

In the Name of Allah, the Most Gracious, the Most Merciful.

# A Journey Through The Islamic Faith



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AN EXHIBITION ISLAM BOOK  
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# Islam & Civilisation

The Islamic world has had a considerable influence on the development of Western civilisation and contributed immensely to the achievements of the Renaissance. Moreover, Muslim interaction with Europe, as well as the historical successes by Islamic scientists and scholars have made a positive and long-lasting impact on the current era of science and technology. As Islam instructs man to use his powers of intelligence and observation, these contributions helped to bring Medieval Europe out of centuries of intolerance and scientific neglect during the Dark Ages.

Within a short space of time since the birth of Islam in the 7th century, great cities and centres of learning were flourishing across the Muslim world. From the 11th century onwards Europe began to absorb much of this knowledge from the Islamic civilisation. The fusion of Eastern and Western ideas, and of new thought with old, brought about great advances in medicine, mathematics, physics, astronomy, geography, architecture, art, literature and much more. Many crucial systems, such as algebra, the Arabic numerals and the concept of the number zero

were transmitted to Europe from the Muslim world. Sophisticated instruments which were to make possible the European voyages of discovery, such as the astrolabe, the quadrant, and accurate navigational maps, were also developed by Muslims.

It is useful to mention the statements of various historical figures regarding the tolerance in the Islamic world at the time. For example, Patriarch Theodosius of Jerusalem, expressed in a letter written to the Patriarch of Constantinople in 869 CE, '**The Saracens [i.e. The Muslims] show us great goodwill. They allow us to build our churches and to observe our own customs without hindrance.**' (C. J. Walker, *Islam and the West*, Sutton Publishing, 2005, p. 17).

Theodosius was certainly the equivalent of the Archbishop of Canterbury in Jerusalem at the time. What he stated has also been corroborated by other Christian figures such as Bernard the Wise (a French pilgrim who visited Jerusalem during the reign of Caliph al-Mu'tazz [866-9 CE]), who stated that if any property was left unattended for some time, it would be found unmolested upon return, '**such is the peace there**' (C. J. Walker, p. 17).



The exquisite 11th century Islamic architecture of the Al-Hambra is reflected in its central pool. This ancient complex of buildings served as a mosque, palace and fortress of the Muslim rulers of Granada, in southern Spain.

**The peace and tolerance mentioned by these historical figures was the result of Islamic law. This is the law which is directly derived from the Quran and authentic traditions of the Prophet Muhammad (peace be upon him) and it is this law which Muslims uphold as sacred as well as being a source of modernity.**

Technically, modernity is recognised as something newly invented or anything in fashion such as scientific advancement, organised establishments, and a range of political institutions (including the nation-state.... associated with a complex system of economic institutions, especially industrial production) etc. Modernity itself is a very fluid and relative term as the meaning of the word "modern" may change from time to time or place to place. Modernity may influence societies in a diverse range of ways, and under different circumstances, the effects of modernity may also transpire in a variety of ways. Today, however, it is fairly accurate to conclude that no one has a monopoly on modernism as the following example shows.

In the 16th and 17th centuries, it was legally and morally accepted in Western Europe to burn witches and heretics alive.

The last known witch to be burnt alive, was in Geneva as late as 1782 CE (Dr Malcolm Gaskill, Witchcraft in early modern Europe, lecture delivered at Birkbeck College on 11th of January 2008). Even in 1790 CE, when the final volumes of Edward Gibbon's 'Decline and Fall of the Roman Empire' had only just been published, it was a prescribed penalty in English law to burn a woman to death if she had killed her husband (Henry Offley Wakeman, The History of the Church of England, Rivington Percival & Co, 1896, p.154).

Furthermore, women had very few inheritance rights in Britain as late as early 20th century. European modernity therefore, has been in continuous evolution, not having any constant set standard or criteria. The Islamic definition, however, is very different in nature. In Islam no standard can be used to judge God, instead God is the standard, whose Divine injunctions are used to judge humanity. In Islam, women are highly protected, favoured and respected by the Divine law, provided rights and freedoms, such as inheritance, owning property, rights of marriage and divorce.

**Opposite:** Arched windows and a minaret represent a good example of mosque architecture found throughout the Islamic world.

The main points of transmission of Islamic knowledge to Europe were in Sicily, and in Islamic Spain, particularly in Toledo. Muslims governed parts of Spain with Islamic law for more than seven centuries (711-1492 CE). This law produced such peace and tranquillity among the population that they were able to achieve high levels of academic excellence and scientific advancement, and it was this very same advancement, which was subsequently translated into Latin for European learning by scholars such as Gerard of Cremona, Michael Scot, Robert of Ketton and Adelard of Bath.

Europeans were, at that time, so unacquainted with these sciences that Robert of Ketton, when writing the preface for his translation of the Arabic text, 'Composition of Alchemy', stated that **'Since what Alchymia is, and what its composition is, your Latin world does not yet know, I will explain in the present book'** (E. J. Holmyard, Alchemy, Pelican books, 1957, p.103). Arabic works on all scientific fields were translated in the schools of Toledo and then subsequently passed onto European countries.

**Following pages:** Described in poetry as a 'pearl set in emeralds', the exquisite 11th century Islamic architecture of the Al-Hambra, Granada, Spain.



Professor Thomas Arnold confirmed this by asserting that **'Muslim Spain had written one of the brightest pages in the history of medieval Europe. Her influence had passed through Provence into the other countries of Europe, bringing into birth a new poetry and new culture, and it was from her that the Christian scholars received what of Greek Philosophy and science they had to stimulate their mental activity up to the time of the renaissance.'** (Professor Thomas Arnold, Preaching of Islam, Goodword books, 2005, p.131).

Maria Rosa Menocal, a scholar of European literature, states that: **'Westerners – Europeans - have great difficulty in considering the possibility that they are in some way seriously**

**indebted to the Arab world...'** (Maria Rosa Menocal, The Arabic Role in Medieval Literary History, PENN, 2004, Preface. xii).

How Islamic law enabled the Spanish Muslims, Jews and Christians to produce this result was also understood by some of the most prominent European thinkers. Adam Smith, the 18th Century founder of modern economic theories whose picture is printed on the current £20 note, was immensely inspired by the Islamic method of governance.

He proclaimed that **'the empire of the Caliphs seems to have been the first state under which the world enjoyed that degree of tranquillity which the cultivation of the sciences requires.'**





He continues, **'...it was under the protection of those generous and magnificent princes, that the ancient philosophy and astronomy of the Greeks were restored and established in the East; that tranquillity, which their mild, just and religious government diffused over their vast empire, revived the curiosity of mankind, to inquire into the connecting principles of nature.'** (History of Astronomy, in 'The Essays of Adam Smith', A. Murray & Sons, 1869. p. 33).

How Islam provided this security and tolerance is clearly demonstrated in the texts of the treaties, which were agreed upon by the Muslim rulers and their non-Muslim subjects. Consider for instance, the Treaty of Jerusalem (636 CE).

**'This is the protection which the servant of Allah, Amir ul-Mumineen, grants to the people of Palestine. Thus, protection is for their lives, property, church, cross, for the healthy and sick and for all their co-religionists.**

**In this way that their churches shall not be turned into dwelling houses, nor will they be pulled down, nor any injury will be done to them or to their enclosures, nor to their cross, and nor will anything be deducted from their wealth. No restrictions shall be made regarding their religious ceremonies...'**

(Ibn Jarir at-Tabari, History).

This treaty concerning the Christians of Jerusalem was enacted by the 2nd Caliph Umar bin al-Khattab in the year 636 CE.



The famous letter from Rabbi Isaac Tzarfati, after Europe's persecution of the Jews, found in Phillip Mansel's book "Constantinople", also reflects how Muslims safeguarded the interests of religious minorities:

**'Here in the land of the Turks we have nothing to complain of. We possess great fortunes; much gold and silver are in our hands. We are not oppressed with heavy taxes and our commerce is free and unhindered. Rich are the fruits of the earth. Everything is cheap and every one of us lives in peace and freedom...'** (Philip Mansel. 1995. Constantinople: City of the World's desire, 1453-1924. Penguin Books, p. 15).

