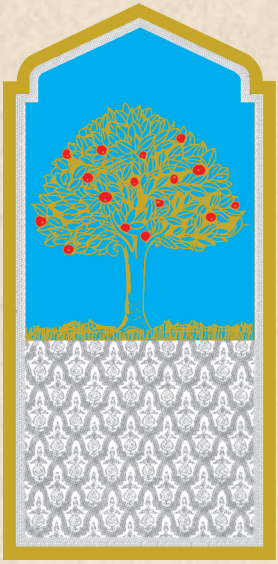

# AL-SHAJARAH

ISTAC Journal of Islamic Thought and Civilization

Published by IIUM Press
2022 Volume 27 Number 2

# AL-SHAJARAH

## EDITORIAL BOARD



## INTERNATIONAL ADVISORY BOARD



*Al-Shajarah* is a refereed international journal that publishes original scholarly articles in the area of Islamic thought, Islamic civilization, Islamic science, and Malay world issues. The journal is especially interested in studies that elaborate scientific and epistemological problems encountered by Muslims in the present age, scholarly works that provide fresh and insightful Islamic responses to the intellectual and cultural challenges of the modern world. *Al-Shajarah* will also consider articles written on various religions, schools of thought, ideologies and subjects that can contribute towards the formulation of an Islamic philosophy of science. Critical studies of translation of major works of major writers of the past and present. Original works on the subjects of Islamic architecture and art are welcomed. Book reviews and notes are also accepted.

The journal is published twice a year, June-July and November-December. Manuscripts and all correspondence should be sent to the Editor-in-Chief, *Al-Shajarah*, F4 Building, Research and Publication Unit, International Institute of Islamic Thought and Civilisation (ISTAC), International Islamic University Malaysia (IIUM), No. 24, Persiaran Tuanku Syed Sirajuddin, Taman Duta, 50480 Kuala Lumpur, Malaysia. All enquiries on publications may also be e-mailed to alshajarah@iium.edu.my. For subscriptions, please address all queries to the postal or email address above.

Contributions: Submissions must be at least 5,500 words long. All submissions must be in English or Malay and be original work which has not been published elsewhere in any form (abridged or otherwise). In matters of style, *Al-Shajarah* uses the *University of Chicago Manual of Style* and follows the transliteration system shown on the inside back cover of the journal. The Editor-in-Chief reserves the right to return accepted manuscripts to the author for stylistic changes. Manuscripts must be submitted to the Editor-in-Chief in Microsoft Word. The font must be Times New Roman and its size 12. IIUM retains copyright to all published materials, but contributors may republish their articles elsewhere with due acknowledgement to *Al-Shajarah*.


ISSN 1394-6870

# THE EUROPEAN SOURCE OF GUNNERY PRACTICAL KNOWLEDGE IN KITĀB AL-ʿIZZ WA AL-MANĀFIʿ LI AL-MUJĀHIDĪN FĪ SABĪL ALLĀH BI AL-MADĀFIʿ

*Mansour Mohamed Sabri*[1]*, Khairil Husaini Jamil*[2]*, & Ahmed Jomaa Abd Al-Hamid*[3]

**Abstract**

*The Arabic manuscripts are known for their historical role as dynamic tools for restoring Muslim's historical identity and records. It covers a wide range of areas and fields, including military technology. The military engineer Captain Ibrāhīm ibn Aḥmad ibn Muḥammad ibn Ghānim ibn Zakariyyā al-Andalusī (d. 1641 AD) produced a remarkable well-illustrated encyclopaedic book in 1632 AD, a veritable practical artillery manual. Titled Kitāb al-ʿIzz wa al-Manāfiʿ li al-Mujāhidīn fī Sabīl Allāh bi al-Madāfiʿ (The Book of Glory and Benefits for those who fight with Cannons on the Path of Allāh). The work was translated into Arabic in 1638 AD by a fellow Morisco Aḥmad ibn Qāsim ibn Shaykh al-Ḥajarī al-Andalusī (d. 1642 AD). This work has a significant impact in the field of the firearms industry. The book contains superb engravings entirely consecrated to artillery, which includes content on European artilleries. The Andalusian artisans specialised in distinctive Western military techniques and contributed to their diffusion throughout the Islamic world to oppose their enemies. Due to the author's background and experience, he was conscious of Euro-Christian superiority in artillery and the value of well-trained and instructed gunners. This article extracts from his work some significant*

[1] MA Candidate, International Institute of Islamic Thought and Civilization (ISTAC), International Islamic University Malaysia. Email: mansour.sabri@hotmail.com

[2] Assistant Professor, AbdulHamid AbuSulayman Kulliyyah of Islamic Revealed Knowledge and Human Sciences, International Islamic University Malaysia. Email: husaini@iium.edu.my

[3] Lecturer, Markaz Tahqiq al-Nusus (the Centre for Critical Editions) at University of Al-Azhar, Egypt. Email: ahmed.gomaa76@gmail.com

*exposition in this aspect. It represents a short account on the European source of firearm knowledge, a constituent of Islamic technology. The main objective of this research is to identify the European source on which the author relied. The methodology used in doing this research is library-based. The significance of this research is to shed light on the Andalusian efforts in transferring firearms know-how technology from the West to the East.*

**Keywords:** Arabic manuscripts, Andalusian civilizations, firearms, gunpowder, library collection, Western techniques, cannons, military technology.

## Introduction

Islamic civilisation has significantly contributed to almost every field of knowledge, mainly applied science and technology. The Arabic manuscripts are renowned for their historical function as dynamic resources for restoring the historical identity and records of Muslims. These manuscripts, written over the ages, represent a rich source of knowledge of Muslim cultural and scientific heritage. An essential portion of these manuscripts deals with Arab-Islamic military history, which provides a rich, untapped source for investigating the legacy of the Muslim military heritage. The rich Arab-Islamic heritage is not surprising since Islam has laid great importance on military preparedness (in theory and practice) for self-defence against enemies.[4] Throughout history, Islamic civilization paid great attention to mechanical engineering applications in military industries. Muslim military engineers were skilled in the art of warfare/militarism throughout that period of their history. They invented and manufactured weapons such as sulphur bombs, cannons, rockets, and torpedoes.[5] The introduction of gunpowder (Arabic: *bārūd*) greatly impacted the history of the Muslim World,

[4] For discussion on the functions of jihād, see Syamsul Rijal, "*Islam and Jihad: The Quest for Peace and Tolerance*," *JICSA (Journal of Islamic Civilization in Southeast Asia)* 5, no. 2 (2016), pp. 213-230, https://doi.org/10.24252/jicsa.v5i2a5.

[5] Salim T. S. Al-Hassani, *1001 Inventions: The Enduring Legacy of Muslim Civilization*, 3rd (Washington, D.C.: National Geographic society, 2012), 260.

completely transforming the course of events as a war-winning weapon of the late Middle Ages.

The advent and mass employment of firearms weapons in warfare was a significant turning point in world military history. Between the 14th and 16th centuries, the evolution of artillery marked the beginning of military innovation, a radical shift in the nature and character of war in theory and practice. By the 17th century, Western Europe dominated the development of gunpowder technology in battlefields and sieges, often known as the "Military Revolution," which resulted in the rise of the West.[6] Certainly, artillery always has top-notch technologies, which have had a profound impact on military doctrines, strategies, and tactics. In the early modern period, the use of artillery in battles and sieges became common and had a decisive say in wars.

