

# MUSLIM SCIENTISTS, MATHEMATICIANS AND ASTRONOMERS Before European Renaissance, 700 - 1500 C.E.

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Welcome to the web page on Muslim contribution to humanity and Islamic Civilization. This page is dedicated to those Muslims whose multi-disciplinary contributions sparked the light of learning and productivity and without whom the [European Renaissance would not have begun](#) and come to maturity. As you will find in the biographies included here, their contributions to our basic understanding of sciences, mathematics, medicine, technology, sociology, and philosophy have been used without giving proper credit to them. The subject has largely been left to few obscure intellectual discourses on world history and human development. It is rarely mentioned in formal education, and if at all mentioned their [names are Latinized](#) or changed with the effect of obscuring their identity and origin, and their association with the [Islamic Civilization](#).

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[Lectures, The Glorious Qur'an: Recitation and its Meaning in English](#)

## Book Review: Muslim History

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This is a partial list of some of the leading Muslims. Major Muslim contributions continued beyond the fifteenth century. Contributions of more than one hundred other major Muslim personalities can be found in several famous [publications](#) by Western historians. Portraits under ['Science and Technology'](#) and ['Andalusia'](#).

Jabir Ibn [Haiyan \(Geber\)](#)

[Chemistry \(Father of Chemistry\)](#)

[Died 803 C.E.](#)

<a href="#"><u>Al-Asmai</u></a>	Zoology, Botany, Animal Husbandry.	740 - 828
<a href="#"><u>Al-Khwarizmi (Algorizm)</u></a>	Mathematics, Astronomy, Geography. ( <u>Algorithm</u> , Algebra, calculus)	770 - 840
'Amr ibn Bahr <a href="#"><u>Al-Jahiz</u></a>	Zoology, Arabic Grammar, Rhetoric, Lexicography	776 - 868
Ibn Ishaq <a href="#"><u>Al-Kindi (Alkindus)</u></a>	Philosophy, Physics, Optics, Medicine, Mathematics, Metallurgy.	800 - 873
Thabit Ibn <a href="#"><u>Qurrah (Thebit)</u></a>	Astronomy, Mechanics, Geometry, Anatomy.	836 - 901
'Abbas Ibn <a href="#"><u>Firnas</u></a>	Mechanics of Flight, Planetarium, Artificial Crystals.	Died 888
Ali Ibn Rabban <a href="#"><u>Al-Tabari</u></a>	Medicine, Mathematics, Calligraphy, Literature.	838 - 870
<a href="#"><u>Al-Battani (Albategnius)</u></a>	Astronomy, mathematics, Trigonometry.	858 - 929
Al-Farghani ( <a href="#"><u>Al-Fraganus</u></a> )	Astronomy, Civil Engineering.	C. 860
<a href="#"><u>Al-Razi (Rhazes)</u></a>	Medicine, Ophthalmology, Smallpox, Chemistry, Astronomy.	864 - 930
<a href="#"><u>Al-Farabi (Al-Pharabius)</u></a>	Sociology, Logic, Philosophy, Political Science, Music.	870 - 950
Abul Hasan Ali Al-Masu'di	Geography, History.	Died 957
<a href="#"><u>Al-Sufi (Azophi)</u></a>	Astronomy	903 - 986
Abu Al-Qasim <a href="#"><u>Al-Zahravi (Albucasis)</u></a>	Surgery, Medicine. (Father of Modern Surgery)	936 - 1013
Muhammad Al-Buzjani	Mathematics, Astronomy, Geometry, Trigonometry.	940 - 997
Abu al-Qasim Maslimah al-Majriti	Astronomy	Died 1007
Ibn Yunus	Trigonometry, Astronomy	Died 1009
Ibn <a href="#"><u>Al-Haitham (Alhazen)</u></a>	Physics, Optics, Mathematics.	965 - 1040
<a href="#"><u>Al-Mawardi (Alboacen)</u></a>	Political Science, Sociology, Jurisprudence, Ethics.	972 - 1058
Abu Raihan <a href="#"><u>Al-Biruni</u></a>	Astronomy, Mathematics. (Determined Earth's Circumference)	973-1048

