottoman infantry. Rûmüli, just as Pécsi Kis did a couple of decades later, gave a detailed description of the Ottoman battle order, puzzling over the solution of neutralizing the rock-solid infantry positions. “dar waqt-i muḥāraba ḥudūd-i jumūd-i khwūdrā bā-'arāba wa zinjīr istihkām dāda hasni ba-ghāyat hasin jihat hīf-ī khwūd miš-sāzand wa tufangchīyān dar andarīn ān ba-andāḵhtan zarbuzaṇ wa top wa tufang miš-pardāzand wa bar bālāyī 'arāba (Seddon suggests here the word 'arrāda, though the former word also makes sense) bar hayāt-i azhdar qazgāhnāyī sighār wa kibār guzāsha...”
However, the late sixteenth century European combat methods brought new challenges to the traditional Ottoman battle order. In general terms, most of the field combat was conducted in three different stages. European armies did not start their combat with wild cavalry charges; rather artillery duels were introduced in the opening phase of the battles in order to loosen up the enemy’s lines. The succeeding move was made by the infantry troops, who advanced carefully, holding their fire until they could target their opponents at close range. Under optimal circumstances, the infantry fire could break up the enemy’s advanced lines, and the cavalry were supposed to finish off the combat.⁶⁴ Due to the increased number of firearm-bearing infantry troops, battles and skirmishes became more static, with regiments preferring safe, entrenched positions to sweeping cavalry charges against the Ottoman battle lines.

During the second half of the sixteenth century, no one can observe any Ottoman attempt to adjust their field tactics to those of the outside world. Individual virtue was no longer sufficient for success; whole regiments had to manoeuvre in tight formations in order to be effective. In various battles, as one can see below, the Ottoman troops still tended to move instead in large, cumbersome formations, which, under heavy enemy fire, could rapidly disintegrate into formless masses of confused soldiers.⁶⁵ Even as their army, in general, remained a formidable military power in early modern Europe, the lack of effective coordination amongst different military contingents made the Ottoman rank-and-file soldiers increasingly vulnerable in combats that took place during the Long

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⁶⁴ Here basically Bridgman’s relevant thoughts were followed, “Gunpowder and Governmental Power,” p. 108.

⁶⁵ According to Guillemard, “The Military Revolution: Origins and First Test Abroad,” pp. 304-305, even the elite Janissary corps paralleled European counterparts only up to a certain point. The Ottoman infantry troops “never developed the ability to manoeuvre independently, in the face of cavalry. Perhaps their system worked too well for too long [italics added] and they became set in their ways.”
War. Their favourite outflanking manoeuvres, namely, encircling the wings of the opposing army and infiltrating toward the rear, which were carried out by the cavalry, were inherently risky, since these moves complicated the process of coordination, divided the Ottoman forces, and consumed valuable time. Consequently, poorly controlled moves cost the participating regiments dearly, since they were exposed to the great firepower of the allied forces. One can also observe below that, on many occasions, the effectiveness of the cavalry charges was impaired by sloppy or ill thought-out movements.

In the paragraphs that follow, a few concrete examples have been given in order to show the main characteristics of various skirmishes and battles fought between the Ottoman armies and Habsburg allied forces. By providing a rather brief description of several clashes, this section seeks to demonstrate that neither the lack of proper weaponry nor the allegedly lower quality of guns, but rather the way they were used, put the Ottomans into a disadvantageous position on the battlefield. While the Imperial leadership had the ability to field well motivated, tactically cohesive, and disciplined armies, the Ottoman military could offer hardly any surprise on the battlefield. On the Habsburg side, to be acquainted with the enemy’s tactics became a vital part of military planning so that in military encounters the tactical means best adapted to meet the opponents’ method of warfare could be employed. Ottoman field manoeuvres, in general, were predictable military actions and many times quite badly orchestrated. Tactical complexity, especially the development of complex infantry manoeuvres, did not belong

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66 Parker emphasizes in his book, *The Military Revolution: Innovation and the Rise of the West*, p. 19, that from the mid-1590s, “the development of volleyfire had a critical impact upon battle tactics,” since from that time it was “imperative for armies to spread out during the battle, both to maximize the effect of outgoing fire and to minimize the target for incoming fire.” On the next page Parker adds that the effective volley firing required a given army to perform rapid, well orchestrated tactical motions on the battlefield. Further along in his work, p. 127, the author correctly points out that the “Turks” never really mastered the manoeuvre of changing thick columns to thin lines, and this tactical shortcoming, one may add, had created numerous troubles for the Ottomans during various battle engagements with the Imperial forces.
to late sixteenth century Ottoman warfare. Frequent defeats were the direct result of improper leadership; the army was often appallingly badly led. One ought to keep it in mind that the quality of leadership was one of the many factors that could, and actually did, determine the performance of a given army and the final outcome of a particular battle.

The first major military engagement of the Long War took place on November 3, 1593, at Székesfehérvár, where Sokolluzáde Hasan Pasha, the governor of the province of Buda, who was leading an army of roughly between fifteen and twenty thousand troops, clashed with Count Hardegg’s army of less than ten thousand (probably seven or eight thousand), which had previously been attacking the Ottoman held Székesfehérvár. Not surprisingly, Hasan Pasha and his troops, as usual, followed the traditional Turkish crescent moon battle formation, though, strangely enough, the infantry troops, both the Janissaries and the provincial foot soldiers, were located on the two flanks, while the Ottoman leader stood up with the sipahis at the centre.

It is almost impossible to detect the exact battle plan of Hasan Pasha, since his troops were simply petrified on the field. Although the Ottoman relief army had the positional advantage, since they formed their lines noticeably earlier than did the Christian regiments, Hasan inexplicably let Hardegg and his commanders have plenty of time to

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67 One may note here that in the case of some of the battles, there is uncertainty as to the precise location of particular incidents in the fighting within the radius of a few hundred metres or so.
68 Tóth, Mezőkeresztes, p. 141. It should be repeated here once more that although the Ottoman relief forces were badly defeated by the Christian army, this strategically very important fortress, due to the lack of heavy artillery on Hardegg’s side, eventually withstood the siege. On the short siege of Székesfehérvár in the late autumn of 1593, see Chapter Three, pp. 22-3.
69 “Ex adverso Hasanes jam suos longo ordine & lunátá acie in struxerat…” wrote Istvánffy, in his detailed chronicle, Regni Hungarici Historia, p. 397. The description of Ottoman battle formation at Székesfehérvár was also taken from the same author.
70 Tóth, Mezőkeresztes, p. 142. Unfortunately, the author does not reveal his source(s), where this information came from.
create their battle order. Christian narratives could not give any explanation for this
ingcredible Ottoman passivity; a rapid charge by Hasan and his numerically superior
forces could well have caused grave difficulties for the allied troops that were still in
preparation.71

The actual battle at Székesfehérvár commenced as Pálffy with his mounted troops,
which included Moravian horsemen equipped with arquebuses72 on the Christian left
wing, advanced and vigorously charged the position of the Janissaries. Hasan Pasha
proposed using his light field cannons to soften the Christian centre, which consisted of
mainly Hungarian cavalry forces; but according to numerous narrative sources, which
were written in some cases by actual Hungarian eyewitnesses, most of the Ottoman
projectiles flew over the attacking squadrons, inflicting no damage at all.73 Likewise,
fortunately for the Imperial army, both the cannonade attack from the centre and the
Janissaries’ gunfire on the Ottoman right wing were particularly ill timed; at that exact

71 Decsy, *Magyar Historia*, pp. 79-80, calls it a miracle that the Ottoman army, in complete battle order, as
if there would have been an agreement, stood motionless on the battlefield without making any attack
against the Imperial forces, who were still in preparation for the clash. “mira res fuit, ... Turcas, rebus
omnibus ad praelium optime instructos, uno in loco, velut attonitos, eousque contitisse, donec Christiani,
tamquam ex pacto nulla re praepediti, non incursione, non velitatione, non tormentorum sonitu, arma
expedire, aciemque in illos explicare potuere.” Istvánfyll, *Regni Hungarici Historia*, pp. 397-8, has
basically the same statement and adds quite honestly that by the help of a decisive leadership the Ottomans
could have secured their victory over the Christian forces, which had actually been retreating from the
fortress of Székesfehérvár.

72 Ibid., p. 398. “...ac equitibus sclopetarisi, tam suis peculiari, quam e Moravia mercede conductis;...”
On the Christian right wing Hardegg stood with his Austrian heavily armoured cavalrymen. “...ac
cataphractis Austriacis duceret.”

73 According to Knolles, *The Generall Historie*, p. 1026, the cannons, located on a slight eminence, were
“mounted too high.” Thurzó, who personally participated in this battle, admits also that both the Ottoman
cannons and rifles, despite their heavy fire (there were, according to him, forty-two Ottoman light cannons
on the battlefield), made very little damage amongst the charging allied soldiers. *Levelek*, letter no. XLVI
p. 35. Istvánfyll, another eyewitness to this skirmish, emphasizes as well in his chronicle *Regni Hungarici
Historia*, p. 397 that at the beginning of the battle the Ottoman cannons thundered continuously, though did
not harm significantly the Christian cavalry. “...tormentis interim in nostros non cessantibus, nec tamen
notabili damno.”
moment, the approaching allied mounted troops were crossing an old dry ditch; thus the impatient enemy attack hardly hurt them.\(^{74}\)

The Ottoman infantry soldiers did not have a second chance. Without the effective help of pikemen, they could not hold off the energetic Christian cavalry squadrons.\(^ {75}\) On both wings, the Ottoman foot soldiers were outmanoeuvred and very soon outwitted. Meanwhile the Hungarian cavalry troops under the command of Zrínyi and Nádasdy reached the Ottoman centre and engaged in short but intensive fighting. When they saw the obvious defeat on the flanks, panic set in among the numerically superior *sipahis*, who rapidly broke up. Before the second Imperial cavalry charge, a full scale rout began.

Since the Ottoman infantry disintegrated quickly on the right wing, the mounted forces from the Balkans were the first military units that could not withstand the vigorous Christian push coming from the right side.\(^ {76}\) All of the Ottoman cannons on the field were left behind for the approaching Habsburg forces. The great majority of the isolated Janissary units were annihilated.\(^ {77}\)

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\(^{74}\) Ibid., p. 398. “Tum janiceri sclopetorum grandinem diffudëre, simul & magistri tormentorum omnes colubras in nostros proximë invectos exploserunt; sed quod veterem quampliam fossani eo momento transient, pîae supra hastarum summitatem volitantes exiguum detrimentum intucerunt: …”

\(^{75}\) While the usually garrulous source, Abdüllkadir Efendi, *Vekâyi-i Tarihiyye*, fol. 14b, here just laconically mentions that “all the available Janissaries” joined Hasan Pasha’s army, another contemporary Ottoman author, Câfer Çelebi, *Tarih-i Sefer-i Üngûrûs*, fol. 31a, is more specific by stating that only 1,500 Court Janissaries (kapu Yeniceris) and 800 provincial Janissaries accompanied Hasan Pasha in this campaign.

\(^{76}\) Ibid., “…Alacahisâr ve Üskûb ve Yanya ve Selânîk askeri sağ kolda vâki’ olmağın melâ’in-i hâsrînun ekser umûm ve hücumları anlarrn üzerine olmâga yerlerinde karâr etmeyûb firâr etmeye başladıklar.”

\(^{77}\) Iştıvanflî, *Regni Hungarici Historia*, p. 398. “Nec diuturna cum hostium equitibus pugna fuit; nam cum primum prosteri ad utrumque latus peditatum & janceros vidissent, statim metu nimio correpti, nec primum nostrorum impetum ferre potuère, quin statim reliictis tormentis & peditibus effusam fugam capesserent, …” Selânîk’s statement regarding this battle is worth mention since it can demonstrate well the vagueness with which Ottoman chroniclers generally treated numerous battles. The author informs us that Hasan Pasha’s relieving army, which contained both provincial troops and Court Janissaries, fought a great battle with the infidels. In the course of the combat Hasan Pasha was injured while the deputy commander (*ketûbîddâ*) of the Janissaries with many other “comrades” entered the Gates of Heaven. However, Selânîk adds at the end of his statement that it was reported that the remaining troops were victorious. *Tarihi Selânîk*, vol. I, fols. 189a-189b, p. 339 “…ceng ü neberd-i azîm olub ve leşker-i İslâm’dan nice dil-teşneler şerbet-i şehâdet nûş eyleyûb Vezîr Hasan hazretleri yarâlanub ve yenicîeri
In the Battle of Sârrêt, which lasted for days between October 10 and 15, 1601, Wathay also reported the Ottomans’ employment of the traditional crescent moon battle formation on October 15. According to Wathay, the two Ottoman wings, the right side led by Mehmed, the former kethüда of the late Ibrahim Pasha, together with the beylerbeyis of Buda and Bosnia, and the left side commanded by Lala Mehmed Pasha, the beylerbeyi of Rumelia, tried to outflank their Christian counterparts while the Grand Vizier Yemişçi Hasan Pasha stood back behind the two wings in the middle with the Janissary troops.\textsuperscript{78} The Ottoman plan anticipated a fast encircling manoeuvre by the cavalry forces, and the supposedly confused European lines were expected to run into the front of the Ottoman infantry.\textsuperscript{79}

Prior to October 15, Mercoeur, the commander-in-chief of the allied forces, had followed a cautious, vacillating strategy and kept his army behind a well fortified position because of the overwhelming Ottoman numerical superiority.\textsuperscript{80} Protected by a swampy area on one side, the Christian troops reinforced their positions with numerous mounds and light cannons on the surrounding hills.\textsuperscript{81} In this way, Mercoeur and his army, in a couple of sporadic clashes that inflicted notable losses on both sides, could manage to

\textsuperscript{78} The Ottoman battle formation, without the names of the commanders, can be found in Wathay’s work, \textit{Énekes Könyv}, fol. 14a. Isolano, “Feljegyzések A Török Hábórúról,” p. 675, also describes the battle order of Yemişçi’s army. Utilizing archival sources, Tóth, \textit{Mezőkeresztes}, pp. 335-40, also deals with this battle in details.

\textsuperscript{79} Wathay, \textit{Énekes Könyv}, fol. 14b.

\textsuperscript{80} After examining various sources, Tóth, \textit{Mezőkeresztes}, p. 334, came to the conclusion that the Ottoman forces consisted of between 50, and 70,000 soldiers, while Mercoeur could not command more than 15,000 men.

\textsuperscript{81} Illészázy, \textit{Főjegyzések}, p. 95. He rightly points out that the allied forces were badly outnumbered by the Ottoman relief forces, which, according to him, consisted of 50,000 soldiers, while Mercoeur had an army of roughly 20,000 soldiers. Illészázy’s statement has been confirmed by the eyewitness account of John Smith. Smith also put the size of the allied forces around 20,000. Because of the numerical inferiority, the Imperial contingents had been hesitating to venture into an open battle with the Ottomans. “Two or three dayes they lay each by other, entrenching themselves; the Turkes daring the Duke daily to a sett battell, ...” Barbour, \textit{Complete Works of J. Smith}, vol. III, p. 168.
hold off the frequently attacking Ottoman cavalry for days. The Ottomans tried to initiate an open pitched battle by attempting to disconcert the Christian forces with various manoeuvres carried out by small fighting units.

On October 15, the Ottoman cavalry on the right wing vehemently attacked the Christian left side. This assault, however, turned out to be a rather uncoordinated move; the Ottoman centre, along with the left wing, did not follow the attack very closely; consequently, the Ottoman right wing soon became an isolated body of desperately fighting warriors. Meanwhile, the Christian cavalry forces from the centre and the cavalry forces from the Christian left wing eventually encircled the Ottoman right flank. Both the Imperial light artillery and firearm-bearing infantry could effectively hold off the slowly progressing Janissaries in the middle, and Lala Mehmed’s cavalry troops on the left side. It became obvious very soon that the Janissary infantry forces were not able to neutralize the massive German firepower, and this eventually had dire consequences for the lightly armed Ottoman cavalry forces.\(^{82}\) Despite the noteworthy Ottoman losses, which included some leading military personalities, this battle was far from being a clear cut victory for the allied forces.\(^{83}\)

In an examination of the course of the Battle of Tura, fought on May 1, 1594, it becomes clear that due to the uncoordinated, poorly executed Ottoman tactical moves,

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82 Illésházy, *Főjegyzések*, pp. 96-7. It must be noted here that clearly the effective firepower of German troops decided the outcome of this long confrontation. Illésházy, who quite frequently and rather openly expressed his hatred towards German soldiers, would never have praised them without good reason. Wathay, *Énekés Könyv*, fol. 14b, also mentions the firearm-bearing allied forces, both infantry and mounted troops that created an impenetrable wall before the Ottoman regiments. Grand Vizier Yemişçi Pasha, commanding the Ottoman infantry in the centre, realized too that they could not save their right flank and, after learning about the death of Mehmed Kethüda, Mankır Küs, and a few sancakbeys, he ordered the withdrawal of his army.

83 Thurzó, who had participated in almost all major combats during the Long War, called this particular battle “a terribly great fight” in which both sides suffered heavy losses. He also added that, even after the actual fighting, the Christian forces carefully maintained their position inside their well fortified army camp. *Levelek*, vol. II, letter no. CCCXXIV, pp. 21-2, dated October 17, 1601.
this combat also ended favourably for the allied forces. Since late April, the Imperial army of perhaps twenty thousand men, under the command of Tieffenbach, the Captain General of Upper Hungary, had been besieging the Ottoman held Hatvan. On May 1, a relief force of roughly ten thousand horsemen led by two prominent military leaders, Sinanpaşa-zâde Mehmed Pasha, the beylerbeyi of Rumelia, and Sokullu-zâde Hasan Pasha, beylerbeyi of Buda, arrived at the surrounding area. Tieffenbach, frightened of the possibility of being trapped between two hostile forces, did not lift the siege, but sent out a smaller army of five or six thousand men to meet the Ottoman relief forces.

Sources dealing with the battle have some confusing accounts, but it is possible to glean an idea of the main pattern of the fighting. In the opening phase of the clash, the two opposing camps were adhering to standard battle practice by trying to soften up the enemy lines with artillery fire. The Ottoman field cannons, however, for an unexplained reason, were aiming too high, inflicting no damage on the allied battle lines whatsoever.\textsuperscript{84} Istvánffy also emphasizes that the Christian cannonade proved to be much deadlier than that of the Ottomans. When the Ottoman advanced lines fell into confusion because of the allied fire, Simon Forgách, commander of the Hungarian cavalry at the centre, cut into the Ottoman middle where Sokollu-zâde Hasan stood with his cavalry forces. The Christian arms-bearing infantry attacked the Ottoman flank.\textsuperscript{85}

\textsuperscript{84} According to Sepsi Laczkó, \textit{Krónika}, p. 26, the whole contingent of Hungarian arms-bearing infantry soldiers had simply dropped themselves onto the ground while the Ottoman culverins were firing at them. After the projectiles flew over their heads, they got back on their feet, and with their guns started to target the Ottoman right flank. Also see Tóth, \textit{Mezőkereszt}, p. 151. For a detailed treatment of this battle one should consult the same author’s article, “A hatvan-turai csata (1594 május 1.),” [The Battle at Hatvan-Tura, May 1, 1594] \textit{Hadhírénelemi Közlemények} (1990/3), pp. 56-71.

\textsuperscript{85} Istvánffy, \textit{Regni Hungarici Historia}, p. 408. “…explodi tormenta jubet, quibus haud modica strages hostibus illata fuit, ut eorum ordines perturbarentur; moxque in trepidos & metu perculsos hastis & gladiis irrumpti, pedita tumque ex lateri sclopetis rem gerere jubet.” According to him, after “two hours of ferocious fight” the turning point of the battle was when Hasan Pasha got injured in his lower body. “…ipse Budensis Hasanes vulnus sub cingulo inter fermur & ventrem accepisset,” this resulted in a
Peçevi’s account of this battle definitely deserves some attention since he can report some “insider information,” namely, Ottoman tactics, of which Christian authors understandably were unaware. According to the Ottoman author, the advanced cavalry tried to apply an ancient Turkic battle trick, the fake retreat in order to overstretch the enemy’s closed lines. Since the Ottoman army had ordnance, Hasan Pasha, the commander of the advance guard (çarha), intended suddenly to open up with his cavalry troops in order to expose the pursuing foe to a withering barrage. Therefore, it is probable that, following the Christian attack led by Forgách at the centre, which was described by Istvánffy above, Hasan Pasha’s cavalry lines deliberately broke up for the purpose of pulling the hostile horsemen to the Ottoman left, where they would face their cannons.

Due to the lack of communication and proper coordination among various battle units, the Ottoman centre, under the command of Mehmed Pasha, considered Hasan’s fake retreat as a real flight and started to flee in a even faster manner. In the subsequent confusion, Hasan Pasha, who was completely abandoned by the Ottoman centre, made some remarkable efforts to stop the Christian encircling operation, although the German heavy cavalry and the firearm-bearing infantry were rapidly closing in. He tried desperately to extricate his forces in some sort of order. His personal injury, however, created great havoc among his own soldiers, and the battle ultimately ended with a desperate flight.86

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86 The Ottoman author Peçevi gives a relatively long and informative account of the battle. The main part of his story has been taken from his Tarihi Peçevi, vol. II, pp. 142-3. He notes that Hasan Pasha as the governor of the frontier province [Budin] took the lead of the advance guard, “... ve Hasan Paşa serhadd başlarbeğisi olmasla bi-hasebu’t-tarik çarhaçi olub...” and after he goes on by saying “...üzere [i.e. Hasan Pasha] gelen kâfir alaylarının topların nişan kâhina çekmek içün önlerinden ayrıldı ve top alta...
c) The Important Role of “Other Factors” in Ottoman-Habsburg Warfare.

In the next section, a brief discussion is provided concerning the physical context, or, to be more exact, the environmental background of early modern warfare in Hungary. There was a wide range of factors - from the geographical landscape through vegetation to different climatic patterns - that had quite often greatly influenced the final outcome of various military engagements. In early modern warfare, these environmental factors generally put serious limitations on warmaking strategies. Several problems caused by distance, rough local terrains, and the rudimentary road network imposed serious restrictions upon the ability of different armed forces to communicate with one another. These difficulties proved to be vital in the case of a besieged garrison. Severe problems in supply, provision, and transportation imposed further limitations on late sixteenth century warfare; thus military campaigns, in general, were rather slow and laborious affairs.

Because of the deployment of substantial numbers of guns, which included both light field guns and heavy siege cannons during various campaigns, armies on both sides, throughout the thirteen years of continuous fighting, experienced tremendous difficulties in the transportation of those weapons, the huge quantities of gunpowder, and other essential supplies. Due to the wretched condition of late medieval roads, the transport of war materials and stores of all kinds on wagons and carriages was an extraordinary stumbling block for every army. On a campaign, almost everything could be carried faster on pack animals. Frequent autumn rains and springtime thaws turned rivers and even ravines into torrents, making any military manoeuvre a tiresome, dangerous venture.

In some cases, even a couple of weeks delay could have strategic importance due to the serious constraints imposed by weather conditions and the significant distance between various theatres of war operations. Proper knowledge of different seasonal environmental factors in a given region can help us to understand the way in which numerous military undertakings developed.\footnote{One of the pioneering works on this topic is László Nagy’s article, “A Magyar Végvári Katona És A Természeti Katonaember És Természet Viszonya.” [The Hungarian Frontier-Garrison Soldier and Nature. Relation between Soldier and Nature] in: Tivadar Petöcsik és Ernő Pető, (eds.), Végvár És Környezet. [Frontier Fortress and Environment] (Eger, 1995), pp. 69-85. This very interesting book is a collection of various articles dedicated to “human ecology.” Nagy rightfully complains that the climatic conditions, in numerous cases, could fundamentally influence the outcome of a given military event or alter the course of a campaign, yet one can rarely see a concrete examination of the weather factor in a specific year. The “human ecology” could potentially play an important role even in the development of a particular political movement as well. Hanna Sohrweide was one of the few scholars who examined the “human ecology” as a factor in a given political situation. In her brilliant study, “Der Sieg der Safaviden in Persien und seine Rückwirkungen auf die Schichten Anatoliens in 16. Jahrhundert,” Der Islam (1965), pp. 139-40, she demonstrated convincingly that a long series of extreme calamities in Anatolia during the first decade of the sixteenth century had greatly contributed to the fast spread of Shi‘ite heresy, and to the divine veneration of Shah Isma‘il (1502-24) among the desperate local population. A recent publication edited by E. Zachariadou, Natural Disasters In The Ottoman Empire, (Rethymnon: Crete University Press, 1999), is a collection of numerous articles dealing with devastating earthquakes, which hit various Ottoman territories in different historical periods. This topic itself is very interesting though the overwhelming majority of the articles record the disasters only; unfortunately, analyses of the economic, socio-political, etc. impacts of those earthquakes are omitted in this book.}

For the first historical example, in which weather played an important role though did not change drastically the course of the siege, one should turn to Istvánffy’s chronicle, where the author tells us about Archduke Matthias’s plan against the Ottoman-held fortress of Nógrád, at the beginning of 1594. As one of the few instances in which one can detect a careful Habsburg preparation for a particular future campaign, the archduke, by February, ordered his troops, along with the cannons and necessary supplies, to move to Palánk, just north of Nógrád. However, because of the endless rains, snowfalls, and icy, useless country roads, those soldiers, although emboldened to take action, could reach their destination only by the end of February.\footnote{Istvánffy, Regni Hungarici Historia, p. 403. “...operam praestandi cupidissimi forent, tamen ob continuas nives & pluvias, ac itinera glacie & gelu constricta, progredienti exercitui infensissima, [italics}
Nógrád started only on March 7, which, nonetheless, still took the Ottoman garrison by surprise, and after three days of intensive fighting, the fortress was taken by the besiegers.