The Muslim-Christian relations were not a smooth process and have suffered from tensions distortions and setbacks. According to modern literature, the downfall of Granada in 1492 was a geopolitical flashpoint with profound implications; it marked the end of the Islamic rule and political history of al-Andalus and witnessed the increasing naval power of the Spanish and Portuguese in the Mediterranean basin.[7] In any event, they adopted the strategy of divide-and-conquer in North Africa to extend and seize many strategic northern coastal cities near the straits of Gibraltar as their backyard.[8] Part of Euro-Christians' mission was forcibly baptising Muslims; it was seen as a significant threat to Islamic world security. In 1609, the final forced expulsion of Spanish-born Muslims from the Iberian Peninsula led to a shock wave of refugees to North Africa.[9] It

[6] Christopher Storrs & H.M. Scott, "*The Military Revolution and the European Nobility, c. 1600-1800*," *War in History* 3, no. 1 (1996), pp. 1-41, https://doi.org/10.1177/096834459600300101. For discussion on the military revolution, see Parker Geoffrey, *The Military Revolution: Military Innovation and the Rise of the West, 1500-1800* (Cambridge: Cambridge University Press, 1996).

[7] Stanley Lane-Poole, *The Story of the Moors in Spain* (Baltimore Md: Black classic Press, 1990), pp. 266-267. See also Firas Alkhateeb, *Lost Islamic History: Reclaiming Muslim Civilisation from the Past* (London: Hurst, 2014). p. 107.

[8] ʿAbd al-Fattāḥ Muqallid Ghunaymī. *Mawsūʿat tārīkh Al-Maghrib Al-ʿArabī: Dirāsah fī Al-Tārīkh Al-Islāmī*, vol. 3 (Cairo: Maktabat Madbūlī, 1994). pp. 74-75.

[9] For discussion on the final expulsion from Spain, see Ruiz Ana. *Vibrant*

is one of the genuinely catastrophic episodes in Islamic history. Officially, no Muslims were left in Spain, and Islam was wiped from the country until the end of General Franco's dictatorship in 1975. The expulsion of the Moriscos prompted a growing religious conflict between Christendom powers and the Ottoman Empire and Andalusian privateers based in North Africa because of their desire for revenge and the restoration of some of their looted wealth. In particular, it shifted the balance of military power from the Muslims to Euro-Christians, which complicated the situation in the Mediterranean Sea. In essence, the leading Western Europe powers relied on featured significant military tactics, and the superior firepower on land and at sea provided substantial advantages to their armies.[10] In fact, their military superiority owed much to their relatively advanced gunpowder artillery technology. They facilitated their respective decisive victories over Muslim armies in the Philippines, Malacca, and Indonesia. The rivalry and conflict between Spain and the Muslim Ottoman empire in the western Mediterranean Sea set the background for the author's treatise composition.

Accordingly, the Muslim responses to the Euro-Christian superiority in gunnery technology came from the Andalusian artisans specialising in distinctive Western military techniques and contributed to their diffusion throughout the Islamic world to oppose their enemies. Western artillery was quickly adapted by the Andalusians through a process of intermixture and adoption. In any case, the Andalusian migrants were essential in transmitting advanced military technology from Spain to their new homelands.[11] In this regard, one of such transmitters was the Morisco sailor and master gunner, known as Captain Ibrāhīm ibn Aḥmad ibn

---

*Andalusia: Moorish Culture in Southern Spain* (New York: Algora Pub., 2007). See also, Matthew Carr. *Blood and Faith: The Purging of Muslim Spain* (New York: The New Press, 2009).

[10] Philip T. Hoffman. "*Why Was It Europeans Who Conquered the World*?" *The Journal of Economic History* 72, no. 3 (2012): pp. 601-633, https://doi.org/10.1017/s0022050712000319.

[11] Thomas Glick, "*Moriscos and Marranos as Agents of Technological Diffusion*," (History of Technology - London) 17, (1996), pp. 113-126.

Muḥammad ibn Ghānim ibn Zakariyyā al-Andalusī.[12] One such work is *Kitāb al-ʿIzz wa al-Manāfiʿ li al-Mujāhidīn fī Sabīl Allāh bi al-Madāfiʿ*,[13] which represents a significant contribution to the field of gunnery art in the history of Islamic science. The core of our research is to identify the European source on which the author relied while composing his treatise. Such a study fills a specific gap in our understanding of transferring artillery technology from the West to the East in the early 17th century.

## The biography of the author

Captain Ibrāhīm, the author of the treatise, is one of the most enigmatic figures in Islamic history, and his sources are unidentifiable. Sadly, he is not as well-known in our cultural history as he deserves. At this point, he did not receive the historical attention he should as a transmitter of western knowledge. However, the best source of information about him appears to be the treatise itself. In the preface, he provided a brief account of his life. In addition, the preface's tone is personal and self-assured, making it autobiographically unique. He possesses a notable characteristic that reflects a professional, forceful personality. Captain Ibrāhīm was born in a village close to Christian-ruled Grenada around 1550 to 1560 AD and grew up in interesting times. During that period, Morisco's families resided in particular towns' neighbourhoods, isolated villages, and small rural communities, where they worked as farmers or craftsmen. In 1582, his family was forced to relocate to Seville on royal orders.

In Sevilla, a long relationship with the sea began, and he immediately became fond of marine life. After a while, he served as a sailor in the Spanish navy, and the Spanish authorities did not consider him a Morisco convert. He must have mastered the art of camouflage as a shield to hide his Andalusian origins. In addition, Captain Ibrāhīm was an adventurer. During the early 17th century, he crossed the Atlantic Ocean multiple times while working aboard a large vessel carrying silver from the New World[14] to Spain. During

[12] Hereafter, this author will be cited as Captain Ibrāhīm.

[13] Hereafter, this work will be cited *Kitāb al-ʿIzz wa al-Manāfiʿ*.

[14] The term "New World" is a name used for the majority of Earth's Western

these travels, he acquired theoretical and practical knowledge of gunnery till he became an expert on firearms, and he also had the opportunity to review various Spanish works on gunnery. However, the final expulsion of Moriscos from Spain in 1609 forced him to flee to Tūnis.

For him, as all the Andalusian people, 1609 remained vividly etched in their minds. In Tūnis, he received a warm welcome and met numerous Andalusian friends and companions. After a while, Osman Dey[15] (d. 1610 AD), the ruler of Tūnis gave him command over a warship with 200 Andalusian men with the necessary equipment to attack and capture Euro-Christian ships in the Mediterranean, a profitable tactic of retaliation for the Spanish religious persecution. During the 17th century, the Muslims engaged heavily in Naval jihād against Spanish coasts, and shipping expanded in the Mediterranean and the Atlantic in amount and scope, posing a grave threat to the Euro-Christian countries.[16] Around 1612, during one of his campaigns in the Western Mediterranean, he engaged in naval combat against eleven Spanish galleys. According to him, the battle was quite fierce and ended in the victory of the Spaniards. Following the retreat, Captain Ibrāhīm was seriously wounded, captured, and held captive in Spain for seven years with the remaining crew. In 1618, he returned to Tūnis upon his release, and Yusuf Dey (d. 1637 AD), the new ruler, ordered him to take command of the Tunisian fortress of *Ḥalq al-Wādi* (La Goletta),[17] which was responsible for defending the Tūnis harbour against the Spanish raids. Around the

Hemisphere, specifically the Americas. See: Tom McArthur. *The Oxford Companion to the English Language* (Oxford: Oxford University Press, 1992). p. 33.

[15] Dey is a Turkish word-meaning prince, or a ruling official of the Ottoman Empire in northern Africa Algiers, Tūnis, and Tripoli. The Dey had direct administrative control only in the regent's enclave. The Dey was elected for a life term. See: Kenneth J. Perkins. *Historical Dictionary of Tunisia* (Lanham: Rowman & Littlefield, 2016). p. 55.

[16] For discussion on jihād by sea or Barbary pirates, see Angus Konstam, *The Barbary Pirates, 15th-17th Centuries* (London: Osprey Publishing, 2016).

[17] La Goulette fort or the throat, known in Arabic as *Ḥalq al-Wādi* is a strategic fort located in the port of Tūnis, the capital of Tunisia, which controlled access from the Mediterranean into the lake of Tūnis, which was a natural focus for the city's naval defenses. It was built in 1535 by Charles I of Spain but was captured later by the Ottomans in 1574. See Ibid., p. 143.

same time, he authorised his remarkable book, which appears to be the only book he has penned. After then, we lose all trace of him. In penning his treatise, Captain Ibrāhīm drew on his experience as a sailor and master gunner in the Spanish navy, as will turn out in the fourth section of this article. Little information is available about his death; some sources suggest that he died in Tūnis around the 1641s. Due to the absence of sources, this is all what we know about the author.