<a href="#">Ibn Sina (Avicenna)</a>	Medicine, Philosophy, Mathematics, Astronomy.	981 - 1037
<a href="#">Al-Zarqali (Arzachel)</a>	Astronomy (Invented Astrolabe).	1028 - 1087
<a href="#">Omar Al-Khayyam</a>	Mathematics, Poetry.	1044 - 1123
<a href="#">Al-Ghazali (Algazel)</a>	Sociology, Theology, Philosophy.	1058 - 1111
<p>Fall of Muslim Toledo (1085), Corsica and Malta (1090), Provence (1050), Sicily (1091) and Jerusalem (1099).  Several Crusades. First wave of devastation of Muslim resources, lives, properties, institutions, and infrastructure over a period of one hundred years. Refer to <a href="#">A Chronology of Muslim History</a>.  <a href="#">Translators of Scientific Knowledge in the Middle Ages</a></p>		
Abu Bakr Muhammad Ibn Yahya (Ibn Bajjah)	Philosophy, Medicine, Mathematics, Astronomy, Poetry, Music.	1080 - 1138
<a href="#">Ibn Zuhr (Avenzoar)</a>	Surgery, Medicine.	1091 - 1161
<a href="#">Al-Idrisi (Dreses)</a>	Geography (World Map, First Globe).	1099 - 1166
Ibn Tufayl, Abdubacer	Philosophy, Medicine, Poetry.	1110 - 1185
<a href="#">Ibn Rushd (Averroes)</a>	Philosophy, Law, Medicine, Astronomy, Theology.	1128 - 1198
<a href="#">Al-Bitruji (Alpetragius)</a>	Astronomy	Died 1204
<p>Second wave of devastation of Muslim resources, lives, properties, institutions, and infrastructure over a period of one hundred and twelve years. Crusader invasions (1217-1291) and Mongol invasions (1219-1329). Crusaders active throughout the Mediterranean from Jerusalem and west to Muslim Spain. Fall of Muslim Cordoba (1236), Valencia (1238) and Seville (1248). Mongols devastation from the eastern most Muslim frontier, Central and Western Asia, India, Persia to Arab heartland. Fall of Baghdad (1258) and the end of Abbasid Caliphate. Two million Muslims massacred in Baghdad. Major scientific institutions, laboratories, and infrastructure destroyed in leading Muslim centers of civilization. Refer to "A Chronology of Muslim History Parts <a href="#">III</a> and <a href="#">IV</a>."</p>		
<a href="#">Ibn Al-Baitar</a>	Pharmacy, Botany	Died 1248
Nasir Al-Din <a href="#">Al-Tusi</a>	Astronomy, Non-Euclidean Geometry.	1201 - 1274
Jalal Al-Din Rumi	Sociology	1207 - 1273
<a href="#">Ibn Al-Nafis</a> Damishqui	Anatomy	1213 - 1288
Qutb al-Din al-Shirazi	Trigonometry, Astronomy, Physics	1236 - 1311
Al-Fida (Abdulfeda)	Astronomy, Geography, History.	1273 - 1331
Muhammad Ibn Abdullah (Ibn Battuta)	World Traveler. 75,000 mile voyage from Morocco to China and back.	1304 - 1369
<a href="#">Ibn Khaldun</a>	Sociology, Philosophy of History, Political Science.	1332 - 1395
<a href="#">Ulugh Beg</a>	Astronomy	1393 - 1449

Third wave of devastation of Muslim resources, lives, properties, institutions, and infrastructure. End of Muslim rule in Spain (1492). More than one million volumes of Muslim works on science, arts, philosophy and culture was burnt in the public square of Vivarrambla in Granada. Colonization began in Africa, Asia, and the Americas. Refer to "A Chronology of Muslim History Parts [IV](#) (e.g., 1455, 1494, 1500, 1510, 1524, and 1538) and [V](#)"

Baha al-Din al-Amili

1540 - 1621

Two hundred years before a comparable development elsewhere, Turkish scientist Hazarfen Ahmet Celebi took off from Galata tower and flew over the Bosphorus. Fifty years later Logari Hasan Celebi, another member of the Celebi family, sent the first manned rocket into upper atmosphere, using 150 okka (about 300 pounds) of gunpowder as the firing fuel.

Tipu, Sultan of Mysore [1783-1799] in the south of India, was the innovator of the world's first war rocket. Two of his rockets, captured by the British at Srirangapatana, are displayed in the Woolwich Museum Artillery in London. The rocket motor casing was made of steel with multiple nozzles. The rocket, 50mm in diameter and 250mm long, had a range performance of 900 meters to 1.5 km.

The dates in the table are converted from the Islamic calendar (A.H.) which begins with Hejira, the migration of Prophet Muhammad (s) from Makkah to Medinah. The calendar is based on lunar monthly cycles. 1 A.H. = 622 C.E.