Zion Zohar, an American Jewish historian, illustrated how the Jewish community in Spain welcomed the arrival of the Muslims in 711 CE. **'Thus, when Muslims crossed the straits of Gibraltar from North Africa in 711 CE and invaded the Iberian Peninsula, Jews welcomed them as liberators from Christian Persecution... Born during this era of Islamic rule, the famous Golden Age of Spanish Jewry (circa 900-1200) produced such luminaries as: statesman and diplomat Hasdai ibn Shaprut, vizier and army commander Shmuel ha-Nagid, poet-philosophers Solomon Ibn**

**Gabriol and Judah Halevi, and at the apex of them all, Moses Ben Maimon, also known among the Spaniards as Maimonides.'** (Zion Zohar, Sephardic & Mizrahi Jewry, New York, 2005, p. 8-9).

It is safe to conclude, therefore, that Muslims and their religious law played a decisive role in the history of the intellectual development of Europe. The core of Western "modernity" or "modernism" i.e. scientific sophistication and advancement, came directly from Islamic lands such as Spain and Sicily. Thus, it was the Shariah which served as a mirror for the Europeans to look into and modernise their appearance. And it is indeed this fact that was mentioned in the Quran 14 centuries ago: **'We have not sent thee (O Muhammad) except as a mercy to mankind.'** (Quran, Chapter 21, Verse 107).

And it is this mercy which is well demonstrated and documented in the treaties with non-Muslim subjects.

*Islamic principles, therefore, are the source to define and shape modernity and modernisation.*

A 12th century world map by Al-Idrisi was drawn with north at the bottom.



## 8th Century Offa of Mercia

Archaeological discoveries have helped us to redraw the international economic and trade relations of twelve hundred years ago, when thousands of Muslim coins were found across Europe; in Germany, Finland and Scandinavia. An astounding coin was also discovered in the United Kingdom and it is now displayed at the British Museum.

The 8th century Gold Mancus was made by the Anglo-Saxon monarch - King Offa of Mercia and England. What is extraordinary about the coin is that it was a copy of a gold *dinar* of the Abbasid Caliph al-Mansur dated 774 CE. It is over 1,200 years old and the Arabic letters declare "There is no Deity but God, The One without Equal" and a further declaration is engraved around the margin which says "Muhammad is the Prophet of God, Who sent him (Muhammad) with the doctrine and the true faith to prevail over every other religion."

A significant difference from the Abbasid coin is that this coin is stamped with the inscription OFFA REX. There are many different scholarly opinions as to why King Offa would have ordered for such a coin, the majority hold that it



was produced for trade or for use by pilgrims travelling through the Muslim lands. The coin was most certainly not made by a Muslim craftsman since OFFA REX is written upside down in relation to the Arabic kufic script and the word 'year' is misspelled in Arabic. The coin provides evidence of the impact of Islamic trade and currency on Britain. King Offa also produced a silver penny that was equivalent in weight to half an Abbasid *dirham*.

## 9th century Ballycotton cross

The 9th century Ballycotton cross, found on the southern coast of Ireland bears an Arabic inscription. At the centre of the cross set in a glass bead is the phrase 'Bismillah' (in the name of Allah). Muslim map makers were also well aware of the British Isles. Muhammad bin Musa al-Khwarizmi in his 'Surat al-Ard', written around 817 CE mentions a number of places in Britain.

# Early History of Islam in Britain

## 12TH CENTURY Adelard of Bath

What is striking about the discoveries, innovations, research and writings of Muslim scientists during the European medieval period, is their insatiable thirst for knowledge. This was not knowledge for the sake of it, but in most cases it had practical application - improving the quality of peoples lives. This amazing energy was shown by many individuals who wrote down their findings at incredible rates, with books running to thousands of pages. This golden age of Islamic civilisations between the 8th and 13th centuries, saved ancient learning from extinction and added new discoveries which then spread far and wide.

The thirst for knowledge was infectious and many Europeans flocked to the Muslim lands to absorb the vast encyclopedias. It is generally believed that the first Englishman known for certain to have been a scholar of Arabic was Henry II's tutor, Adelard of Bath (1125 CE).



Adelard travelled to Syria and Muslim Spain and translated a number of Arabic texts into Latin.



**Above:** By the 10th century Muslim scholars had built upon many of the works of the Greek philosopher, Aristotle. These Arabic works as well as many others were translated into Latin by English and other European scholars.

Also in the Twelfth Century, King John was excommunicated by Pope Innocent III. Matthew Paris, a contemporary monk, gives details of an emissary sent by King John in 1213 to the North African Amir, Muhammad An-Nasir. King John offered to help the Muslims in their campaigns in Spain against the King of Aragon.



# 13TH CENTURY

## Daniel of Morley

Following Adelard's footsteps, others too sailed from Britain in the twelfth and thirteenth centuries in quest of Arabic learning and returned to enlighten their fellow countrymen. This included Daniel of Morley and Michael Scot, whose translations of Aristotle from Arabic were of great value during the Renaissance.

Daniel of Morley was an English vicar and scientist born around 1140 CE, in a village in Norfolk. He is just one of the many outward looking and forward thinking Europeans who opened his mind to Muslim knowledge.



**Above:** Frontispiece of an Adelard of Bath's Latin translation of Euclid's Elements, the oldest surviving Latin translation of the Elements.

Daniel was probably a student of Adelard of Bath, and to further his education Daniel, like many young students had left his native England, and headed east, first stopping at the University of Paris. Unfortunately it had become 'stale and moribund' and he could hardly wait to leave. He said "*These masters (in Paris) were so ignorant that they stood as still as statues pretending to show wisdom by remaining silent.*"

So where did he go? In his own words '*...since these days it is at Toledo that Arabic teachings are widely celebrated, I hurried there to listen to the worlds wisest philosophers.*' In 12th century Toledo at least three cultures lived side by side, Muslims, Jews and Christians. This is a time of cultural richness where all shared the same, breath taking desire for knowledge. Today the way they worked and lived together is known by the Spanish word *convivencia*.

What was really exciting for Daniel of Morley and others was that previously they had only fragments of classical Greek text, and many of these were forgeries. Now they were seeing that Muslims had vast resources of knowledge which had been rebuilt and added to in an immense way over five hundred years of Muslim scholarship.

Important works by Greek philosophers and mathematicians which had been lost in the West were now turning up in Toledo. The critique and commentary on Aristotle by Ibn Rushd (known as Averroes in the West) was perhaps the real start of Europe's classical revival and this was two hundred years before the real Renaissance began.

Many of the Arabic commentaries and summaries of Aristotle's work by Ibn Rushd written in Cordoba were translated into Latin by Michael Scot, a scholar from Scotland. These translations were destined to set Europe ablaze as the Church banned Ibn Rushd's and Aristotle's works immediately.

Thousands of original manuscripts of the Latin translations from Arabic by Daniel of Morley and many others can still be found in the Toledo Cathedral today.

**Above:** Michael Scot travelled to Muslim lands during the 13th century. His translations of Aristotle from Arabic were vital during the Renaissance.

**Right:** Prologue of 'Philosophia' by Daniel of Morley, in a Latin Astronomical Miscellany.



*“On the Day of Resurrection the feet of the son of Adam (man) will not move away till he is questioned about four matters: how he spent his lifetime, how he spent his youth, from where he acquired his wealth and how he spent it, and what he did with his knowledge.”*

(Saying of Prophet Muhammad (peace be upon him) narrated by al-Tirmidhi, no. 2417)



# 14TH CENTURY

## Canon of Medicine

Muslim scholarship was well known among the learned in Britain by 1386, when Chaucer was writing. For example, in the Prologue to the Canterbury Tales, there is among the pilgrims on their way to Canterbury, a 'Doctor of Phisyk' whose learning included Razi, Avicenna (Ibn Sina) and Averroes (Ibn Rushd). Ibn Sina's monumental medical book Qanun fi al-Tibb (The Canon of Medicine) was so widespread in Europe by the 14th century that it had become a standard reference text for medical students and was used well into the 17th century.