## The Biography of the Translator

The book was translated into Arabic from Spanish by fellow Morisco Aḥmad ibn Qāsim ibn Shaykh al-Ḥajarī al-Andalusī[18] (d. 1642 AD), a controversial figure best known as an author, a former interpreter, and envoy of the Sultan of Morocco. The translator is one of the prominent Moriscos who played a significant public role in Morocco during the 17th century. Due to the absence of sources, we know little about al-Ḥajarī's life in Spain. He was born in Spain under the Christian name of Diego Bejarano and spent the first thirty years there. In Grenada, he worked as a certified translator from Arabic to Spanish and vice versa for the Grenadian Archbishop. As a crypto-Muslim in Spain, he lived in turbulent and dangerous times; the inquisition would sentence him to death by burning at stake.[19] Therefore, he decided to leave for North Africa (*dār al-Islām*). He was able to go any length of way and risk his life in order to arrive at the Muslim territory. In 1599, al-Ḥajarī left Spain successfully for Morocco despite the dangers of his flight. Once arrived safely in Morocco, he proposed joining the Saadian dynasty's court as a secretary and Spanish interpreter.

Between 1611 and 1613, the Sultan of Morocco sent al-Ḥajarī on an official diplomatic mission to Europe, travelling to France and the Netherlands. He was a learned scholar with a deep knowledge of the Bible and Torah. While in Europe, al-Ḥajarī engaged in various theological and polemical discussions with Christian and Jewish scholars. In 1635, he departed Marrakech - the Saadian capital - and

[18] Hereafter, he will be cited as al-Ḥajarī.

[19] For discussion on the Spanish Inquisition, see Henry Charles Lea, *A History of the Inquisition of Spain*. Reprinted ed. (New York: Ams Press, 1966).

resided briefly in the fortress of Salé in north-western Morocco. In 1636, he went to Mecca to perform Hajj, and then he remained in Egypt for a while before departing going toTūnis. In Egypt, at the request of an Egyptian scholar and friend, al-Ḥajarī compiled his most crucial travelogue, *Kitāb Nāṣir al-Dīn ʿalā ʾl-Qawm al-Kāfirīn* (The supporter of religion against the infidels), which primarily focused on the discussions he had with Christians and Jews in Europe.[20] In Tūnis, he devoted the remaining years of his life to translating books from Arabic to Spanish and vice versa for his fellow Moriscos. In 1637, al-Ḥajarī met the author in Tūnis on one occasion. He rendered the work from Spanish into Arabic with the author's assistance, completing it on 13 *Rabīʿ al-Awwal*, 1048 AH / 25th July 1638 AD. The author approved the translation.

In the manuscripts, the author often gives the title in his prologue, but in this case, the translator, with the author's approval, gave the book its Arabic title *Kitāb al-ʿIzz wa al-Manāfiʿ*. Since then, the translator's son[21] made several copies of the Arabic work, one of which was dedicated and sent to the reigning Ottoman Sultan, Murad IV (r. 1623-1640 AD). At the end of the work, al-Ḥajarī included an autobiographical appendix about him along with a series of prophetic Ḥadiths and Qur'anic verses about *jihād* and its rewards. Later on, the work was read and approved by the well-known Mufti and scholar al-Sheikh Aḥmad al-Sharif al-Hanafi al-Andalusī (d. 1641), who had been a very influential figure in Tūnis in the first half of the seventeenth century. Remarkably, the text translation was difficult because the translator did not know the corresponding Arabic equivalents for the Spanish gunnery terms. However, collaborating with the author enabled him to finish his translation. Little information is available about his death; some sources suggest that he lived out the rest of his life in Tūnis and died there around the 1642s.

[20] On "*Kitāb Nāṣir al-Dīn*" see Aḥmad ibn Qāsim Al-Ḥajarī & P. S. van Koningsvelde. & al-Samarrai Q. and G. A. Wiegers, *Kitāb Nāṣir Al-Dīn ʿalā 'l-Qawm Al-Kāfirīn = the Supporter of Religion against the Infidel.* (Madrid: Consejo superior de investigaciones científicas, 2015).

[21] Muhammad Khuja ibn Ahmad ibn Qāsim ibn Shaykh al-Hajārī al-Andalusī.

## Background of *Kitāb al-ʿIzz wa al-Manāfiʿ*

The book's subject matter is gunnery art and armament in North Africa during the 17th century. The treatise is considered the first fully illustrated gunnery and siege warfare manual to appear in Arabic, written by an Andalusian expert technician. This work is also important because it is the only reference for the author's life and culture. Thus, the treatise is a crucial source of knowledge on gunnery regarding its length, depth, and breadth. In contrast, it is no ordinary manuscript but an encyclopaedic work. The book's popularity and widespread must have been because of the practical use for which it was written. The treatise is an artefact belonging to historical archaeology to develop a unified picture of the past based on the scientific method. It is also one of only a few North African manuscripts comprising illustrations that art historians appreciate.

Besides, the treatise was originally written in Spanish because he was solely Spanish speaking like most of the Moriscos. It was written at the Tunisian fortress of *Ḥalq al-Wādi* (La Goletta) between 1630 and 1632 AD in what appears to be an example of the first production on this subject in the Maghreb. The author used the novel chronological method in writing the book, but from time to time, he described certain events in their entirety, even though they lasted for many years. However, this book is a unique work in which just the Arabic translation exists today, and the text in the source language is lost.[22] The work became a source for all the other books on the same subject in the Maghreb—the text reflected Captain Ibrāhīm's extensive experience, stretching over three decades of working with firearms. Assuming that the manuscript is a sourcebook on all subjects related to gunpowder artillery warfare in the 17th century is reasonable.

[22] Only a very few works from the Middle Ages and renaissance survive in original, autograph or authorially sanctioned manuscripts. The vast majority have come down to us in copies, or copies of copies. See Matthew Driscoll, *The words on the page: Thoughts on philology, old and new*. Chapter in Creating the medieval saga: Versions, variability, and editorial interpretations of old Norse saga literature, ed. Judy Quinn & Emily Lethbridge. (The Viking Collection: University Press of Southern Denmark. 2010), 87-104.

The reason for writing *Kitāb al-ʿIzz wa al-Manāfiʿ* was to observe the artillerymen in the fortress; the author realised these men were totally untrained and unprepared with the necessary equipment for artillery operation. Nor did they show any interest in the art of gunnery. He also observes that their ignorance of how to load and fire cannons properly and his realisation that such works were very scarce in his time made the author decide to compose his treatise. Even if he instructed the artillerymen correctly, the artillery unit appropriately was replaced by similarly ignorant soldiers every six months. On the other side, he recognised the superior effects of European artillery in warfare. Therefore, Captain Ibrāhīm decided to write a book on gunnery to educate unskillful artillerymen while militarising them at the same time. The author's achieved goal was to produce an artillery handbook for gunners in advanced stages. The author made every effort to compile the treatise through observation, practice, and experimentation.

Captain Ibrāhīm stated the purpose of writing his treatise (on fol. 5r):

> "On observing the artillerymen in *Ḥalq al-Wādi* fortress, they had little knowledge of gunnery and could not load or fire properly. I resolved to compose this book. I knew that the production (manufacturing) of every piece of artillery involves the expenditure of much time and money, and then I saw the weapon put in the hands of people who damaged or destroyed it at the first or second shot while the one who loads it puts his own life at risk. Thus, in order to advise the gunners and their subordinates, I was encouraged to write this book."