In a further examination of various weather conditions as crucial factors in different military endeavours, one can refer to the first Christian siege of Buda, and the Ottoman siege of Várad, two events that in 1598 had coincidentally started and ended almost at the same time. (The Christian siege under the command of Archduke Mathias took place between October 3 and November 2, while the Ottoman army’s attack led by Saturci Mehmed lasted from September 29 to November 3.) As far as can be ascertained, in both cases, the failure of the assailing troops to take those strategically vital strongholds cannot simply be credited to the heroic efforts made by defending garrisons.

For instance, Buda, the provincial capital and the most important Ottoman stronghold in early modern Hungary, in addition to several mining attacks, had continuously been bombarded by not less than forty heavy siege guns; yet the Imperial attackers were never really able to storm the fortress because of the unfavourable rainy weather. The oft-quoted Hungarian magnate, Thurzó, an active participant in the siege, one week before the unsuccessful end of that siege, had also strongly emphasized the fact that, regardless

added) non antè Palancam perventum est, quàm circa ultimos mensis Februarii dies; ...” “Very ugly cold weather” is mentioned in Illésházy’s memoir, Főjegyzések, p. 8, while “vicious” weather is reported by Thurzó, who also adds that the cannons for this campaign, twelve wall-battering ordnance and numerous Falconets, eventually departed from Léva (modern Levice in Slovakia) only on February 26. Levelek, vol. I, letter no. LXXI, p. 59.

89 The Italian chronicler, Isolano complains in his work, “Főjegyzések A Török Háborúról,” p. 667, that, despite all siege efforts, the allied Christian infantry forces “could never assault the fortress in a proper time.” Following the more than month long fruitless cannonade, “during a stormy day,” the Imperial attackers had eventually abandoned their efforts by retreating from Buda. As a historical curiosity, one should mention here that Isolano, as the commander of the artillery corps, was an eyewitness to the Ottoman attack on Várad, yet, in his memoir, he has more to say about the Christian siege of Buda. Illésházy, Főjegyzések, p. 62, openly states that both Buda and Várad, because of the excessively rainy weather, could survive their siege.
of the heavy bombardment, "due to the vicious rainy weather, we could not storm Buda."\(^{90}\)

Although there is no place here to provide a detailed scientific analysis on the local climate in the Carpathian basin at the end of the sixteenth century, one should, perhaps, stress the fact that this region had been greatly dominated by the so-called continental weather patterns. The continental type of climate was characterized by harsh, cold winters and mostly short but hot summers.\(^{91}\) As regards the general climate, the great change from the day to the night temperature was a source of frequent suffering among the foreign mercenary soldiers. Scorching summer days could occasionally be followed by exceptionally cold nights. Different weather patterns, like late fall’s freezing rains combined with icy, bone-chilling winds, or springtime flooding, made campaigning conditions particularly tough, several times forcing the postponement of the advance on a particular region.\(^{92}\)

Generally, troops, regardless of their level of training or professional skills, had limited endurance; if they were subjected to extreme weather conditions, such as unbearable summer heat or winter cold, the entire army could rapidly disintegrate. As mentioned above, typical summers usually proved to be too hot for soldiers; in autumn,

\(^{90}\) Levelek, vol. I, p. 262, letter no. CCLXXII, dated October 26. It is interesting to note that only a week after the commencement of the siege, in letter no. CCLXV, dated October 10, p. 254, Thurzó already complained about a “terrible windstorm which greatly damaged numerous tents in the camp.” In his further correspondence (letter no. CCLXVI, CCLXX, and CCLXXI), he kept saying that due to the “vicious weather,” mud was everywhere, making any progress in the siege impossible.

\(^{91}\) For a scientific analysis on the Hungarian climate, see Lajos Rácz’s recent work, Magyarország éghajlat-története az újkor idején [The Climatological History of Hungary in Early Modern Times] (Szeged: JGYF, 2001).

\(^{92}\) Bálint Prépostvári, the captain of Eger, who participated in the successful northern campaign, states that after taking a dozen Ottoman fortresses the Imperial troops were forced to terminate their campaign due to the frequent cold winter rains. According to him, the Christian troops sometimes could march only half a mile because the cannons were sunk into the wet, muddy countryside roads. Andrei Veress (ed.), Documente Privitoare La Istoria Ardealului, Moldovei Şi Țării-Românești. (București: Cartea Românească, 1932), vol. IV, (1593-1595), document no. 27, p. 49.
the harsh, cold damp weather decimated the foreign mercenary troops. German soldiers were generally notable for suffering greatly from the unbearably extreme Hungarian climate.\textsuperscript{93}

It is interesting to mention here that when, in February 1597, Emperor Rudolf II and Archduke Maximilian discussed the Habsburg war plan with the Imperial Council in Prague, the German commanders unanimously recommended a late date (the month of August) for the commencement of that campaign. According to them, neither the Italian nor the German soldiers could stand the hot, humid Hungarian summers; sooner or later they were going to be sick and eventually die. The few surviving troops, realizing the deadly danger to their health, would escape the camp almost immediately.\textsuperscript{94} One may note that, in that year, the foreign mercenaries suffered much from the cold, frosty weather they later faced during that campaign. As winter approached, foreign troops were troubled with many vicissitudes. Usually, during long, demanding campaigns the soldiers’ garments had undergone such severe service that they became little more than mere rags.

The standoff at Vác between November 2 and 9, in which both armies carefully avoided a risky, open pitched battle, took its toll among the Italians and Walloons, who were mostly wearing light clothes. Not surprisingly, many of them simply froze to death.

\textsuperscript{93} Győri, "Morbis Hungaricus," passim. On page 540, the author cites several early modern works that state that sometimes a great number of German soldiers had died even before they would have had a chance to fight with the Ottomans. On the previous page one can read that, besides the hot humid climate, the manure-strewn soil in and around military camps proved to be a fertile breeding ground for various insects and parasites like mosquitoes, flies, earwigs, fleas, lice etc. In some cases these pests, carrying a wide range of contagious diseases, could kill large numbers of soldiers whose immune system was usually already weakened by malnutrition. One may also note here that apparently little effort was made to clean clothes, boots, and other personal apparel worn on a regular basis.

\textsuperscript{94} Illésházy, Főjegyzések, p. 42. The harsh climate and unhealthy living conditions helped the outbreak of plague in peacetime too. The last ferocious prewar plague occurred in 1586, which Szamosközy called "pestis grauissima." Történelmi Maradványok, vol. I, p. 227. According to him, that time the plague was more vicious than any other previous epidemic: "Numquam autem per Ungariam, nisi maxima cum mortalium strage pestis grassatur: ..."
before the end of the campaign. On the Ottoman side, Peçevi recalls also the hostile weather as the main obstacle in manoeuvring different troops; according to him, because of the swirling flakes biting into their eyes, Ottoman soldiers could hardly see during the blizzard.

The weather also was not merciful four years later, in September, 1601, when the allied forces took back the strategically very important stronghold, Székesfehérvár. Because of daily cold rains and the constant bone-chilling wind, the Imperial camp suffered greatly; until September 25, when the victorious troops moved to a nearby settlement, Csókákő, about 100 soldiers died every single day due to the unusually hostile weather. Unfortunately for the Habsburg led army, the grave climatic conditions did not improve during the rest of their campaign. After the long series of clashes at Sárrét, (see above pp. 167-8), Archduke Mathias decided to discharge his exhausted battalions. He led his battle scarred, rapidly diminishing army to Pápa, where they finally arrived on November 1. During this short three-day journey, the severe winter cold turned out to be unbearable for the starving troops; about a thousand of them fell victim to the weather.

Harsh icy wind and frosty weather also played a crucial role in late autumn of 1603, when Rusworm, the commander-in-chief of the Imperial army, after the very short, three

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95 Dispaceci Germania, [Filza] 27, November 6, 1597, written by Francesco Vendramin, and quoted by Kárpáthy Kravínszky, Vác És Hatvan, p. 12. The Italian soldiers could simply not withstand the cold frosty weather in late October/early November, while the Walloons were newcomers in the Central European region. As a matter of fact, Mansfeld was the first military commander to bring them in larger numbers to Hungary in 1595; before that year, at least according to Istvánffy, the Walloon troops had been unheard of in Hungary. Regni Hungarici Historia, p. 424, “Tunc primum nomen Vallonum militiae apud nos innotes cere cepit, antea quidem vix fama auditum.” According to Heischmann, Die Anfänge des stehenden Heeres, p. 32, in July 1597, eight thousand Italians had come to Hungary, yet already, by the end of September, hardly more than two thousand remained with the Imperial army.
98 Ibid., p. 621.
day-long siege, retook Hatvan on November 19. According to a Venetian ambassadorial report, he intended to carry out a surprise attack on Eger, which had been an Ottoman provincial capital since its fall in 1596. The incessant freezing temperature, however, forced him to give up his plan; thus this very important stronghold was actually saved from a possible allied siege by the bone chilling winter weather.99

Two years prior to this military event, in November 1601, the Imperial forces had also experienced great difficulties with the extremely cold Hungarian weather. During the unsuccessful Imperial siege of Kanizsa, beside the very able defence of Tîryakî Hasan Pasha, the harsh weather conditions greatly influenced the final outcome of this Imperial military undertaking. The icy cold air and the frequent morning frosts started to kill off numerous Italian and German mercenaries, and, as predicted earlier by their commanders in 1597, the remaining troops deserted their camp at an alarming rate.100

In addition to the difficulties made by the weather, there were problems caused by a variety of geographical features such as hills, mountains, rivers, swampy areas, and local vegetation. Though they varied quite considerably in military importance, to a certain

99 Dispacci Germania [Filza] 33, dated December 2, and 8, respectively. Both reports were sent by the Venetian ambassador Francesco Soranzo from Prague, and have been quoted by Kárpáthy Kravjánszky in his book, Vác Es Hatvan, p. 16. One may note here that San Clemente, the Spanish ambassador in Prague, reported more than eight years earlier (October 10, 1595) that the Imperial forces, after the successful siege of Esztergom (September 2), planned an attack on Buda, too. The unexpected cold, rainy weather, however, foiled the allied plan; the strategically most important Ottoman fortress was saved from a potential siege. Lipót Öváry (ed.), A Magyar Tudományos Akadémia Történelmi Bizottságának oklevél-


100 Ilésházy, Főjegyzések, p. 98. One should note that severe cold and hunger were quite effective weapons of war, as even contemporaries well realized. Another important source, Count Isolano, also confirms in his writing, "Feljegyzések A Török Háborúról," p. 675, that heavy snowfalls and steady cold temperatures were the main reasons for lifting the siege of Kaniza. According to him, the allied forces left both cannons and baggage behind, "when not the enemy but rather the harsh weather was chasing them." John Smith, an eyewitness of the siege, also emphasizes the key role of the extremely harsh weather in the failure to recapture the fortress. According to him, "...an extraordinary continuing tempest of hail, wind, frost an snow," forced the allied troops to lift their siege. He also reports heavy losses due to the extreme weather, "...it being so cold that three or foure hundred of them were frozen to death in a night, and two or three thousand lost in that miserable flight in the snowie tempest, though they did know no enemie at all to follow them: ..." Barbour, Three Worlds of J. Smith, vol. III, p. 170.
degree all of them had to be looked upon as potentially vital strategic factors. Difficult landscape, such as marshy areas, restricted military activities, and only limited operations could be carried out. Several extensive swampy areas, particularly those around some strategically important strongholds such as Kanizsa or Székesfehérvár, can properly exemplify the permanent effect of local environmental factors.\footnote{Supported by a swampy belt, sometimes even small, quite insignificant fortresses could present serious challenges for a besieging army. In November 1599, Imperial commander, Schwarzenberg, who was raiding minor Ottoman fastnesses around Lake Balaton, after some noteworthy losses, was forced to retreat from the fort of Kaposvár. Although Isolano in his work, “Feljegyzések A Török Hábórúról,” p. 668, called this fortified place “a very strong fortress in the middle of a quagmire,” in truth, the strength of Kaposvár lay in its surrounding environment. The assaulting forces had to tackle, without success, the sinking terrain covered with ice cold water, which did not let them approach the fort. Isolano also mentioned earlier (p. 658) that in 1596 the Transylvanian forces under the command of Prince Zsigmond Báthory faced the same problem during the siege of Temesvár. The extended suburb of Temesvár was given up by the Ottoman garrison without offering serious resistance, since they assumed, correctly, that the strong walls of the fortress, along with surrounding swamps fed by the river Temes, could provide enough protection against the besiegers.}

Because of the swampy surroundings, the besieging forces usually met great challenges before they were able to reach the enceintes of a given fort. In wet weather, boggy areas usually became almost insurmountable obstacles to the approaching large body of troops. A marshy environment had its own shortcomings for defenders, however, since surprise attacks, i.e., sorties, could not be carried out by the garrison. It is also imperative to point out that forts in or around still water and swampy areas were quite often pestilential sites where, because of the constant presence of large numbers of mosquitos, the outbreak of various epidemics was a frequent event that killed off garrison soldiers rapidly even in a time of peace. In addition to these problems, the weather conditions of different seasons could also mean great danger to the defenders: a long summer heat usually reduced the local water level, while, during winters, the solid icy surface made pathways to the fort easily accessible.\footnote{Great torrential rains could also cause considerable trouble for the garrison. A “terrible rain storm” on June 28, 1601, significantly increased the water level of the extensive marshland around Székesfehérvár.}
Rivers had generally been considered the most obvious natural barriers, though they could hardly provide complete security for the nearby forts. Fortunately for the Habsburgs, fortresses with the most vital military importance in their defence system, such as those of Győr and Komárom, were nestled between points formed by the confluence of rivers; this situation required careful planning and a number of delicate operations by besieging forces. Wide riverbeds, like the Danube at Komárom, generally gave reliable protection against hostile firepower, since there was a significant distance between the hostile batteries and the fortress. All rivers, however, were fordable obstacles for the attacking troops. Defenders reckoned that an enterprising enemy, one way or another, would always find a way to cross a river. Protecting the line of a river proved to be an impossible strategic task, since the defensive forces would have to deploy too many men for the maintenance of a reliable linear defence. The Ottomans, for instance, in 1594 at both Győr and Komárom, experienced little difficulty in crossing the river Danube in order to surround those important strongholds.

A great variety of existing natural obstacles in a certain region often offered a number of strategic opportunities for military planning. In early modern times, extensive tracts of swamps and thickly wooded hilly areas still lacked communications of any kind.

The following deluge created panic and havoc among the Ottoman defenders, for they were unable to take their positions inside the fortress. Fortunately for them, Mercoeur, Duke of Lorraine, and his army reached the fortress only on September 3, when the flood had long gone. Gömöry, “Székesfehérvár Visszavétele,” p. 307.

103 The same geographical conditions applied to the stronghold of Szszek. Although in his chronicle, Tarh-i Sefer-i Üngörüs, fols, 9a-9b, Câfer Çelebi called Szszek a strong fortress, his narrative evidently reveals that the heavily wooded surroundings with the confluence of three rivers (Kulpa, Una and Sava) made the siege very difficult for Hasan Pasha, the Governor of Bosnia in 1991. “...[Siska’nın] yolları gayet sa’b orman ve geçiderlerine top geçeğe inkân olmamagla on iki added zarbzen götürüb Siska kal’asının bir cânibini nehr-i Kupa ve Una ve bir tarafında nehr-i Sava ihăta eleyüb gayet mühkem hisâr-i üstüvár olmağın fethi müyesser olmamagla,...” Hasan Pasha was no more fortunate with nature in the following year, that time more than a month of rainy weather foiled his effort at taking Szszek. “[Hasan paşa]... kal’a-yı mezârenin altına varub meteriler tedârtükünde olduğu gibi hikmet-i rabbi-gafûr ile yağmurlara başlayub elle-altmış gün ale’t-tevâli hevâ küdûretden halî olmayub asker-i İslâm’a ta’b u âlam virmekle zikr olunan kal’anning fethi müyesser ü mukarrer olmayub...” Ibid., fol. 15a.
Therefore, it was not surprising that the previously mentioned, very influential commander and talented military strategist Lazarus Freiherr von Schwendi, during the *Hauptgrenzberatung* in the summer of 1577, urged the Habsburg command to exploit the apparent environmental advantages of the water-logged Hungarian countryside in the modernization of existing defence lines. The rich network of rivers, the relatively high watertables along some swampy areas in the Transdanubian region, and the thick forests of the mountain of Bakony seemed to be reliable natural barriers against the Ottoman westward expansion.\textsuperscript{104} Still, the sole reliance on favourable environmental conditions would not have been enough to stop hostile campaigning forces.

Historical works have only rarely given adequate attention to various environmental factors that significantly influenced nearly every aspect of life, despite their historical importance. The Hungarian landscape of war presented the Transdanubian region, with its fine undulating hill country sinking gently into Kisalföld (Small Plain), and the area east of the Danube, which featured Nagyalföld (Great Plain). Peripheral regions of the war, such as Upper Hungary, Transylvania, and Croatia, were dominated by the Carpathian mountain ridges and the Dinari Alps, respectively. These frontier mountain chains could pose considerable natural obstacles to the march of large bodies of troops owing to the paucity of the passes, which were generally traversed by bad rudimentary roads, and were subject to being easily blocked. One should make it clear, however, that mountainous terrain, which had been considered the most formidable natural obstacle for

\textsuperscript{104} Pálffy, *A Császárváros Védelemében*, pp. 166-7. On the military conference (*Hauptgrenzberatung*) a brief reference is given in Chapter Three, p. 9. On the high water level Kelenik states, “Tata,” pp. 45-6, that Hungary in the second half of the sixteenth century still belonged to a minor ice age, which brought cold, exceptionally wet autumns alone. During winters, the high snowfalls were quite frequent, contributing greatly to the high water level. According to the author, due to the extreme weather, every natural cavity or pit very soon became a “water-filled ditch.”
a campaigning army in early modern times, did not have the crucial importance in Hungary that it had in several other countries. Transylvania and Upper Hungary, where the highest peaks of the Carpathian mountain range can be found, were never the scenes of intensive fighting between the Ottomans and the Habsburg led allied forces, or of months-long sieges during the Long War.

In most cases, military campaigns took place on flat or hilly country. A number of Hungarian fortresses, however, were located at the top of hard-to-reach steep eminences, which gave a dramatic appearance to those strongholds. Numerous fortresses situated on hilly terrain presented considerable inconvenience for the besieging foes, who had to drag their cannons and supplies over a couple of hills before they could build up their positions around those strongholds. In these circumstances, the geographical factor could greatly disconcert the attackers, since finding access to an isolated fort was a more challenging military task than crumbling its not particularly strong walls with cannonade. In the case of Veszprém, for instance, when the Ottoman forces could, with some difficulty, finally build up their battery positions, the fortress itself required only a brief regular siege. A few impressed Ottoman authors tend to exaggerate the physical difficulties their armies faced, and often reported on several Hungarian strongholds in the elaborate style of Ottoman high literature. Stereotypical phrases were used in order to emphasize the extreme hardship of a given location and the strength of a particular fortified place. It is sufficient here to mention the fortress of Győr, which the Ottoman chroniclers frequently depicted as a mighty stronghold beyond imagination.  

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105 From the numerous available narrative examples, one may here refer to Mehemd Solâk-zâde’s dazzling, panegyric description of that stronghold. *Solâk-zâde Tarihi*, (Istanbul: Mahmud Bey Marba’as, 1297/1880), pp. 218-9.
Besides the actual fighting, the greatest danger that the “other factors” could present to the soldiers was the wide variety of contagious diseases, particularly those prevalent in crowded and unsanitary military camps. Also, even slightly injured soldiers could easily catch fatal infectious diseases from fellow soldiers when they were squeezed into packed camp hospitals. Victims of a wide variety of epidemics could in some cases outnumber the battle casualties by far, since, in late medieval (early modern) military camps, both general cleanliness and personal hygiene were not among the foremost characteristics of any army. Therefore, not surprisingly, the infectious potency of the tiniest part of foreign matter carried into the human wounds must have been incredibly high. One should also mention here that bullets of high velocity usually sucked into the wound a significant quantity of infectious particles. In case of personal injury, blood poisoning and other infectious diseases probably killed a great many soldiers even when the wound itself was a relatively light injury not threatening any vital organ.

The low levels of sanitation in military camps, along with extreme weather conditions, that is, hot days and damp cold nights, easily turned an army camp into a cemetery. The infamous late medieval, extremely deadly Hungarian disease, the so-called Morbus Hungaricus, first appeared in a military camp at Komárom in 1566, and it was

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106 Lengthy sieges could cost thousands of human lives through different kinds of epidemics among both the garrison soldiers and the besieging troops. Murphy tells us in his work, The Functioning of the Ottoman Army, vol. I, p. 159, that on the Eastern front during the Ottoman siege of Baghdad in 1638, which was briefly mentioned in Chapter Three, there were “constant complaints” of dysentery. This sickness, along with typhus or influenza, was a very common malady in every army camp.


108 Ibid., p. 546. According to the author, this particular disease was the so-called Typhus Exanthematicus, which had earlier appeared as Febris Petechialis in contemporary sources. For these sources, one should consult Győry’s meticulous study, Morbus Hungaricus: eine medico-historische Quellenstudie, zugleich ein Beitrag zur Geschichte der Türkenherrschaft in Ungarn (Jena: Fischer, 1901). It might have been a mutant viral version of typhus, or maybe that of dysentery with malaria-like high fever. Decsy tells us,
carried by the foreign mercenary soldiers into other towns and eventually into various European countries, where it caused further cases of epidemic. Giorgio Basta, for instance, who played a major role during the later stage of the Long War, after fighting successfully on the Spanish side at Breda and Lagny, contracted this Hungarian disease in 1592. He was forced to stay away from the battlefields for a few months.109

Another competent Italian military commander, Giafrancesco Aldobrandini (1545-1601), a nephew of Pope Clement VIII (1592-1605), was more unfortunate. He was commissioned three different times (1595, 1597, and 1601) by his uncle to command Papal troops in significant numbers, in order to give effective military assistance to the Habsburgs in their Hungarian military undertakings. Aldobrandini, as the general of the Italian contingents, came three times to the Hungarian theatre of war, and, on all three occasions, he contracted a kind of infectious disease.110

One should point out here that, just like any other foreign soldiers, different Ottoman troops were also naturally exposed to the harsh local weather conditions during a

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109 Basta’s sickness is mentioned by Khevenhuller, Annales Ferdinandei (Regensburg, 1640), pp. 283 and 292, respectively, and it is reported by Endre Veress, (ed.), Basta György Levelezése És Iratai (1597-1607), [The Correspondence and Personal Documents of Giorgio Basta] (Budapest: Magyar Tudományos Akadémia, 1909), XXX.

110 In September 1595, after the successful Imperial siege of Esztergom, due to the unusually cold weather, the allied forces were wasting their time at Komárom when the Italian contingents were hit hard by an unspecified epidemic, which caused illness among 1,500 soldiers, including Aldobrandini. At the end of his second Hungarian campaign in November 1597, the Italian army of Aldobrandini was even more devastated by continuous epidemics. Fever swept soldiers down with desolating rapidity. After the series of clashes with the Ottomans at Vác, allegedly, only 2,000 soldiers of the original 7,157 could return to Italy. In 1601, Aldobrandini was commissioned to lead an army of 11,000, which was to aid Archduke Ferdinand against Kaniszta. That time, however, the unfortunate Italian general was killed by the outbreak of a certain fever even before he could see the Ottoman-held fortress. Banfi, “Aldobrandini Hadívállalatai,” pp. 8, 11, and 13.
particular campaign in Hungary. Unlike their European adversaries, they paid great attention to the danger of various epidemics, and they also made the great effort necessary to keep their military camp as clean as possible. The Ottoman officers, unlike the commanders in the camps of the allied forces, were able to maintain strict order inside their camp; thus they were in a position to enforce quite effectively a surprisingly high standard of public sanitation among their soldiers.

One may also add that not only were the Ottoman camps well organized, but so were their major campaigns; and this organization included the careful planning of the itinerary. Since the main Ottoman army usually could not reach the actual theatre of war until the summer was already far advanced, not surprisingly, the Ottoman military leadership tried to utilize the best possible ways to manage their campaign itinerary. The Ottomans did not just plunge impetuously into Hungarian territories. Owing to the harsh environmental conditions and rudimentary early modern roads, the Ottoman commanders

111 It is sufficient to refer here to the case of Komárom in 1594. During the late siege (October 4-24), the attacking Ottoman troops suffered tremendously from the severe weather conditions. According to Szamosközy, Történelmi Maradványok, vol. IV, p. 49, 8,000 sick “Turks” were allegedly killed in their abandoned camp. (In this paragraph the author was very laconic, sparing no words on the nature of the epidemic, which devastated the Ottoman camp. One can only speculate that due to the severe cold weather, the soldiers might have contacted the influenza or pneumonia virus.) The figure of eight thousand, just like many other numbers in the narrative literature, may be an exaggeration, though it can demonstrate the magnitude of the Ottoman losses. Pëcevi, Tarih-i Pëcevi, vol. II, p. 155, also mentions the sufferings of Ottoman troops at Komárom due to the extremely cold weather. “...ol kadar karr ollar ve kuru soğuklar olmaga başladı iddi, ki halkın eli ve ayaga amaldan kalmış idii.” Another contemporary Ottoman author Ta’ïlîzâde, who was an eyewitness to the previous siege at Győr, notes that during that long military enterprise the Janissary soldiers wore out their protective raincoat; thus, in the trenches they were exposed to the extreme weather conditions. “...ve Yeniçi tâ’ifesi, ki meteris beklemek anlarun ’ühdesinedür, Yankıda olan mubahâbat-ı ‘addide cümesinîn yağmurluği gitmişdi. Gündüzîn tâb-i âifâb-i pûr elem ve gice âfet-i âb-i sâfnemden bi-tâkat-u-tâb olub; ...” Şehnâmê-i Hümâyûn, fol. 101a, p. 357. A little further along on the same folio, the Ottoman author tells us that, due to the cold, the Janissaries eventually abandoned their positions along the trench lines.