# 15TH CENTURY

## The First Printed Book

The first book ever to have been printed in England by Caxton in 1477 is considered to be 'The Dictes and Sayings of the Philosophers', which was a translation of a popular Arabic compilation entitled 'Mukhtar al-Hikam Wa mahasin al-Kalim', by Abul Wafa Mubashir Ibn Fatik.

**Right:** The first printed book in England. The "Dictes and Sayings of the Philosophers".

# 16TH CENTURY

## Links with the Ottoman Muslims

This was a time when Muslim naval power dominated the Mediterranean. This expanse included Istanbul, the centre of the Ottoman Empire; Aleppo, a crucial link in the Silk route; Beirut, 'whereunto all the ships coming from Europe arrive'; Jerusalem, the city of pilgrimage; Cairo, a centre of trade, witnessing 'the greatest concourse of Mankind in these times', and Fez, 'a world for a city'.

By the 16th century a part of this book, to wit that of my sayde lordys or any other persone. But sometime he or she be that shal rede or here it, that if they be not wel pleased woth all that they wyth a penne take it out of the booke, they maye take it out of the booke. I praye my sayde lordys to take no displeasur on me for this humyng; but to parden me as he shal fynde faulte; and that it please hym to take the labour of this printing in good and thank, whiche gladly have we my deligence in the doinge of this booke. In wyche I am bounden so to do for the good regard that I be my assured of his sayde lordship. Wherof I beseeche Almighty godd to continue in his favour and protection in this booke. And after this a litle to his everlastyng in heven Amen

### ¶ The first printed book in England

Thus maketh this booke of the dictes and notable wyse sayings of the philosophers late translated by my kynnyng lord Thome of Spure and lord of Salce, and by his commaundment sette in forme and imprented in this maner as ye maye here in this booke see. Whiche was firste printed the xviij. day of the month of November, in the fourteenth yere of the reigne of kynnyng Edward the fourth.



The Sultan of the Ottoman Empire, Murad III, exchanged numerous envoys and letters with Queen Elizabeth I of England. In one correspondence, Murad III contemplated the notion that Islam and Protestantism had "much more in common than either did with Roman Catholicism, as both rejected the worship of idols."

He also sought an alliance between England and the Ottoman Empire. In fact, Queen Elizabeth I seriously considered joint military operations with Murad III when the threat of the Spanish Armada loomed at the outbreak of war with Spain in 1585. To the dismay of other European powers, England even exported tin and lead for cannon-casting as well as ammunitions to the Ottoman Empire.



History also shows that of all the countries of Europe, Britain enjoyed the most extensive trade with the Muslim lands.

During this period the universities of Oxford and Cambridge had established Chairs of Arabic. Throughout mediaeval times and the Renaissance, scholars in Britain relied heavily on translations from the Arabic in the fields of mathematics, astronomy and medicine (Islam in Britain 1558-1685, N. Matar, Cambridge University Press, 1998).



**Above:** Oxford university.

# Muslim Heritage in Our World

The concept that the sciences are exclusively the products of Western minds remains unquestioned by most individuals. It is hardly necessary to repeat the oft-mentioned names: Galileo, Copernicus, Kepler, Bacon, Newton, Da Vinci, Benjamin Franklin, etc. The unavoidable conclusion is that major contributions to the development of the modern sciences by other cultures is minimal. Most texts give little or no mention of the advancements made by ancient Indian, Chinese or, particularly, Muslim scholars.

Whereas Western civilization has undoubtedly made an invaluable contribution to the development of the sciences, the following examples will show, that it was in fact Muslim scientists who had centuries earlier made many basic inventions and scientific discoveries, which have long been credited to Western scholars.

In the field of physics, Isaac Newton is regarded as the 'founder of optics' and in the 17th century his study of lenses, light and prisms laid down the foundation of the modern science of optics.

## AL-HAYTHAM

Centuries prior to Newton, during the 11th century, the Muslim scientist al-Haytham, had already determined virtually everything that Newton advanced regarding this subject. Al-Haytham was probably the most quoted physicist of the Middle Ages. His works were utilized and quoted by a greater number of European scholars during the 16th and 17th centuries than those of Newton and Galileo combined. Hence, there is little doubt that Newton was influenced by al-Haytham.

Isaac Newton, during the 17th century, is also said to have discovered that white light consists of various rays of coloured light. What should be taught is that this discovery was made in its entirety by al-Haytham in the 11th century and advanced further by Kamal ad-Din in the 14th century.

## AL-BIRUNI

The concept of the finite nature of matter was first introduced by Antoine Lavoisier during the 18th century. He discovered that, although matter may change its form or shape, its mass always remains the same. Thus, for instance, if water is heated to steam or if a piece of wood is burnt to ashes, the total mass remains unchanged. However, the basic principles of this discovery had already been elaborated centuries before by the Muslim scholar, al-Biruni (d. 1050). Lavoisier in fact was a disciple of Muslim chemists and physicists and referred to their books frequently.



## IBN-FIRNAS

The first mention of manned flight was by the English scholar Roger Bacon, who drew a flying apparatus. Leonardo da Vinci also conceived airborne transport and drew several prototypes. However, Ibn Firnas of Muslim Spain invented, constructed and tested a flying machine in the 9th century. Roger Bacon learned of flying machines from Arabic references to Ibn Firnas' machine. The latter's invention antedates Bacon by 500 years and Da Vinci by some 700 years.

Glass mirrors were said to have been first produced in 1291 in Venice. However, glass mirrors were used in Muslim Spain from as early as the 11th century. The Venetians learnt the art of fine glass production from Syrian artisans during the 9th and 10th centuries.

## GLASS LENS

Roger Bacon (d. 1292) first mentioned glass lenses for improving vision. However, Ibn Firnas of Muslim Spain invented eyeglasses during the 9th century, and they were manufactured and sold throughout Spain for over two centuries. Any mention of eyeglasses by Roger Bacon was simply a regurgitation of the work of Ibn Firnas and al-Haytham.

## CLOCKS

Until the 14th century, the only type of clocks available were water clocks. In 1335, a large mechanical clock was erected in Milan, Italy. This was possibly the first weight-driven clock. In the Islamic world a variety of mechanical clocks were produced by Spanish Muslim engineers, both large and small, and this knowledge was transmitted to Europe through Latin translations of Muslim books on mechanics. These clocks were weight-driven. Designs and illustrations of epicyclic and segmental gears were provided. One such clock included a mercury escapement. The latter type was directly copied by Europeans during the 15th century. In addition, during the 9th century, Ibn Firnas of Muslim Spain, according to Will Durant, invented a watch-like device which kept accurate time.

Muslims also constructed a variety of highly accurate astronomical clocks for use in their observatories. Moveable type and the printing press was invented in the West by Johannes Gutenberg of Germany during the 15th century. In 1454, Gutenberg developed the most sophisticated printing



press of the Middle Ages. However, moveable brass type was in use in Muslim Spain 100 years prior to this.

## COMPASS

The compass is said to have been invented by the Chinese who may have been the first to use it for navigational purposes sometime

between 1000 and 1100 C.E.

The earliest reference to its use in navigation was by the Englishman, Alexander Neckam (d. 1217). Muslim geographers and navigators knew about magnetic needles, possibly from the Chinese, and had already begun to use them in navigation well before Neckham.



The first man to classify ethnicity was the German Johann F. Blumenbach, who divided mankind into white, yellow, brown, black and red peoples.

However, Muslim scholars between the 9th and the 14th centuries had already invented the science of ethnography.

A number of Muslim geographers also classified the races, writing detailed explanations of their unique cultural habits and physical appearances. They wrote thousands of pages on this subject. Blumenbach's works were insignificant in comparison.

## GEOGRAPHY

The science of geography was revived during the 15th, 16th and 17th centuries when the ancient works of Ptolemy were discovered. The Crusades and the Portuguese/Spanish expeditions also contributed to this reawakening. The first scientifically-based treatise on geography was produced during this period by Europe's scholars. Muslim geographers, however, had already produced untold volumes of books on the geography of Africa, Asia, India, and China during the 8th through to 15th centuries.