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## SCIENCE AND TECHNOLOGY

[Quotations from Famous Historians of Science](#)

[Translators of Scientific Knowledge in the Middle Ages](#)

[Latinized and English Names of Arabic Origin](#)

[Cities of Muslim Scientists, 700 TO 1500 C.E.](#)

[Qur'an and Scientific Knowledge](#)

[Science in Al-Andalus](#)

[Arabs \(Muslims\) and Astronomy](#)

[The Arab \(Muslim\) Roots of European Medicine](#)

[Ibn Sina \(Avicenna\) on Testing New Medicine](#)

[Al-Razi \(Rhazes\) on Smallpox and Measles](#)

[The Book of Animals](#)

[The Bodleian Tribute: Islamic Legacy](#)

[Full Names of Muslim Scientists](#)

[Islamic World and the Western Renaissance](#)

[Translations of Muslim Scientific Books into Latin and](#)

[European Languages](#)

[Setting the Record Straight: Islamic Science](#)

haiyan

Ibn  
Sina

khawarizmi

tabari

biruni

battani

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**O mankind! We created you from a single (pair) of a male and a female and made you into nations and tribes that ye may know each other (not that ye may despise each other). Verily the most honored of you in the sight of Allah is (he who is) the most righteous of you. And Allah has full knowledge and is well acquainted (with all things). Qur'an 49:13**

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# GLIMPSES OF ISLAMIC CIVILIZATION

[Quotations on Islamic Civilization](#)

[Quotations on Moorish \(Islamic\) Civilization](#)

[Quotations on Muslims in India](#)

[Dome of the Rock](#)

[Morality in War](#)

[The Capitals and Major Cities](#)

[Hospitals and Medical Schools](#)

[Tolerance in Islam](#)

[Causes of Rise and Decline](#)

[Women in Islam](#)

[The Islamic Legacy of Timbuktu](#)

[Coins of the Anglo-Saxon King Offa Rex](#)

[A Chronology of Muslim History](#)

[History of Muslims in the Indian Subcontinent](#)

[Russification of Central Asia](#)

[Muslims in China and South-East Asia](#)

[Muslims in the Former U.S.S.R.](#)

[Muslims in Europe](#)

[Muslims in Africa](#)

[Muslim Coins](#)

[Taj Mahal](#)

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**ANDALUSIA (Spain and Portugal)**

Quotations on Moorish (Islamic) Civilization

A Chronology of Muslims in Andalusia

The Treaty of Orihuela, 713 C.E.

Gothic Princess Sara

The Falcon of Andalus

Andalusia (Spain)

Cordoba Toledo

Valencia, Granada and Cordoba

az-Zahra and Other Andalusian Palaces

The Mudejares and Moriscos

The Treaty of Granada, 1492 C.E.

The Next Fifteen Years

Sixteenth Century Spain

The Other 1492

Islam and Columbus' America

The Arabs (Muslims) in Occitania

Names of Arabic Origin in Spain, Portugal and the Americas

Spain's Islamic Legacy: A Glimpse from a Muslim's  
Travelogue

rushd

razi

khaldun

haitham

zahravi

zuhr

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**THE AMERICAS**

Columbus: What If?

Muslims in the Americas Before Columbus

Muslim Legacy in Early Americas

The Melungeons

Sequoyah and Cherokee Syllabary

Islam in America, 1893

Names of Arabic Origin in Spain, Portugal and the  
Americas

Alexander  
Russel Webb

Sequoyah, Cherokee, 1828

Taj Mahal

## TAJ MAHAL

Built by a Muslim, Emperor Shah Jahan at Agra, India. Completed in 1648 C.E. An "Elegy in Marble" or a "Dream" in the memory of his wife Mumtaz Mahal.

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**Allah:** Allah is the proper name in Arabic for The One and Only God, The Creator and Sustainer of the universe. It is used by the Arab Christians and Jews for the God (Eloh-im in Hebrew; 'Allaha' in Aramaic, the mother tongue of Jesus, pbuh). The word [Allah](#) does not have a plural or gender. Allah does not have any associate or partner, and He does not beget nor was He begotten. The abbreviation 'SWT' usually follows when Allah is mentioned, and it means 'Glory Be To Him.'

## THE QUR'AN

Muhammad is no more than an Apostle: many were the Apostles that passed away before him. If he died or were slain, will you then turn back on your heels? If any did turn back on his heels, not the least harm will he do to Allah; but Allah (on the other hand) will swiftly reward those who (serve Him) with gratitude. Qur'an 3:144

Allah forgiveth not (the sin of) joining other gods (partners) with Him: but He forgiveth whom He pleaseth other sins than this: one who joins other gods (partners) with Allah hath strayed far far away (from the right path). Qur'an 4:116

All that they do is noted in (their) Books (of Deeds): Every matter small and great is on record. Qur'an 54:52-53

Or do they think that We hear not their secrets and their private counsels? Indeed (We do) and Our Messengers are by them to record. Qur'an 43:80