112 Needless to say, under heavy siege conditions, a completely surrounded Ottoman garrison found it much more difficult to maintain a high standard of sanitation. In most cases, the lack of food supply quite soon led to malnutrition, which further reduced the soldiers’ ability to resist a variety of infectious diseases. As mentioned in the previous chapter, (p. 104, footnote no. 67), the Ottoman garrison of the isolated stronghold of Fülek suffered from severe scurrvy, which forced the defending soldiers to give up prematurely the otherwise strongly built fortress.
were forced to plan carefully. In operations against Hungary, consideration of numerous environmental difficulties was evidently the chief objective. A good acquaintance with local topography, various roads, fordable spots along the rivers, and the availability of food was an essential part of their strategy. Access to pasture for animals and to water reserves for horses and troops alike was also an important factor in Ottoman campaign planning. Besides the fertile agricultural areas and grazing fields of intrinsic value, the Ottoman high command was familiar with the other principal topographical features that could influence their operations in Hungary. It is apparent that the Ottomans utilized the experiences of earlier campaigns and also leaned heavily on the advice of local inhabitants.\(^\text{113}\)

In the camp of the multinational Imperial mercenary forces, because of their rather relaxed attitude toward different sanitary issues, the removal of human waste and other dirt was not among the duties considered of primary importance. Thus, pungent odour was a familiar feature of their military sites. To make the situation worse, although the allied forces were suffering greatly from various epidemics throughout the war, and understandably feared the onset of devastating plagues, even human corpses and animal carcasses\(^\text{114}\) quite often remained unburied or, in the best case, were hastily covered with

\(^{113}\) Nagy called it a thought-provoking fact that, during major campaigns, the Ottomans knew where the local natural underground water reservoirs were available. Through drilling wells at the right place, they could get access to clean water in order to avoid the consumption of contaminated water, which always led to the outbreak of a new epidemic. See his study, “Magyar Végvári Katona,” p. 72. Nonetheless, one may note that during the ill-fated siege of Komárom in 1594, the Ottoman command had serious difficulties in providing drinking water for the draught animals. Local water resources had high concentrations of heavy metals, which proved to be deadly for the animals at the Ottoman camp. “Arz-i Engürüs cânûne ma‘âden-i filizzät olmağım günûş suyu zehr-nâk olmakla devâbê zarar, ve zarar ‘azîm eser eleyûb; at arasına zahmet-i sidâm dûsûb, sidâm bir zahmetdûr ki, devâbû-mevâsîye váêî‘ olub, az zamânâ çok hayvân telef olur. Taliki-zâde, Šehnâme-i Hümayûn, fols. 100b-101a, p. 357. According to the author, during the siege of Győr, which preceded the Ottoman attack of Komárom, 200,000 (!) animals had perished.

\(^{114}\) Györi, “Morphus Hungarianus,” p. 538. The author quoted the work of a certain doctor Skreta, Bericht von der allgemein. Ansteckenden Lagersucht. (Schaffhausen, 1685), p. 72, and also of Coberus, Observationum Medicarum Castrensium, vol. III, p. 26, respectively. One may note here that Coberus
a thin layer of soil in a shallow grave. It is not surprising that, under the command of weak leaders, the Habsburg archdukes had fallen into this category, and that the outbreak of serious epidemics was a common phenomenon during their campaigns. According to Decsy, at the end of the particularly incompetently-led, unsuccessful Christian siege of Győr in 1597, a terrible plague hit the already demoralized Imperial army.115

Pécsi Kis, who, as mentioned earlier, had a personal opportunity to look around inside the camp of the Ottoman army after the fall of Buda in 1541, admitted frankly that the hated foes provided a remarkably clean, odourless encampment for their soldiers. Impressed by what he had seen, Pécsi Kis dedicated later in his book a very original subchapter to Ottoman hygienic practices under the discreet title of “locus secretus.” According to the author, in the enemy camp, several draconian measures were taken in order to avoid pestilence or any mass epidemic. The measures included capital

knew very well the lax sanitation in the Imperial military camps, since he was one of two camp doctors (medicus castrensis) who participated in Archduke Maximilian’s 1597 Hungarian campaign. Pálfy, A Pápai Vár, p. 51. In the Ottoman camps, one could hardly find fallen animals, since, if a horse or a camel showed the tiniest sign of sickness, it was slaughtered and eaten immediately. See Broquièr’s personal observation in his narrative, Le Voyage d’Outremer, p. 217, “Se ung de leurs chevaux ou camelz est ung pou malade de vives ou d’autre chose qu’ilz ne le puissent guerir, incontinent ilz luy coppent la gorge et le mengent.” It was a common Ottoman practice; Broquièr emphasizes that he saw it done a couple of times, “Et ainsi leur ay je veu faire aucunesfois.” Ironically, the practice eating of sick animals could potentially be lethal to humans. One may mention here that Győrgy Thurzó, an active participant in the second Christian siege of Buda in 1602, reported in his correspondence that there was “good hope for the eventual occupation of Buda,” when, after the consumption of a fallen cow, which was taken from a plague infected area of Pest, the epidemic started to spread all over the military camp too. Levelek, vol. II, letter no. CCCCLXIII, p. 57, dated October 19, 1602. In another letter written almost a month later (vol. II, CCCCLXXVI, p. 69, dated November 9, 1602), Thurzó expressed his serious doubt regarding the ultimate success of the siege, since more and more soldiers were carried off by this very contagious illness. Finally, three days before raising the more than a month-long siege, Thurzó stated that, besides the heavy losses and the chronic shortage of sufficient funds for payment of the allied soldiers, the plague and other devastating diseases were the main reasons of the second Habsburg failure to take Buda. Ibid., vol. II, CCCCLXXVIII, p. 71, dated November 11, 1602.

115 Although Decsy was not specific regarding the origin of the plague from which the Imperial forces were hit hard, (see the case of Aldobrandini and his Italian troops, p. 182 above) but under the command of Archduke Maximilian, a notoriously hesitant character, one can rightfully surmise that the camp discipline must have been very low. Having learned about the arrival of the Ottoman relief troops, Maximilian did not risk an open pitched battle but retreated with his exhausted army. “[Maximilian] ... qui noluit copias suas et clade Iaurinensi consternates, et incredibili peste pene exhaustas, [Italics added] ultimo discrimini obicere.” Magyar Historia, p. 295.
punishment for polluting passages with human waste. The public latrines were carefully separated from the military quarters and covered by two huge tents. "Rustic, wild behaviour" was not tolerated among the soldiers whatsoever; everyone was obliged to maintain a clean, dirt free environment inside the Ottoman camp.\textsuperscript{116}

Various animals, mostly camels and horses, were also carefully separated from the human lodges in order to keep manure as far away as possible from the various army units. The strict camp policing prevented the accumulation of rubbish of any kind. Thus, the Ottoman military camps, unlike their European counterparts, did not spread any bad smell at all.\textsuperscript{117} As the decades passed, the very high Ottoman standard of public sanitation did not decline; for other foreign travellers, who had also visited the Ottoman military camps in the sixteenth century, unanimously praised their cleanliness.

Busbecq, for instance, writing his third letter almost thirty years later, came to the same conclusion when he described an Ottoman military camp.\textsuperscript{118} Because of their very

\textsuperscript{116} Pécsi Kis, \textit{Exegeticon}, p. 63. "Ad propulsandum contagium, foetorem ac pestileniicam luem evitandam castrum ipsum ubique tam munde servatur, ut nullus mortalium in plateis, vicis vel ubicunque sub mulcta capitis castra ipsa defedare audet, sed pro lotione quoque et naturalibus rebus... expurgandis in seggregata parte castri publica duo magna tentoria sunt compate, uti quam plurimum sedes necessariae ordine suo sunt constructae omnesque eo loci, ne quispiam agresti ratione castrum ipsum sordibus et contagine more brutorum conspurcet atque defedet, coguntur exonerandi gratia proficisci." The author also adds that day and night special sentries were guarding "in a most diligent way" those tents to guarantee their cleanliness. When the latrines were saturated the guards buried them immediately in order to avoid the spreading of odour and epidemics in their camp. "Quarum custodie ut munde servetur, sunt certi custodes ad id delecti, qui dies et noctes diligentissima cura, ne fetor illius contagium aliquod in ipsis castris generaret."

\textsuperscript{117} Ibid., "Fetor in toto castro penitus nullus sentitur preter quisquilia equorum atque camelorum, omnia enim sunt mundissima et bona provisione atque discretione caute moderantur."

\textsuperscript{118} Busbecq, \textit{Turkish Letters}, p. 150. The Habsburg envoy spent three months with Ottoman soldiers in Anatolia and wrote about his experience in 1560. Having been familiar with the prevailing sanitary conditions in the Imperial military camps, Busbecq found simply unbelievable "the utmost cleanliness" he saw in the Ottoman encampment. According to him, there was absolutely "no dungheaps or rubbish, nothing to offend the eyes or nose," in army camp, which the "Turks" kept all the time "scrupulously clean." Quite a few doctors like Coberus, \textit{Observationum Medicarum Castrensem}, vol. II, p. 39, and Skreta, \textit{Bericht von der allgem. Ansteckenden Lagersucht}, p. 73, had also recognized the fact that the Ottomans, in general, fought more successfully against various epidemics than their European adversaries did by maintaining higher standard of personal hygiene, and by keeping the vicinity of their military camp as uncontaminated as possible. See the specific quotations from their works in Győri’s study, "Morbis Hungaricus," p. 543.
carefully maintained cleanliness and their rather moderate eating and drinking habits, the
Ottoman soldiers seem to have been more resistant to various maladies, and, in general,
showed greater endurance during a given campaign than did their Imperial adversaries.

As for the problem of late sixteenth century medical treatment, one can simply claim
that this topic is another terra incognita in the contemporary narrative literature, since not
a single word has been devoted to this particular matter in either the Christian or Ottoman
historical works.\(^{119}\) Therefore, it is practically impossible to say anything specific
regarding the medical care during the years of the Long War, although it can be said in
general that, to a modern understanding, the late medieval medical treatment of injured
soldiers seems more a continuous process of torture than one of cure. During long
military campaigns there was always a great temptation for doctors and surgeons to
overlook the seriousness of injuries or illness in order to save the cost of treatment.\(^{120}\)
Because of the rather rudimentary medical practices, firearm bearing troops usually
inflicted wounds in combat that were almost invariably mortal.

Unstable, wobbling bullets fired at short range (roughly fifty metres) caused deadly
wounds, since the tumbling projectile's wobbling effect was significantly magnified as it
hit human tissues. Following the routine procedures, late medieval camp doctors could
not offer promising treatment to the unfortunate injured soldiers. Generally, every shot
wound was considered infected; thus openings were treated with radical methods in order

\(^{119}\) When the very meticulous Ottoman source, Abdulkadir Efendi, *Vekâyi-i Tarihiyye*, fol. 5a, gives a list
of the participants of Sinan Pasha's inaugural campaign in 1593, he mentions among others physicians
(*atibbe*), a camp surgeon (*cerrah*), and an oculist (*kevhâl*). Further along in his historical narrative (fol.
132a), Abdulkadir discusses the siege of Baboćsa (usually mentioned as Boboçça by Ottoman authors,
though Abdulkadir calls it here Bábâvcassâ!), and mentions that soldiers injured by gunshots were treated
by camp surgeons. “...ve tüfeng zahmundan mecrûh olunlara orduca cerrahlar timâr iderldi.” On what
Ottoman medical treatment the injured soldiers received, however, he does not provide any information
whateover.

\(^{120}\) See Coberus's honest comment on the next page.
to prevent the spread of infection. These torturing treatments included a mixture of mercury and oil. The practice for stopping the flow of blood after an amputation was to apply a hot iron or different mixtures of oils, wine, turpentine, myrrh, etc., to the stump.

Although the French doctor Ambroise Paré (1510-1590) had, before the mid-sixteenth century, introduced the dressing of various shot wounds and the treatment of damaged blood vessels by tying them down, there remains a question about how well known his methods were at the turn of the seventeenth century.\textsuperscript{121} In general circumstances, only a few Imperial armies had competent doctors, and even fewer had highly skilled, well experienced surgeons. It is interesting to note here that the oft quoted Coberus, although himself a practicing doctor, openly expressed his great abhorrence of the poorly equipped, untrained medical staff working in the army camps. He stated quite scornfully that these quacks were human monsters dedicated to butchering their victims.\textsuperscript{122}

As demonstrated above, various diseases or unusually harsh weather conditions could, and actually did, seriously undermine the effectiveness of armies during their campaigns. Even if the central command of either side could field well motivated and tactically cohesive and disciplined contingents for a particular military venture, the importance of the "other factors" had to be recognized. Needless to say, in case of emergency recruitment of untrained and undisciplined troops, who were deployed in order to fill the immediate war needs, any unexpected situation was an almost guaranteed

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\textsuperscript{121} On wound treatments there are a few interesting bits of information provided by Jules Guiart in his thorough book, \textit{L'Histoire de la Médecine Francaise.} (Paris: Nagel, 1947), passim.

\textsuperscript{122} "Sancta fide confirmare ausim, plures hoc decennio per eiusmodi harpyas, quam ab ipsis hostibus trucidatos." \textit{Observationum Medicarum Castrensium}, vol. I, p. 8, and has been quoted by Győrffy, "Morbus Hungaricus," p. 543. On the next page, Coberus frankly adds that, not surprisingly, soldiers in distress preferred charlatan women to camp doctors. The situation was not better in the other parts of Europe. England's most famous military doctor in the late sixteenth century, William Clowes (1540? - 1604), noted bitterly in 1591 that badly trained, incompetent camp surgeons caused more deaths to an army than did the enemy. Clowes is quoted by Hale, \textit{War And Society}, p. 121.
disaster. Besides the unforeseen calamities, bad generalship, poor organization, deteriorating discipline, and not just the lack of proper guns or the inefficiency of the weapons, caused failures in numerous campaigns during the Long War. As the old military traditions solidified on the Ottoman side, the empire gradually lost its remarkable flexibility in altering existing customs in warfare. Although the significance of various human factors, such as personal skills and training, and battlefield discipline and leadership, are not always explicitly stated in contemporary narrative sources, these issues became increasingly important in sixteenth century warfare. Therefore, in the next chapter, an attempt is made to examine these human factors.
CHAPTER V. EXAMINATION OF THE "HUMAN FACTOR."

a) Organization and Personal Skills.

The present discussion attempts to deal briefly with the human contribution to the outcome of various military engagements. Evidently, no matter how well equipped a particular army was with up-to-date weaponry, its commanding officers and rank-and-file soldiers lost and won the battles. As mentioned in the previous chapter, there were many environmental factors that could, and did, affect the fortune of a given army. However, it is clear that the aptitude of commanders, and the personal skill of rank-and-file soldiers accounted for the lion's share of the victory in almost every military undertaking. Undeniably, the so-called "the human factor," meaning the quality of the combat troops, has been the quintessential element of warfare throughout human history. One can surely observe here and also below, that there is a certain overlap with the previous chapter, because an army's tactical repertoire has, since the very beginning of mankind's military history, been an organic part of the general skillfulness it possesses. Understandably, the problem of tactics and the discussion of various forms of contemporary fighting methods are distinct points of interest, and they ought to have further attention. Hence, the present chapter can, at least to a certain extent, be considered the continuation of the argument introduced in the previous chapter.

One can observe that, in early modern warfare, the different technological qualities of weaponry did not matter as much as the manner of the use of such weaponry in various combat situations. In general, the military power of a particular state does not depend entirely on available manpower and weapon technology; it is also significantly affected
by training and combat morale. Increased tactical efficiency and improved combat discipline were the outcomes of the increasingly modern training, which enabled a given army to maintain close cooperation among various battalions during battles. One should keep in mind that, once the infantry regiments, equipped with various handguns and pikes, became the major combat force, they needed a new, much more effective organization in order to execute their combat missions with exactitude.

In early modern warfare, precision and coordination were preferred to medieval bravery and individual virtuosity. Great revolutionary military innovators like Maurice of Nassau or Gustavus Adolphus, for instance, were neither technological inventors nor introducers of brand new weapons; they did, however, change radically the structure of their armies. When they put extra emphasis on personal drill and discipline, they could improve the effective use of available weapons technology.

Therefore, it seems legitimate to make the assumption that military training and personal skills (or the lack of them) have been considered among the most important aspects of warfare, since early modern infantry tactics required vigorous training en masse. The combination of pikemen and arquebusiers within the same battalion required greater discipline and skill than ever before.\(^1\) It became obvious to contemporary military strategists and army commanders in Europe that the battle-winning element in sixteenth century warfare was the outstandingly drilled and disciplined infantry troop with its well rehearsed fire control. European infantry battalions, because of their enormously

\(^1\) According to Eltis, *The Military Revolution in Sixteenth-Century Europe*, p. 138, the dominance of complicated infantry tactics based on the utilization of the pike and various handguns, emphasized the importance of mass training. Earlier in his work (p. 51) the author had already underlined the significance of the new training system, according to which the priority was given to field exercises in order to gain the skill of manoeuvring the body of pikemen and protecting arquebusiers/musketeers “as a coordinated group.”
increased firepower, became a more dangerous fighting force than ever before. Infantrymen with their great firepower could inflict significant damage on cavalry squadrons that came too close, if they managed to hold their ranks during the course of a battle. As mentioned previously, in Chapter Two, which dealt with the main issues of the Military Revolution debate, throughout the sixteenth century there were highly skilled infantry regiments available to numerous European armies. These regiments had learned to fight in delicately balanced battle formations, and combined different firearms with weapons of shock combat, notably pikes. Well disciplined infantry units, under proper tactical guidance, could deliver overwhelming shock action and repel cavalry squadrons with relative ease. Infantry dominated armies by no means should be considered a steady winning formula, but skilfully orchestrated foot soldiers could, and actually did, cause serious strategic problems for the Ottoman high command.

One may note here, however, that issuing pikes and arquebuses to young recruits was one thing, but teaching adventurous farm and town lads how to march and move synchronously with their weapons in real combat situations was a rather lengthy, tiresome enterprise. The discipline of an army depended upon the careful selection of recruits, extensive personal drill, and training. Keeping thousands of soldiers in the proper formation at the proper moment under enemy fire was a stupendous task for every military command. For the infantry fighting squadrons, the main emphasis of training was to deploy rapidly from column into line and vice versa, in order to deliver steady, concentrated fire. Needless to say, every move had to be practiced over and over in the hope that, by much repetition, it would become flawless habit. Complex skill was needed to carry a great body of soldiers through the complicated movements indispensable for
changing various formations. They also had to learn to load their firearms amidst the noise and confusion of heated combat. Oft repeated military drill, which made various manoeuvres mechanical and minimized the potential for breakdown, was vital. It was clearly realized that any disorder among the infantry battalions could seal their fate; Ottoman cavalry squadrons could with ease ride down a confused mass of foot soldiers.

In the case of the multi-ethnic Habsburg army, drill and training could hardly be codified or regularized. Even the best foreign mercenaries obtained their knowledge of contemporary warfare during actual campaigns and on actual battlefields. Institutional training did not exist, because military academies, cadet schools, etc., had not yet been established in the sixteenth century.\(^2\) Tactical moves were instead studied in the school of real life experience. Due to the constant war in Hungary, the Central European region, in addition to the Low Countries, seem to have been an appropriate scene for actual practice of the art of war for various foreign troops from all regions of Europe throughout the entire second half of the sixteenth century. The Hungarian theatre of war also provided a proper training ground for many young adventurous “latter-day condottieres” who, along with a great many Imperial military leaders and future prominent historical figures, served their military apprenticeship there.\(^3\)

\(^2\) According to McNeill, *Pursuit of Power*, p. 134, the first European military academy for the purpose of training officers was organized by Maurice of Orange in 1619. However, it should be noted here that the court based colleges located in Tübingen and Kassel had already introduced weapons training, and studies in tactics and siege warfare in 1589 and 1599, respectively. Hale, *War And Society*, p. 143.

\(^3\) Holub, *Istvánffy Historiája*, p. 50, correctly states that Hungarian frontier territories in the late sixteenth century became a kind of military school for foreign mercenaries. Serving the Imperial army in Hungary against the Ottomans had been considered a necessary episode in the military career of a good commander. One of those young mercenaries adventuring into Hungary was the English John Smith, who, according to his own memoirs, came to Hungary because he “was desirous to see more the world, and trie his fortune against the Turkes, ...” Philip L. Barbour (ed.), *The Complete Works Of Captain John Smith (1580-1631) In Three Volumes*. (Chapel Hill and London: The University of North Carolina Press, 1986), vol. III, p. 157.
One may mention here just a few names from the long and illustrious list of military figures: the Mansfelds, Carl (1543-1595) and his stepbrother of Ernest (1580-1626), who did his apprenticeship under Carl, though he participated in much more fighting later on in the Low Countries. In previous chapters, the names of Adolf Count of Schwarzenberg (1547-1600) and of Christoph Baron von Teuffenbach (or more correctly Tieffenbach, d. 1596) have already been mentioned. Christoph was the father of Rudolf, who later became a well known general during the Thirty Years’ War (1618-1648). Johann von Pernstein (d.1597), Hermann Christoph Count of Russworm (1565-1605), and, of course, Giorgio Basta (1550-1612) also belonged to the group of prominent figures on the Habsburg side. It should be noted, however, that while Schwarzenberg, Karl Mansfeld, Basta, and Russworm received their advanced training in Hungary, they had served their military apprenticeship in the Low Countries. Although many more names can be mentioned here, it is best to close this list with those of two towering figures from the Thirty Years’ War: Tilly (1559-1631) trained in the Low Countries, but gained combat experience through his commander position, which brought his military skills to full maturity in Hungary during the Long War; and Albrecht von Wallenstein (1583-1631), who achieved a meteoric career during the Thirty Years’ War, but started his professional military life in Hungary, too.4

Theoretically, the permanent war condition gave an opportunity to both sides to maintain professional standing armies and to make improvements in military organization and certain tactical manoeuvres. The overwhelming majority of the Hungarian nobles, for

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4 A comprehensive list of these military figures is given by Fritz Redlich in his monumental two-volume work, *The German Military Enterpriser And His Work Force A Study In European Economic And Social History*, (Wiesbaden: Franz Steiner Verlag GMBH, 1964), vol. I, p. 158. One may add here that Count Johann Ludwig (1586-1640), the son of the oft quoted Count Isolano, also received his basic military training against the Ottomans following in his father’s footsteps. Ibid., vol. I, p. 455.
instance, also acquired their fighting skills along the Ottoman borderline. Swords or light bows often were given to boys as a gift, and they grew up playing with those weapons. In their teenage years, aristocrats’ sons had swords and other personal weapons as constant companions. Their training started sometimes as early as ten years of age, when they served with a professional military officer as a page. During their teenage years, they usually mastered the art of horsemanship, along with the practice of various kinds of weapons, including firearms.\(^5\)

In the Ottoman Empire, in contrast to contemporary Western Europe, the late sixteenth century witnessed a kind of slowdown in military development. In order to avoid using the word “decline,” one might be correct to state that the Ottoman military machine was not able to progress as fast as those of its adversaries. As mentioned in the previous chapter, during their early historical development, the originally humble frontier raiders and other nomadic warriors had displayed great political flexibility and military dynamism throughout the fourteenth and the fifteenth centuries; these characteristics, however, seem to have undergone major changes in the sixteenth century. The Ottoman military organization was never really able to solve the various tactical problems it faced in the late sixteenth century. This changed Ottoman attitude toward various military problems seems to have made their organization less capable of standing up to the challenges.\(^6\)

\(^5\) Sepsi Laczkó, *Krónika*, p. 24. The author tells us that it was a common practice among the leading aristocrats to make their sons accustomed to “heroic bravery, in order to serve [later] the sovereigns well.” A young Hungarian nobleman in the sixteenth century deemed his military training complete when he mastered the art of handling different hand weapons such as the lance, sword or pistol.