These writings included the world's first geographical encyclopedias, almanacs and road maps. Ibn Battutah's 14th century masterpieces provide a detailed view of the geography of the ancient world. Works by Muslim geographers between the 10th and 18th centuries far exceeded the output by Europeans regarding the geography of these regions.

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## TRIGONOMETRY

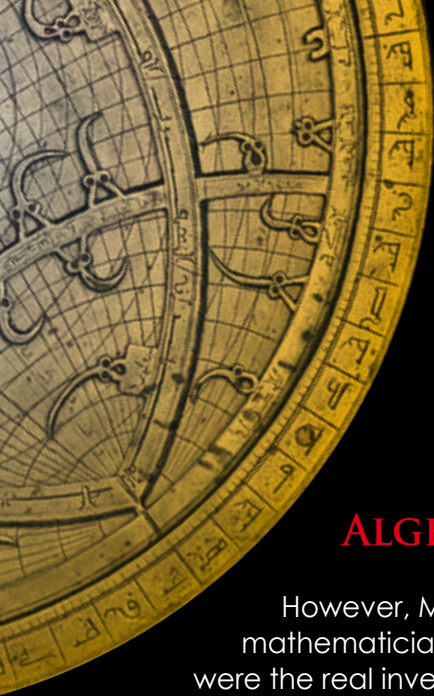
In the field of mathematics, Greeks are said to have developed trigonometry. However, trigonometry remained largely a theoretical science amongst the Greeks. It was developed to a level of modern perfection by Muslim scholars, although the weight of the credit must be given to al-Battani. The words describing the basic functions of this science; sine, cosine and tangent, are all derived from Arabic terms.

The use of decimal fractions in mathematics was supposedly first developed by a Dutchman, Simon Stevin, in 1589. He helped advance the mathematical sciences by replacing cumbersome fractions, for instance  $1/2$ , with decimal fractions, for example, 0.5. The reality is that Muslim mathematicians were the first to utilize decimals instead of fractions on a large scale.

## AL-KASHI

Al-Kashi's 15th century book, *Key to Arithmetic*, was the stimulus for the systematic application of decimals to whole numbers and fractions thereof. It is highly probably that Stevin imported the idea to Europe from al-Kashi's work.

Similarly the first man to utilize algebraic symbols is said to have been the French mathematician, Francois Vieta. In 1591, he wrote an algebra book describing equations with letters such as the now familiar  $x$  and  $y$ 's. This discovery had an impact similar to the progression from Roman numerals to Arabic numbers.



## ALGEBRA

However, Muslim mathematicians were the real inventors of algebra. They introduced the concept of using letters for unknown variables in equations as early as the 9th century. Through this system, they solved a variety of complex equations, including quadratic and cubic equations. The concept that numbers could be less than zero, i.e. negative numbers, was unknown until 1545 when Geronimo Cardano introduced the idea. However, Muslim mathematicians had already introduced negative numbers for use in a variety of arithmetic functions at least 400 years prior to Cardano.

In 1614, John Napier is said to have invented logarithms and logarithmic tables. However, history shows that Muslim mathematicians invented

logarithmic tables several centuries prior to Napier. Such tables were common in the Islamic world as early as the 13th century. During the 17th century Rene Descartes made the discovery that algebra could be used to solve geometrical problems. By this, he greatly advanced the science of geometry. However, Mathematicians of the Islamic Empire accomplished precisely this as early as the 9th century. Thabit bin Qurrah was the first to do so, and he was followed by Abu'l Wafa, whose 10th century book utilized algebra to advance geometry into an exact and simplified science.

It is also usually taught that Isaac Newton, during the 17th century, developed the binomial theorem, which is a crucial component for the study of algebra. In fact hundreds of Muslim mathematicians utilized and perfected the binomial theorem many centuries before. They initiated its use for the systematic solution of algebraic problems during the 10th century.

**AL-HAYTHAM** - book of secrets



# MEDICINE AND SURGERY

If we could journey back to 10th century southern Spain we would come across a cutting-edge surgeon called Abul Qasim al-Zahrawi, known in the West as Abulcasis. This physician along with ibn-Sina and al-Razi greatly inspired Europe. Most of their works were translated into Latin and served as standard medical and surgical references in Europe for many hundreds of years.



**Above:** Anatomical drawing. Arabic medicine was advanced in Europe throughout the Middle Ages. From the very first medical school of Salerno down to Vesalius, Western doctors were taught by the Muslims.



**Above:** Anatomical drawings appended to a Persian translation of an Arabic medical compendium.

As far back as the 10th century, when surgery in Europe was dishonourably considered the practice of “quacks” and “barbers”, trained Muslim surgeons were performing a huge array of surgical procedures.

Their success was mainly due to the use of fine sutures, the soporific sponge (the precursor of modern anaesthesia; this was a sponge soaked with aromatics and narcotics and held to the patient’s nostrils), and the use of purified alcohol to wounds as an antiseptic agent. Remarkably, the first European use of antiseptics in surgery was some eight centuries later by the British surgeon Joseph Lister in 1865.



The use of specialised surgical instruments was another revolutionary concept introduced by al-Zahrawi during the 10th century that transformed this field of medicine and laid the foundations of modern surgery throughout the world. His famous treatise called al-Tasrif (On Surgery) contained a staggering collection of over 200 different surgical instruments. Amazingly, the basic design of many of these instruments has not changed today and would be difficult to distinguish if laid besides their modern counterparts.



**Above:** A page from al-Tasrif, al-Zahrawi's revolutionary 10th century treatise on surgery depicting a few of the 200 surgical instruments described in his book. The basic design of many of these instruments has not changed over the centuries and are still in widespread use today.



**Above:** Arabic manuscript on the Anatomy of the Eye written around the year 1200 by al-Mutadibih.

**Right:** A case containing an array of 10th century surgical instruments.



# Life is a Journey

*All people come from God and there is no doubt that they shall return to Him.*

For Muslims, life is a brilliant demonstration of God's wisdom and knowledge, and a vivid reflection of His Art and Power. He is the Giver and Creator of life. Nothing comes into existence by chance and nobody creates himself or anybody else. Life is very precious and no sensible or reasonable person would like to lose it by choice. Even some of those who feel so desperate and take their lives by committing suicide try in the last minute to regain their existence in order to capture a second chance to live. Life is given to man by Allah and He is the only Rightful One to take it back; no one else has the right to destroy a life.

This is why Islam forbids all kinds of suicide and self-destruction and recommends patience and good faith when a dear soul passes away. When a murderer is executed in punishment, his life is taken away by the right of God and in accordance with His Law.

When God gives life to man, it is not in vain that He endows him with unique qualities and great abilities. Nor is it in vain that He charges him with certain obligations.

God helps man to fulfil the purpose of life and to realise that the goal of existence is to worship God alone. He means to help him to learn the creative art of living and enjoy the good taste of life according to Divine guidance.

Life is a trust from God and man is a trustee who should handle his trust with honesty and skill and with consciousness of responsibility to Him. Life may be likened to a journey starting from a certain point and ending at a certain destination. It is a transitory stage, an introduction to the eternal life in the hereafter. In this journey, people should consider themselves as travellers and should be concerned only with what is of use to them in the future life. In other words, we should do all the good we can and make ourselves fully prepared to move any minute to eternity. The best use of life in Islam therefore, is to live it according to the teachings of God and to make it a safe passage to the future life of eternity.

Life is important as a means to an ultimate destination. Islam has laid down a complete system of regulations and principles to show men and women how to conduct their lives.

**Some sayings of the Prophet Muhammad (peace be upon him).**


*“The merciful are shown mercy by the All-Merciful. Show mercy to those on earth, and God will show mercy to you.”*

(Narrated in Al-Tirmizi, No.1924, and Abu-Dawood, No. 4941).

*“A good word is charity.”*

(Narrated in Saheeh Muslim, No.1009, and Saheeh Al-Bukhari, No. 2989.)