Moreover, the manuscript was full of relevant information about artillery and siege engine warfare from earlier until the author's period. It has 50 chapters (BAB) dealing with all practical aspects of artillery art, discussing and examining the various pieces of artillery; loading, trajectory, transport, the building of the gun emplacement, etc. The treatise begins with an autobiography of the author. This is followed by a historical section on the development of gunpowder and firearms. This layout continues until the end of the book. The

book has well-drawn geometric diagrams inserted in the text and illustrations of different types of cannons and mortars. This treatise is rich in technical terminology in military science. The author classified cannons into three different categories according to their degrees of length and strength. Each category has several sub-types. In all, there were 32 classes of them. The book describes the manufacturing methods of 17th century cannons in full detail. The author clarified the technical aspects of artillery, shooting, ammunition, and supplies. The book also discusses plans of attack, aiming techniques, and methods for choosing straight, curved, short, and long-range firing trajectories. It describes various projectiles, cannonballs, and explosives, methods for extracting them from cannons when cannon dysfunction occurs, and recipes for gunpowder. It sheds important new light on the renaissance weapons and ideology of the Arabic military and reveals the extent to which firearms have penetrated the armies in North Africa by the 17th century.

## The Extant Manuscript Copies of the *Kitāb al-ʿIzz wa al-Manāfiʿ*

Many manuscript copies of *Kitāb al-ʿIzz wa al-Manāfiʿ* still exist today in various libraries worldwide, ranging in date from the seventeenth to the nineteenth century. We have engaged several libraries and research centres to find copies of the manuscript. To our knowledge, 23 known manuscript copies of *Kitāb al-ʿIzz wa al-Manāfiʿ* are currently preserved (or housed) in various libraries worldwide. We have listed all manuscripts chronologically by copying date or estimated century of production along with basic information, including the places where they are now kept. Almost all of the manuscripts of *Kitāb al-ʿIzz wa al-Manāfiʿ* are clearly written in Maghrebi script. Clearly, the locations of manuscript preservation do not correlate with the production places. Despite the large number of surviving manuscripts, little is known about the circumstances surrounding its composition.

The complete list of currently existing copies, as far as we know, is arranged in chronological order as follows:

1. Istanbul, Köprülü Library (*Köprülü Kütüphanesi*) MS No, 1122, *Fazil Aḥmad Pasha*. Date, 1048 AH/ 1638 AD. P. 258. (*Microfilm No*. 2639).
2. Algiers, Bibliothèque Nationale, (BNA), MS, No. 1511. Dated 1050 AH/February 1641 AD. Tūnis. Copyist: *Muḥammed Kḥujā ibn Aḥmad ibn Qāsim al-Ḥajarī*, son of the translator. P. 241, (1 paper = 2 pages).
3. Vienna, National Bibliothek, (ÖNB), MS, No.1412. Cod. AF8. Dated 1050 AH/February 1641 AD. Tūnis. Copyist: *Muḥammed Kḥujā ibn Aḥmad ibn Qāsim al-Ḥajarī*, son of the translator. P.87, (1 paper = 2 pages).
4. Cairo, the National Library and Archives of Egypt (Dār al-Kutūb al-Misriyyāh), MS, NO. 86, *Timūr, Funon Harbiyyā, Furūsiyyāh*. Date, 1050 AH- 1641 AD. Copyist: *Muḥammed Kḥujā ibn Aḥmad ibn Qāsim al-Ḥajarī*, son of the translator. P.123, (1 paper = 2 pages). (Microfilm No.19238).
5. Dublin, Chester Beatty Library (CBL), MS, No. AR 4107. Dated 1062 AH/1651 AD, Tūnis. Copyist: *Muḥammed Kḥujā ibn Aḥmad ibn Qāsim al-Ḥajarī*, son of the translator. P.160.
6. Cairo, the National Library and Archives of Egypt (*Dār al-Kutūb al-Misriyyāh*), MS, No. 97, Timūr, Furūsiyyāh. Date, 1064 AH/1653 AD. P.81, (1 paper = 2 pages). Copyist: *Muḥammed Kḥujā ibn Aḥmad ibn Qāsim al-Ḥajarī*, son of the translator (Microfilm No.18027).
7. Algiers, Bibliothèque Nationale, (BNA), MS, No. 1512. Dated 1198 AH/1783 AD. Tūnis. Copyist: *Umar ibn al-Jazzār*. P. 130, (1 paper = 2 pages).
8. Cairo, the National Military Museum, MS, No. 1187. Date, 1198 AH- 1783 AD. Copyist: *Umar ibn al-Jazzar*. P.130, (1 paper = 2 pages).
9. *Madināh, Arif Ḥekmat library*, MS, No, 2978, 1204 AH/ 1789 AD. P. 186.

10. Tunisia, Bibliothèque Nationale, (*BNT*), MS, No. 1407. Dated 1254 AH/1838 AD. P. 277.

11. Tunisia, Bibliothèque Nationale, (*BNT*), MS, No. 18273. Undated, seventeenth century AD. P.188.

12. Tunisia, Bibliothèque Nationale, (*BNT*), MS, No. 18120, *Hassan Hosny*. Undated. Fragmentary. P.95.

13. Tunisia, Bibliothèque Nationale, (*BNT*), MS, No.18488, *Hassan Hosny*. Dated 1267 AH/ 1850 AD. P. 110, (1 paper = 2 pages).

14. Tunisia, Bibliothèque Nationale, (*BNT*), MS, No.3433. Undated. P. 117.

15. Dublin, Chester Beatty Library (*CBL*), MS, No. AR 4568, Fragmentary. Undated, 11 century AH/18 century AD P. 39.

16. Jeddah, *King Abdūlaziz University*, Microfilm No. T258/2. Undated.

17. Rabāt, Bibliothèque Nationale (*former Bibliothèque Générale*), MS, No. D87. El-Glaoui. Undated. P.153.

18. Rabāt, Bibliothèque Nationale (*former Bibliothèque Générale*), MS, D1342, (collection, mağmū). Undated. Fragmentary, p.79. Andalusi script, 22 lines.

19. Rabāt, Bibliothèque Nationale (*former Bibliothèque Générale*), MS, No. 868, El-Glaoui. Undated. P. 114.

20. Rabāt, Bibliothèque Royale (*al-Khizānah al-Ḥasaniyah*), MS, No. 2646. Undated. Tūnis. p. 174.

21. Riyadh, King Faisal Centre for Research, and Islamic Studies (*KFCRIS*), S. N, 19336, microfilm, 0461-f. Undated, seventeenth century AD p. 117.

22. Riyadh, *King Saud University*, Microfilm No. f240/1. Undated. P. 171.

23. Madrid, The National Library of Spain, (BNE), MS, No. 23098, Barcode 1001169324. Christie's Room. Undated. P. 122.

## The Resources of *Kitāb al-ʿIzz wa al-Manāfiʿ*

Identifying the European texts that Captain Ibrāhīm relied on is a difficult task. In this article, we decided to collaborate and combine our efforts to identify this remarkable work's sources. A natural question then arises: did the author rely extensively on European gunnery books while composing his treatise? A careful reading and reviewing of the evidence from the treatise itself and Spanish works concerning artillery produced by Spanish officers during the 16th and 17th centuries can help answer the question. The Spanish army was one of the most successful in Europe on land and sea during the 16th and 17th centuries. The author may have read or reviewed some Spanish military texts while in Spain.

He informed us (on fol. 4v) that:

> "Later on, I engaged with Spanish nobles in their discussion on the gunnery art; they occasionally bring relevant books on the subject. These books are numerous…. I used to sit with Spanish gunnery masters and memorise some of their discussions."

I would like to mention that he mastered the theoretical and practical fundamentals of marine and gunnery art in Spain.