\(^6\) Inalcık, “The Socio-Political Effects” p. 199, states that the Long War “brought surprises for the Ottomans,” who had to encounter heavily armed Imperial armies. The author also points out on the next page that in this respect the Long War was the turning point, in which the traditional Ottoman military organization, along with its conventional arms, failed to overcome the Habsburg forces equipped with up-to-date guns. It is interesting to note here that Inalcık seems to have placed the main emphasis on the mass
Also, as indicated earlier in the discussion focusing on the Military Revolution, certain Ottoman institutions began to lose their previous vigour during the second half of the sixteenth century. The fighting capacity, discipline, and training the soldiers in the Ottoman army seem to have been wanting during the last decades of the sixteenth century. Hasan Kâfi from Bosnia, in his brief treatise written shortly after the Battle of Mezôkeresztes (1596), in which he personally participated, used a rather sharply critical tone in his description of the general conditions of the Ottoman army. One can read in this short, but quite well focused contemporary source that increasing disorder and confusion were the main evils lowering the standards of the once admired Ottoman efficiency in military matters. 7

On numerous battlefields in early modern Europe, various fighting tactics based on increasing firepower had been in the process of elaboration for decades before the turn of the seventeenth century. Among the Ottoman high commanders, however, the proliferation of handguns apparently did not alter Ottoman strategic planning and traditional tactical moves. While in early modern Europe the military commanders gradually mastered a new level in the art of war, the Ottoman central command, as already mentioned in previous chapters, became more and more the prisoners of their own military practices.

The more than a hundred years that elapsed between the death of Mehmed II (1481) and the outbreak of the Long War (1593) produced no striking advance in the Ottoman military structure and its various fighting methods employed in the battlefields. The unchanged battle formation of the Ottoman army, along with its unaltered battle moves based on the structure of an essentially cavalry based army, became an open book for European generals.\(^8\)

The Ottoman soldiers, during their campaigns, generally possessed good military qualities, such as endurance in hand-to-hand fighting, docile disposition, and fierce combative power during long sieges. All these values were admired even by their European adversaries. By nature they were bellicose characters and usually easily animated to combat. In courage and bravery, the Ottoman troops were indeed equal to their European enemies; in combat discipline and organization, however, they had numerous troubles on the battlefields. Sometimes firm obstinacy and great courage made up for want of proper training and organization. In addition to the offer of rewards, which was a routine part of Ottoman military practice, steady opportunity for plunder - an old powerful incentive - traditionally kept the warlike spirit high.\(^9\)

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\(^8\) Imber also emphasizes in his book that the unchanged war characteristics posed a serious strategic challenge for the Ottoman high command. *The Ottoman Empire*, p. 276.

\(^9\) Needless to say the expectation of booty was a great driving force among European mercenary troops, too. For contemporary mercenary soldiers war booty was taken for granted. See Fritz Redlich, *De praedae militari. Looting and Booty, 1500-1815*. (Wiesbaden: F. Steiner, 1956), p. 3. The author, on the same page, demonstrates his statement with one concrete historical example: in 1500 the Pope tried to recruit two hundred Swiss soldiers for palace service, while the French king was recruiting troops for war service. While the Pope was not able to hire more than a hundred and fifty men, a much larger number joined quite willingly the French army. On the following pages (pp. 4-5), Redlich points out convincingly that for late medieval European jurists the right for plunder was taken for granted. One can find that the appropriate legal term “Jus Belli Infinitum” appears over and over in their works. Even Grotius, a towering figure in contemporary international law, in his work *De Jure Belli Ac Pacis* (finished in 1625), considered the looting of the property of enemies as a legitimate military act. Corvisier points out in his work, *Armées et sociétés*, p. 15, that hostile armies, and friendly ones as well, frequently looted the surrounding region. This behaviour was often legitimized by the “laws of warfare” (*les lois de la guerre*), according to which any city that refused to surrender could be sacked for three days after its fall to the besiegers.
However, a clearly observable delay in the structural development of their army, along with their unaltered tactical arrangements, became clearly detrimental to late sixteenth century Ottoman military effectiveness. Throughout the more than decade long uninterrupted fighting, Ottoman horsemen, still numerically the dominant military force, rigidly maintained their tactics and their use of traditional military tools. It became increasingly evident that changes were essential for this corps; the sheer dynamism presented by the sipahis during their attacks proved to be increasingly insufficient in the 1590s against the Imperial infantry squadrons.

As indicated in the previous chapter, the Ottoman cavalry forces were devoted to rapid movement and shock tactics on the battlefield; training with handguns proved to be futile for these horsemen. The main purpose of the mounted shock combat was to break the enemy's line and create great panic amongst the hostile troops. Such action almost always ended with wild, headlong flight. Rapid, properly executed mounted shock combat required also great skills; thus, cavalry troops were compelled to train for numerous years before they could effectively use lance, spear, sword, or bow and arrow on horseback. Understandably, mastering the art of war with cold weapons was not a challenge for the sipahi soldiers since this kind of fighting method had constantly been practiced long before the outbreak of the Long War. For that reason, each Ottoman cavalryman could and did learn his craft well. It should also be noted parenthetically that, in the late sixteenth century, as one can see in subsequent passages, abuses were also invading the cavalry organizations in the form of increasing infiltration by various strangers (ecnebiler) into their ranks.
The influx of a considerable number of untrained and undisciplined newcomers from among the common subjects (the so-called ṭeḏyā class) proved to be especially damaging to the fighting qualities of various Ottoman regiments, since these individuals had no previous experience of fighting and did not acquire the practical knowledge needed for efficient discharge of their duties on the battlefields. Hence, it is noteworthy that the apparent damning criticism of the ecnebi’s infiltration into the Ottoman military establishment found universal approval amongst contemporary Ottoman authors.\textsuperscript{10} Sometimes various Ottoman armies operating in Hungary seemed to have furnished a rather smaller proportion of well trained, experienced troops; there was no adequate nucleus of disciplined soldiers to which other regiments could be safely welded.\textsuperscript{11}

Even though the provincial light cavalry had virtually ceased to be a vital factor in the military since before the outbreak of the Long War, the argument here should not be about the outdated nature of light cavalry per se. Instead, a point should be made that these troops had to be used as an additional force rather than as the main one on the battlefields. Light mounted squadrons were still quite useful in ambush warfare and for forays and scouting missions, but not as a major force with a significant tactical role on the battlefield. Nevertheless, it should be pointed out here that the sixteenth century firearms still were not only erratic and quite inaccurate, but also time-consuming to reload, even for an experienced, highly skilled soldier. Hence, even light cavalry forces, at least theoretically, could be decisive factors if they were equipped with wheellock

\textsuperscript{10} On the specific problem of ecnebis' infiltration, see Gyula Káldy-Nagy’s brief article, “The ‘Strangers’ (ecnebiler) in the 17\textsuperscript{th} Century Ottoman Military Organization,” in: Kara (eds.), \textit{Between the Danube and the Caucasus}, pp. 165-169.

\textsuperscript{11} One can consult Peçevi’s account on the Ottoman preparation for the Battle of Székesfehérvár, in his chronicle \textit{Tarih-i Peçevi}, vol. II, p. 138. A rather sharp disagreement raged among the troops; on one side, hot-headed, impatient younger soldiers urging an attack on the Christian forces, and on the other, older, much more experienced fellow soldiers urging caution.
pistols, and were led decisively with great tactical skill. In a well orchestrated attack, while the infantry troops were reloading their guns, cavalry squadrons could reach their line and discharge their pistols into the faces of the immobile pikemen. This method, however, certainly did not apply to the Ottoman cavalry, which, because of the lack of effective firepower, could not find any competent way to overcome the European phalanx of pikemen.

On the Habsburg led allied side, fast moving light cavalry squadrons were in reserve, waiting for the right moment to swing into action. When the enemy lines were shaken by the infantry’s firepower, and by bombardment of the artillery, the light cavalry squadrons were supposed to deliver the final blow to the confused enemy troops. Basta, an energetic tactical innovator, also employed light horsemen, but only as an auxiliary force between the main lines of his army. His ideal combat order consisted of three battle lines working in close cooperation with each other in order to resist the sipahi crescent formation that sought to envelop the Christian cavalry flanks. According to his order, the first line was made up entirely of pikemen, while the second, of equal length, contained heavy cavalry at its centre, with pikemen and musketeers on either side. The last line, which was unequal in length and also consisted of a mixture of heavy mounted troops, musketeers, and pikemen, was guarding against any pincer movement and sudden attack at the rear. In this way, in the course of a given battle, flexible defence, firepower, and even speed could be combined as required.\(^\text{12}\)

One may raise the question here: was there any transition in the Hungarian frontier regions from the Ottoman ad hoc ambush style warfare to more sophisticated military engagements like open field battles, which required well orchestrated multiple

\(^{12}\) Basta’s battle order has been described by Parry, “La Manière de Combattre,” p. 229.
manoeuvres involving thousands of cavalry and infantry troops? Evidently, in defence of
the Ottoman military leadership, one can certainly state that, during the twenty-five-year-
long peace period prior to the outbreak of the Long War, both traditional fighting tactics
and skills had served them quite well. Light cavalry forces, because of their great
manoeuvrability, fitted well into the Central European war traditions, in which irregular
tactics were based on speed rather than on discipline and endurance. In many sparsely
populated Hungarian areas, lack of supplies was a steady danger; thus, a high degree of
mobility was imperative. This factor in Central Europe generally prevented the early
development of massive, well trained, and highly disciplined infantry regiments equipped
with handguns. One can indeed claim that ambush and swift raiding missions remained
essential elements in early modern fighting methods, both Ottoman and Hungarian.
Therefore, it is clear that the Hungarian frontier did not stimulate the structural
development of the Ottoman military organization, which, in the second half of the
sixteenth century, corresponded, to a decreasing extent, to the experience of
contemporary Western armies; on the frontier, traditional combat forms and military
practices certainly survived longer. Only major military engagements during the Long
War revealed the many obsolete elements in contemporary Ottoman warfare.

Nonetheless, it would be a mistake to depict every military engagement in the
Ottoman-Habsburg conflict as a major battle fought between two armies of considerable
size, where the victorious side always achieved its triumph through sophisticated military
planning, and precise, highly disciplined combat manoeuvres. Evidently, not all the
battles can be used as illustrations of complicated tactical methods carried out by heavily
armed infantry regiments. Furthermore, one can certainly point out that the great majority
of battles fought during the Long War should instead be called skirmishes or clashes involving quite limited numbers of troops from both sides. In these military encounters, a relatively small army, with speed and successful surprise moves, could still secure victory over its adversaries without devastating infantry fire.

One may also note here that, because of the presence of Hungarian cavalry forces whose fighting style was considerably closer to that of the Ottomans, numerous European military commanders were often compelled to deviate from certain standard Western practices. Furthermore, even highly skilled foreign troops serving in the border areas were well accustomed to hit-and-run raiding tactics, and they showed expertise in various very rapid ambush style attacks, since this sort of warfare was easily learned and practiced during the peace era of 1568-93.

It is enough to provide only one concrete example here, the clash at Romhány, which took place on November 21, 1593. The antecedent of this event was Tieffenbach's siege of Fülek, which was already discussed in Chapter Three. The Ottoman relief force, which was perhaps as large as Tieffenbach's, numbering roughly between twelve and fifteen thousand men, reached the town of Romhány (southwest of Fülek) and planned to ambush the Christian forces on November 21. The Christian command, however, received information on the previous day from one of their informers (probably from captured Ottoman soldiers) about the time of the Ottoman assault. Hence, Tieffenbach sent about half of his army at early dawn under the command of István Báthory, the Judge of the Royal Court (Iudex Curiae), against the encamped enemy. The attack took
the sleeping Ottomans by complete surprise; Christian horsemen fell upon their camp
before any proper reconnaissance could even be completed.\footnote{Knolles, as usual, gives a quite precise narration about that event, in his \textit{The Generall Historie}, p. 1027. According to him, the Ottoman loss was significant; six thousand men perished in the slaughter. Sepsí Laczkó, \textit{Krónika}, p. 24, reports that a captured enemy soldier was the informer of the Christian army. This surprise attack at Romhány is briefly mentioned also by Prépostváry, who was an eyewitness to that skirmish. Veress, \textit{Documente Privitocare}, vol. IV, p. 48. See also, Tóth, \textit{Mezőkereszté}, p. 143, with archival references. For a more thorough scholarly interpretation of this battle one should consult the same author’s article, “Az 1593. évi felvidéki hadjárat és a fülek-rómhányi csata,” [The Upper-Hungarian Campaign in 1593 and the Battle at Fülek-Romhány] \textit{Hidotörténelmi Közlemények} (1999/1), pp. 53-73.}

As already indicated in the previous chapter, the fundamental problem the Ottoman
cavalry forces faced in the 1590s was the traditional way they waged war against various
European armies. The sole exception was the mounted Janissary force from Damascus.
Old customs and routine manoeuvres continued to dominate their cavalry warfare until
well into the seventeenth century. Without improved discipline and up-to-date tactical
doctrines, no Ottoman commander could keep his army abreast of European
developments in warfare. Different military squadrons, either mounted or on foot, were
habitually placed very closely to each other, mainly in the centre field but also on the
flanks, too. This fighting method was potentially a dangerous one, since the sight of the
collapse of the first lines could mean the rout of the entire army. Each regiment being
rolled back in great confusion would sweep away its rear. Knowing this, the Christian
forces, especially the infantry battalions with their formidable firepower, attempted many
times to achieve overwhelmingly superior strength at a chosen point by breaking into the
Ottoman centre or flanks. They then reinforced that point and eliminated the jammed
enemy line from that point.

In addition to the obvious shortcomings of the light cavalry in its weaponry and
tactical repertoire, the Janissary corps, which undoubtedly constituted the most valuable
fighting force of the Ottoman army, became slowly but noticeably less efficient on the
battlefield. As the general demand for more infantry troops equipped with handguns constantly grew, the Janissary squadrons were expanded considerably, thus losing their edge as a military élite. The laxer standards of recruitment included the admission of native Turks and other Muslims to their battalions.\(^{14}\) The hiring of young, mainly landless village lads as salaried infantry troops equipped with various firearms (the so-called sekbân and sarîca troops) attenuated the Janissary ranks considerably, but certainly mitigated the immediate Ottoman needs caused by the shortage of infantry soldiers.\(^{15}\)

In the long run, however, this hiring policy was working inexorably against Ottoman interests. While these irregular troops were comparatively inexpensive and could be utilized on the battlefield, they were poorly trained and badly disciplined soldiers. Previously, infantry troops had been formed by means of the devşirme system, that is to say, the periodic conscription of boys mainly from Christian villages in the Balkan peninsula. In the devşirme system, recruits had been handpicked for their physical qualities and personal talents; thus, well trained, highly disciplined Janissary soldiers were, as noted in the previous chapter, admired even by their enemies. Their inherent qualities of order made the Janissaries coming from the devşirme system the most valuable Ottoman military force; in many cases, they were unquestionably a great

\(^{14}\) The anonymous author of the highly critical work, Kitâb-i Müstetâb, strongly condemns the contemporary rampant bribery, which let various ethnic members of the redîyâ class penetrate into the Kapıskulu ranks, creating general disorder and confusion among those troops. “...ve re'âyâ olanlardan etrâk ve ekrâd ve çîngâne ve Tât ve A'câm el-hâsil her isteyen ilâ l-ân varûb eger seferlerde ve eger Âşînâdede akça ile dirîklere geçmek ile Kul tâ'lîfesine bu sebeb ile ecnebi karşûb hère ü merc olmuşlardır.” This work has been published by Yaşar Yücel, Osmanlı Devlet Teşkilâtına Dair Kaynaklar. Kitâb-i Müstetâb - Kitabu Mesâlihi 'î Müslimin Ve Menâfî 'î l-Mü'minîn – Hızû 'î-Mulûk. (Ankara: Türk Tarih Kurumu Basmevi, 1988), pp. 7-8. (The pagination always refers to the original Ottoman-Turkish text.)

\(^{15}\) Finkel, The Administration of Warfare, p. 36, correctly points out that the great demand for fresh troops during the Long War overrode any consideration regarding the maintenance of a “pure askerî (military) class.” Because of the constant need for new soldiers, the Ottoman military command could not be choosy about the social background of the new recruits. Hence, under this circumstance, one may state that the emergence of ecnebis amongst the registered professional soldiers can be considered a natural and inevitable military process.
decisive factor in the outcome of various battles. When the old Draconian restrictions were eased, the former selection process, which had been very strict, was practically eliminated. Therefore, the new, rapidly expanding infantry battalions were not equals with the former Janissaries in the tenacity of their fighting capacity, since even in the best case, only a small portion of the newcomers were actually well trained soldiers. One should note here, however, that Janissary celibacy, which had previously been strictly enforced, started to be overlooked as early as the reign of Süleyman. The recruitment of the sons of Janissaries (kul-oğulları) and other Muslim elements of Ottoman society was allowed. In an examination of the quality of Ottoman infantry, there is one obvious fact that should not be overlooked, since it greatly contributed to the increasing attenuation of the Janissary Corps; namely, the devastating effect of continuous war with the Persians (1578-90). This prolonged conflict had completely exhausted the human reserves of the Ottoman military by the 1590s.

The Janissary elite soldiers perished at a much faster rate than the pace of the government in training the next generation of infantry troops in order to fill up the vacant positions. In the second half of the sixteenth century, the unrelieved spell of warfare on two fronts against the Persians and the Habsburgs pressed the Ottoman command very

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16 Sometimes they were the decisive military force during sieges, too. Operating from the relative security of cover provided by trenches and embankments of various sizes, Janissaries could fire with great accuracy. According to the Ottoman author Selânikî, Taarih-i Selânikî, vol. I, fol. 187a, p. 335, the firepower of the Janissaries proved to be devastating for the Christian garrison in Veszprém by killing many of them during the Ottoman siege in 1593. "...meterisler kurulub toplar çekilüb ceng ü aşüb olub, tufeng-endâz Yenîçeri dilâverleri küffâr-i hâksârdan bi-hadd melâ‘in helâk eyleyüb..."

17 After a long passage praising of the useful practice of the devşirme system (pp. 11-3), through which eventually well trained, able soldiers entered the Ottoman military services, the author of the Kütb-i Müstedâb correctly points out in his work (p. 14) that the rapidly expanding Janissary corps in the late sixteenth and early seventeenth centuries actually represented a weaker military force, since the large number of untrained ecnebi elements considerably lowered the quality of this elite division. "...Yenîçeri oçaği ... merhüm Sultan Süleyman Hân hazretlernin zemân-i şerîflerinde on iki bin olub şimdii ise kirk bine karîb olmuşdur... Fe-ennis gerci evvelki zamanın askeri az idi lákin uz idi. [italics added] Saplama ve ecnebi olmamağla her kankı adıya mûteveccih olsalar idi bi-emri‘illahi Te‘âlâ mansûr ve muzaffer olurlar idi."
hard to maintain the quantity, but less so the quality, of its infantry battalions. Slowly but steadily, more and more positions became available for non-professional, raw recruits who had not received the training and discipline of bygone days. Furthermore, as one can see in the second part of this chapter, most of these untrained new recruits disappeared during the preparation of a particular campaign; they were soldiers only in the registers of those securing a steady military income.

In contemporary European artillery corps, sixteenth century mathematicians who applied themselves to weapons' problems could not possibly remedy variations in the form of individual artillery pieces, but they did unquestionably seek to improve gunnery by devising certain instruments for the measurement of shot. Numerous technical instruments available for early modern military field operations, such as quadrants, sights, levels and specialized rules, enabled artillery crews to operate their ordnance to set the barrel at specified elevations. Although heavy artillery pieces were, for maximal destructive effect, quite often fired at point blank range (with the barrel horizontal), greater range could generally be achieved by elevating the cannon to a certain degree.

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18 Throughout his very outspoken treatise, the anonymous author of the Kitāb-i Müstetāb repeatedly gives a vitriolic criticism of various outsiders' penetration into the Ottoman military class. He states in his historical work (p. 15) that, due to the rampant bribery and corruption, common Ottoman subjects (redâyâ) for the price of a pair of oxen could acquire either a Janissary or sipahi position with all its privileges.

"...şimdikihâ olur olmaz re'âyâ bir çift öküzün satub akça kuvvetliyle kimi sipâhî ve kimi yeniçeri olub istedikleri dileği ve mansıba geçer olmuşlardır."

19 Meanwhile the "real" Janissaries, whose actual numbers were continuously decreasing due to heavy war casualties, maintained their skill by practicing target shooting. Abdulkadir Efendi notes a few times, for instance, that when preparations were arranged for the 1596 campaign under the supervision of Grand Vizier Ibrahim Pasha, Janissaries were ordered to practice with their firearms. "...sefer-i himayün ahvallan te'kid idüb, ve Yeniçeri tâ'ifesî odalarında mevcud olub meydana tufeng talmî ferman olundu." Vekâyî-i Tarihîyye, fol. 55a. On the next folio the author repeats his statement adding that the infantry troops had to practice twice a week. "...Yeniçeri ağası Veli ağaya ferman itdiler... haflada iki gün at meydanında tufeng talmı etdirüb." Interestingly, Abdulkadir Efendi notes further along in his chronicle (fol. 111b) that when Ibrahim Pasha was preparing his army in 1599 against Hungary (the so-called Uyvâr seferi in Ottoman narratives) the Janissaries every day practiced with their firearms. "...Yeniçeri ocağı her gâh meydana tufeng talmı ıderlerdi."

20 Maybe this was the main reason for the Ottoman inaccuracy about which more will be said below. It is clear from the contemporary narrative sources that the Ottoman artillerists almost always preferred high
Contemporary mathematicians could apply scientific methods to specified practical problems that early modern artillerymen encountered during various military operations. For instance, the question of determining the correct elevation necessary to fire a shot to a certain distance (and its inverse, the prediction of range at a given elevation) was probably the most demanding mathematical problem for contemporary artillery experts. Determination of the correct elevation of cannons and calculation of different ranges of fire (during either battles or sieges) were the matters where sixteenth century mathematicians could definitely offer their help.

In the Ottoman artillery corps, foreign artillery experts had always played an important role, though native gunners certainly outnumbered foreigners. Hence, the general presence of these foreign “specialists” amongst the Ottoman artillerymen should not be strongly emphasized, since the employment of various European craftsmen and engineers did not necessarily always mean high quality work or excellent technical knowledge. In several cases they were probably not more than mere adventurers from different European countries, with very questionable training and experience in their profession.21

For instance, during sieges, the best result could be attained when all of the cannons in the battery concentrated their fire against one particular point of a given fortress, yet

21 Parker, The Military Revolution: Military Innovation and the Rise of the West, p. 174, came to the same conclusion, raising serious doubt about the actual knowledge of many European artillery experts employed by the Ottoman army.
the Ottoman artillerymen, at least according to Peçevi’s chronicle, mostly carried out random shots during their bombardment of a particular Hungarian stronghold. When that Ottoman author was trapped inside the Ottoman held fortress of Esztergom in 1595, he had a personal opportunity to see that the Imperial artillerymen sometimes concentrated their cannon fire (they had forty-two pieces) on a particular point of the fortress wall. Afterwards the Imperial bombardment was so intensive that, occasionally, two projectiles collided in the air giving off tremendous thunder as if the whole world had come to its end.22

It must be noted here that, quite interestingly, this concentrated fire of the besieging artillery did not escape the attention of the Ottoman military command. The indiscriminate sort of bombardment was changed relatively soon. Roughly a year later, in the course of the Ottoman siege of Eger, Mehmed Pasha, the Beylerbeyi of Anatolia, who also, with Peçevi, was an eyewitness to the massive Imperial bombardment of Esztergom, followed exactly the same firing method when he was appointed to command eight wall-battering cannons at the northern side of the fortress.23

It is important to note once again that the inaccuracy of Ottoman cannon shots on the battlefield is made quite obvious in the narrative sources. While one cannot find even a single reference in the Christian chronicles that gives any hint of the alleged Ottoman technological backwardness in military hardware, there are plentiful examples where various contemporary Hungarian authors, unanimously, though sometimes in quite a

22 Tarih-i Peçevi, vol. II, p. 179. The Ottoman author was terrified and amazed at the same time during his personal experience. “...kal’arın meselen bir taşın nışan idüb bir mahalle ururlar... dăneleri biri birine çıkar dânesi zarından fazla vvellese dünyâ ykardımek gelürüd.”
23 Ibid., p. 193. “Sekiz added top- kal’a-küb ta’yın olundı ve cânib-i şimâden kal’aya havâle ve karib yerde meterisler kuruldu. Ve küffăr Estergonı urdukların minvâl üzere gäh seekizin def’atın vâhîde bir mahalle bir taş nişanlayub söylece od iderlerdi ki dăneleri biri birine müzahime virerdımek gelürüd.” Peçevi adds that all the troops knew that Mehmed Pasha learned this new method from the infidels in Esztergom. “Cümle asker ‘Mehmed Paşa kal’a dokneği Estergonda öğrendi’ dîrleri.” [italics added]
puzzling manner, inform their readers of how ineffectively the *topçular* aimed at their targets. It is interesting to note here that this shortcoming of artillerists is the only matter that Christian narratives report regarding Ottoman technical skills. When the Hungarian author Decsy writes about a skirmish that took place on August 27, 1595, between the troops of the pasha of Temesvár and the Transylvanian forces after the fall of Ottoman held Facsád (Façet), he does not fail to mention that it was “a miracle that could only be credited to the Divine Providence” that the Ottoman cannons simply did not inflict any notable damage on the Christian battle lines.\(^{24}\) Although early modern firing techniques were still somewhat rudimentary, one should not venture the conjecture, as Duffy did earlier, that the Ottoman artillerists regularly overloaded their “badly-cast” ordnance, which method, due to extremely strong recoils, soon destroyed the platform and significantly reduced the cannons’ accuracy.\(^{25}\)

Unfortunately, no precise description has come down to us from either side regarding various aiming techniques, though it may be legitimate to proceed on an assumption, namely, that Ottoman artillerists usually did well at point-blank range. When the Ottoman artillerymen elevated their barrels, they, in most cases, miscalculated the right angle.