**“ And to God belongs the  
unseen (secrets) of the  
heavens and the earth and to  
Him is the return of all affairs.  
So worship Him and trust  
in Him and your Lord is not  
unmindful of what you do. ”**

(The Quran, Chapter 11, Hud: 123)

# What is Islam?

Islam is the name of the religion, or more properly the 'way of life', which God (Allah) has revealed and which was practiced by all of the Prophets and Messengers of God that He sent to mankind. Even the name stands out unique among other religions in that it means a state of being; it does not refer to any particular person, such as Christianity, Buddhism or Zoroastrianism; a tribe like Judaism; or a nation like Hinduism.

The root Arabic word from which Islam is derived implies

*peace, safety, salutation, protection, submission, acceptance, surrender, and salvation.*

Islam specifically means being in the state of submission to God, worshipping Him Alone, and reverently accepting and obeying His Law. Through this submission, the peace, security, and wholesome well-being implied in its literal meaning is achieved.



**Top image:** The building at the very heart of the Sacred Mosque in Makkah is known as the Kaaba (literally meaning 'cube' in Arabic) and represents the focal point toward which, Muslims all over the world pray five times a day.

# Who are Muslims?

The Arabic word “Muslim” literally means “someone who is in a state of Islam (submission to the will and law of God)”. The five pillars of Islam provide the framework for the Muslim way of life. These are, the declaration of faith, five daily prayers, giving charity, fasting during the month of Ramadan and the pilgrimage to Makkah once in a lifetime. The message of Islam is universal, and anyone who accepts this message becomes a Muslim. Some people mistakenly believe that Islam is just a religion for Arabs, but nothing could be further from the truth. In actuality, over 80% of the world's Muslims are not Arabs!

If one just takes a look at the various peoples who live in the Muslim World - from Nigeria to Bosnia and from Morocco to Indonesia - it is easy enough to see that Muslims come from many different races, ethnic groups, cultures and nationalities. Being a Muslim entails complete acceptance and active obedience to the revealed teachings and laws of God the Exalted. A Muslim is a person who freely accepts basing his beliefs, values and faith on the will of Almighty God.



**Top:** Performing the ritual ablution known as *wudhoo* is obligatory before commencing the compulsory prayers.

**Above:** During the prayer Muslims prostrate (*sujood* in Arabic) before Almighty God.

**Opposite page:** Spectacular view from one of the minarets of the Sacred Mosque in Makkah as a million worshippers stand for the night-time prayer. According to Islamic tradition, the Kaaba was first built by Prophet Adam. Generations later it was rebuilt by Prophet Abraham and his son Prophet Ishmael (peace be upon them).



# Islamic Teachings

## *The foundation of the Islamic faith is belief in absolute Monotheism (the Oneness of God).*

This means to believe that there is only ONE Creator and Sustainer of everything in the Universe, and that nothing is divine or worthy of being worshipped except for Him. Truly, believing in the Oneness of God means much more than simply believing that there is "One God" - as opposed to two, three or four.

There are a number of religions that claim belief in "One God" and believe that ultimately there is only one Creator and Sustainer of the Universe, but true monotheism is to believe that only the One True Deity is to be worshipped in accordance to the revelation He sent to His Messenger. Islam also rejects the use of all intermediaries between God and Man, and insists that people approach God directly and reserve all worship for Him alone. Muslims believe that Almighty God is Compassionate, Loving and Merciful.

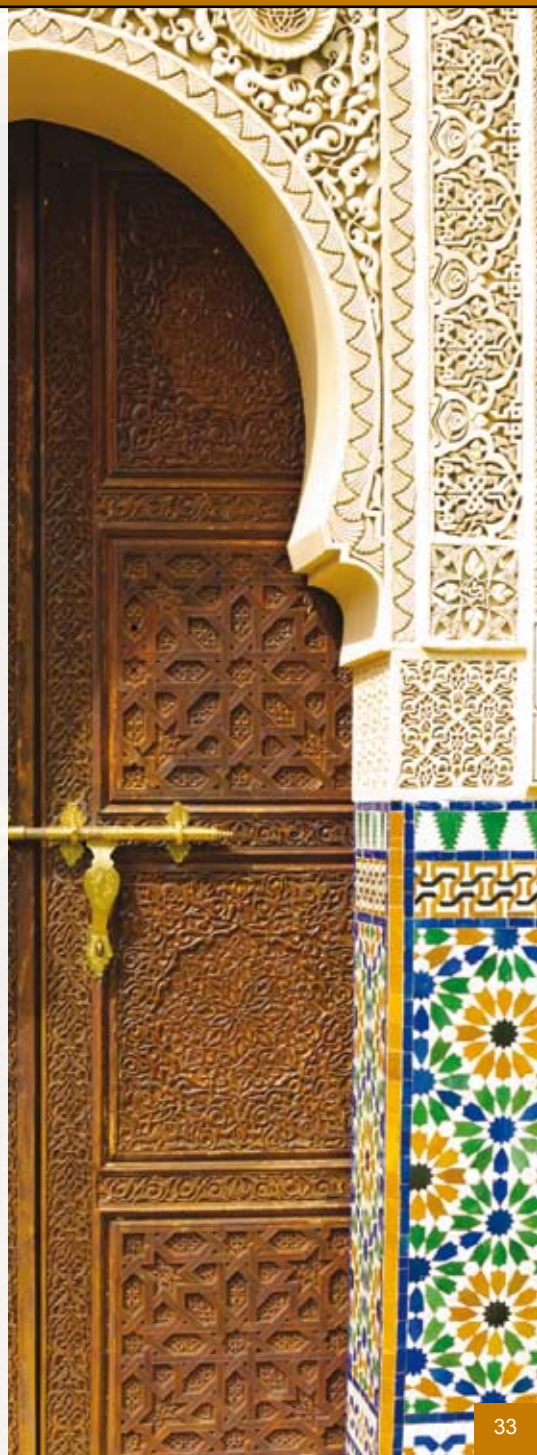
A common misconception is the claim that God cannot forgive His creatures directly. By over-emphasizing the burden and penalty of sin, as well as claiming that God cannot forgive humans directly, people often despair of the Mercy of God. Once they become convinced that they cannot approach God directly, they turn to false gods for help, such as heroes, political leaders, saviours, saints, and angels. We often find that the people who worship, pray to, or seek intercession from these false deities, do not consider them to be a 'god'.

They claim belief in One Supreme God, but claim that they pray to and worship others beside God only to get closer to Him. In Islam, there is a clear distinction between the Creator and the created. There is no ambiguity or mystery in issues of divinity: anything that is created does not deserve to be worshipped; only Allah, the Creator, is worthy of being worshipped. Some religions believe that God has become part of His creation, and this has led people to believe that they can worship something created in order to reach their Creator.



Muslims believe that even though God is Unique and Exalted beyond speculative comprehension, He definitely has no partners, associates, peers, antagonists or offspring. According to Muslim belief, Allah "neither begets, nor was He begotten" - neither literally, allegorically, metaphorically, physically or metaphysically. He is Absolutely Unique and Eternal. He is in control of everything and is perfectly capable of bestowing His infinite Mercy and Forgiveness to whomever He chooses. That is why Allah is also called the All-Powerful and Most-Merciful. Allah has created the Universe for man, and as such wants the best for all human beings.

Muslims view everything in the universe as a sign of the Benevolence of Almighty God. Also, the belief in the Oneness of Allah is not merely a metaphysical concept. It is a dynamic belief that affects one's view of humanity, society and all aspects of practical life. As a logical corollary to the Islamic belief in the Oneness of Allah, is its belief in the oneness of mankind and humanity.



# Living Islam

## The family in Islam

The family, which is the basic unit of civilization, is now disintegrating. Islam's family system brings the rights of the husband, wife, children, and relatives into a fine equilibrium. It nourishes unselfish behaviour, generosity, and love in the framework of a well-organized family system. The peace and security offered by a stable family unit is greatly valued, and it is seen as essential for the spiritual growth of its members. A harmonious social order is created by the existence of extended families and by treasuring children.

## How do Muslims treat the elderly?

In the Islamic world, one rarely finds "old people's homes." The strain of caring for one's parents in this most difficult time of their lives is considered an honour and a blessing and an opportunity for great spiritual growth. In Islam, it is not enough that we only pray for our parents, but we should act with limitless compassion, remembering that when we were helpless children, they preferred us to themselves. Mothers are particularly honoured.