We learn from the little information that the author neither specifies nor acknowledges the Spanish sources he relied on while composing his treatise. We also conjecture that the author relied on pre-existing European written sources and supplemented them with his own practical experience or transmitted information already widely circulated during his time. We can ascertain that the author owned many Spanish gunnery texts. Some scholars have assessed that the Spanish works may have been left in the *Ḥalq al-Wādi* (La Goleta) stronghold following the Spanish occupation (1535–1574).[23]

[23] Leonard Patrick Harvey, "*The Morisco who was Muley Zaidan's Spanish Interpreter*." Miscelánea de Estudios Árabes y Hebraicos. Sección Árabe-Islam 8 (1959): 67-97.

As was mentioned before, Captain Ibrāhīm claimed to be a sailor and a gunnery master with a 30-year career in Spain and Tūnis, where he gained skills in firearms. It has to be noticed that during his 14-year stay at fortress *Ḥalq al-Wādi* in Tūnis, the author was familiar with Spanish books focused on artillery to further his studies and expand his knowledge. We have his testimony that he compiled his book by reviewing Spanish military texts of his day when he was at fortress *Ḥalq al-Wādi* (La Goleta) in Tūnis.

As the author himself says (on f. 5r):

> "At the fortress of *Ḥalq al-Wādi*, I completed my gunnery studies by both practising and reading books in the foreign tongue (i.e., Spanish) on the subject."

We know that the author's native language was Spanish. Thus, it is reasonable to assume that his primary sources were only Spanish.

He also stated (on f. 9r) that:

> "Those who think I based my work on what I have heard or quotes from (i.e., Spanish) books are mistaken; there is nothing written in it that I have not experienced."

As we have seen, besides his own gunnery experience, Captain Ibrāhīm consulted several contemporary Spanish works on gunnery. In this paper, we have reviewed numerous military treatises written by Spanish officers, for instance, Luis Collado's *Plática manual de Artillería* (1592), Fernandez de Espinosa's *Tratado de artilleria, minas y fortificaciones* (1599), Cristoval Lechuga's *Discurso de la artilleria* (1611), and Diego Ufano's *Tratado de artilleria* (1613). Foremost among these works, we discovered that the content of many sections of the author's book closely resembles Luis Collado de Lebrija's [24] *Plática manual de Artillería* (Practical Manual of Artillery; first Spanish edition published in Milan, 1592 with

[24] Luis Collado was an experienced military engineer, mathematician, historian, and informed Spanish artillerist, from Lebrija, Andalusia. He attached to the army of Philip II in Italy and wrote the *Plática manual de artilleria*, which is an enlarged and illustrated version of a work published in Italian language six years earlier. See Joseph Thomas, *Universal Pronouncing Dictionary of Biography and Mythology*, vol. 2, 2000, p. 639.

numerous illustrations and diagrams), indicating that it likely derives from the same source. This should not shock us because the Spanish treatise was written before Captain Ibrāhīm wrote his book. As should be clear by now, Collado's book was written for the same reason: the artillerymen or gunners ignorance. As Collado phrased it, "the artillerymen were ignorant of the cannon's manufacture and intended function, resulting in everyday bursts in the cannon batteries."[25] This may lead us to the assumption that Captain Ibrāhīm identified in Collado's technical treatises a model solution for his inexperienced gunners, describing the gunners, their duties, military discipline, strategy, tactics, and training in modern military techniques to develop the model artillery corps. Collado experienced a similar problem with Spanish artillerymen.

However, the author does not mention or acknowledge Collado's book as his source for reasons that are not clear. After further investigation, it can also be known that entire sections or long passages of his book or any information he considered relevant to his work were directly or indirectly copied by summaries of passages *Plática manual de Artillería*. He even directly copied the Spanish units of measurement, "step" and "degree," from the original Spanish text. Furthermore, the textual comparison shows an apparent similarity between the two works' phrasing and choice of technical terms. Many of the drawings in this manuscript are modelled on the engraved plates in Luis Collado's treatise on artillery.

Nevertheless, he thoroughly processed and digested Spanish artillery knowledge in the compilation process. He brought Western firearms knowledge to Tūnis, and he placed a high value on practicality. It is critical to trace this European origin to understand better how Western firearms knowledge was transmitted to Tūnis. We chose to compare some cannon illustrations from *Kitāb al-ʿIzz wa al-Manāfiʿ* and *Plática manual de Artillería* hoping to provide a more evident answer and shed light on Captain Ibrāhīm's influence on Spanish gunnery technology in the 17th century.

[25] Luis Collado, *Platica Manual De Artilleria: En La Qual Se Tracta De La Excelencia De El Arte Militar y Origen De Ella*; y De Las Maquinas Con Que Los Antiguos Comencaron a USARLA De La Invencion De La Poluora y Artilleria. (Milan: Pablo Gotardo Poncio, 1592). Fol. 8v.

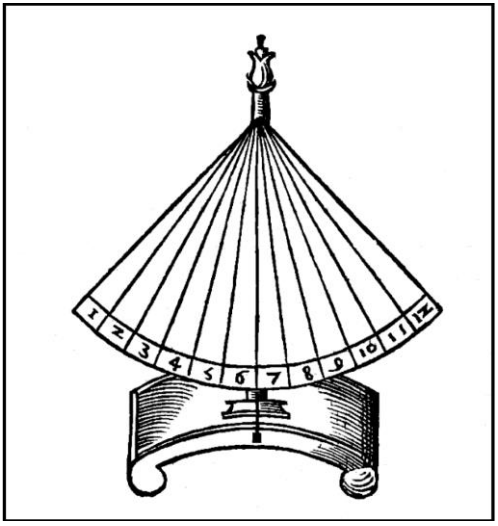


Fig. 1: The gunner's level in Plática Artillería, 1592, fol. [42v].

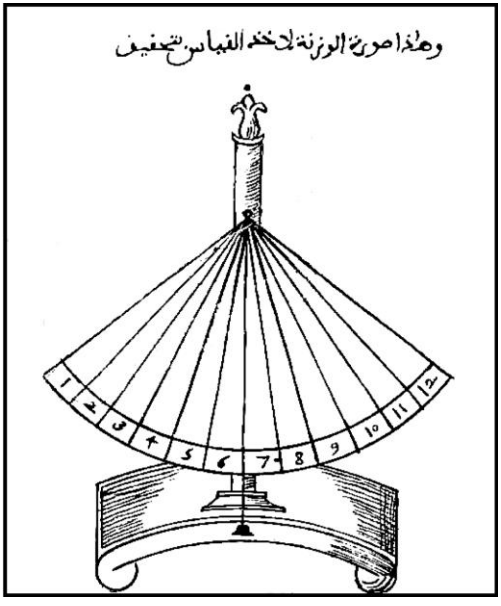


Fig. 2: The gunner's level in *Kitāb al-ʿIzz wa al-Manāfiʿ*, 3433, fol. [81r].

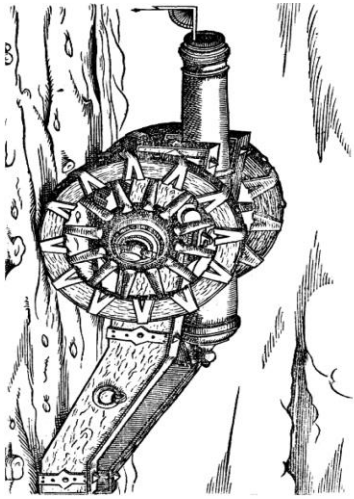

Fig. 3: The gunnery ready for horizontal shooting in *Plática Artillería*, 1592, fol. [38r].

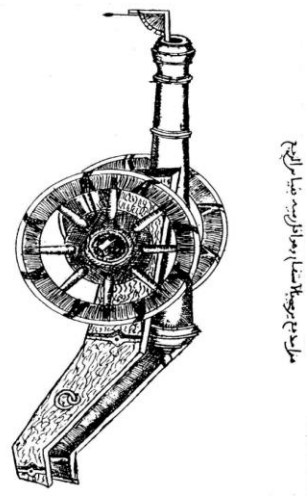

Fig. 4: The gunnery ready for horizontal shooting in *Kitāb al-ʿIzz wa al-Manāfiʿ*, 1511, fol. [88r].