\(^{24}\) Decsy adds that the energetic Ottoman attack was practically not supported by their artillerists, since their projectiles flew over the heads of the Transylvanian troops. The Christian cannon shots were more successful; the Ottoman push lost its impetus afterwards and its lines started to disintegrate. “Vix acies utrinque dispositae fuerant, cum Turcae priores tormenta in nostros exonerat, ingentiue clamore irruunt. Mira certe res fuit, et soli Divinae Providentiae ascribenda, quod globis hostilibus acies nostrorum supervolantibus nihil detrimenti eo genere militibus nostris illatum fuerit, cum e contrario primis statim Ungarorum eiaculationibus plurimi ex Barbaris protriti, ...” *Magyar Historia*, p. 187.

\(^{25}\) Duffy, *Siege warfare*, p. 213. It must be pointed out, however, that Duffy’s general conclusion follows from certain assumptions whose historical truth needs to be proved. While no source speaks of “badly-cast,” or inferior Ottoman cannons, Istvánffy, in fact, reports damaged Ottoman guns acquired by the Christian forces. According to him, on August 27, 1595, Mansfeld, while besieging Esztergom, sent a commando force against the Ottoman camp at Vörösvar (just north-east of Buda) in order to foil the Ottoman efforts to prepare a second relief force. This pre-emptive strike was successful as the Ottomans abandoned their position leaving behind seventeen field guns. However, it became evident that only about half of them were found without considerable damage, which may suggest the constant overcharge of those weapons. “... amissis decem & septem colubris (quarum vix dimidiam partem in nostros, idque semel tantum & sine damno exploserant) ...” *Regni Historici Historia*, pp. 427-8.
Due to strong recoil, gunners had to reposition their cannons after each shot, thus accuracy could only be achieved if someone knew well how far his weapon would fire with different degrees of muzzle elevation.26 One may conclude that, generally, the Ottoman way of using cannons during the Long War (i.e. almost constant application of high trajectory shots), turned out in various field engagements to be particularly ineffective against multitudes of manoeuvring infantry battalions forming lines or squares. It certainly has to do with the inadequate knowledge in ballistics, and with an observable Ottoman deficiency of applied mathematics27 Interestingly, Illésházy, when he writes about the crucial day (October 26) of the Battle of Mezőkeresztes, does not sing the praise of the Christian firepower but instead notes quite phlegmatically that, during the allied attack on the Ottoman camp, both the bullets of the Janissaries and projectiles of the light field ordnances missed their targets; the high flying shots caused only negligible damage.28

Also, European armies were all well aware of an old Ottoman battle trick, that is, various cavalry squadrons would attempt to lure the hostile forces into a trap through a feigned flight in front of their cannons. Once this scheme was known, however, allied forces, foot and mounted alike, became averse to rushing straight into Ottoman heavy fire. During the previously mentioned standoff at Vác, which took place roughly between

26 It should be pointed out that cannoneers frequently guessed on the European side too, when they had to judge various ranges. Contemporary author, William Bourne, wrote about his experience, "... according unto the accustomed manner that Gunners use, for that they doe not knowe the distance unto the marke, and therefore doe but give a gesse what advantage will reach the marke, and if it be with an ynch rule, then thus they doe." See his, The Arte Of Shooting In Great Ordnance. (London: Thomas Woodcooke, 1587). Reprint: (Amsterdam- New York: De Capo Press Theatrum Orbis Terrarum Ltd., 1969), pp. 18-9.
27 Imber, although he does not go into details, mentions also in his book, The Ottoman Empire, p. 285, that on the Ottoman side "the mathematical expertise seems to have fallen behind those of their European rivals." It seems to be a rather obvious fact that the in the Ottoman Empire the adoption of the latest weapons did not come along with the acquisition of contemporary scientific knowledge. On this problem, see also pp. 215-6, below.
28 Illésházy, Főjegyzések, p. 34.
November 2 and 9, 1597, the Imperial army, devastated by epidemics and suffering greatly from severe weather conditions, did not venture into an open battle with the Ottoman troops led by Sâcurçî Mehmed. Instead, on the advice of Basta, Archduke Maximilian, commander-in-chief of the Imperial forces, ordered the entrenchment of four nearby eminences that were also protected by wagenburgs.

These fortified positions were bases for both artillerymen and infantry troops, and were designed to defend the Christian camp by holding off the repeated attacks of the numerically superior Ottoman cavalry. Although the Ottomans initiated battle several times through provoking assaults, the allied forces were disinclined to make a full-scale attack on the Ottoman lines; thus, they remained behind their fortified places and put trust in their firepower. After some manoeuvring and skirmishes, it became clear that Basta’s cautious tactics worked well in saving his army, since the enemy was not able to dislodge the weakened Imperial forces.29

This tactical method was later employed by the Duke of Mercœur who, while commanding the Christian relief forces at Kanizsa in 1600, applied the same principles

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29 Istvánffy, Regni Hungarici Historia, pp. 461-2. The author also adds that Basta followed the tactics of Karl Mansfeld, who, two years earlier, used the same method quite successfully against the Ottoman relieving forces at Esztergom. "...exemplo salubri à Carolo Mansfeldio Comite ducto, quem ejus modi castellis in obisdédo Strigonio idoneis in locis erectis, victoríá peperisse memorabant." Parenthetically, it should be noted that the twelve cannons used by the Ottomans in the course of their attack on November 5, did not cause heavy casualties; most of the projectiles found their way into the air and other empty space.

"...sic ut quamquam hostes XII. tormentis campestribus frequenter in nostros disphasis regerent, pilae tamen absq[ue]; notabli nostrorum damno in aeris & coeli vacuum irritis ictibus provolarent." Ibid., p. 464. Mehmed bin Mehmed, who gives a quite detailed description about the military events that took place around Vác, Nuhbetti’ i-tevârî, pp. 192-3, mentions objectively (p. 193) that the Christian infantry occupied advantageous positions on the surrounding eminences, since the Ottomans on the lower field were easy targets. "...küfrar... dağ tarafından tuğfeng-endâz, ve tabûrları tarafından toplar havâle olunmağa İslâm [sic] hayli müzâyaka vîrdiler." During the sporadic clashes the Imperial forces continued to keep the enemy under heavy fire from their elevated positions. "Mêla‘îlär tekrar yüksek yerlere zarbezanlar çikarûn Müslümanlar topa tutdîlar ve küffarin serdâri Maksimilyân-i bi-dîn nice baş baş melâ‘în ile tabûrlarından gelûb büyük toplar kurub asker-i İslâm açık yerde olmağa üzerlerine havâle itdîler." It also became quite clear that during skirmishes, because of the solid entrenched position of the allied infantry in the nearby forest, the Ottoman cavalry squadron could not swing into action, and that only the infantry troops engaged in a close fight. "... melâ‘îlär orman içinde azîm handek kazmışlardî atlû askeri harekete kadir olmayub, ancak piyâdeler nice saat ceng idîb."
against the besieging Ottoman army led the Grand Vizier Ibrahim Pasha. Mehmed bin Mehmed reports that in the course of a single night, Mercoeur's regiments, following their "erroneous practice," were also put behind a strongly fortified, entrenched camp (tabûr). During the serdar's attack on the Imperial position, a couple of thousand soldiers from the Christian infantry squadrons, instead of taking the risk of an open clash with their Ottoman counterparts, were placed in some hidden parts of the surrounding wooded area, where they waited for an ambush.\textsuperscript{30}

In the early modern period, the geometry of war became a very important branch of practical mathematics. Its purpose was to harness the capabilities of the new weaponry, since the gunners needed instruments to measure both the inclination of the barrel and the distance to the target. Although technological innovations were the main areas where the application of scientific achievements played a vital role, different tactical tables also appeared in the early modern era, along with complicated diagrams through which contemporary authors "scientifically" tried to prove which particular formation (following various geometrical shapes) was the best for army generals in the planning of various operations on the battlefield. At the same time, studying various aspects of the art of war became a certain intellectual obsession in sixteenth century Europe, where "treatises on war became a printed flood."\textsuperscript{31} For the use of various contemporary weapons, certain theories were added to empirical knowledge. The art of war, at least on paper, became more and more a scientific principle.

\textsuperscript{30} Ibid., p. 204. "... asâker-i İslâma karîb yere gelüb, bir gice içinde azim handekler kazub ayin-i battlalar üzere muhkeim tabûr bağladılár." When the Ottoman troops started their attack against the Imperial camp, "... melâ'înlar tabûrlarına yakün meysezârlıkda bir kaç bin piyade tufeng-endâz pusuya komşular."

\textsuperscript{31} Hale, War And Society, p. 56. According to the author, since the 1550s, there was a great production of works dealing with almost every aspect of contemporary warfare: tactics, weapons, battle formations, etc. Many of those works also discussed the problem of company drill and the "ideal characteristics of officers and men."
Nevertheless, it is necessary to point out that the average soldier had never in his entire life read any popular written material on contemporary European warfare. The reading of military treatises on various aspects of war was the privilege of the social elite, not the occupation of recruited town rascals. No matter how many features of warfare were covered by countless military treatises in considerable detail, for most of the rank-and-file soldiers various moves and tactical manoeuvres were taught by old comrades or their immediate commanders.\footnote{Ibid., p. 164. Hale does not fail to point out that, even among the German Landsknechts troops, the actual training regarding the formation drills, along with the accurate handling of different weapons, was "left to the inclination of individual captains."}

Theoretical study of the military art or, in simple words, the examination of contemporary warfare was carried on to an extent unknown before. Hence, in addition to the field of military engineering and artillery, tactical planning became another sphere in early modern Europe where military experts began to make serious studies of the art of war by applying mathematics in an increasing number of ways. Quantitative methods were utilized for the planning of battle formations and combat manoeuvres, and further emphasis, in both theory and practice, was put upon discipline and army drill.

Because of the frequent wars in sixteenth century Europe, theoretical studies of the military art were conducted to an extent unknown before and helped to justify claims for the importance of scientific disciplines. This importance was established by applying mathematics and geometrical formulas to various problems of military organization.\footnote{A few signs of theoretical development can be observed well, if one randomly compares two military treatises written in the sixteenth and seventeenth centuries. For instance, Bourne’s work, The Arte of Shooting, seems to be somewhat rudimentary with its calculations and tables compared with another book with the same profile written more than forty years apart. This work is Robert Norton’s book, The Gunner Of Fire Works. (London: A. M. 1628). Reprint: (Amsterdam- New York: De Capo Press – Theatrum Orbis Terrarum Ltd., 1973), which uses more numerous, and certainly more advanced mathematical formulas than Bourne’s treatise does. One should note here, parenthetically, that one who dedicated a few flattering lines in order to praise Norton’s work was “Captaine J. Smith, Hungariensis,” quoted several times}
One may note here that, in other areas of practical science, such as surveying for fortress construction or modernization, the mathematicians were quick to recognize an additional opportunity for the utilization of their knowledge, and they responded with enthusiasm.

The previous paragraph raises the question: what can one learn about the early modern Ottoman mathematicians and other intellectuals employed during a given campaign? Due to the lack of indigenous mathematical experts, the Ottoman expertise in gunnery seems to have fallen slowly behind that of their European adversaries. While the procurement of various foreign made weapons was taken seriously by military circles in the empire, considerably less effort was made to master the background knowledge needed for the further development of those weapons. One should keep in mind that various technological borrowings never really brought with them the fundamental elements of contemporary scientific achievements. Even brand new weapons functioned only in the traditional framework of Ottoman technical knowledge. Thus, one may say here that the Ottomans were at an intellectual disadvantage in adjusting to contemporary Europe.

As mentioned earlier, in Chapter Two, the *ulema* class in the Ottoman Empire was not powerful enough to exercise complete control over state affairs; however, its

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thoroughout this dissertation. In Norton’s book there is a great deal of various mathematical applications for the creation of many “scientifically correct” squares and other battle formations of various sizes. While quite a few mathematical calculations, like the use of square root to frame “all sorts of Battalions,” seem rather a pseudo-scientific method by modern standards, it is clear that both arithmetic and geometry became parts of early modern military planning. Instead of focusing on the quality of these contemporary “scientific” works, one should notice the rapid developments revealed in seventeenth-century works in comparison with books from the same categories written just a couple of decades earlier.

34 One can read in Abdülkadir Efendi’s chronicle, *Vekâyi-i Tarihiye*, fol. 15a, that after the loss of the Battle of Szekesfehervár, a hundred soldiers were transferred from Belgrade to the unit of artillerists. Sixty of them had previously been served as cannon-wagoners (*top arabacilar*), whereas another group used to be armourers (*cebeciler*). Although the Ottoman author states that they were masters of their profession, it is rather questionable that what kind of training they had earlier received in geometry and ballistics. “...ve Belgrad- dan cedit cebecilerden ve toplulardan ve seksen nefer top arabacilardan *üstad olmoğm* [italics added] toplular zümresine intikal idib ve yüz nefer topci-ı cedit tahhr idib.”
members proved to be influential enough to dominate the educational system. Therefore, not surprisingly, new scientific currents coming from late sixteenth century Europe could hardly reach any Ottoman school; it became increasingly difficult for Ottoman military intellectuals to grasp the theoretical principles of contemporary military sciences. Without a solid scientific background, which included calculus and modern engineering techniques, it was quite hard to achieve improvement in the trace italienne type of fortress construction and in the ballistics of gunnery. The Ottoman way of training in ballistics or in applied mathematics remains unexplored territory in Ottoman military history. This is an important topic that one can only deal with cursorily, since it is still very imperfectly studied and much research about its numerous aspects is needed. According to Inalcık, after the beginning of the sixteenth century, the influence of retrograde religious forces became increasingly compelling; thus the intellectual sciences were objects of suppression.\footnote{Inalcık, The Ottoman Empire, p. 182. Earlier in his work (p. 179) the author relates to us the story of the Ottoman observatory in Galata to demonstrate “the clear victory of religious fanaticism over the rational sciences.” The observatory, which was one of the most advanced of its kind in contemporary Europe, was built in 1577, and unfortunately was razed to the ground after only three years by a group of angry Janissary soldiers.}

b) Discipline, Morale, and the Early Modern Habsburg and Ottoman Military Leadership.

The three ruling Ottoman sultans in the course of the Long War (Murad III, Mehmed III, and Ahmed I, 1603-17) were indolent and dissolute in character. Their lack of interest in military affairs\footnote{Sometimes very critical Ottoman chronicler, Selânikî, states in his historical narrative that Sultan Murad III did not even trust his own Kapıkulu troops since these mutinous troops forced their way into the Imperial Council a couple of times. “...pâdişâh-i âlem-penâh hazretleri kul tâ‘ifesine hûsn-i zann üzere...”} could have been beneficial to the empire, if they had left
effective power in the hands of able, competent viziers. Previously, the Ottoman political élite had devoted much thought to drill, to the selection and training of military officers, and to the whole subject of command. This establishment correctly realized that on many occasions the conduct of those commanders decided a particular battle. Because of the turmoil among different cliques at the court in Istanbul, however, numerous times quite inappropriate persons landed high profile military positions. There is no apparent reason to state categorically that, in various promotions, seniority and distinguished service did not play an important role, but some appointments and advancements were indeed given without serious regard to the necessary personal qualifications.

Evidently, the responsibility for the selection and promotion of different military commanders lay with the Court, where, by the end of the sixteenth century, the Harem and certain political circles of the Inner Court became the true centre of political power. As different political groups competed for power vigorously, one can certainly state that bribery, corruption, and nepotism, along with the whims of different cliques, played an increasingly dominant role in the actual appointment of several Ottoman high commanders. Despite the self-evident incapacity of several military men in high positions, the political inner circle, which involved itself more and more in a complex

37 Busbecq, in the early 1550s still had a high opinion of the Ottoman way of selecting various military officers. According to him, nothing was as valuable as personal merit, and only the Ottoman dynasty itself was the exception to this rule. In that dynasty, birth had crucial importance. Turkish Letters, p. 23. Further along in his memoir (p. 59) Busbecq, on the occasion of visiting Süleyman’s camp at Amasya in 1555, repeated his statement by emphasizing the fact that no one could achieve high dignity without personal merits and bravery; birth was neither an advantage nor disadvantage, honour being paid only to men who performed their duties perfectly, and to those who held their offices with distinction.
38 When Hasan Kâfî talks about the main reasons for the decaying order in the army, he calls the bribery and Harem intrigues the most obvious ones. “Usûl-i-hikem,” fol. 4a, p. 250. “...bu zikr olunan vechlerin ve sebeplerin cümlesine sebeb olan, dahi bu bâbda olanun gayeti ve son uci, rüsvet alımnam tam’idur, dahi nisâ tâ’ifesine rağbet idûb, sözleriyle amel eylemekdûr.”
system of extortion and petty politics, was satisfied by putting its own reliable men in key positions and paying less attention to high quality military leadership.

Furthermore, corruption and bribery were rampant at the lower level of state administration, too.\footnote{Selânikî, Tarih-i Selânikî, vol. I, fol. 129a, p. 227, informs us of a couple of amazing cases of dishonest clerks working in the Ottoman administration. Even three years prior to the outbreak of the Long War, in October, 1590, the Ottoman author reported that some unqualified, poorly educated clerks had falsified certificates and official appointments, and also traded blank papers headed by the Imperial Tuğra. Furthermore, several talented but corrupt clerks had even invented a kind of removable ink in order to delete the original text and rewrite it for those who were willing to pay for a particular position. “... her maslahata nâ-ehî erâzî gelmek ile Divân-i aliche ve eğer mâliye cânîbinde bî-êdeb kâtîbîer müzevver berât ve tezkireler yazub ve serdarlar için Şark seferlerine gönderilen beyâz tuğrâ-i şerîf ile muanven kağîtler kurtâb-i hâ’in eline girüb, istedüklerin yazmak ile umûr-i devletde teşevvûg müşâhede idûb... Pehlîvan kâtîbîer bir cins mürekkeb peyûdâ eylemişler ki cümle kitâbet olunan hatt yine kağîtdan silinüb ve istedûgün yazub, telbisât u tezvîrât itmeğe mübêtâlarûn unvanî tuyûlub tutulûd.” On this topic one should also consult Fodor’s article, “How To Forge Documents?” Acta Orientalia XLVIII (1995/3), pp. 383-9. The author correctly states, (p. 386), that the booming forgery business was the direct consequence of the deteriorating real income of the Ottoman administrative social class.} Political favouritism frequently governed many important appointments, whereas, in earlier times, at least in principle, there was a cautious selection of officers, as well as a strong emphasis on training and practice.

Because of the highly divided central leadership, where intensive infighting among various cliques and personal political ambitions were clearly preferred to service ethics, the general fighting morale of the rank-and-file soldiers, quite expectedly, was lower than it had been in previous historical periods. Aggressive contests within the high command greatly influenced, undoubtedly in a negative way, the performance of a campaigning army. The formerly much admired fighting capacity, battlefield discipline, and quality of soldiers’ training seem to have slowly faded away. The slow dissipation of military dynamism was partly due to the aforementioned leadership problems, along with political fragmentation and deteriorating military discipline in various organizations. While Broquièrë in the first half of the fifteenth century very objectively praised the discipline of the Ottoman army and the reliability of its officers as the key factors in their successes
in war, Hasan Kâfi, writing his memoir at the end of the sixteenth century, bitterly complained that, due to the lax discipline, soldiers were not afraid of their commanders. According to the Ottoman author, much harm resulted from the soldiers’ lack of fear of their superiors; general negligence in campaign preparations and in the utilization of proper weapons was caused by this inappropriate military behaviour.\textsuperscript{40}

Another important Ottoman source, Selânikî, correctly observed that many individuals were quite frequently dismissed from certain military positions and sometimes had very short terms in office; thus, one could hardly find consistency in Ottoman strategic planning. With a constantly changing high command, it was practically impossible to pursue a steady war policy. Although grand viziers had often fallen from power prior to the 1590s, the average tenure in this office was particularly short during the Long War; hence, its holder did not have enough time to do his duty. Before he could carry anything into effect, he could be superseded by another individual who knew how to change the mind of the reigning sultan.\textsuperscript{41} Rapid appointment and dismissal of high ranking commanders hardly helped to maintain cohesion among various regiments; it is

\textsuperscript{40} Broquières’s flattering lines can be read in his \textit{Le Voyage d’Outremer}, pp. 221-2. “Ilz sont gens tresobieissans à leur seigneur et n’est nul si grant soit il que, pour sa vie, osast trespasser son commandement. Et je croy que c’est une des choses qui luy a fait faire de plus grandes executions et conquistes en fait de guerre, ...” For Kâfi’s critical words, see his “Usuli’l-hikem,” fol. 4a, p. 250. “... asker tedârükinde ve tedbîrinde terk ve ihmâldûr, dahi düşmân ile mukatele ve mubahêbe zamanında yat ve yarar kullanmakda ihmâl itdûkleridûr. \textit{Bu ihdâtün sebêbi askerên tûmerâdan ve ser-askerlerden kormâkûkûrdir.}” [italics added] It is interesting to note here that, on the opposite side of the war, Hungarian preacher Magyari also very emphatically states that soldiers should fear their commanders, otherwise the mercenaries would fight with each other. See his sermon, \textit{Romlâsoknak Oktîrîl}, p. 171.

\textsuperscript{41} \textit{Tarihi Selânikî}, vol. II, fols. 269a-b, pp. 486-7. On the occasion of another appointment, that of Yemişi Hasan Ağa for the Janissary Ağa position (June-July, 1595), the Ottoman author openly expresses his criticism regarding this rapidly changing post. “Selâtiî-i Âlî Osmân... kadîmden Yeniçeri ocağına nazâr-i sa’adet-eserleriîye merîtîb inâyet eleyüb, müsâ’ade buyura-gelmişler. Ve avhâl-i saltanat ol tâ’ife ile zabt olunu-gelmişdi. Ana hâkim olanlarun cevrhe-i zâti kâmilî’l-ayar ve sidk u istikametde pesendide-etvâr ile istihih bilarunun makami idi. Bu zemândâ ol i’tîbar olunmayub rûkûn-i a’zam-i devlet iken yîlda birkaç kere tebdîl ü taqyîr olunmakda, Hazînê-i Âmire’ye küllî zarar tevecûh iderken erbâb-i hall ü âkd ihtiyâr ider oldular.”
easy to understand why Hasan Kâfi, an active soldier, complained about the deteriorating reputation of commanding military officers.

Only a few leading Ottoman military figures have been praised by contemporary sources as gallant commanders who could inspire their troops with confidence. One of those army leaders was (Tivâli) Hasan Pasha, the very agile governor of Bosnia, who, until his death at the Battle of Sziszek (1593), always demonstrated his personal courage and apt leadership to his soldiers. Çâfer Çelebi underlined in his narrative the fact that this brave pasha, during the Ottoman siege of Bihaç (Bihke), June 10-19, 1592, stayed at the trench lines with his troops, even though projectiles fired from the fortress grazed his canopy.42 When the same author later in his chronicle made some comments about the Battle of Székesfehérvár, he emphasized the fact that another Hasan Pasha, the courageous governor of Buda, tried to turn his fleeing soldiers back to the combat line even in a hopeless, desperate situation.43 Also, one should mention here that, in his fethnâme (announcement of victory) issued by Koca Sinan Pasha after the fall of Győr in 1594, the grand vizier did not fail to note that day and night he personally stayed in the trench lines in order to take care of his troops.44

Interestingly, the obvious consequence of the constant, sometimes quite overt rivalry among the Ottoman military leadership was observed by Lorenzo Bernardo, the Venetian

42 Tarih-i Sefer-i Üngûrûs, fol. 10b. “... ve meterisler kazub ve paşa-ı âsaf-lekar kendüsü bi’z-zât meteris mahallinde karâr idüb kal’a-ı mezbûreden atılan ejder-şayka ve ra’d-na’ra toplar paşa-ı merkumun sayebânına dokunub...” Parry, in his study, “La Manière de Combattre,” pp. 249-50, also touches the problem of the Ottoman High Command.
43 Ibid., fol. 31b. When the Rumili regiments started a headlong flight (Rumîli askeri birbirine bacak yapab fiîrîr etmeûn), the valorous pasha made a futile attempt to raise the fighting spirit of his troops by giving an inspirational speech. However, as mentioned in the previous chapter, Hasan Pasha was completely abandoned (ol mahalde paşa-ı mümâ-îleyhin yannda ikiyûz nefer kimesne kalmayub), and the injured Ottoman commander just escaped being killed.
44 See, Selânîkî, Tarih-i Selânîkî, vol. I, fol. 221a, p. 398. “... bir ûrûf can u gûnûlûn tekûyûd eylememekle kendüm bizzût meterislerle (sic) varub gice ve gündûz toz ve toprak içinde yatub kalkub,...”
ambassador to the Ottoman Empire, who was far from being enchanted with contemporary Ottoman fighting methods. In his report from Istanbul in 1592, one year prior to the outbreak of the Long War, he wrote that the once admirable overwhelming enthusiasm that had earlier characterized the average Ottoman soldier\textsuperscript{45} was tending to fade away in his time. According to him, just as they tried to avoid different plagues, they also avoided contemporary wars. Ottoman soldiers did practically anything they could in order to shirk war service, and when, despite their countless efforts, they ended up at the front lines, everyone concentrated on saving his own life.\textsuperscript{46} The Venetian ambassador’s

\textsuperscript{45} One ought to remember that Georgius de Hungaria, who had spent twenty years (1438-58) as a slave in the Ottoman Empire before he wrote his very objective account about his experiences, clearly underlined the warlike behaviour of the average rank-and-file soldiers. According to him, in case of a particular campaign, “Turks” showed so great willingness to fight, and were so fast to gather at their camps that one would believe that they were invited for a feast rather than being ordered for war service. Not only the registered soldiers, but also volunteers in large numbers were almost running to their muster. Hence, the author came to the obvious conclusion that amongst the Ottomans it did not require much effort to recruit an army even in a month. \textit{“Unde quando fit commotio ad congregandum exercitum, cum tanta promptitudine et celeritate concurrunt et conveniunt, ut crederes non ad bellum, sed ad nuptias invitari.”} [italics added] Immo vix possunt expectare, donec veniat tempus exequendi, sed et ipsi praeveniunt. Sed et si quandoque contigerit eos a bello vacare, magno afficiuntur taedio. Et non solum illi, qui scripti sunt, sed quasi plures illis motu proprio ad hoc currunt et festinant et propter a non multum laborat Turcus ad congregandum exercitum suum, sed solum missis nuntiis ad praeidentes designat diem et tempus et illi immediate faciunt praecogizare in civitatis et oppidis et sic in spatio unus mensis conveniunt in ordine, secundum quod scripti sunt, \ldots” Georgian de Hungaria, \textit{Tractatus De Moribus, Condictionibus Et Nequicia Turgorum}. (Waiblingen: Rolf Brotzchi, Kleine Galerie, 1993), LXV and LXVI.