When Muslim parents reach old age, they are treated mercifully, with kindness and selflessness. In Islam, serving one's parents is a duty second to prayer, and it is their right to expect it. It is considered despicable to express any irritation when, through no fault of their own, the old become difficult.

## Neighbours

It is reported that the Prophet Muhammad (peace be upon him) said: "Whoever believes in God and the Last Day (the Day of Judgment) should do good to his neighbour" (Narrated Saheeh Al-Bukhari, No. 6019).

## How does one become a Muslim?

One becomes a Muslim simply by saying with understanding and conviction the declaration of faith, **Laa illaaha ill Allah Muhammad-ur Rasoolullah**. This saying means

*'There is no god but God (Allah) and Muhammad is the Messenger (Prophet) of God.'*

The first part, "*There is no true god but God,*" means that none has the right to be worshipped but God alone, and that God has neither partner nor son. The person has to deny that there is anything else worthy of worship except God (Allah) alone. This includes denying and rejecting those people who overstep the limits set by the Creator or those people who wish to take an attribute of Allah upon themselves, such as the 'Forgiver' or 'Lawgiver'.

The declaration also needs to be said with knowledge and certainty. The person also needs to submit to Allah with love and sincerity. When someone converts to Islam, God forgives all of his previous sins and evil deeds.

To be a Muslim, one should also:

Believe that the Quran is the literal word of God, revealed by Him.

Believe that the Day of Judgment (the Day of Resurrection) is true and will come, as God promised in the Quran.

Accept Islam as his or her religion.

Not worship anything nor anyone except God.

Accept all of the previous Prophets send by God and believe that Muhammad (peace be upon him) is the Last Prophet of God.



### **The door to eternal paradise.**

God says in the Quran:

**“Race one with another for forgiveness from your Lord and for Paradise, whose width is as the width of the heavens and the earth, which has been prepared for those who believe in God and His messengers....”**

(The Quran, Iron 57: 21)

### **Happiness and inner peace**

Real happiness and peace can only be found in submitting to the commands of the Creator and the Sustainer of this world. God has said in the Quran:

**“...Truly, in remembering God do hearts find rest.”**

(The Quran, The Thunder 13: 28)

### **Human rights**

**Islam secures and preserves individual human rights. The following are some of these human rights that Islam protects. The life and property of all citizens in Islam are considered sacred, whether a person is Muslim or not. Islam also protects honour. So, in Islam, insulting others or making fun of them is not allowed.**

The Prophet Muhammad (peace be upon him) said: {Truly your blood, your property, and your honour are inviolable.} (Narrated in Saheeh Al-Bukhari, No 1739, and Mosnad Ahmad, No 2037)

### **Racism**

Racism is not allowed in Islam, for the Quran speaks of human equality in the following terms:

**“O mankind, We have created you from a male and a female and have made you into nations and tribes for you to know one another. Truly, the noblest of you with God is the most pious. Truly, God is All-Knowing, All-Aware. “**

(The Quran, The Dwellings 49: 13)

Islam rejects certain individuals or nations being favoured because of their wealth, power, or race. God created human beings as equals who are to be distinguished from each other only on the basis of their faith and piety. The Prophet Muhammad (peace be upon him) said: “O people! Your God is one and your forefather (Adam) is one. An Arab is not better than a non-Arab and a non-Arab is not better than an Arab, and a red (i.e. white tinged with red) person is not better

# Benefits of Islam

than a black person and a black person is not better than a red person, except in piety." One of the major problems facing mankind today is racism. The developed world can send a man to the moon but cannot stop man from hating and fighting his fellow man. Ever since the days of the Prophet Muhammad (peace be upon him), Islam has provided a clear means by which racism can be eradicated. The annual pilgrimage (Hajj) to Makkah shows the real Islamic brotherhood of all races and nations, when approximately two million Muslims from all over the world come to Makkah to perform the pilgrimage.

## **Justice**

Islam is a religion of justice. God has said:

**"Truly God commands you to give back trusts to those to whom they are due, and when you judge between people, to judge with justice..."**

(The Quran, The Women 4: 58)

And He has said: **"...And act justly. Truly, God loves those who are just."**

(The Quran, The Dwellings 49: 9)



Arabic: *“Allah”* ~ the God  
Arabic: *“ilah”* ~ god or deity  
Hebrew: *“Elohim”* ~ the God  
Aramaic: *“Elaha”* ~ God  
Syraic: *“Alaha”* ~ God

**“He is Allah, besides Whom there is no god; the Sovereign, the Holy One, the Source of Peace (and Perfection), the Guardian of Faith, the Preserver of Safety, the Exalted in Might, the Irresistible, the Supreme: Glory to Allah! (High is He) above the partners they ascribe to Him.”**

(The Quran, Chapter 59, The Gathering: 23)

# Who is Allah?

Often one hears the Arabic word "Allah" being used in discussions regarding Islam. The word "Allah" is simply the Arabic word for Almighty God, and is the same word used by Arabic speaking Christians and Jews. As a matter of fact, the word Allah was in use far before the word God ever came into existence. If one were to pick up an Arabic translation of the Bible, one would see the word "Allah" being used where the word "God" is used in English. In addition, the Arabic word for Almighty God, "Allah", is quite similar to the word for God in other Semitic languages. For example, the Hebrew word for God is "Elah".

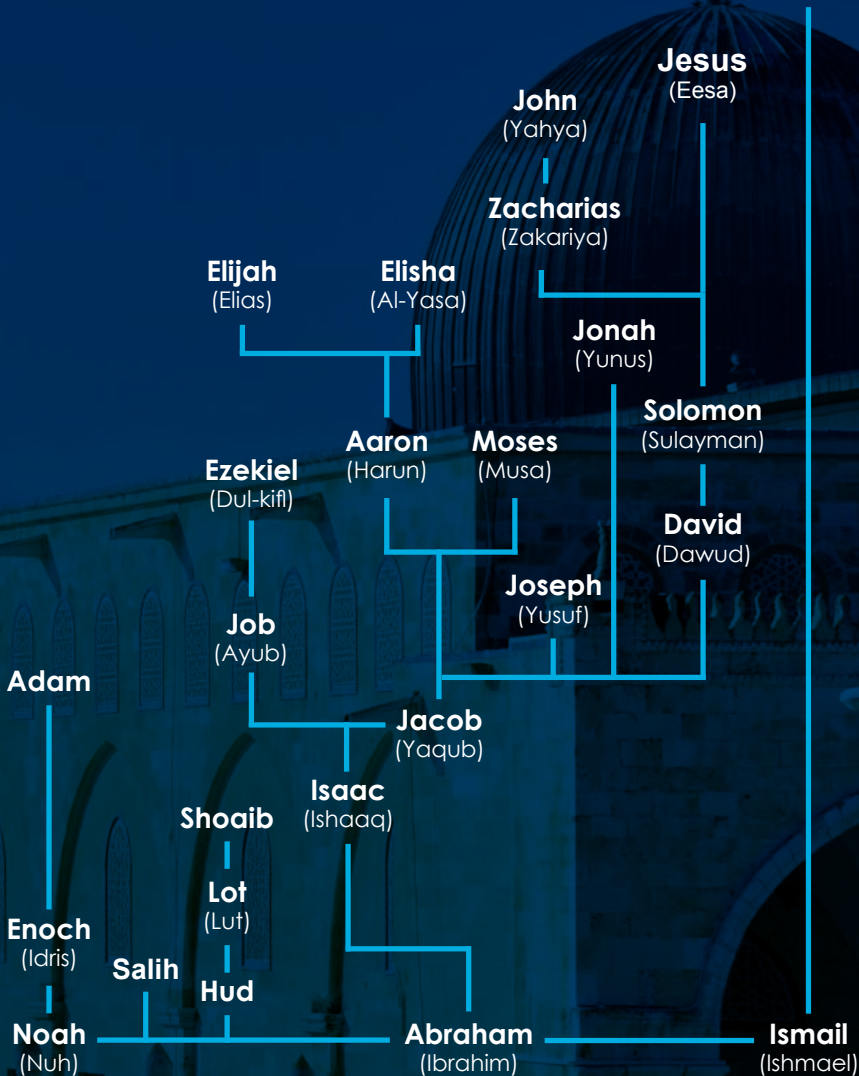
For various reasons, some non-Muslims mistakenly believe that Muslims worship a different God than the God of Moses and Abraham and Jesus. This is certainly not the case, since the Pure Monotheism of Islam calls all people to the worship of the God of Noah, Abraham, Moses, Jesus and all of the other prophets, peace be upon them.