Fig. 5: Bridge-building on a river in *Plática Artillería*, 1592, fol. [89v].

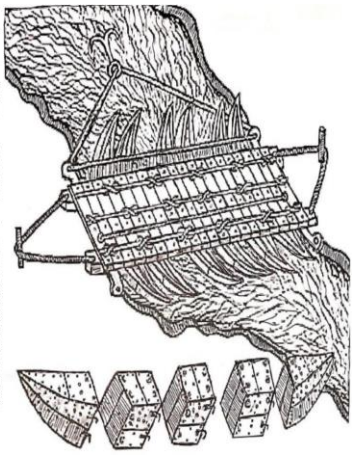

Fig. 6: Bridge-building on a river in *Kitāb al-ʿIzz wa al-Manāfiʿ, 1511, fol. [108v]*.

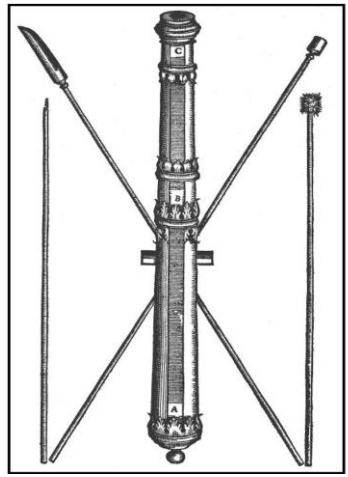

Fig. 7: Culverin cannon in Plática Artillería, 1592, fol. [15v].

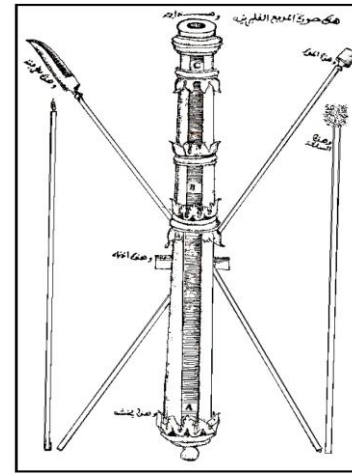

Fig. 8: Culverin cannon in *Kitāb al-ʿIzz wa al-Manāfiʿ*, D-87, fol. [31r].

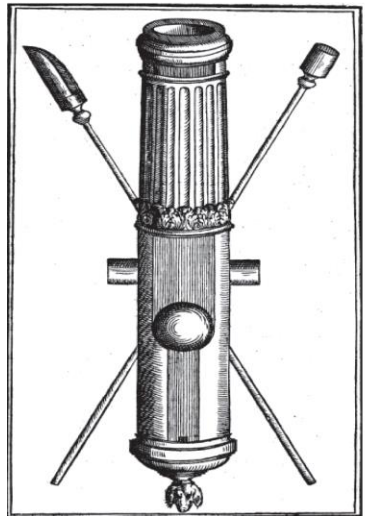

Fig. 9: Cannon Perrier in Plática Artillería, 1592, fol. [35r].

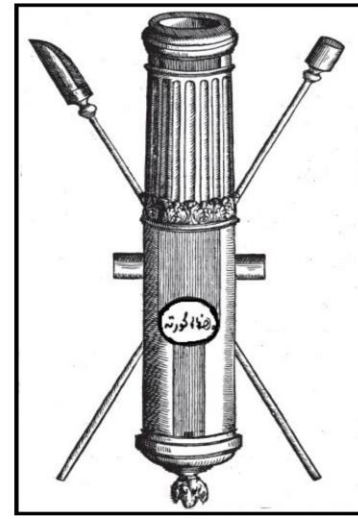

Fig. 10: Cannon Perrier in *Kitāb al-ʿIzz wa al-Manāfiʿ*, 97, fol. [51r].

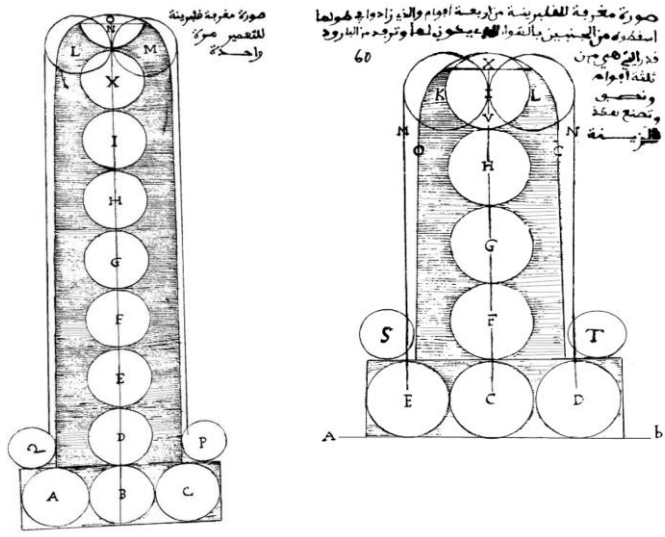

Fig. 11: Pattern for culverin's ladle in *Kitāb al-ʿIzz wa al-Manāfiʿ*, D-87, fol. [57v-61r].

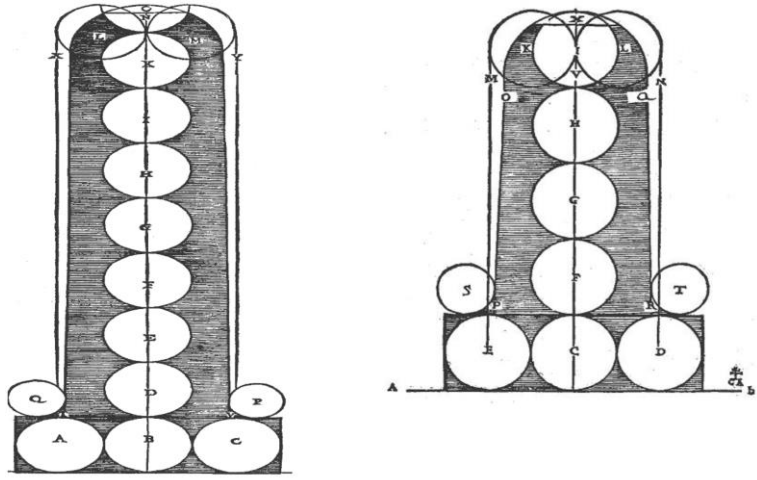

Fig. 12: Pattern for culverin's ladle in Plática Artillería, 1592, fol. [24r] & [26r].

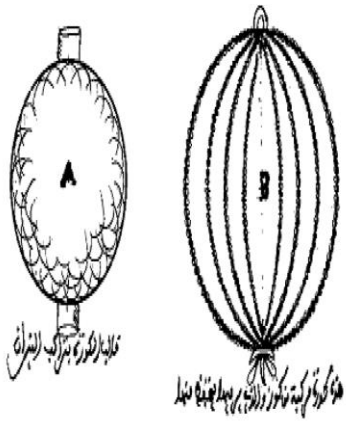


Fig. 13: Fireballs in *Kitāb al-ʿIzz wa al-Manāfiʿ*, 18488, fol. [92r].

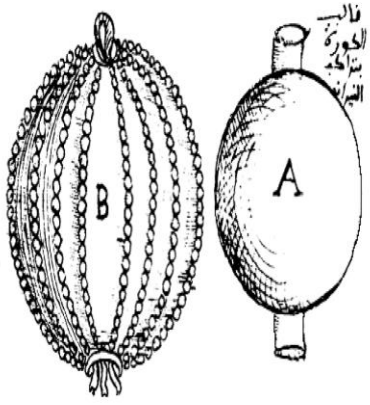


Fig.14: Fireballs in *Kitāb al-ʿIzz wa al-Manāfiʿ, D-87, fol. [209r]*.