\textsuperscript{46} Bernardo’s report is in Albéri, \textit{Le Relazioni Degli Ambasciatori Veneti Al Senato}, (Firenze: Tipografia all’insegna di clio, 1844), Serie III, vol. III, p. 368. “Quello che nel fuggire la peste hanno principiato a conoscere, hanno anco inteso esser buono nelle cose della guerra, fuggendo ciascuno quanto più puole dall’andarvi, oppure non si mettendo fra li primi, ma attendendo alla propria sicurità: \ldots” English text is in Davis, \textit{Venetian Ambassadors’ Reports}, pp. 158-9. Bernardo emphasizes on the same page that personal security became the prevailing concern in those days. “\ldots e in soma presente ognuno attende alla propria sicurità.” On the next page the ambassador points out that, besides the ordinary soldiers, pashas and sancakbeys, along with beylerbeys, modelling themselves on Sultan Murad III, who cares practically nothing about military affairs, rather stay at their homes and try to keep themselves far away from the dangers and discomforts of war. “All’esempio del quale tutti li magnifici pascià, li sangiacchi e beilerbe, e tutti li privati soldati desiderano star a casa a godere li piacer loro, fuggendo quanto più possono l’andar alla guerra per il pericolo e per la incomodità, \ldots” One should note here that another Venetian ambassador, Morosini, even before his colleague Bernardo, came to almost the same conclusion regarding the Ottoman fighting attitude. He stated “confidently” in his report from 1585 that the Ottomans would rather count on their large numbers and obedience than on their organization and personal virtue. “\ldots parmi di poter sicuramente cavar questa conclusione, che più confidino nella multituidine e nella ubbidienza, che nell’ordine o nella bravura.” Albéri, \textit{Relazioni Degli Ambasciatori Veneti}, vol. III, p. 260. English text is given by Davis, \textit{Venetian Ambassadors’ Reports}, p. 161.
observations about the general Ottoman reluctance to join in combat are vindicated by contemporary Ottoman sources.

The very critical author Hasan Kâfi, for instance, bitterly complains that the earlier, quite characteristic Ottoman combat bravery and belligerent behaviour had disappeared by his days.\textsuperscript{47} This attitude was not surprising in light of the fact that many of the registered soldiers were court servants who were totally incapable of performing the duties required of sipahis. Because of the harmful political trend of assigning various military fiefs to non-military individuals, who not only included palace servicemen but also peasants who abandoned their farms (çift-bozanlar), the number of capable soldiers available for Ottoman campaigns was ultimately reduced.\textsuperscript{48}

The most striking proof of the deterioration of the Ottoman army’s discipline was the Janissaries’ surprising reluctance to fight. This passive attitude led to a plethora of various excuses and indirect refusals, even among these truly privileged Ottoman troops. Although, by 1600, their number had almost tripled from a total of thirteen thousand in the 1550s, in the case of actual military campaigns fewer and fewer Janissary troops showed up for service. One may note here, for instance, that more and more Janissary soldiers, on the pretext of “guarding important places” (koruculuk hizmeti), started staying away from active campaign service in the army. The Janissaries’ growing

\textsuperscript{47} “Usulu’l-hikem,” fol. 17a, p. 261. When the author talks about the “three things that bring destruction to the sultanate,” (üç nesne pâdişâhiğa helâkliği çeküb getürür.), he correctly calls the personal envy among the commanders, and the timid uncooperative attitude of the average soldiers as two factors of that destruction. “İkinci budur ki, vezirler birbirine hased eyleyeler, ki bu re’ylerün muhâlîf olmasın ıktizâ eder. Üçüncü budur ki, asker düşman tokuşmadan yüz çevirüb i’râz eyleye ve gazâ umûrunda birbirine itâ’at ve nasihat terk eyleye, ya’ni birbirin eslemeye.”

\textsuperscript{48} Writing after the fall of Esztergom to the Christian besieging forces, Selânikî rightfully points out that there were no real warriors left to protect Ottoman territories, since less and less fiefs remained available for well-trained actual soldiers. “...asker-i Islâm kilicları çavuşlara ve kâtiblerve ve müteferrikalara ve ekâbir nökerlerine ve iq-oğlanlarına virülub, mahsûli hadumlara ve dilsiz dinsizlerere [sic] ve sa’îr sefere gitmez devletülh bir sanduquna girmegle serhadd-i mansûre kiliclarına nakz u zevâl geldi. ...HER nâ-müştahk erâzül ü ecnebi çift-bozan zehr katîl harâm rûşvet virûb, dirlik sahibi olub, kadûmi ocak-oğullari mahrûm kalub, sönmek ile âlem harâba varüb...” Tarih-i Selânikî, vol. II, fol. 285b, p. 518.
passivity toward actual military campaigns was a particularly significant phenomenon, which indicated that some serious, very negative changes had occurred in this most important Ottoman military institution.

In a telling episode of the Long War, three thousand Janissary troops were ordered in February 1595 to protect the Danube line in Wallachia against a possible raid by the forces of Michael The Brave. These infantry battalions, however, instead of performing their duties, started plundering the surrounding territories. Their actions apparently further poisoned the already hostile Romanian-Ottoman political relationship; Michael had renounced allegiance to the Sublime Porte, and had been rebelling against Ottoman rule since the end of 1594. The Janissary elite troops became a self-perpetuating, privileged social class whose military duties were increasingly neglected. They were more willing to fight for their privileges than for glory achieved against their European military foes; their much admired valour was withering away.


50 It is noteworthy to mention here that Selânîki openly, and quite unexpectedly one may say, blames the revolts of Wallachia (Efâyı) and Moldova (Boğdan) on the oppressive Ottoman judges and the atrocities committed by the Janissaries. “Vilayet-i Efteğ ve Boğdan re‘âyâsi bizim nâ-insâf sistemâr ribâ-hor ve mâl-i rûşveti cân-nisâr eleyen hâkimlerimizün ve yeniçerî tâ‘ifersinün cevr ü bid’atlarından bazâr olmaları ile veyvodaları olan melâ’ın Erdel ve Leh kralîndan yardım isteyüb bî‘zzarüfi cümlesi isyan u tuğyân yolun tutub ve gelen yardîcî kuffar-i hâksâr ile firsat düsürüüb...” Ibid., vol. II, fols. 253a-b, p. 458.

51 The author of the Kitâb-i Mûstetâb, p. 18, notes that for a fixed price, well-to-do Janissaries could stay away from active war service registering themselves as guardians. “... ve şimdiki hâlde ise Yeniçeri ağa kapusunda koruculuga yüz ve yüz ellişer altun narh virilub sol yeniçeri ki yarar ve mütemevvîl ola sefere gitmemez için akça virûb korucu namnda defterre kayd iderler....” Hence, not surprisingly, as the author further along states (p. 27), in the time of a particular campaign large numbers of Janissary troops remained at their service base. Of the more than 35,000 registered Janissaries, about 20,000 were called up for war service, but due to various pretexts, not more than seven or eight thousand joined the army. “Kezâlîk yeniçeri kulları dahi otuz beş bin neferden ziyade iken sefer-i hümâyûn vâki’ olmuştur meselâ yirmi bin nefer miktâr sefere me’üm ziyâzur ve bâkleri kimi korucu ve kimi tekâ’ud ve kimi kücük ve kimi ba’zi kal’alarda nöbetçi diyü rîkâb-i hümâyûna arz ederler. Lâkin ol sefere yazilanlar daye defterlerde esâmleri mevcud fe-emmâ yedi sezik bin neferden ziyade varılmadığı mukarrerdir.” (It is interesting to note here that this statement is repeated on the next page.) The anonymous author adds also (pp. 27-8) that even Mehemd III’s military expedition against Eger in 1596, the first sultan-led campaign in thirty years, allegedly could not raise more than 10,000 Janissaries. “... Sultan Mehemd Hân hazretleri bi‘zzat sa‘âdet ile Eğri seferine buyurduklaında ol sefer-i hümâyûnda on bin yeniçeriden ziyade olmadiği zâhir ve tevâtire yetişmişdir;...”
In previous Ottoman wars, the crime of insubordination or neglect had rarely happened, and this can be credited to the Ottoman troops’ innate good qualities. One may note here, though, as Murphy correctly points out, the Ottoman soldiers of earlier periods should not be idolized either. They were certainly not fanatic, religiously charged warriors, and they had unquestionably been dedicated to their duties to a certain limit. As will be discussed below, Ottoman military behaviour was much more professional during their encampment than that of the various European mercenaries. Still, without proper compensation and reward, the average Ottoman rank-and-file soldiers did not tend to perform their duties in a perfect manner. In the course of the Long War, there were numerous cases in which one can clearly observe materialistic motives in soldiers’ behaviour. The contemporary author Çâfer Çelebi, for instance, who was usually well informed about many details concerning various Ottoman campaigns in Hungary, relates an interesting episode that occurred among the soldiers at the beginning of the siege of Veszprém in 1593. According to the Ottoman author, the kapikulu troops had already demanded a salary raise even before the commencement of the actual siege.

One of the most colourful individuals among the leading Ottoman military commanders was Koca Sinan Pasha, who managed to reach the very shaky position of Grand Vizier not less than five times. He was definitely a great political tactician, a prominent launcher of intrigue, and a central figure in many court cabals. On the other

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52 Murphy’s thoughts on Ottoman fighting spirit can be found in his Ottoman warfare, p. 26.
53 Although Serdar Sinan Pasha, who was unexpectedly visited by these troops, first tried to refuse their demand, eventually, under pressure, he had to give in, proving that the financial considerations of military life were taken seriously by the Ottoman soldiers, too. “... ve kal’a-yi mezbüreye varıldığı gün kapu kulu cem’iyyet ü hareket ile serdâr-i âsaf-menziyet hazretlerinin otağına gelüb kâmnî-i kadîme ve âdet-i muayyenleri üzere terakki reçâ itidiklerinde ‘evvelâ bu kal’a feth olunsun, terakkinziden ziyâde ri’âyet olmanız mukarrerdir’ deyû nev’an istimâlet ile cavâb olundu. Lâkin cevâblari müfîd olmadi, tekrâr gulviyy-i tam ve ibrâm i ikdâm olunub, nice nâ-sezâ ve bi-revâ kelîmât ile hâh u ne-hâh ve cebr-i kerâh ile mevcûd olan kapu kulu, ikişer akça ve yenciçeri tâ’îfesi birer akça terakki oldukdan sonra ...” Tarih-i Sefer-i Üngûrûs, fol. 23b.
hand, a few Ottoman authors pointed out clearly that Sinan Pasha was a careful, far-sighted commander who, during his campaigns, always left room for discussions and consideration of various suggestions made by fellow military officers. Çâfer Çelebi, just as Ta’lîkî-zâde did in his panegyric work, also underlined the fact that the Grand Vizier was careful to discuss his war plan with his commanders before he launched the actual attack against Hungary in 1593.\(^\text{54}\)

However, when he had the opportunity, he did not hesitate for a moment to promote his own son Mehmed Pasha into high positions, and thus openly demonstrate personal favouritism. Unfortunately for the Ottoman military organization, Grand Vizier Koja Sinan Pasha’s son did not possess much talent for leadership; a few failures can be attributed to him. Various Ottoman authors use quite strong words when they express their negative opinion about Mehmed’s personal character. Among the numerous accusations, there is, for instance, that concerning the defeat of the Ottoman relief forces at Esztergom in 1595, along with the death of Osman Pasha, the beylerbeyi of Győr. In this particular episode of the Long War, Mehmed Pasha was supposed to protect the Ottoman infantry squadrons ascending the eminence to the besieged citadel. Mansfeld’s brilliant attack from behind the Ottoman cavalry, which was divided into two separate groups, greatly surprised Mehmed Pasha’s troops due to this unexpected strong push.

\(^{54}\) Ibíd., fol. 22a. “...hazret-i serdâr-i âsaf-vekar... asâkir-i cumhûru izz-i huzûr-i vâcibû’s-sûrûrlarına da’vet idûb, Rumîî ümerânın dahi meşveret içîn ihzâr idûb, ...eyîrdî ki, [Sinan was well-aware of the late season and its hardship] ‘hâlât rûz-i kasîma çizî zemân kalmâglâ vakt-i sermâ ve mevsim-i şîlî karîf olmâğan, küffîr-i hâksârin nâmdâr hisârlarına yapışmak çendân mûnâsib değildir.’ [And then he asked his officers] ‘El-hâslı zemân-i kâlîde, feth ü teshîrê kabil hisâr-i nûhûset-medârlarının kangsna evîl vî ahsendîr?!” Ta’lîkî-zâde’s praising lines can be found in his work, Şehnâme-i Hümayûn, fols. 15b–20a, pp. 144–53. In these folios the Ottoman chronicler writes about the advices were given to Koca Sinan Pasha by Muslim civilians at Belgrade. By this way, Ta’lîkî-zâde tries to demonstrate that the grand vizier had even been listening to local common people before he commenced the Ottoman campaign against Hungarian territory.
Soon the cavalry started to flee, following the lead of its commander, and left behind small cannons. Thus, the Ottoman infantry troops were completely abandoned.\footnote{The story is told by the eyewitness Count Isolano, “Felijegyősek a török háborúról,” p. 656. On the Ottoman side, one of the sharp critics of Sinan Pasha’s son is Mehmed bin Mehmed, who in his Nuhbetü ’ı-tevârîh, p. 180, clearly blames the Ottoman military fiasco on the timid, uncooperative behaviour of Mehmed Pasha. While Osman Pasha bravely attacked the Imperial trenches in order to cover the infantry battalions marching up on the hill to the fortress, Mehmed did not give the necessary support, creating a gap between the two regiments; thus Osman’s army became isolated and was soon almost completely liquidated. “Ammâ pey-revi olan Mehmed paşa ibn Sinân paşa kafâdarlıktuka kusur eleyüb mezbur Osman paşa kendî üç bin asker ile nice kez kâfir alaylann bozdu, târ-mâr kildi.” However, when Osman and his troops were trapped inside the allied camp: “Serdâr muhannes olub tedârûk sâhibi olmaduğundan indâdina asker ve tedârûk kalmadı.” Eventually, Osman Pasha and his courageous troops were butchered by the Christian soldiers, while, as the Ottoman author adds sarcastically, the commander-in-chief, like a woman, stood astonished in the field. “Bu esnâda serdâr Mehmed paşa avret gibi şâş.” [italics added] Selâñâki, Tarih-i Selanîkti, vol. II, fol. 277b, p. 503, is also very critical of Mehmed Pasha’s peevish, hesitant leadership, correctly stating that just as in the Battle of Tura, (what he calls the Battle of Hatvan), Mehmed Pasha was solely responsible for the defeat of the Ottoman forces. “...Mehmed paşa hazretleri sâbıkâ hatvan mühârebesinde sâbit-kadem olmadiği gibi, bunda dahî yan virmekle a’dâ-i din firsat düştürüb, umûmen hucûm itmekle Yanik Bâğerîliği dilîr ü dilâvër Osman paşa ve Timişvar Defterdârî Ahmed Efendi düşüklerin ve serbet-i şehadet nûs eyledükleri bidûrdiller.” Mustafa Ali, Künhic-i-ahbar, fol. 408b, openly blamed Mehmed Pasha for the annihilation of Janissary troops in the Battle of Tura. “Emr-i garib bu vaz’-i bûl’l-aceb ve kâr-i nâ-üştüvar-i sa’b cumle ashâh-bi ‘akl ü edeb huzûrûna gayete müst’abû ü agreb görilmisdir ki, ibn-i serdâr bu tarîkâle bâ’is-i hezîmet-i sâlûr olub nihayetsiz yeniçerînin kurılmâsına sebeb oldu.”} The noticeable inadequacies of the high command, and of its subordinate command structure, prevented different fighting contingents from being effective military forces. It is nearly impossible to detect what instructions various officers received during a given military engagement. Ottoman field officers were evidently able to manoeuvre a battalion on the field, but only a few of them understood the way to handle mixed forces on varied grounds. Subordinates’ failure to understand a given tactical plan, and the ignorance of commanders of larger units (for example, what happened at the Battle of Tura, which was mentioned in the previous chapter, pp. 168-70) often led to military defeats. These commanders all had in common a very questionable dedication to duty and a lack of determination to understand every aspect of a given task. One may also mention here the insufficient Ottoman military planning at river crossings. The high command was
frequently careless about outposts and reconnaissance, and scouting missions were poorly organized or even neglected altogether. Strong points at mutually supportive distances along a certain part of the river were not set up in order to cover battalions marching over the bridge. Communication lines were not carefully maintained between the main army and the rearguard that remained on the near side of the river. Consequently, in case of sudden heavy hostile fire, the army could easily fall into confusion and leave all rearguard contingents in complete disarray. Once cut off, even a well organized rearguard had no recourse but to fling itself into the nearest redoubt or fortified place.

One of the historical examples that can be cited here is the Battle of Giurgiu (Ottoman Yerköyi or Yerğöği), which took place on October 25, 1595, between the joint Transylvanian-Romanian forces and the retreating Ottomans led by the Grand Vizier Sinan Pasha. At Giurgiu, opposite Rusçuk (modern Ruse), there is a narrow, almost two-mile-long island in the middle of the Danube. This tiny island is 800 metres away from the Bulgarian side, but is separated from the Wallachian side only by a narrow channel. Sinan Pasha, in a sloppy manner, assigned a large contingent of lightly armed raiders (akınçular) as the rearguard of his Ottoman army, which was moving back into Ottoman territory. Without firearms, the light cavalry force was obviously not capable of holding back the vigorous Christian attack, which was supported by formidable firepower. So many of them ran toward the river that soon a dense herd of terrified soldiers was stampeding to escape over the bridge. The akınç force perished almost to a man in this military engagement, since the overloaded bridge, hit several times by the attacking Christian forces, eventually cracked and tumbled into the river. Strongly contested and

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56 According to Tóth, *Mezőkeresztes*, p. 184, not less than 5,000 Ottoman soldiers were killed in this engagement, though the author does not reveal his source(s).
sanguinary, the Battle of Giurgiu in Wallachia may be regarded as the most serious conflict between the Ottomans and united military forces of Transylvania, Wallachia, and Moldova.\(^{57}\)

On the opposite side, the reasons given for the failure of the Habsburg-led allied forces to achieve the ultimate victory over the Ottomans during the Long War varied, and they have been enumerated many times by historians. If one places under closer scrutiny the general military aptitude of the Habsburg archdukes, one can certainly come to the conclusion that the highest leadership on the Christian side clearly did not include a higher quality of general command than that of the Ottomans. Archdukes such as Mathias, Maximilian, and Ferdinand were army leaders without a spark of strategic understanding; furthermore, because of the obvious lack of strong personal character, they could hardly control even their own regiments. Therefore, not surprisingly, contemporary Christian historical narratives recorded no high opinions about the courage and competence of the whole dynasty.\(^{58}\)

Fortunately for the Habsburgs, however, the archdukes, at least in some cases, let subordinate military leaders make independent decisions. In this way, they exercised control over the whole army. Various allied forces under the personal command of a few

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57 Naima adds, *Tarhi-i Naima*, vol. I, p. 133, that by this battle the *aknci* cavalry ceased to exist as a military force. Another Ottoman chronicler, Selânîkî, also reports the annihilation of the mounted *aknci* forces, adding that following the fall of the fortress of Yerköy (two days after the battle) soldiers clearly blamed Sinan Pasha for the unexpected military fiasco. The complaint of the troops, which reached the sultan soon, ultimately led to the dismissal of Grand Vizier Sinan Pasha. “Mübâlağa leşker-i şeyâtîn-i melâ’în yetişüb körpi başında ceng-i azîm eleyebüb, fî sebîllîlâh gazâlya gelen aknci askeri ve gayrî çok kimse şehid ü dest-gör olduğuñ hikâyet ü rivâyet eylediler. Ve küffâr-i hâksâr köpriyi dahî top ile urub, nice yerden helâk eleyebüb…” “…asker ‘senin [Sinan] gibi gayretîzî hamîyetîzî serdârîn işî hemiçe böyle olur gör, inîdî eyledûnîn rûşaylîyi’ diyû setemât eyledüklerin bunda sem’-î hümsûyûn-î Pâdişâhiye yetişdirüb, urkî celeâdet-i saltanati tahrik eylediler.” *Tarhi-i Selâmîkî*, vol. II, fol. 293b, p. 537.

58 Foreign ambassadorial reports on the Imperial army were not flattering either. At the beginning of the war (September 11, 1593), San Clemente, the Spanish ambassador, reported from Vienna that he credited the Habsburg victory at Sziszek only to “divine miracle,” since he could not find the proper words to describe the prevailing disorder, sloppiness and ignorance in the Imperial army. Övéry, *Oklevél-mâsolatok*, doc. no. 1097, p. 225.
talented leaders such as Basta, Mansfeld, or Mercoeur, who were capable of maintaining continuous control of the course of a siege or battle, had more chance of obtaining a victory in a given military engagement than they had when they were under the direct authority of the Habsburg archdukes.

Although many other problems beset the Habsburgs in their attempts to maintain adequate military strength in Hungary, the low army morale and the enmities within the allied forces were the most difficult challenges for them to surmount. When they assembled numerous nationalities under their banner, the Habsburgs had serious difficulties in keeping cohesion amongst their regiments. In principle, well trained, highly skilled mercenary battalions would have ensured that the Imperial command had the upper hand in late sixteenth century warfare in Hungary. The great variety of their national backgrounds, however, practically guaranteed that the allied forces were no more than numerous contingents of very differently disciplined foreign mercenaries.

It may be said that, in the course of the Long War, all sorts of heterogeneous elements were not fully incorporated into the Habsburg armies. The Imperial army was not a steady military organization either, since mercenaries were recruited every year, usually for six months and with no payment during the winter months. Since throughout the Long War allied armies continued to be raised for each campaign and disbanded at its close, the psychological functioning of different groups of soldiers with respect to sense of obedience and loyalty frequently created havoc among the allied forces. All army commanders tried endlessly to inspire in their troops the intangible quality of eagerness to fight. As one can see below, on the Imperial side, the constant problems with supplies and regular distribution of payments greatly influenced soldiers’ attitudes to their current
tasks and to military life in general. While foreign mercenaries could fight and
manoeuvre on the battlefields in a highly disciplined manner, their "off duty" behaviour
seemed to have been rather turbulent and even chaotic.\textsuperscript{59}

Because of the illegitimate handling of booty, for instance, liaison between the
various forces was bound to break down quite easily. Throughout the war, Hungarian and
German soldiers had the basic bond of acute enmity towards each other.\textsuperscript{60} The
relationship amongst Imperial high officers was usually determined by jealousy, envy,
and aversion. Thus, almost all prominent military commanders were strong exponents of
different strategies. Personal jealousy among the commanders of various ethnic
backgrounds was a dangerous dividing force in the allied armies; rivalries very rarely
spurred different battalions to a healthy emulation of valour. Generals did not necessarily
respect each other's competence and authority, and, in some cases, open hostility flared
between commanders. This attitude could sometimes lead to open refusal to cooperate in
the implementation of military operations.

\textsuperscript{59} According to the Venetian Ambassador, Morosini, because of the limited military value of the light
cavalry, 10,000 Christian soldiers could face three times more "Turks." He adds immediately that it would
probably be easier to handle 100,000 "Turks" than 2,000 Christian troops, especially if they were from
Italy. "...onde per il mio debol giudizio crederei, che con certa speranza di vittoria potranno 10,000
christiani affrontare 30,000 turchi, se bene per reggerli e governarli crederei, che più facilmente si
potessero tener in freno 100,000 turchi che 2,000 christiani, e molto peggio se fossero italiani." [italics
261. For the English translation, see Davis, Venetian Ambassadors' Reports, p. 134.