**The concept of the Creator is very simple and easily understood in Islam. Allah is regarded as Unique and the One true Lord. He is the Sole Creator of everything and His power of creation is infinite.**

It is Allah Who created the vast expanse of the universe with countless galaxies containing billions of stars and planets. He created people, animals, plants, trees, microscopic life, atoms and sub atomic particles and many other things of which we have no knowledge.

Allah is the Most High, the Most Loving, the Most Merciful. He has no son nor partner and none has the right to be worshipped but Him alone. He is the true Deity and every other deity is false. He is the Creator of all beings and thus is considered to be the Lord for the atheists, the Buddhists, the Christians, the Hindus, the Jews, the Muslims, the Sikhs, and all others. Muslims worship and put their trust in Him alone and they seek His help and His guidance only. Allah is characterised with attributes of perfection and described with qualities of magnificence. He is free from defects and deficiencies. He is Ever-Living and will not die. He is Self-Sustaining, supports everything in this world and does not sleep. He is Fully-Aware; not a single atom in the heavens or the Earth escapes Him. He is the All-Seer; He views the crawling of a black ant upon a small rock in a pitch-black cave. And He is the All-Hearer; He hears the cries of the voices with the diversity of languages concerning their various needs.

# Muhammad ﷺ



The Prophets of Allah mentioned in the Quran (peace be upon them all). English versions of the names are given with the Quranic name in brackets where applicable. However, it is clearly stated in the Quran that this list is not exhaustive: **“And certainly We sent messengers before you: there are some of them that We have mentioned to you and there are others whom We have not mentioned to you...”** (Quran, The Forgiver 40:78).



# Who is Muhammad?

The Last and Final Prophet whom God sent to humanity was the Prophet Muhammad, may the mercy and blessings of God be upon him. At the age of forty, he received the revelation from God. He then spent the remaining portion of his life explaining, and living the teachings of Islam, the religion that God revealed to him. The Prophet Muhammad (peace be upon him), however, was sent as the final Messenger to all of humanity.

Even though other religious communities have claimed to believe in One God, over time, some corrupted ideas entered into their beliefs and practices leading them away from the pure sincere monotheism of the prophets. Some took their prophets and saints as intercessors with Almighty God. Some even believed that their prophets were the manifestations of God, or "God Incarnate" or the "Son of God". All of these misconceptions lead to the worship of created beings instead of the Creator, and contributed to the idolatrous practice of believing that Almighty God may be approached through intermediaries.

In order to guard against these falsehoods, the Prophet Muhammad (peace be upon him) always emphasized that he was only a human-being with the mission of preaching and obeying God's message. He taught Muslims to refer to him as "the Messenger of God and His Slave". Through his life and teachings, God made Prophet Muhammad (peace be upon him) the perfect example for all people - he was the exemplary prophet, statesman, leader, ruler, teacher, neighbour, husband, father and friend. Unlike other prophets and messengers, the Prophet Muhammad (peace be upon him) lived in the full light of history, and all his sayings and acts were meticulously recorded and collected. Muslims don't need to have mere 'faith' that he existed, or that his teachings are preserved - they know it to be a historical fact.

*He was an exemplary prophet, statesman, leader, ruler, teacher, neighbour, husband, father and friend.*

**Opposite background image:** Masjid al-Aqsa in Jerusalem represents Islam's third most holiest site.



# Prophet Muhammad's Legacy

The life of Prophet Muhammad (peace be upon him) is a great example that all humanity can learn and benefit from. His social, political, religious and economic success was not because of extraordinary miracles that made his life easy, on the contrary he experienced fear, hunger and oppression at various times in his life. He achieved genuine success based on hard work, struggle, commitment, love and sincere faith in Allah.

He always encouraged people to meet each other warmly with a smile and exchange greetings of peace. He emphasised good conduct and the kind treatment of parents, neighbours and friends. He was a great upholder of the rights of women, orphans and the poor. He abolished bad social manners, and condemned lying, cheating, backbiting, and spying on one another.

He promoted sport, healthy living and hygiene, and was against extremism and hardship. He stressed the importance of literacy and gaining knowledge through learning. And throughout his life he encouraged his companions to be warm and friendly and respect people of other faiths.

**Opposite:** A beautiful evening at Prophet Muhammad's (peace be upon him) Mosque in Madinah, Arabia.

Prophet Muhammad (peace be upon him) did not just call for faith in One God but he brought a message for every individual to add value to his or her life and a message for every family to be united and happy and a message for every society to reinforce unity and a message to every nation to emphasize solidarity and development and a message for humanity to strengthen knowledge, love and mutual collaboration.

## Sayings of the Prophet Muhammad:

"None but a noble man treats women in an honourable manner. And none but an ignoble treats women disgracefully". (Tirmidhi)

"Women are the twin halves of men." (Tirmidhi)

"Cleanliness is half of the faith." (Tirmidhi)

"I and the person who looks after an orphan and provides for him, will be in Paradise like this," putting his index and middle fingers together. (Sahih Bukhari)

"If anyone travels on a road in search of knowledge Allah will cause him to travel on one of the roads of Paradise..." (Tirmidhi)

# Views of western historians

## Michael H. Hart

"My choice of Muhammad to lead the list of the world's most influential persons may surprise some readers and may be questioned by others, but he was the only man in history who was supremely successful on both the secular and religious level. It is probable that the relative influence of Muhammad on Islam has been larger than the combined influence of Jesus Christ and St. Paul on Christianity. ...It is this unparalleled combination of secular and religious influence which I feel entitles Muhammad to be considered the most influential single figure in human history." (The 100, A Ranking of the Most Influential Persons in History by Michael H. Hart, New York, 1978, p.33).

## Mahatma Gandhi

"I wanted to know the best of the life of one who holds today an undisputed sway over the hearts of millions of mankind.... I became more than ever convinced that it was not the sword that won a place for Islam in those days in the scheme of life. It was the rigid simplicity, the utter self-effacement of the Prophet, the scrupulous regard for pledges, his intense devotion to his friends and followers, his intrepidity, his fearlessness, his absolute trust in God and in his own mission. These and not the sword carried everything before them and surmounted every obstacle. When I closed the second volume (of the Prophet's biography), I was sorry there was not more for me to read of that great life." (Mahatma Gandhi, Indian independence movement 1869 -1948).

## A.S. Tritton

"The lies (Western slander) which well-meaning zeal has heaped round this man (Muhammad) are disgraceful to ourselves only. A silent great soul, one of that who cannot but be earnest. He was to kindle the world, the world's Maker had ordered so." (A. S. Tritton in Islam, 1951).

## Simon Oakley

"The good sense of Muhammad despised the pomp of royalty. The Apostle of God submitted to the menial offices of the family; he kindled the fire; swept the floor; milked the ewes; and mended with his own hands his shoes and garments. Disdaining the penance and merit of a hermit, he observed without effort or vanity the abstemious diet of an Arab."

(Edward Gibbon and Simon Oakley in History of the Saracen Empire, London, 1870).

## Washington Irving

"Serious or trivial, his daily behaviour has instituted a canon which millions observe this day with conscious memory. No one regarded by any section of the human race as Perfect Man has ever been imitated so minutely. The conduct of the founder of Christianity has not governed the ordinary life of his followers. Moreover, no founder of a religion has left on so solitary an eminence as the Muslim apostle." (Washington Irving 'Mahomet and His Successors').




