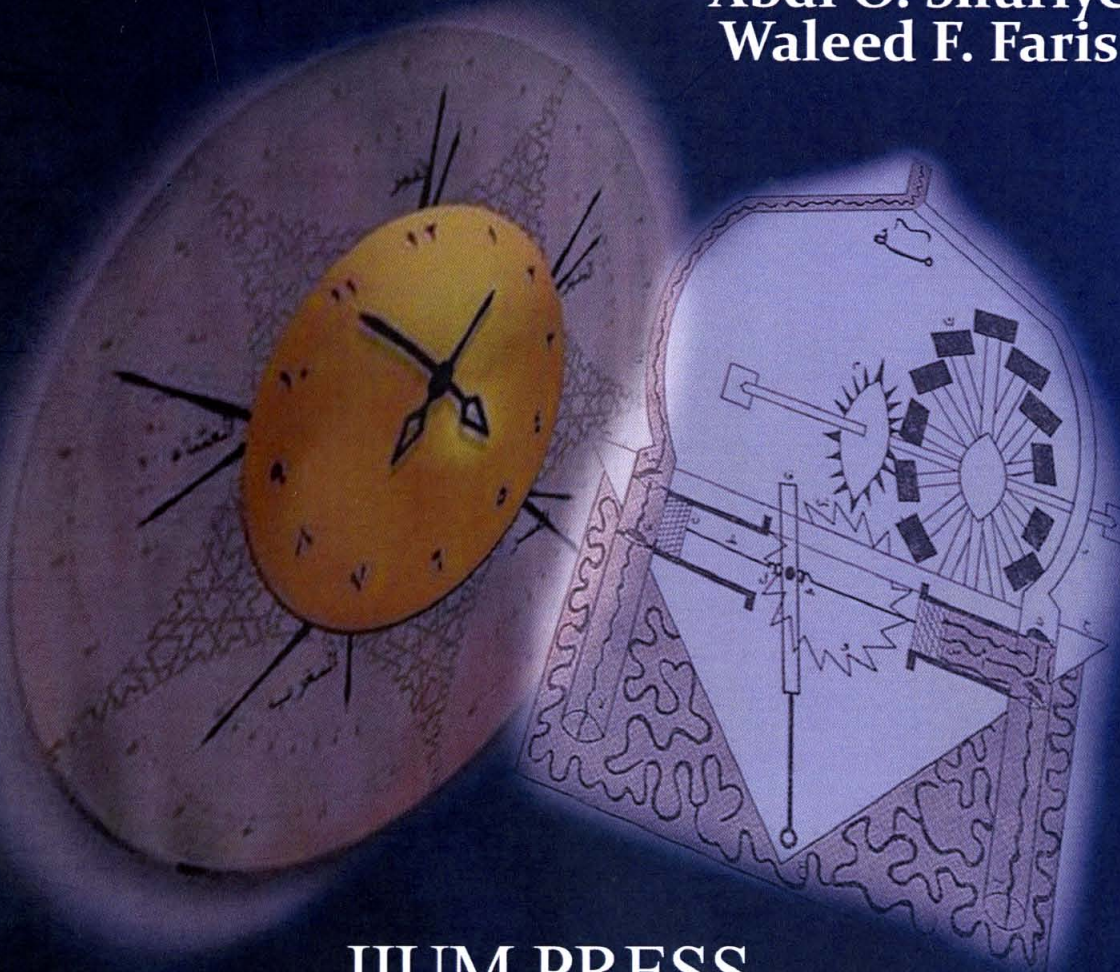


Contributions of Early Muslim Scientists to Engineering Studies and Related Sciences

Abdi O. Shuriye
Waleed F. Faris



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Editors

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CHAPTER SEVEN

THE CONTRIBUTION OF HASSAN AL-RAMMAH TO GUNPOWDER AND ROCKET TECHNOLOGY

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7.1 INTRODUCTION

The objective of this chapter is to study the early development of gunpowder and rocket technologies in the golden age of the Islamic civilization contributed by al-Hassan Al-Rammah and understand his methodology in developing the military sciences and technologies. The methodology adopted in this chapter is a library based research and data is collected from reliable sources and internet sources. The research investigates the role of Hassan al Rammah in developing the rocket technology in the 13th century. The main focus of the research is to highlight the stages of the development of such a technology and how it was utilized by the Muslims in their war against the Mongols and the crusades during the 13th. The research explores the technique was used by Al -Rammah for developing rocket fuel and suitable Gunpowder recipes for cannons, rocket and fireworks. The significance of this research comes from revealing al Hassan al -Rammah effort in developing weaponry and military's techniques that helped the Muslim to excel in the military technology during the golden age of the Islamic civilization. Al-Hassan Al-Rammah (the lancer), a Muslim scholar lived in Syria in the thirteenth century, and died in between 1294-1295A.D Al- Rammah excelled in the military field, he wrote 107 recipes of gunpowder that had been used for rocket, canons and fireworks [Hassan, 2003,p.23]. He wrote treaties entitled: Al-Furusiyya wa Al-Manasib Al-Harbiyya (Book of Military Horsemanship and Ingenious War Devices) [Zaky, 1967, p.48]. This chapter explores al Hassan al-Rammah's endeavour in developing the rocket technology.

7.2 GUNPOWDER (BARUED)

Gunpowder or the "black powder" is the incendiary or the explosive mixture which consists of potassium nitrites as a main element, charcoal as source of Carbon and sulphur. The precise composition of this mixture bums rapidly and generates hot solids, gases and energy that have the ability to propel objects and produces massive destruction [Zaky, 1967]. History revealed that the Chinese discovered the gunpowder on the 11th century but they don't know the correct mixture for an effective explosion. Additionally they didn't achieve purification of the saltpetre

Historians mentioned that Arabs knew the gunpowder in the early of the 13th century, it was mentioned by Ibn al Bitar that saltpetre first came to Arab in 1225-50 and the Arab pass the knowledge to Europe where it was known to Roger bacon in 1248 A.D