\textsuperscript{60} Thurzó, a participant in the third Christian siege of Buda in 1602, wrote on October 9 that there was
great hope about the final outcome of the siege, when, in Pest, the Imperial troops captured more than 500
"Turks" with "numberless" cattle. However, during the distribution of this rich booty, the Hungarian
soldiers did not get their lawful share, while the German mercenaries kept everything for themselves.
Thurzó bitterly complained afterwards that, because of this unfair treatment, Hungarian troops were not
going to take their duties as seriously as they previously did. One may note that Thurzó was an openly pro-
Habsburg magnate, and a personal acquaintance of Emperor Rudolf II and his sons. Thus he would not
have written against the Germans without good reason. \textit{Levelek}, vol. II, p. 51, letter no. CCCLVIII.
Wathay, \textit{Énekes Könyv}, fol. 15a, informs us that earlier that year, during the preparation against a possible
Ottoman attack on the fortress of Székesfehérvár, Count Isolano (whose own chronicle has several times
been cited) was appointed chief captain of this stronghold. When he arrived with his troops, which
included a few hundred German soldiers, a couple of Hungarian officers left the fortress rather than engage
in service with them.
Another issue, which appeared quite frequent on the Habsburg side and had a devastating effect on the general morale of their armies, was negligence about regular payments. When soldiers’ payments were in arrears, and in most cases they were, the lack of proper financial compensation for combat troops fuelled tension and even hostility among various regiments and their commanders. Because of the acute inability of the Habsburg leadership to produce pay on time, the general conditions of military life were particularly rugged. It is no exaggeration to state that there was a constant threat of mutinies at the allied camps in Hungary. Underpaid or, even worse, unpaid soldiers lost their morale very rapidly and were willing to revolt against their commanding officers without hesitation.\footnote{The following episode was reported from Vienna by Francesco Vendramin, the Venetian ambassador: Archduke Maximilian, while on his way to Hatvan in the summer of 1596, ordered Christoph Tieffenbach and his army of perhaps 10,000 armed men to join the main Habsburg army. The unpaid lethargic mercenary soldiers, however, did not show any willingness to follow the archduke’s order. Finally, due to lack of the demanded funds, Maximilian had to calm down the increasingly defiant soldiers with “nice words and promises.” \textit{Dispacci Germania} [Filza] 25, dated August 22, and quoted by Kárpáthy Krajánszky, \textit{Vác És Hatvan}, p. 9.} In most cases, delaying payments for months and, in a few extreme cases, for years caused numerous difficulties for the military commanders. Mutinies all over Europe became a common phenomenon. Parker aptly called mutiny “almost an institution of military life.”\footnote{Parker, “The ‘Military Revolution’ – a Myth?” p. 47. The author states that Spanish soldiers regularly rebelled for their delayed payments. Interestingly, even the Dutch army, which was financed from Amsterdam, the financial capital of late sixteenth century Europe, and the richest city in early modern Europe by far, experienced periodically army rebellion in the 1580s. Hale, \textit{War And Society}, p. 171, states that on the other side of the confrontation, various Spanish army contingents in the Netherlands mutinied against their commanders not less than forty-six times between 1572 and 1607.}

Provisioning was one of the greatest problems the allied forces often faced on Hungarian soil in the Long War. Since military marches were planned largely with reference to the local supply situation, the Imperial system of provision frequently broke down. Because of frequent raids even in times of peace, the incessantly harassed frontier regions were thinly populated, and could provide only a minute portion of the necessary
victuals. Several times, the Habsburg led coalition troops, who lacked a well organized and effective supply system, encountered tremendous difficulties during their military engagements. Imperial soldiers suffered particularly during siege operations; marching armies could generally find food and forage. Hence, besieging battalions were very frequently liable to starve. Almost all armies stole food on regular bases or bullied the local population in order to get their products below the market prices.

Generally, foreign mercenary troops' relations with local civilians were strained to the breaking point. In many cases, mercenaries were simply expected to support themselves through pillage and requisition. Furthermore, one can certainly state that, during campaigns when various Imperial contingents were put under the command of weak, vacillating military leaders, which was the case quite a few times during the Long War, indiscriminate plunder and wanton destruction were the norm.

Understandably, the general usefulness of foreign mercenary troops was constantly debated until the end of the Long War. Numerous contemporary Hungarian historical sources generally endorse the traditionally negative appraisal of foreign mercenary

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63 Isolano, “Feljegyzések a török háborúról,” p. 670, reports that in 1600 Mercoeur’s well trained relief army, which otherwise quite successfully could hold off the attacking Ottomans, was forced to retreat from under Kanizsa after a mere six days due to sever food and forage shortage. It was a devastating news to the garrison, since hat time the Ottoman besiegers could not even reach the fortress moat. Ivánics adds that during the fights around Kanizsa, raiding Tatars captured the cart caravan which was carrying food for Mercoeur’s army. A Krími Kánság, p. 164.

64 According to the report of Tommaso Contarini, the Venetian ambassador to Prague, because of the rough, frequently marauding Imperial mercenaries, the liberated population from the vicinity of Fülek (the fortress fell on November 27, 1593), after more than six month of hardship, “felt nostalgia towards the previous Turkish rule.” Dispacci Germania [Filza] 21, dated July 28, 1594, cited by Kárpáthy Krajánszky, Vác És Hatvan, p. 6.

65 The same situation prevailed also in other parts of Europe. Corvisier notes, for instance, that the routes that the armies followed in early modern Germany were “regions of violence and fear,” even in the seventeenth century when supply depots were organized along those routes. Corvisier uses the appropriate expression of Günther Franz, who called these routes “the axis of destruction” during the Thirty Years’ War. “Les routes habituelles des troupes, malgré l’organisation des étapes constituent des zones de violences et de peur. Dans l’Allemagne de la guerre de Trente ans, elles forment les axes d’une géographie des ravages (G. Franz).” Armées et sociétés, p. 15.
soldiers. Because of deeply rooted hatred by the local population towards pillaging foreign mercenary soldiers, some prominent military leaders realized that the utilization of native troops would be strategically more beneficial for the Imperial military command. Mansfeld, Mercoeur, and, surprisingly, Basta, whose mercenaries brought terrible devastation to Transylvania and eventually initiated the so-called Bocskay-uprising (1604-6), were in favour of recruiting more local Hungarian soldiers into the Imperial regiments.\textsuperscript{66}

During the arduous years of fighting, the endurance of the average soldiers was quite often pushed to the limit on both sides. While, on the Imperial side, foreign mercenaries, often coming from the fringe of society, were traditionally too tough to be handled easily, the Ottoman troops, under great physical and mental strain, rapidly lost morale and became recalcitrant, too. In 1602, at Pest, there were a couple of intensive but inconclusive clashes between the Imperial forces (besieging the fortress of Buda for the third time) and the Ottoman relieving army. Because of increasing difficulties with food supply, desertion among the Ottoman troops became a common phenomenon.\textsuperscript{67}

Allowing foreign mercenary soldiers to look for food and forage for themselves presented, in general, another danger in addition to the danger of alienating native inhabitants; this policy often led to widespread desertion. Just a few truly talented

\textsuperscript{66} Basta expressed his thoughts on this topic in a long letter written to Emperor Rudolf II, at the beginning of February, 1599. Veress, \textit{Basta}, letter no. 164, pp. 166-70. On page 166, Basta discusses the destructions made by the plundering German mercenary troops.

\textsuperscript{67} Thurzó, an eyewitness to these vehement skirmishes, notes that enemy soldiers incessantly abandoned their camp. On the day (October 14) he was writing his letter, thirty-four deserters were captured, who included even Janissary soldiers and Ottoman military officers too. \textit{Levelek}, vol. II, letter no. CCCLX, p. 54. In his next letter, dated on October 15, (p. 55), Thurzó repeated that starvation was a serious problem in the Ottoman camp. According to him, even donkey meat was in high demand among the Ottomans, and it seemed very likely that they were going to break up their camp very soon. Thurzó proved eventually to be right, for the Ottoman relief force left soon afterwards. Less than a month later, however, the besieging army left also, due to epidemics and lack of payment. Low morale, as was previously the case on the Ottoman side, led to widespread desertion among the allied troops, too. A melancholy Thurzó noted that all the "young noblemen went home." Ibid., p. 71, letter no. CCCLXXVIII, dated November 11.
Imperial commanders proved determined enough to take the necessary strong steps to prevent looting and pillage because they realized that these activities soon would lead to the complete dissolution of their army. It became painfully clear to the Habsburg high command that no army could function properly without adequate food supply. Any breakdown, or even temporary disruption in the continuous flow of provisions, was almost immediately followed by mutiny and/or large-scale desertion. In the course of the Long War, this behaviour particularly characterized the Walloon and German mercenary soldiers, who were ferocious warriors but notoriously impudent in cases of difficulties with their provisioning; they could thereby paralyse the whole army, sometimes at pivotal junctures.

As mentioned earlier in this chapter, desire for looting and booty was strong among the mercenary soldiers. This urge posed a grave danger for the Imperial military commanders, since soldiers tended to start plundering well before victory was complete. They knew very well that to latecomers only the leftovers were available; the most valuable booty went to soldiers who started to loot at the earliest possible moment. Consequently, there was a clear possibility that a nearly defeated enemy that took

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68 Illésházy, a participant of numerous military engagements and a very sharp critic of foreign mercenaries, only twice praises openly the Imperial commander-in-chief. In his memoir, Főjegyzések, p. 21, when he discusses the second Christian siege of Esztergom in 1595, he does not fail to express his high opinion about Karl Mansfeld, “a learned commander and a wise man,” who, metaphorically speaking, maintained an Ottoman-like strict order in his camp. No pillage or looting was permitted amongst the Christian troops; even for an insignificant theft Mansfeld did not hesitate to have that particular soldier hanged. Allegedly, on his way to Esztergom, Mansfeld executed a German soldier for taking off a shingle from a village silo. The Hungarian author also notes with anger (p. 23) that when Archduke Mathias took over the command, the prevailing order disappeared quite rapidly. About three thousand unpaid German and Walloon soldiers abandoned their positions and started to plunder the surrounding villages, leaving a horrifying trail of robbery, murder and rape, while the rest of the German mercenaries refused to serve in their camp. Illésházy, further along in his work (pp. 97-8), also offers a few flattering words about Mercoeur, The Duke of Lorraine, who, during the campaign of 1601, introduced a few stringent measures and put a curb on the “wicked practices” of German mercenary soldiers. It is also interesting to note that Mercoeur, while still at Győr, effectively organized the bread supply for his army, which was another novelty on the Habsburg side, since Imperial generals made little effort to provide sufficient amounts of victuals for their starving soldiers.
advantage of the general chaos caused by looting soldiers could convert the defeat into a victory.  

Throughout the Long War, in the camps of the allied forces, one could also find a very low level of professional behaviour. Although there were military regulations concerning the conduct of soldiers, during actual Habsburg led campaigns, one can hardly find any effort made by the commanders to enforce the laws dealing with drunkenness, blasphemy, or military misdeeds. Apparently, Archduke Mathias’s military character could have been a schoolbook example for contemporary commanders regarding bad leadership. During the allied campaigns, he seems to have wished to keep the good will of the mercenary troops by overlooking their licentiousness. Predictably, his weak and indecisive commandship backfired; because of the complete lack of authority in the Imperial camp, soldiers of various mercenary regiments could do practically anything they wished. His younger brother, Maximilian, had the same

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69 There were regulations forbidding early looting on the battlefields; those regulations however, were not always strictly enforced. Lazarus von Schwendi, as early as 1570, submitted to Emperor Maximilian II (1564-76) some recommendations about the unprofessional behaviour of the Habsburg troops. Schwendi’s draft was approved by the Imperial Diet at Speyer in the same year and remained in effect until the end of the seventeenth century. One can wonder, however, whether, in the long run, Schwendi’s right idea wrought any positive changes among the mercenaries. The story is told by Redlich, Looting and Booty, p. 10. Kelenik, “The Military Revolution in Hungary,” p. 118, also accentuates that provisioning and food supply, the most difficult problems the Imperial army faced, were solved “in theory.” A number of bakeries and storehouses were planned to be built along the main campaign routes. However, due to chronic financial difficulties, “these innovations remained on paper.” On this topic, it is also worth mentioning that Magyari, who with his “employer” Nádasdy participated in numerous military engagements, states that, because of looting soldiers, the allied armies could not exploit even their victorious skirmishes. See his, Romlásoknak Okairol, p. 168.

70 Illésházy, Följegyzések, p. 9, harshly criticises the chaotic conditions he saw in the allied camp during the first Christian siege of Esztergom in 1594. According to him, Archduke Mathias allowed his troops to do practically everything they wished. Besides rampant prostitution and widespread drunkenness, the whole camp was full of “merchant goods” just like a marketplace. Captains of various contingents distinguished themselves by their ravenous appetite, spending half a day at the eating tables. After long repasts some of them went away to sleep out their drunkenness, while the rest of the intoxicated commanders went to the field “to have a good time.” Meanwhile, the rank-and-file soldiers were busy pillaging the nearby towns and villages within a five-six mile radius. Even the meadows belonging to local villages were reaped off in order to provide forage for their horses. The author also informs us (p. 13) that, under these circumstances, sometimes not more sixty or seventy soldiers assaulted the citadel. Another
indecisive character; thus, under his personal command, the Imperial regiments were as undisciplined as they were during Mathias’s Hungarian campaigns.\textsuperscript{71}

The large number of camp followers of the Imperial army included women of dubious social standing.\textsuperscript{72} This further contributed to the general breakdown of order during encampments. Even strong handed military commanders like George Basta, who served in the ill-fated 1597 campaign as the lieutenant of Field Marshal Carl von Burgau, could not restore discipline amongst his starving, rebellious troops after the fall of Pápa (August 20, 1597), although he issued stringent orders to curb the mutinous mercenaries. The restoration of order turned out to be an impossible task, however, due to the presence of many women who stayed with the German soldiers, and to the “numerous nice young chaps, who according to their custom,” lived with the Italian contingents.\textsuperscript{73} It was certainly not an accident that one of the most competent military commanders, Merceour, before his army embarked upon the campaign against the Ottoman held Székesfehérvár in 1601, ordered all the female camp followers to stay behind at Győr in order to enforce order and discipline in his camp.\textsuperscript{74}

As indicated briefly in the previous chapter, the Ottoman military command, during its campaigns, could effectively enforce an admirably strict order among the various

\textsuperscript{71} The Hungarian Diet in 1597 expressed its unfavourable opinion regarding Maximilian’s military leadership underlining the fact that while stout-hearted commanders like Mansfeld or Schwarzenberg could maintain exemplary order amongst their troops, regiments under the archduke’s command freely pillaged the surrounding areas during their campaign. Pálffy, A Pápai Vár, p. 47.

\textsuperscript{72} Ta’lîkî-zâde, an eyewitness to the siege of Győr, looking at the Christian relief force led by Archduke Mathias, expresses his admiration towards the well equipped, disciplined hostile troops. In the same time, however, he is disgusted by the presence of whores (‘avrát-i ná-pâkler). Şehnâme-i Hümdâyân, fol. 68b, p. 275.

\textsuperscript{73} Pálffy, A Pápai Vár, p. 75.

\textsuperscript{74} Illésházy, Főjegyzések, p. 97.
regiments in its encampments. Unlike the European foreign mercenary, the average Muslim soldier was frugal and sober, and lived on a modest quantity of biscuit, mutton, rice, and onion. In general, the diet of the common Ottoman warrior appears to have been much less demanding than the European version. European mercenary troops had extreme difficulty accustoming themselves to such an abstemious life. This generally very modest Muslim eating habit hardly changed at all for centuries. What the Burgundian traveller, Broquière, wrote in his memoir about the “Turkish” soldiers’ frugality in the first half of the fifteenth century was certainly valid also for the sixteenth and seventeenth centuries.

One may allude in this regard to Busbecq, the Habsburg ambassador to Istanbul, who wrote almost the same thing regarding Ottoman frugality more than a hundred years later. One should also point out that drunkenness and gambling were virtually unknown among the Ottoman campaigning soldiers, since the death penalty was imposed on any soldier guilty of consuming wine. Complete abstinence, along with an incomparable tranquility, dominated Ottoman military camps. This general abstinence greatly

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75 In his moral teaching, preacher Magyari bitterly complains about the wild drinking and eating habits, which characterized the campaigning Imperial soldiers in their military camps. See his, Romlásoknak Okairól, p. 165.

76 Broquière, Le Voyage d’Outremer, p. 217, reports his own observations on the very moderate diet, which the Ottoman soldiers followed during their encampment. Their frugal meal included badly baked bread, small amounts of meat dried under the sun, and other basic food items such as milk, cheese, honey, grapes, fruit and certain herbs. They also consumed a kind of soup based on flour, which was sufficient food for the whole day. “Ilz... sont de petite despence quant ilz sont aux champs, et vivent de pou de chose, comme ung pou de pain mal cuit, et de char crue ung pou sechiée au soleil ou de lait quällié ou autre et du miel ou frommage ou raisins ou frucitz ou herbes; ou d’une poignié de farine ilz font une brouée pour vivre eulx VI ou eulx VIII, pour ung jour.”

77 Pécsi Kis, Exegeticum, pp. 63-4. “Potatio vini in castra sub poena capitis plane nullus,...” In Ottoman garrisons, in some particular cases however, the situation was somewhat different. Peçevi states in his chronicle that Mahmud Pasha, the beylerbeyi of Győr, was a righteous, but soft individual. Therefore, under the evil influence of Yahya bey, the future Janissary ağa, who was sunk into “wickedness (fisık) and fleshly lusts (fucürl),” the garrison was always well supplied with wine. According to the Ottoman author, the consumption of alcohol was such a common phenomenon that one could hardly find a sober soldier. “Halkı okkadär şaraba düşürdüler içlerinde bir adam ayrık bulunmaz idi.” Tarih-i Peçevi, vol. II, p. 210.
impressed even sixteenth century foreign observers, who were otherwise on the opposite side.\textsuperscript{78}

Because of economic and financial crises, which are beyond the ambit of this dissertation, in the long run, the slow but quite visible deterioration of the Ottoman military machine was an inevitable process. It should be pointed out here that a number of contemporary Ottoman authors, using a surprisingly strong tone in their writings, repeatedly emphasized the serious economic conditions of their times. Some contemporary historical sources such as Hasan Kâfi, the highly critical anonymous writer of the \textit{Kitâb-i Müstetâb}, and even the quite temperate author Mustafa Selânikî, clearly saw that increasing laxity in military circles, and rampant bribery and corruption in the state administration, had deep socio-economic roots.\textsuperscript{79}

While Sultan Süleyman’s era was far from being perfect, late sixteenth and early seventeenth century Ottoman narrative sources unanimously and quite nostalgically depict that epoch as a kind of Ottoman “golden age.” In truth, that historical period had numerous shortcomings,\textsuperscript{80} but the Empire was expanding at a spectacular rate. Since

\textsuperscript{78} Busbecq, \textit{Turkish Letters}, p. 52, writes about his personal observations regarding Turkish eating habits. According to him, “The Turks... think so little of the pleasures of eating that if they have bread and salt and some garlic or an onion, and a kind of sour milk, ... which they call yoghoort, they ask for nothing more.”

\textsuperscript{79} Fodor, “How To Forge Documents,” p. 386, called this phenomenon “the economy of corruption,” which was the direct result of rapid decline in contemporary standard of living. The author also rightly points out that the rampant corruption penetrated “every layer of the Ottoman state apparatus,” since this social class was “by its very nature, always responsive to such developments.”

\textsuperscript{80} A significant part of Gyula Káldy-Nagy’s thorough article “The First Centuries Of The Ottoman Military Organization,” \textit{Acta Orientalia Academiae Scientiarum Hungaricae}, XXXI (1977), deals with the \textit{ecnebi} penetration into army ranks during the era of Süleyman. The author produces numerous archival documents demonstrating that the Ottoman establishment had already tackled this problem as early as the 1530s. The Imperial Decrees seem to have been issued in vain, since, in 1544, Süleyman admitted in one of his orders sent to the beylerbeyi of Rumeli that \textit{ecnebi} “on one pretext or other are all drifted on the course of the sipahis.” (Káldy-Nagy provided the English translation of the original document on page 155). Further along in his article (p. 158) the author, after citing numerous archival sources, comes to the
victories do not need to be explained, hardly any contemporary Ottoman had struck a critical tone when narrating the events of the first half of the sixteenth century.

The Long War, on the other hand, did not bring numerous triumphant military engagements to the Sublime Porte; thus, almost everything suddenly became bad and insufficient in the eyes of contemporary Ottoman authors, seemingly without any transition. This period may be characterized as the beginning of stagnation rather than of decline. In military matters it became clear that various tactical and organizational problems greatly diminished the military dynamism that had been an admirable peculiarity of the Ottoman military machine. Also, one should point out that the worsening economic circumstances in the empire pushed more and more civilian elements into the army, a development that, in the long run, had devastating consequences for Ottoman combat effectiveness. However, for a balanced view of the late sixteenth century Ottoman-Habsburg conflict, one must consider the fact that the Habsburg dynasty, parallel to its adversary, was struggling with its own grave political and military problems.

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Conclusion that despite the “seemingly stringent measures,” corruption and unlawful administrative practices still “continued to flourish and weaken the Empire’s military power.” At the end of his study (p. 183) Káldy-Nagy connects this “tireless repetition of orders” to the “blatant insufficiencies” in the Ottoman state administration. He also correctly points out that, in that period, continuous laxity in various Ottoman military organizations did not have crucial consequences, since other European powers were probably worse off than the Ottomans were.
CHAPTER VI. CONCLUSION.

In the foregoing chapters, an attempt is made to identify and examine the principal features of the late sixteenth century Ottoman-Habsburg warfare. As mentioned in the introductory chapter, the main focus has been placed on examination of contemporary narrative sources. This inquiry indicates that much knowledge can still be gleaned from those historical works, and early modern warfare in Central Europe should also be a subject of deeper, more reflective studies through the eyes of contemporary authors. Although these works by no means immune to ambiguity and error, narrative literature can often add vital material to our better understanding of various military issues; in many cases, numerous valuable information and perspectives can be extracted from them. Originally, primary importance was given to technological military problems, but analysis of the relevant historical sources made it clear that numerous other factors, of which more will be said below, had more dominant roles in early modern warfare than did simple technical issues.¹

As discussed earlier in Chapter Four, a pliant dynamism had characterized the Ottoman state before the early modern historical era. The proliferation of various fiery weapons during the fifteenth century required some serious restructuring of the existing military institutions that had previously been based on the wide ranging utilization of cold weapons. It is an indisputable historical fact that the formerly wild hordes of frontier raiders did have the proper aptitude and sense of adaptability needed to reform their armies, and to transform them into a sophisticated and highly diversified military

¹ Murphy has rightly pointed out this several times in his work, Ottoman warfare. See also, Chapter One, footnote no. 9, p. 5.
machine. This well organized Ottoman institution could keep pace with the leading powers of late medieval Europe. Ottoman soldiers became capable of both conducting sieges and undertaking open pitched battles. By creating an effective standing army (kapikulu ocakları) before the European states did, the Ottoman state officials were actual pioneers in late medieval warfare.

At the end of the sixteenth century, however, a kind of stagnation, lack of progress in tactics and organization was clearly observable in the Ottoman military machine. It is imperative to point out that this slower development should not be considered with reference only to technological issues. As the foregoing investigation into the case of military technology proceeded in this dissertation, one thing became clear: various contemporary narrative sources, including both Ottoman and Christian chronicles, have not produced the concrete historical proof needed to support the case about alleged Ottoman technological backwardness during the Long War. It is true that early modern technological innovations were continuously coming from Western Europe, but it seems that rapid organizational and tactical developments were the factors that set early modern Europe apart from the Ottomans. Instead of speaking categorically about doubtful technological superiority, one should certainly underline the structural, organizational,

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2 Murphy, "The Role of the Efrenç Technicians," p. 296, calls the Ottoman society, "... an open society eager to adopt, apply, and perfect foreign techniques throughout its early history." In this statement the emphasis should certainly be placed on the "early history" part, since, as one can see in the previous chapter, the general Ottoman attitude towards innovations had considerably changed by the end of the sixteenth century. It became increasingly obvious that what was needed for the Ottoman army and what was available for it were two different things.

3 It was briefly mentioned in Chapter Four that only in armoury did the Ottomans suffer from obvious technological inferiority. The physical examination of various steels utilized by both opposing sides clearly indicates that the European armours were of much higher quality. Fortunately for the Habsburgs, Innsbruck was one of the manufacturing centres of the best quality armours. Austrian armguards, for instance, were about three times harder than those of the sipahis, while gorget plates were roughly four times harder than the same equipment worn by the Janissaries. Williams, Metallurgy of Muslim Armour, pp. 4-5. Further along in this work (p. 11), Williams states that the microstructure of the Ottoman made gorget plates showed that those pieces were made of inexpensive, low quality material.
and, last but not least, tactical advantage of the Habsburg led allied forces, which
determined the outcome of numerous military enterprises throughout the war. On the
opposite side, there was no sign of technological inferiority; the Ottoman command
instead experienced considerable difficulty with the proper tactical coordination of
infantry, cavalry, and artillery.