[Fourteen Precepts of Wisdom from the Holy Qur'an](#)  
[Food for Thought: Ayat \(Verses\) from the Holy Qur'an](#)  
[Liberate, Emancipate and Marry Slaves](#)  
[The Amazing Qur'an \(with subject index\)](#)  
[Prophets in the Holy Qur'an](#)  
[Jesus, The Son of Mary \(pbut\)](#)  
[Mary and Jesus \(peace be upon them\)](#)  
[Qur'an and Scientific Knowledge](#)

[O Mankind!](#)  
[O You Who Believe!](#)  
[O People of the Book!](#)  
[Our Lord! \(Rabbana\)](#)  
[Topic Index of the Qur'an](#)  
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[The Book](#)  
["The Author"](#)

[Translation: Tried & True?](#)

[English Translations of the Holy Qur'an \(1649-1986\)](#)

[The Meaning of the Glorious Qur'an in English - Audio](#)

[Recitation of The Glorious Qur'an](#)

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## PROPHET MUHAMMAD (s)

"... All mankind is from Adam and Eve, an Arab has no superiority over a non-Arab nor a non-Arab has any superiority over an Arab; also a white has no superiority over black nor a black has any superiority over white except by piety and good action. Learn that every Muslim is a brother to every Muslim and that the Muslims constitute one brotherhood.... O People! No Prophet or Apostle will come after me and no new faith will be born. Reason well, therefore, O People! and understand words which I convey to you. I leave behind me two things, the Qur'an and my Sunnah (i.e., sayings, deeds, and approvals) and if you follow these you will never go astray..." Prophet Muhammad's Last Sermon

[Biography of Prophet Muhammad \(pbuh\) \(with Links to Comparative Religion\)](#)

[Prophet Muhammad's Charter to the Monks of St. Catherine Monastery](#)

[Prophet Muhammad's Treaty with Christians of Najran](#)

[What Non-Muslims Say About Prophet Muhammad \(pbuh\)](#)

[The Last Prophet and Qur'an in Previously Revealed Scriptures](#)

[Prophet Muhammad \(pbuh\) in Hindu Scriptures](#)

[Prophet Muhammad \(pbuh\) in Parsi Scriptures](#)

[The Last Sermon of Prophet Muhammad \(pbuh\) \(632 C.E.\)](#)

[Major Events in the Life of Prophet Muhammad \(pbuh\)](#)

[Prophet Muhammad's Treaty With the Jews and Non-muslims \(622 C.E.\)](#)

[Prophet Muhammad's Letters to Kings \(628 C.E.\)](#)

[Negus, King of Abyssinia \(615 C.E.\)](#)

[Chakrawati Farmas, King of Malabar, India](#)

[Heraclius, Byzantine Emperor \(628 C.E.\)](#)

[Muqawqis, Ruler of Egypt \(628 C.E.\)](#)

[Chosroes II, King of Persia \(628 C.E.\)](#)

[Prophet Muhammad \(pbuh\) in World Scriptures](#)

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## COMPANIONS OF PROPHET MUHAMMAD (s)

"I command you to ten precepts: Slay not a woman nor a child, nor an aged man, cut not down a tree that beareth fruit, and lay not waste a cultivated land, and destroy not a sheep, nor a camel save for food, and lop not a date tree nor burn it, and conceal not plunder and be not faint of heart." Caliph Abu Bakr's instruction to Muslim army leaving for the Syrian front.

[Abu Bakr \(ra\), The First Caliph \(632 -634 C.E.\)](#)

[Umar Ibn Al-Khattab \(ra\), The Second Caliph \(634 - 644 C.E.\)](#)

[The Companions - Biography and History](#)

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## OIL INDUSTRIES

[Muslims and the Oil Industries \(7th - 19th Century\)](#)

[Ancient Arabs and the Oil](#)

[The Oil Weapons: Ancient Oil Industries](#)

[The Land of the Naphtha Fountain](#)

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## OTHER TOPICS

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[The Ka'bah: Its Size and History](#)

[The Hajj - A Brief Synopsis](#)

[A Complete Guide to Hajj &  
Umrah](#)

[Makkah-Arafat Hajj Route](#)

[Hajj and Umrah Information -  
several links](#)

[Umrah and Hajj Information](#)

[The Prophet's Mosque](#)

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[Adhan \(Call to Prayer\) at  
Haram \(3 min.\)](#)

[Allama Iqbal's 1930 Presidential  
Address](#)

[Allama Muhammad Iqbal](#)

[Maulana Muhammad Ali](#)

[Muhammad Marmaduke Pickthall](#)

[Muhammad Alexander Russel  
Webb](#)

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Barnabas](#)  
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[Reverts to Islam, Reflections](#)

Marmaduke William Pickthall

Allama  
Iqbal

Ulugh  
Beg

Sultan Muhammad II Al-Fateh

Shahjahan

Tipu Sultan  
Shaheed

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**TC**