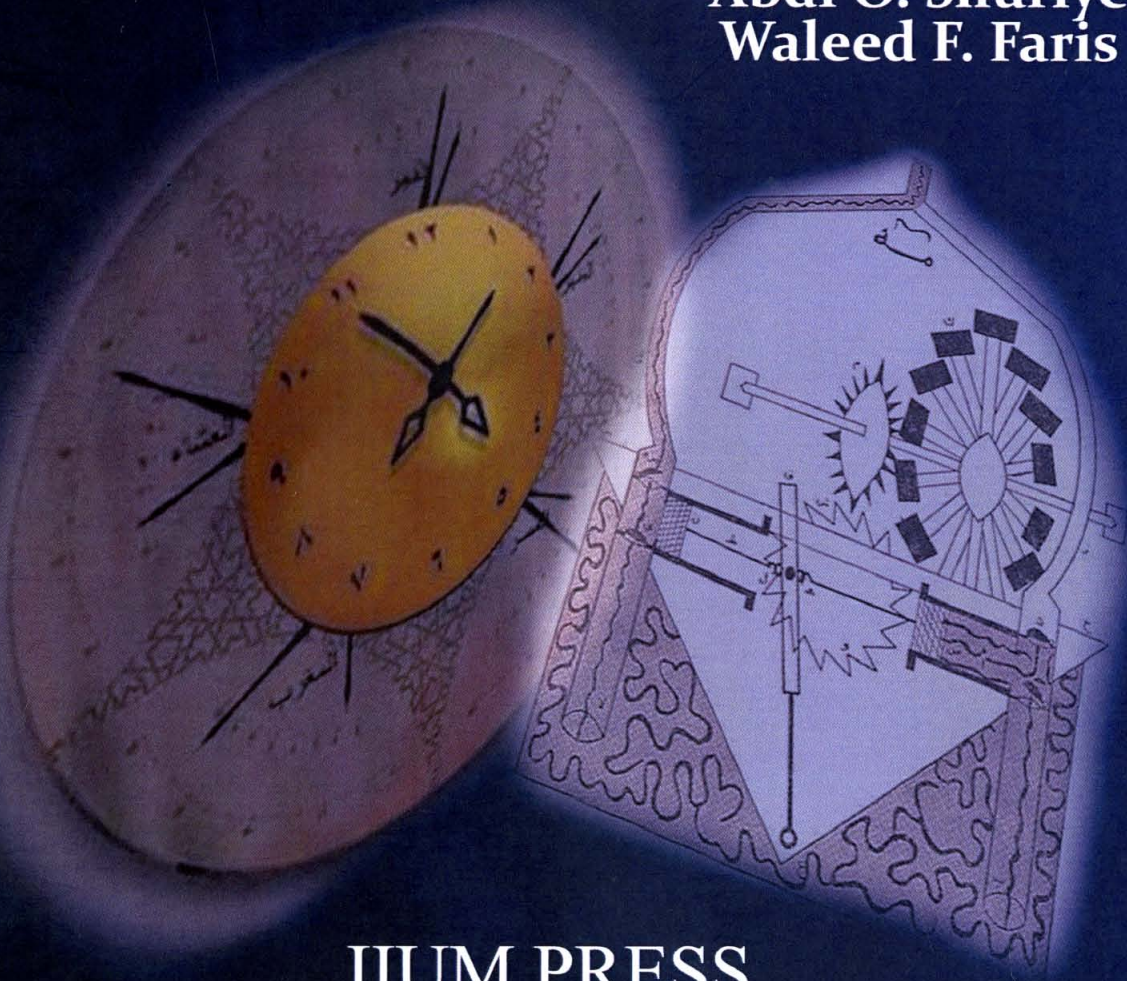


# Contributions of Early Muslim Scientists to Engineering Studies and Related Sciences

Abdi O. Shuriye  
Waleed F. Faris



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INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA





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## **Editors**

Abdi O. Shuriye  
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## *Contents*