One may argue here that the quality of military technology has always been an
important factor in warfare, since, among other things, it can counterbalance the
numerical inferiority of a given army. While emphasis on technological issues can
occasionally produce a plausible theory, this approach runs into some problems, since
technology does not spring forth fully developed, but instead emerges gradually from
diverse origins. Therefore, any given military system of an early modern state was
certainly not independent of the social system; instead it was an aspect of the social
system in its totality. A thorough analysis of the signs of crisis in the Ottoman military
machine certainly requires a synthesis of the socio-economic and political conditions
prevailing in the late sixteenth century Ottoman Empire. Although the technocentric
approach, represented by Roberts, Parker, Krepinevich, and others, still exists in modern
historiography, more and more historians, such as Thompson, Stone, even Inalcik, draw
attention to various economic and socio-political developments which early modern
states had to deal with in the sixteenth century.

Since the spectacular rise of a particular empire, or the stagnation and decline of a
particular state cannot be fully explained in mere military terms, the basic reasons for
dramatic changes, either positive or negative, evidently lie deeper. General improvements
in early modern European military effectiveness were not technologically driven, though
in many cases technological development was a noteworthy contributing factor. Any examination of Ottoman socio-economic matters is far beyond the ambit of this thesis. It is sufficient to indicate here that, if there is a useful theory that can be distilled from the oft quoted Military Revolution discussion, it is that the principal Ottoman difficulties in the late sixteenth century clearly originated in numerous socio-political problems; purely technological issues seem to have been secondary in importance.  

The frameworks of economic, social, and political evolution allow historians to explore the patterns and dynamics of growth within various societies. It is clear that the relative Ottoman ineffectiveness in Hungary during the Long War was the direct consequence of a long series of economic and social upheavals, which turned out to be unsolvable between 1593 and 1606. The traditionally very solid Ottoman centralized fiscal system along with its close control of manpower seems to have fallen apart. Late sixteenth century court politics and internecine strife interfered with a previously reliable Ottoman system, so regardless of the technological development of Europe, the Ottoman Empire experienced a deep financial crisis at the end of the sixteenth century. This acute

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4 One should note here that sixteenth century England, compared with leading European powers, has been considered by modern military historians as a country of noticeable technological backwardness, especially in siege warfare, yet no one speaks about “English decline.” On this topic, one should consult Eltis, The Military Revolution in Sixteenth-century Europe, p. 114. According to Eltis, “The backwardness... in armament, organisation and a host of other matters, which kept England lagging technically behind the leading European powers for most of the century was most painfully obvious in the field of siege warfare, perhaps the single most important aspect of the military revolution.”

5 It should be pointed out here that Mehmet Öz’s relatively recent work, Osmanlı’da “Çözülme” Ve Gelenekçi Yorumcuları (XVI. Yüzyıldan XVIII. Yüzyıl Başlarına) (İstanbul: Dergâh Yayınevi, 1997), provides an eloquent approach to the principal issues related to various crises that took place in the Ottoman Empire between the sixteenth and eighteenth centuries. This short book does not, unlike so many of its predecessors with similar goals, aim to seek the ultimate truth, but rather gives a brief, comprehensive survey of all problems the Ottoman establishment faced during the above-mentioned historical period. Besides keeping a delicate balance between primary and secondary sources, Öz tries to explore all of the important fields (financial situation, socio-political conditions, etc.) worthy of studying in order to give a complete diagnosis of the state of the early modern Ottoman Empire.
crisis created many negative effects in various Ottoman institutions, which included the
Ottoman military machine as well.

There were not just obvious tactical miscalculations, erroneous judgments, or human
jealousies among the military commanders that could explain what happened in the
course of the Long War. As discussed in the previous chapters, Ottoman military
institutions in the late sixteenth and early seventeenth centuries were no longer
sufficiently strong in themselves to dominate the Hungarian theatre of war. There was no
apparent military disaster or total collapse of the existing political order either. On the
surface, the official administrative, social, and military systems remained practically
unchanged; yet some institutions became sad remnants of the former glorious military
machine.

Hasan Kâfi, as an active soldier from Bosnia, evidently had countless personal
experiences associated with the technical side of contemporary warfare. One segment
from his short treatise has frequently been quoted in secondary literature in order to
demonstrate that the allied forces, utilizing the then most advanced military hardware,
acquired a clear advantage over their adversary. However, it should emphatically be
pointed out that the Ottoman author made it clear that the lack of the advanced handguns
and pieces of ordnance on the Ottoman side was due to negligence and disorganization
rather than to technological backwardness.⁶ As noted a few times in the previous chapter,

⁶ Hasan Kâfi’s often cited lines are in his, Usâla’l-hikem, fol. 25a, p. 268-9. It is imperative to note here
that, in the following segment, the word “negligence” (ihmâl) with reference to the Ottoman utilization of
advanced weapons has been emphasized; while for the Imperial side the author states that the newest
innovations have been excessively used. This segment, in German translation, was introduced by Parry,
“La Manière de Combattere,” p. 228. Interestingly, Parry only underlined the technological aspect Kâfi’s
statement, “Al-Kâfi,…. lamented that the Imperialists, using the most modern types of arquebus and
cannon, had acquired in their warfare a marked advantage over the Ottomans.” After Parry, numerous
scholars quoted these lines but always in the same context. However, it should be pointed out, once again,
that the emphasis here is not on the Imperial use of modern weapons, but is on the general negligence of
Kâfi, either spontaneously or consciously, realized the fact that in his days the Ottoman military machine experienced many serious organizational problems because of a bitter, unending political struggle inside its leadership.

The Ottoman establishment, in general, was not able to achieve any particular success in harnessing the new methods of contemporary warfare. Increasing laxity in the central military order deprived the highest military command of sufficient power and consistency to follow a well coordinated strategy that would keep abreast with the European powers. While there is no unequivocal historical evidence that ascertains beyond doubt that the Ottoman military machine suffered from lack of appropriate weapons during the Long War, it should be pointed out that, since the highest command was often surrounded by ignorant military officers, the standards of army inspection (yoklama) steadily declined, and reached lower and lower levels. Hasan Kâfi, looking back over his experiences from the Long War, bitterly complains about negligent military commanders who, because of the lack of strict musters, did not inspect properly their men’s weapons and equipment.⁷

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Ottoman military command regarding the acquisition of the latest weapons. In Kâfi’s words, “Tahkik eh-i harbeden olan düşmänneriz, her bär ki yeniden bir dürflü yarık ihdâs idüb kullanmağa başlasalar, bizüm überimüze galebe eylemege başlarlar. Andan sonra heman ki biz dahi oncilayın yarık idinüb kullanmağa başlasak heman Allâh te’âlâ hazretlerinin avniyle mel’ûnlar üzere galib oluruz… Âmmâ şimdi ki zaman da eh-i harb olan düşman ihdâs olunan ba’zi yarıkleri kullanmakda mübâlağa ider oldolar. Tüfenkler ve toplar gibi, ya’ni nice durlü tüfenkler ve toplar ihdâs idüb, ifrâât ile kullanur oldolar. Âmmâ bizüm askerimüz ol makule yarıkler idinüb işt’i mâl eylemede ihmâl ider oldolar, [italics added] belki kadîmden olan âyrakları bile isti’ mâl itmede ihmâl ider oldolar.”

As demonstrated several times in the previous chapters, various contemporary Ottoman authors, in general, did not seek to explain away numerous military fiascos. Furthermore, in some places, one can find surprisingly frank statements concerning the eminent military difficulties in Hungary. Ottoman narrative literature displays a great variety of written references related to the existing problems, such as rampant corruption, bribery, political factionalism, deteriorating discipline etc. Instead of glorifying war, a few authors even realized that the constant armed conflict actually overstrained the financial capacities of the empire, causing severe internal disturbances among the common subjects and general exhaustion among the provincial soldiers.  

In the case of sixteenth century weaponry, one may conclude that the mere utilization of high quality firearms could hardly be the sole reason for the military rise of European powers in that century, as they effectively combined the use of weapons with well coordinated manoeuvres on the battlefields. Revolutionary changes in early modern warfare owed less to technology, or to the application of contemporary “high tech” weaponry, than to changes carried out in the fields of discipline and drill. As discussed in preceding chapters, the examination of the available primary sources was able to establish the fact that the Ottoman army suffered from organizational backwardness  

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8 Selânîki, just like several other Ottomans authors, saw clearly in 1595 that, due to the increasing financial burden of constant war, farmers had to abandon their lands, and many of them, through bribery, could join the army. The shrinking number of taxpayers further deepened the financial crisis in Istanbul. “Hiç bir yerde evvelki düzên kalmadı, bozuldu. ...re'âyâ-yi memlekete nice yillardur avârîz u kürekci ve şâr tekâîîf-i şâkka saînmak vâcîb derecesine vardi. Ve ra'iyye-i çift-bozan rüyyet ile pâdişâh kuli olub, rûsüm-ı ra'iyyet taleb olunacak az kimse kaldı.” Tarîh-i Selânîki, vol. II, fols. 264b-65a, pp. 478-9. Two years later, the Ottoman author rightly complained about exhaustion caused by the endless fighting, which was keeping the sipahi in arms for more than twenty years. “Sipâh-i memleket ise yiğimi yıldan müteçâvîzdür, ki a'dâ-i din ü millet üzerine âsûde olmayub sefer ü hareket iîmektedûr. Niçe yillar villâyet-i Şâr seferi şêfâdîn çekûb ve şîmî Küfîr-î hâksâr meşakkatin çekmege mübbelâlardur.” Ibid., vol. II, fol. 389b, p. 716. It is interesting to note that when Ta’lîkî-zade writes about Sinan Pasha’s consultation with local Muslims at Belgrade in 1593, the Ottoman author reports that there were already complaints about the constant fighting which was killing off the experienced soldiers. “…kefere-i siweh-rûz Müsülman üzerine dokuz kerre mansûr u firâz olub, bu dokuz musübette her birinde üçer dörder bin ehl-i İslâm şehid ve vâsîl-i dârû’s-selâm-ı câvîd olmuşdur.” Şehnâm-e Hümayûn, fol. 16a, p. 145.
rather than from any inferiority in its military hardware. Indeed, one can argue here that there were cogent reasons for those who could make changes not to alter radically the existing military structure. High commanders spent their entire careers in the embrace of the reigning paradigm; the old, cavalry based army, for instance, had not only kept them employed, but had brought them to the top. An infantry dominated standing army would undoubtedly have required radical changes in the social texture of Ottoman military society.

Hence, instead of mentioning again the dubious theory of technology as the determining factor in military history, attention ought to be drawn to the importance of tactical skills in the outcome of combat during the Long War. Earlier in this dissertation, it is stated that the increasing role of firearms and artillery gradually transformed warfare in early modern Europe. The growing importance of infantry regiments required new tactics, and new tactics demanded significant changes in existing military organizations. Also, it seems obvious that the preponderance of infantry and mounted troops using firearms in precisely executed battle formations demonstrated the crucial role of discipline and high quality training en masse. The apparent shortage of experienced professional soldiers in the Ottoman military machine caused considerable difficulties in training and, as indicated above, in the proper inspection of the recruited troops.

On the Habsburg side, numerous commanders, along with many rank-and-file soldiers, had experienced systematic drill in the Low Countries before they started their service in Hungary. For the Ottomans, the better coordination of fire and shock on the battlefields became an inevitable task, since their cavalry based mass tactics proved to be clearly inadequate against a manoeuvring enemy. Tactical deficiencies deprived
subordinate military units of freedom of independent manoeuvre; as shown in previous chapters, all cavalry regiments moved on both flanks in mass, and created a gap between the mobile units and the stationary infantry placed in fortified position. Sometimes various lines waited stoically, not giving the necessary support to the advancing troops; thus the strength of the Ottoman attack soon dissipated.

It is also imperative to point out, as an important conclusion, that the Ottoman army faced the best equipped troops of the late sixteenth century. These contingents based their tactics on the mass deployment of various firearms, a fact, which, along with the emergence of the *trace italienne*-type forts, proved that early modern Hungary belonged to the group of countries where radical military changes took place. As demonstrated in the previous chapters, at the end of the sixteenth century European warfare cannot be divided into two separate categories, such as sophisticated West versus underdeveloped East. Even the Ottoman army, in general terms, could not be labelled as backward, despite its tactical and organizational deficiencies. In the Long War the dominant military engagement was the fortress siege in which the Ottomans remained formidable power regardless of the fact that there was no “Military Revolution” in the Ottoman Empire.

For the Ottomans there was no urgent need to upgrade all their existing fortifications in Hungary, since forays and ambushes, the main characteristics of highly mobile warfare in Hungary, seldom presented any actual danger to a given stronghold. As a matter of fact, the Ottoman central command had no good reason prior to the outbreak of the Long War in 1593 to expect that its fortresses in Hungary would face any major sieges.

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9 Kelenik correctly point out that, during the Long War, “the same officers and soldiers wielded the same weapons in ‘backward east’ as in the ‘advanced West’...” See his oft-quoted study, “The Military Revolution in Hungary,” p. 136. Further along in his work (p. 142), Kelenik adds that the armament of the mercenary troops in Hungary and that of the armies in the West ‘were practically identical.’
Therefore, it is quite understandable that the Ottoman strategic thinking was not impressed, to say the least, with the military benefits offered by the new *trace italienne* type of fortresses. G. Morosini, the Venetian Ambassador to the Ottoman Empire, correctly observed in 1585 that, for the Ottomans, the security of their empire meant the maintenance of large land and sea forces. A large standing army was considered more formidable than any military installation, including the new *trace italienne* type fortresses. This strategy certainly did not originate from an erroneous idea; one should keep in mind that many modern military historians, as discussed in Chapter Two, have been strenuously refusing to recognize the *trace italienne* type of fortresses as a revolutionary change in early modern military architecture.

During the Long War, siege technology was dominated by strong artillery fire and extensive groundwork, including underground galleries for mining, and a sophisticated system of approaching trenches around a given stronghold. Besides having considerable firepower, the apparent Ottoman ability to excavate a delicate network of trench lines, to raise impressive firing mounts, and to fill hundreds of gabions was sufficient for success in Hungary. It is also quite evident in contemporary narrative sources, European and Ottoman alike, that apart from heavy artillery bombardment, various mining techniques played an increasingly decisive role in breaching fortress walls.

Evidently, the Ottoman engineering techniques were not behind the European ones, and, in moving large quantities of soil from the subterranean galleries, the Ottoman besieging forces were probably better than their counterparts. All in all, one may

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10 "Di poi consiste ancora (la sicura dell’impero) principalmente nella gran quantità di forze così terrestri come marittime, che mantiene il turco di continuo, con le quali si rende formidabile a tutto il mondo." Morosini’s observation can be found in Albéri’s collection, *Le Relazioni Degli Ambasciatori Veneti*, Serie III, vol. III, p. 258. For the English translation, see Davis, *Venetian Ambassadors’ Reports*, p. 131.
conclude here, that since both the fortress garrisons and, on the opposite side, various assaulting troops could, and certainly did, use basically the same kinds of weapons, late sixteenth century siege warfare did not noticeably alter the existing balance between besiegers and besieged. Thus, the obvious benefits of the Military Revolution, such as tactical development, high discipline, mass utilization of firearms etc., were less visible during sieges.

One should also note here that, because of static warfare during the Long War, mostly small-scale field battles took place, which were hardly decisive. Evidently, defeat and disruption rather than the massacre of the hostile forces were achieved by those battles and skirmishes fought during the Long War. Most of the military operations were of no great importance, at least for the final outcome of the war. It can certainly be stated that one of the peculiarities of the Long War was the indecisive character of most of its field operations. Therefore, a lost battle engagement usually became just a temporary reversal for the defeated army. Although Ottoman chroniclers stress that the Battle of Mezőkeresztes was a decisive battle, one that should certainly be compared with the Ottoman victories achieved at Chaldiran and Mohács, the Imperial forces were not annihilated by this combat. At Mezőkeresztes, the victor suffered almost as heavily as the vanquished European forces.

In light of this argument, it may therefore not seem surprising that a military stalemate remained throughout the war. Although, in principle, early modern Western

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11 Imber correctly points out in his work, The Ottoman Empire, p. 283, that new military architecture in siege warfare did not represent the greatest challenge for the Ottomans, rather, the “Austrian superiority in the field” was the problem that the Ottoman central command failed to solve appropriately.
12 See Selâni, Tarihi Selâni, vol. II, fol. 351b, p. 647, and Peçevi, Tarihi Peçevi, vol. II, p. 197, respectively. On the other hand, one should also consult Isolano, “Feljegyzések a török háborúról,” p. 662, where the author states that the Imperial troops spent the following night with buoyant drinking, indicating that the lost battle at Mezőkeresztes did not cause great mental trauma, whatsoever.
armies might have had a higher military level than the Ottomans had, one should consider that the Habsburgs, due to their own significant political and financial difficulties, were never really able to dictate the outcome of the war. Administrative incompetence and the total lack of political foresight apparently deprived the Habsburgs of a clear strategic advantage during the Long War. Despite the early expectation generated by the victories of 1595 and 1598, both the military and political circumstances were simply not yet ripe for the ultimate victory. Financial difficulties put serious limitations on Habsburg strategic planning, and constant uncertainty regarding the amount of available men and war supplies forced the Imperial high command to exercise caution and cleverness in their warfare.

Ultimately, neither side in this long conflict could drastically change the existing military and political situation. A definite stalemate prevailed, although the borderlines were modified incessantly. Evidently, even a series of victories in various skirmishes as well as a number of successful attacks on Ottoman strongholds, were not enough to secure the possession of certain parts of the Hungarian region, which the Habsburgs sought to take from their foes.

A series of defeats suffered by various Ottoman armies during the Long War certainly did not destroy their military positions in Hungary, nor could the Battle of Mezőkeresztes

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13 Nagy is quite convinced, “Erdély és a Tizenötéves Háború,” p. 680, that the Imperial troops had definitely had the edge over the “Turks” in contemporary warfare. The tactical superiority, however, could not develop into strategic dominance because of the deteriorating military cooperation between the Habsburg led foreign forces and the Hungarian troops. The Hungarian political leadership was exasperated by the Imperial atrocities in Hungary. Certain forces had already turned on each other in 1599, and, as of 1604, the majority of the Hungarian troops had actually been fighting against the Imperialists and preparing the ground for the so-called Bocskai uprising. Acs, in his brief article, “A Sziszeki Csata, 1593,” p. 192, came to the same conclusion, emphasizing that the allied European forces had certain advantages over the Ottoman army in the art of war, and that the lengthy conflict could have probably ended more favourably for the Habsburgs. However, “for certain political reasons, whose origin has still been debated,” there was a serious rupture in the relations of various allied forces, which, after the turn of the seventeenth century, separated most of the Hungarians from the Habsburg side.
in 1596 create political or military turmoil on the Imperial side. One can observe the same situation prevailing in siege warfare, too; even the loss of a strategically essential stronghold was not followed by the immediate collapse of the defence system of the surrounding frontier region. The short lived Ottoman occupation of Győr (1594-8) did not necessarily lead to a direct attack on the Imperial capital, Vienna, while the fall of Ottoman-held Esztergom, which was unquestionably a key fortress in the Ottoman defence line and had been under Christian control continuously for a decade, did not bring about the ultimate surrender of Buda, the most important city of the Sublime Porte in Central Europe.

So, was the stalemate success or failure? For the Habsburgs, besides the symbolic victory, which stipulated that the emperor was officially recognized as being on the same level with the sultan, their cautious handling of war matters proved to be successful. The Imperial capital Vienna and its surroundings were saved from a possible Ottoman attack. On the Ottoman side, after the death of Grand Vizier Sinan Pasha, prominent army commanders and leading military figures did not articulate their strategies very well. There was no question that the Ottoman Empire still was a formidable military power in Europe, but it was also clear that Istanbul was not able so easily to dominate the Hungarian theatre of war, as its army had during the first half of the sixteenth century.

It must be pointed out, however, that the discontinuation of the former glorious wars could not be explained by any kind of backwardness of the empire. Due to the lengthy, arduous struggles with the Persians (1578-90) followed very soon by those with the Habsburgs, the Ottomans gradually bled white from those wars. The serious economic exhaustion initiated a chain reaction of various crises that crippled numerous, formerly
quite effective state institutions. It would be quite difficult to explain away explicit references to chronic socio-political crisis. Gloomy living conditions forced a great number of reʾāyā to enrol in various military corps, which, through the rampant corruption of the 1580s and ‘90s, could be achieved with relative ease.¹⁴

A number of economic and social problems were closely associated with the end of the period of Ottoman expansion. Earlier, the conquest of large territories had provided new opportunities for those who pursued religious careers or were employed in the state administration. New lands had also given more tax-paying subjects to the state, while there were additional timar grants for the sipahi soldiers. At the same time, the rapidly expanding frontiers represented countless opportunities for considerable amounts of booty, a very attractive financial reward for the turbulent elements of Ottoman society. Even common soldiers had numerous noteworthy chances to enrich themselves with rich booty in course of various Ottoman campaigns. During the Long War, however, the Ottomans could not achieve large-scale territorial expansion; and this stagnation shook the state structure to its very foundation, since accumulated socio-economic tensions were not channelled off by new conquests, thus, leaving a breeding ground for numerous acute political difficulties in the near future.

¹⁴ It is interesting to note that even Taliki-zâde, who, as the official şehnâmeçisi, was supposed to write panegyric propaganda works, revealed his social consciousness by correctly stating that the grave suffering of the reʾāyā class was responsible for ecnebis enrolment into the military. “‘illet-i uhrâ dahi memalik-i mahruṣede ‘ummâl-i bed-a’mâl elinden reʾāyâ ʿâciz olub, elinde olan mâli bezl itmekle sipâhî olub,...” Şehnâme-i Hûmâyûn, fol. 16b, p. 146.
APPENDIX 1: Northeast scene of the Long War
## APPENDIX THREE

### GAZETTER

<table>
<thead>
<tr>
<th>HUNGARIAN NAME</th>
<th>LATIN NAME</th>
<th>OTTOMAN-TURKISH NAME</th>
<th>GERMAN NAME</th>
<th>PRESENT NAME</th>
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<td>Babócsa</td>
<td>Babocia</td>
<td>Bobofça</td>
<td>Babocza</td>
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<td>Eger</td>
<td>Agria</td>
<td>Eğri</td>
<td>Erlau</td>
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<td>Esseq</td>
<td>Ösek</td>
<td>Esseg or Essek</td>
<td>Osijek (Croatia)</td>
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<td>Strigonium</td>
<td>Usturgon or Estergon</td>
<td>Gran</td>
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<td>Jaurinum</td>
<td>Yanik (kale)</td>
<td>Raab</td>
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<td>Hathuanum</td>
<td>Hatvan</td>
<td>Hatwan</td>
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<td>Jenona</td>
<td>Yanova</td>
<td>Janova</td>
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<td>Comaronium</td>
<td>Komorna</td>
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<td>Canossa</td>
<td>Kanije</td>
<td>Gross-Kanischa</td>
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<tr>
<td>(Nagy) Várad</td>
<td>Varadinum</td>
<td>Varad or Varat</td>
<td>GrossWardein</td>
<td>Oradea (Romania)</td>
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<td>Novigradum</td>
<td>Novigrad</td>
<td>Neograd</td>
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<td>Petrinia</td>
<td>Yeni Hisar</td>
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<td>Alba Regia</td>
<td>Isto(I)ni Belgrad</td>
<td>Stuhlweissenburg</td>
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<td>Szsízek</td>
<td>Siscia</td>
<td>Siska</td>
<td>Sysegk or Sissec, Sisseg</td>
<td>Sisak (Croatia)</td>
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<td>Temesvár</td>
<td>Temesvarien-sis, Timişvar, Temesvar</td>
<td>Temeschwar, Temeschburg</td>
<td>Timişoara (Romania)</td>
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<td>Vác</td>
<td>Vacia, Vacziun</td>
<td>Vaç</td>
<td>Waitzen</td>
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<td>Várpalota</td>
<td>Palota</td>
<td>Polata</td>
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<td>Vissegradum</td>
<td>Viṣegrad</td>
<td>Wissegrad or Plintenburg</td>
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<td>Vesprimium</td>
<td>Besp(i)rim</td>
<td>Wesprim</td>
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</table>
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LIST OF ABBREVIATION

Acta Orientalia = Acta Orientalia Academiae Scientiarum Hungaricae
A.O. = Archivum Ottomanicum
ARA = Arrabona
BELL = Belleten
BSOAS = Bulletin of the School of Oriental and African Studies
CSSH = Comparative Studies in Society and History
ETA = Erdélyi Történelmi Adatok
FolArc = Folia Archaeologica
GOTC = The Great Ottoman-Turkish Civilization
H.K. = Hadtörténelmi Közlemények
IJOTS = International Journal of Turkish Studies
IÜTED = Istanbul Üniversitesi Tarih Enstitüsü Dergisi
JAH = Journal of Asian History
JMH = Journal of Modern History
JMIH = The Journal of Military History
JWH = Journal of World History
MES = Middle Eastern Studies
MRD = Military Revolution Debate
MTV = Magyar És Török Végvárak 1663-1684
OAD/JOS = Osmanlı Araştırmaları Dergisi/The Journal of Ottoman Studies
O.H.H. = Ottomans, Hungarians, And Habsburgs In Central Europe
RHM = Römische Historische Mitteilungen
SZK = Századok
SF = Südost Forschungen
TSAB = The Turkish Studies Association Bulletin
T.T. = Történelmi Tár
TU = Turcica
VÉK = Végvár és Környezet
WHI = War in History
WS = War and Society
WZKM = Wiener Zeitschrift für die Kunde des Morgenlandes
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