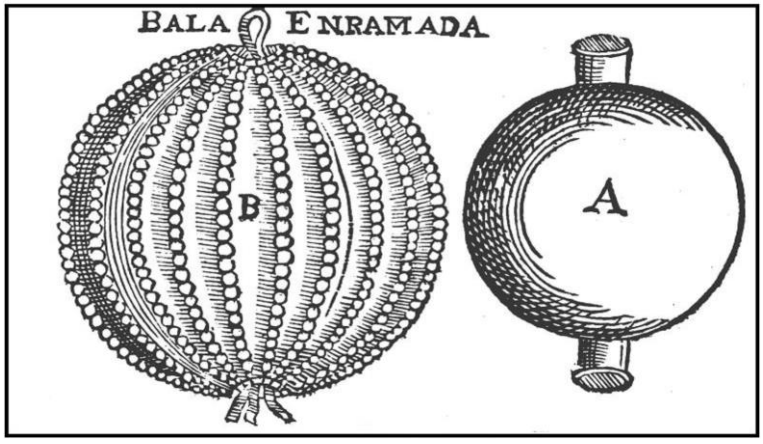


Fig. 15: Fireballs in Plática Artillería, 1592, fol. [85v].

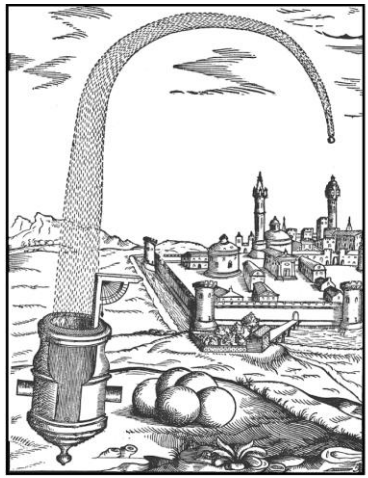

Fig. 16: A mortar firing in a town in *Plática Artillería, 1592, fol. [37v]*.

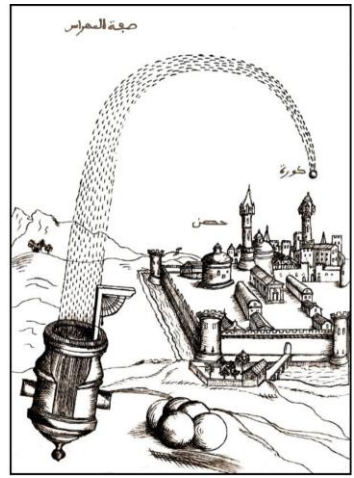


Fig. 17: A mortar firing in a town in *Kitāb al-ʿIzz wa al-Manāfiʿ, 1122, fol. [71r]*.

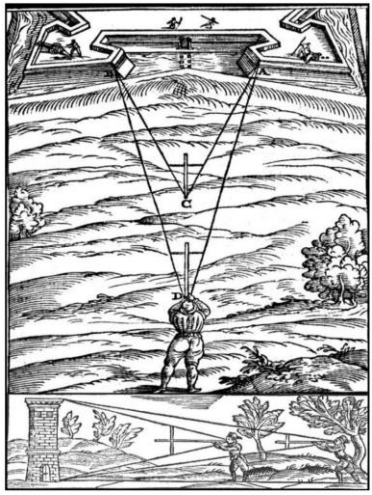

Fig. 18: Jacob's staff in Plática Artillería, 1592, fol. [68v - 69r].

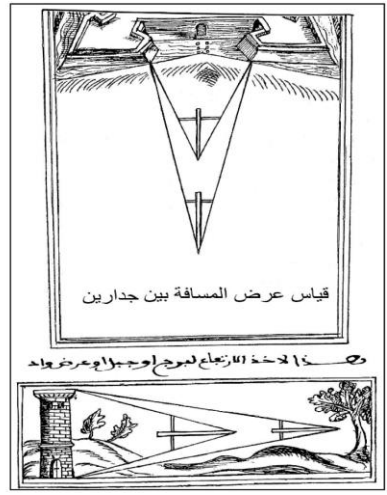


Fig. 19: Jacob's staff in *Kitāb al-ʿIzz wa al-Manāfiʿ*,1122, fol. [95r].

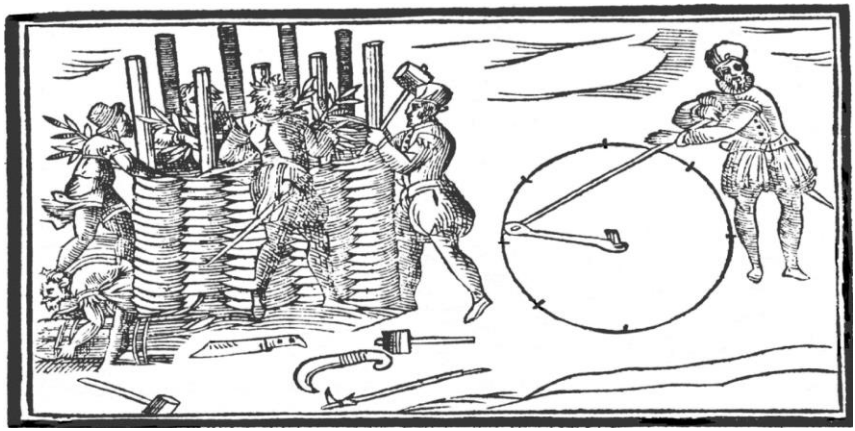

Fig. 20: Gabion basket used as military fortifications in *Plática Artillería, 1592, fol. [75r]*.

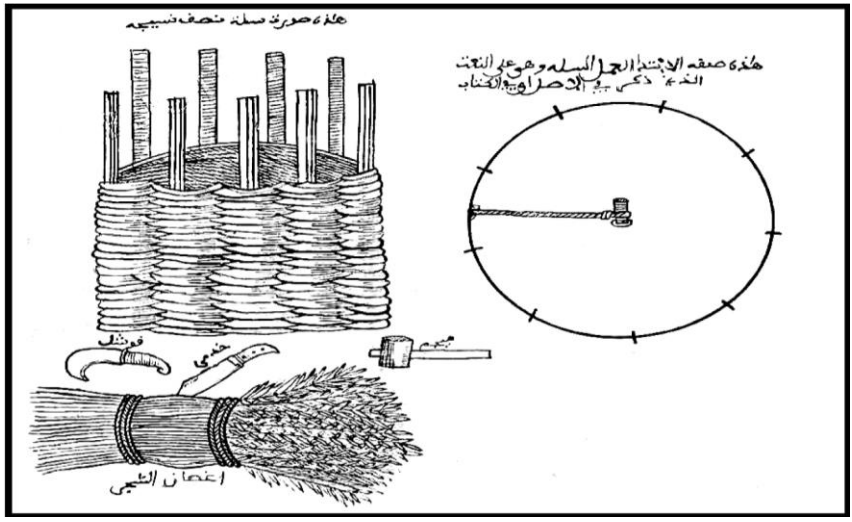

Fig. 21: Gabion basket used as military fortifications in *Kitāb al-ʿIzz wa al-Manāfiʿ,3433, fol. [102v]*.

Noticeably, each pair of illustrations is highly similar. Let us go into a bit more detail. The cannons depicted in figures 3, 4, 7, 8, 9, 10, 16, and 17 have the same style, decorative pattern, Latin

numbers, and placements of the cannon tools. All the illustrated in *Kitāb al-ʿIzz wa al-Manāfiʿ* provided with Arabic names and descriptions for different parts and cannon tools so that junior gunners can completely comprehend them. Figures 13, 14, and 15 are the corresponding bomb illustrations in *Plática manual de Artillería*. Figures 3 and 4 show how the two illustrations' introductions of horizontal shooting and upward shooting are very similar. We can find these two figures in Niccolò Tartaglia in his *Nova Scientia* (1558).[26] The positions of the gunner's quadrant plumb-bob in the two figures remain the same. Figures 11 and 12 clearly show that the patterns for the culverin's ladle stay the same. All the firearms illustrated in *Kitāb al-ʿIzz wa al-Manāfiʿ* have undergone modifications such as background details, are substantially reduced as well as all Spaniard soldiers and landscapes have been removed for religious reasons (the prohibition of drawing portraits) from all figures 5, 6, 18, 19, 20 and 21. The gunner's levels are the same in figures 1 and 2. The mortar structures, readings on the gunner's quadrants, ball trajectories, ball placements, towers on the castle walls, and background details are identical in figures 16 and 17.