### **TITLE**

Preface	v
Acknowledgment	vi
Lists of Contributors	vii
Introduction	1
Chapter 1 Al-Battani's Contribution to Astronomy	3
Chapter 2 Safiha by Al-Zarqali	8
Chapter 3 Ibn Al Shatir's Influence on Modern Astronomy	12
Chapter 4 I-Zarqali on Instrumentation	19
Chapter 5 Contributions of Al-Razi on Alchemy in Terms of Metal and Substance	24
Chapter 6 Jabir Ibn Hayyan's Work on Sulphur-Mercury Theory	30
Chapter 7 The Contribution of Hassan Al-Rammah to Gunpowder and Rocket Technology	36
Chapter 8 The Contribution of Ibn Al-Awwam in Botany and Agriculture	41
Chapter 9 Al-Battani Contributions in Astronomy and Mathematics	45
Chapter 10 Al-Biruni's Views on the Discovery of the Spherical Earth	49
Chapter 11 Al-Kashi and Access to the Arithmetic & Astronomy	53
Chapter 12 Nasir Al-Din Al-Tusi's Understanding of Trigonometry	58
Chapter 13 Al-Biruni's Experimental Scientific Methods in Mechanics	65
Chapter 14 Al-Haytham's Understanding of Physical Nature of Light	70
Chapter 15 Contributions of Ibn Al-Haytham on Optics	74
Chapter 16 Energy Particle-Physics: The Efforts of Abdel Nasser Tawfik	80
Chapter 17 Mahmoud Hessaby's Contribution to the Infinitely Extended Particles Theory in Quantum Physics	86
Chapter 18 The Contribution of Ibn Ishaq Al-Kindi to Light, Optics and Cryptology	91
Chapter 19 The Contribution of Ibn Sahl in Refraction of Light	95
Chapter 20 Al Kindi on Pharmacology	103
Chapter 21 Contributions of Kerim Kerimov in Aerospace Engineering	110
Chapter 22 Fazlur Rahman Khan's Understanding of Tube Structural System of Skyscrapers	115

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Chapter 23	Contribution of Lofti Asker Zadeh to Fuzzy Logic	121
Chapter 24	The Nano World of Munir Nahfey	127
Chapter 25	Abbas Ibn Firnas's Contribution in Aviation	135
Chapter 26	Al- Jazari Contribution to the Development of Water Supply System	139
Chapter 27	Contribution of Tipu Sultan to Rocket Technology	143
Chapter 28	The Contributions of Al - Khazini in the Development of Hydrostatic Balance and its Functionality	147
Chapter 29	The Contribution of Banu Musa Brothers in the Self Changing Fountain	155
Chapter 30	The Invention of the Helium-Neon Gas Laser by Ali Javan	160
Chapter 31	Al-Jazari on Automata	165

## CHAPTER TWENTY SIX

### AL- JAZARI CONTRIBUTION ON THE DEVELOPMENT OF WATER SUPPLY SYSTEMS

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#### 26.1 INTRODUCTION

The objective of this study is to highlight Al-Jazari contribution in the development of water supply system. The significance of the study is that it places emphasis on Al-Jazari and his inventions which laid the foundation for the machinery of irrigation and machine design. The methodology adopted in this research is library based and data is collected from reliable resources. The main focus of the chapter is to understand Al-Jazari's contribution in water raising machines which some of it can still be seen in several contemporary machines. The chapter explores the fifth chapter of his book which presents five different, useful inventions mainly to raise water for irrigation and domestic purpose.

#### 26.2 AL-JAZARI'S THIRD WATER RAISING SYSTEM

Technically, Al-Jazari third invention is an improvement of his first two devices in two different brilliant ideas. The first improvement he did is to upgrade the animal power mechanism into a hybrid power mechanism. The invention presented by Al-Jazari did not remove animal power system from his invention but rather he designs a complementary system to help the animal. Through the flow of water, the system can be fully autonomous, but if the flow is not enough (during dry season for, example) the animal can be used to drive the system. The second idea of his improvement is replacing the use of wheel pots with pot chains (Figure. 26.1) which is more flexible because the proposed design can be adapted easily for different height by simply changing the length of the chain (Lofti R. & Said Z., 2010, p.6).

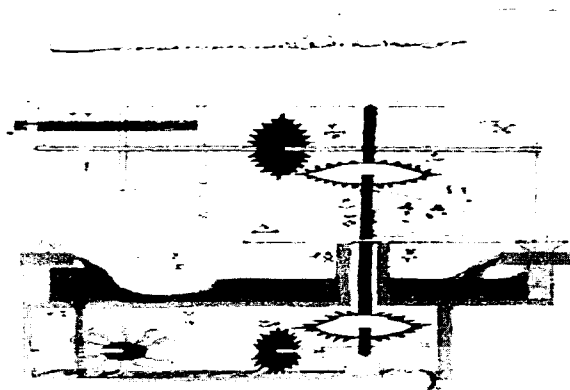


Figure 26.1: Al-Jazari's water powered Sakiya chain device