The comparison and examination of numerous illustrations and technical diagrams above show that the Spanish models were copied. All the selected illustrations and trajectory data are identical and can be found in both books. It seems unlikely that Captain Ibrāhīm referred to Collado's book, while we have found no similar content in other European books. The illustrations in *Kitāb al-ʿIzz wa al-Manāfiʿ* truly originate directly from *Plática manual de Artillería* (1592) because Collado drew them first around 40 years earlier than Captain Ibrāhīm. The Spanish army was among the most successful in the early modern period. Without a shadow of a doubt, Captain Ibrāhīm was inspired directly by Collado's book and did not simply copy it. Also, he added his 30 years of experience, merit, and technical knowledge to the gunnery's practical side. However, spreading knowledge of Spanish artillery and improving the military technology in Tūnis. The gunnery technology transfer was more efficient during the author's time than mentioning references.

[26] Niccolò Tartaglia, *La Noua Scientia De Nicola Tartaglia Con Vna Gionta Al Terzo Libro* (Vinegia: n. p., 1558), 6.

Another factor was the brutality against Muslims and the animosity between Andalusians and Spaniards following their departure from Spain in 1609 AD. He was eager to acquire the necessary technology for employing powerful weapons effectively. We suggest that the translator Islamised the text by including *Qur'anic* verses and a series of prophetic *Ḥadīths* that encourage *jihād* and show its merit and status. Finally, the text and illustrations are both components of the transmission of Western military technology to benefit north African Muslims in the battle against the enemy.

## Conclusion

*Kitāb al-ʿIzz wa al-Manāfiʿ* was essentially unknown to modern scholars until 1865, when the German Orientalist Gustav Flügel made a remarkable discovery at the Austrian National Library. In 1902, the Egyptian philologist Aḥmad Zeki pasha introduced the treatise as a paper at the 13th Congress of Orientalists, held in Germany. In a nutshell, the author and his translator are fascinating individuals. Recent research has revealed that they are proud of their Muslim identity and Andalusian origin. As crypto-Muslims, they were forced to adopt dissimulation (*taqiyyah*) and equivocation (*tawriyah*) as a dynamic basis of their daily lives in order to protect themselves from the inquisition's coercion (*ikrāh*), spy eyes, and trials. During the 17th century, numerous Andalusian artisans were employed in producing ammunition, casting firearms, and supplying soldiers and fortifications for the Ottomans and the Maghreb.

As a Spaniard Muslim, the author was conscious of Euro-Christian superiority in artillery and the value of well-trained and instructed gunners. Therefore, he decided to compose a treatise on gunnery art. He possessed a wealth of knowledge in the gunnery field, especially artillery. The author presented the book to his fellow Muslims to encourage them to use it in their own defence against Western powers' campaigns across the Mediterranean Sea. The research results demonstrate that the author based his work extensively on contemporary Spanish writings, especially Luis Collado, whose *Platica Manual de Artilleria* was one of the most significant Spanish works on artillery in the 16$^{th}$ century. As such, it is reasonable to consider him a transmitter/editor rather than an

author. As previously stated, the manuscript is a prime example of Western technology being transferred to the East. The total extent of the author's mission was the diffusion of European firearms' practical knowledge to the Muslim artillerymen. The fascinating aspect of the text, the author contributed his personal gunnery experience and made every effort to compile his treatise through observation, practice, and experimentation, which appears to have been very significant. The book provided readers with facts about European practical gunnery knowledge and outlined a little-known branch of military history. The text contains a considerable number of Spanish words, usually the names of the various pieces of equipment, and they are usually followed by their Arabic name. The subject matter and language of the treatise differ from anything else written in the Arab world. It is fair to consider the treatise a part of the vast body of European texts on artillery created during the 16th century, especially those written by Spaniards. The illustrations are purely European; they are either exact reproductions of the relevant illustrations in Collado or direct tracings. The illustrations showed how measurements were to be made and what tools and equipment were to be utilised. In his biographical appendix, the translator incorporated a sequence of hadiths that advocate *jihād*.

Despite this, the dissemination of European practical gunnery knowledge aided in consolidating Muslim power. *Kitāb al-ʿIzz wa al-Manāfiʿ* is a practical military treatise that frequently discusses range but ballistic theory relatively little. Last but not least, the artillery technology revealed in Captain Ibrāhīm's book was superior and effective. It was sufficient to instruct artillerymen in firearm production and operation. Finally, this article offered new evidence and consideration regarding the Andalusian impact on the diffusion of firearms technology in North Africa in the seventeenth century.

# TRANSLITERATION TABLE

## CONSONANTS

Ar=Arabic, Pr=Persian, OT=Ottoman Turkish, Ur=Urdu

| | Ar | Pr | OT | UR | | Ar | Pr | OT | UR | | Ar | Pr | OT | UR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ء | ʾ | ʾ | ʾ | ʾ | ز | z | z | z | z | گ | – | g | g | g |
| ب | b | b | b | b | ڑ | – | – | – | ṛ | ل | l | l | l | l |
| پ | – | p | p | p | ژ | – | zh | j | zh | م | m | m | m | m |
| ت | t | t | t | t | س | s | s | s | s | ن | n | n | n | n |
| ٹ | – | – | – | ṭ | ش | sh | sh | ş | sh | ه | h | h | h[1] | h[1] |
| ث | th | th | th | th | ص | ṣ | ṣ | ṣ | ṣ | و | w | v/u | v | v/u |
| ج | j | j | c | j | ض | ḍ | ẓ | ż | ż | ی | y | y | y | y |
| چ | – | ch | çh | ch | ط | ṭ | ṭ | ṭ | ṭ | ة | -ah | | | -a[2] |
| ح | ḥ | ḥ | ḥ | ḥ | ظ | ẓ | ẓ | ẓ | ẓ | ال | al[3] | | | |
| خ | kh | kh | kh | kh | ع | ʿ | ʿ | ʿ | ʿ | | | | | |
| د | d | d | d | d | غ | gh | gh | ğ | gh | | | | | |
| ڈ | – | – | – | d | ف | f | f | f | f | | | | | |
| ذ | dh | dh | dh | dh | ق | q | q | k | q | | | | | |
| ر | r | r | r | r | ك | k | k/g | k/ñ | k | | | | | |

[1] – when not final
[2] – at in construct state
[3] – (article) al - or 1-

## VOWELS

| | | Arabic and Persian | Urdu | Ottoman Turkish |
|---|---|---|---|---|
| Long | ا | ā | ā | ā |
| | آ | Ā | Ā | – |
| | و | ū | ū | ū |
| | ي | ī | ī | ī |
| Doubled | ي | iyy (final form ī) | iy (final form ī) | iyy (final form ī) |
| | و | uww (final form ū)<br>uvv (for Persian) | uv | uvv |
| Diphthongs | و | au or aw | au | ev |
| | ى | ai or ay | ay | ey |
| Short | ـَ | a | a | a or e |
| | ـُ | u | u | u or ü<br>o or ö |
| | ـِ | i | i | i |

## URDU ASPIRATED SOUNDS

For aspirated sounds not used in Arabic, Persian, and Turkish add h after the letter and underline both the letters e.g. جھ jh گھ gh

For Ottoman Turkish, modern Turkish orthography may be used.

AL-SHAJARAH
Vol. 27, No. 1, 2022

*Contents*

AL-SHAJARAH
Vol. 27, No. 2, 2022

*Contents*



**WoS-Indexed** under *Arts & Humanities Citation Index, Current Contents/Arts and Humanities* and **Scopus**

ISSN 1394-6870