## Arthur Leonard

"Four years after the death of Justinian, A.D. 569, was born in Makkah, in Arabia, the man who, of all men, has exercised the greatest influence upon the human race... To be the religious head of many empires, to guide the daily life of one-third of the human race, may perhaps justify the title of a Messenger of God."

(Arthur Glyn Leonard in 'Islam, Her Moral and Spiritual Values').

## W. M Watt



Mohammad's career is a wonderful instance of the force and life that resides in him who possesses an intense faith in God and in the unseen world. He will always be regarded as one of those who have had that influence over the faith, morals and whole earthly life of their fellow men, which none but a really great man ever did, or can exercise; and whose efforts to propagate a great verity will prosper. (W. Montgomery Watt in 'Muhammad at Makkah,' Oxford, 1953.)

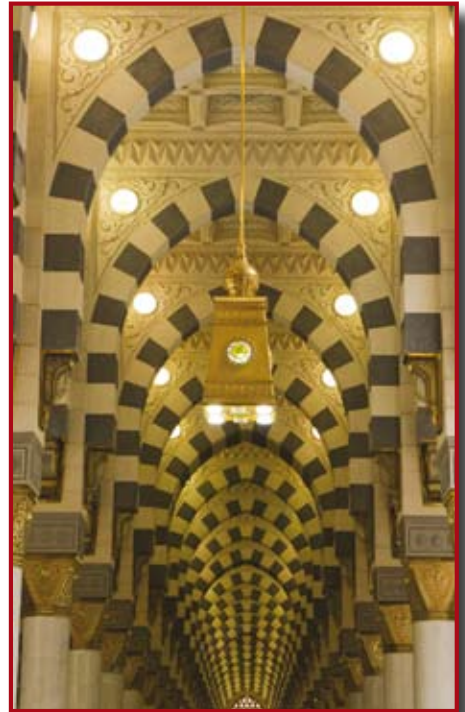
## Edward Gibbon

"History makes it clear, however, that the legend of fanatical Muslims sweeping through the world and forcing Islam at the point of sword upon conquered races is one of the most fantastically absurd myths that historians have ever repeated."


(Edward Gibbon in The Decline and Fall of the Roman Empire, 1823).

## Thomas Carlyle

"Muhammad's mission was to propagate the worship of the One and Only God (in Arabic Allah), the Creator and Sustainer of the Universe. His mission was essentially the same as that of earlier Prophets of Allah. In the historical context, many such terminologies about Muhammad, Islam and Muslims were borrowed from earlier European writings of the eleventh to the nineteenth century, a time when ignorance and prejudice prevailed." (Thomas Carlyle in Heroes and Hero Worship and the Heroic in History, 1840).



Internal view Prophet Muhammad's (peace be upon him) mosque in Madinah, Arabia.



*Today the Quran is still  
memorised and taught by  
millions of people.*

**“Alif Lam Mim.  
This is the Book; in it is  
guidance sure, without  
doubt, to those who fear  
God.”**

(The Quran, Chapter Al-Baqarah, 2:1-2)

# What is the Quran?

The Quran is the final revelation of Allah to all of mankind, which was spoken by Allah the Exalted Himself and conveyed to the Prophet Muhammad (peace be upon him), in sound, word and meaning. The Quran, (sometimes misspelled Koran), was then relayed to the Prophet's companions, and they diligently memorized it verbatim and meticulously compiled it into written form.

The Quran has been continually recited by the companions of the Prophet and their successors until the present day. In short, the Quran is the revealed book of Divine scripture from Allah to all humanity for their guidance and salvation.

Today the Quran is still memorised and taught by millions of people. The language of the Quran, Arabic, is still a living language to millions of people. Unlike the scriptures of some other religions, the Quran is still read in its original language by countless millions of people. The Quran is a living miracle in the Arabic language, and it is known to be inimitable in its style, form and spiritual impact, as well as the unique knowledge that it contains.

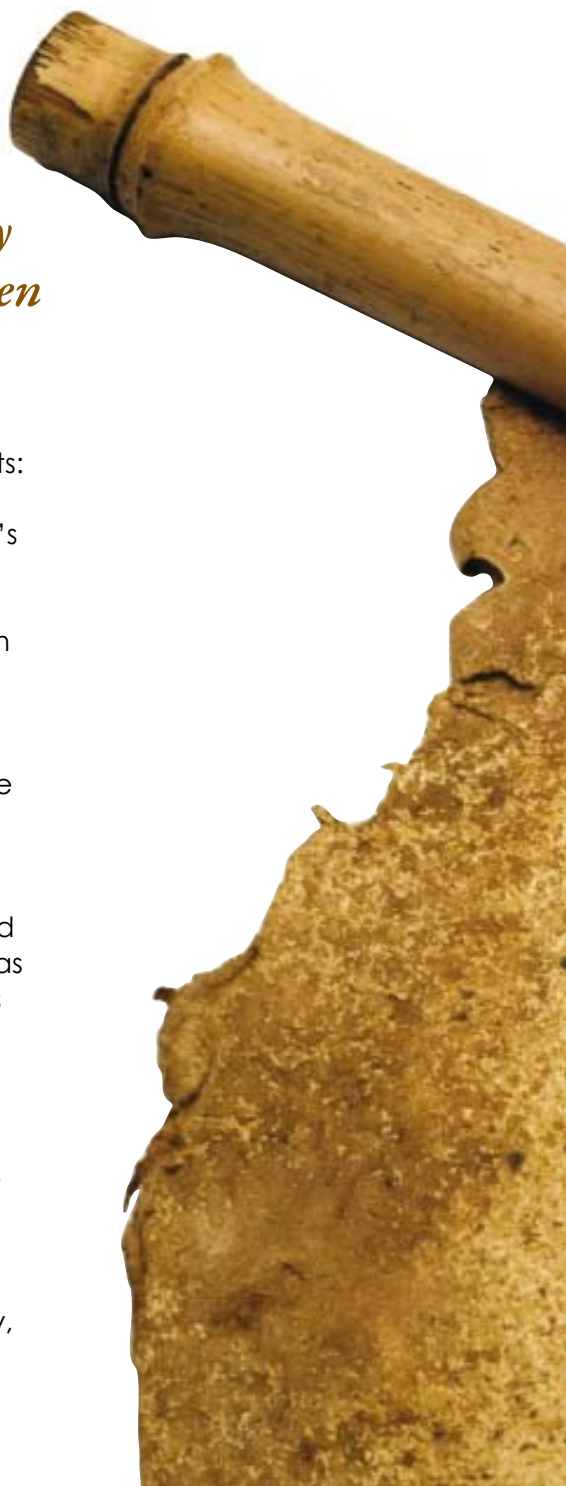
The Quran was revealed in a series of revelations to the Prophet Muhammad over a period of 23 years. In contrast to many other religious books, the Quran was always believed to be the exact Word of Allah. The Quran was recited publicly in front of both the Muslim and non-Muslim communities during the life of the Prophet Muhammad, and thereafter.

**The entire Quran was also completely written down in the lifetime of the Prophet, and numerous companions of the Prophet memorized the entire Quran word-for-word as it was revealed. The Quran was always in the hands of the common believers: it was always thought to be God's Word; and, due to wide-spread memorisation, it was perfectly preserved. It has never been altered or had changes to it decreed by any religious council.**



*The teachings of the Quran comprise a universal scripture addressed to all of mankind and not to any particular tribe or 'chosen people'.*

The message that it brings is the same message of all of the prophets: 'submit to Allah the One God and worship Him alone and follow Allah's Messengers for success in this life and salvation in the hereafter'. As such, Allah's revelation in the Quran focuses on teaching human beings the importance of believing in the Oneness of Allah, and framing their lives around the guidance which He has sent, which is articulated in the Islamic Law. The Quran contains the stories of the previous prophets, such as Noah, Abraham, Moses and Jesus, peace be upon all of them, as well as commands and prohibitions from God. In our modern times, in which so many people are caught up in doubt, spiritual despair and social and political alienation, the Quranic teachings offer solutions to the emptiness of our lives and the turmoil that is gripping the world today. The Quran is a universal book that touches upon philosophy, sociology, psychology, law and science.







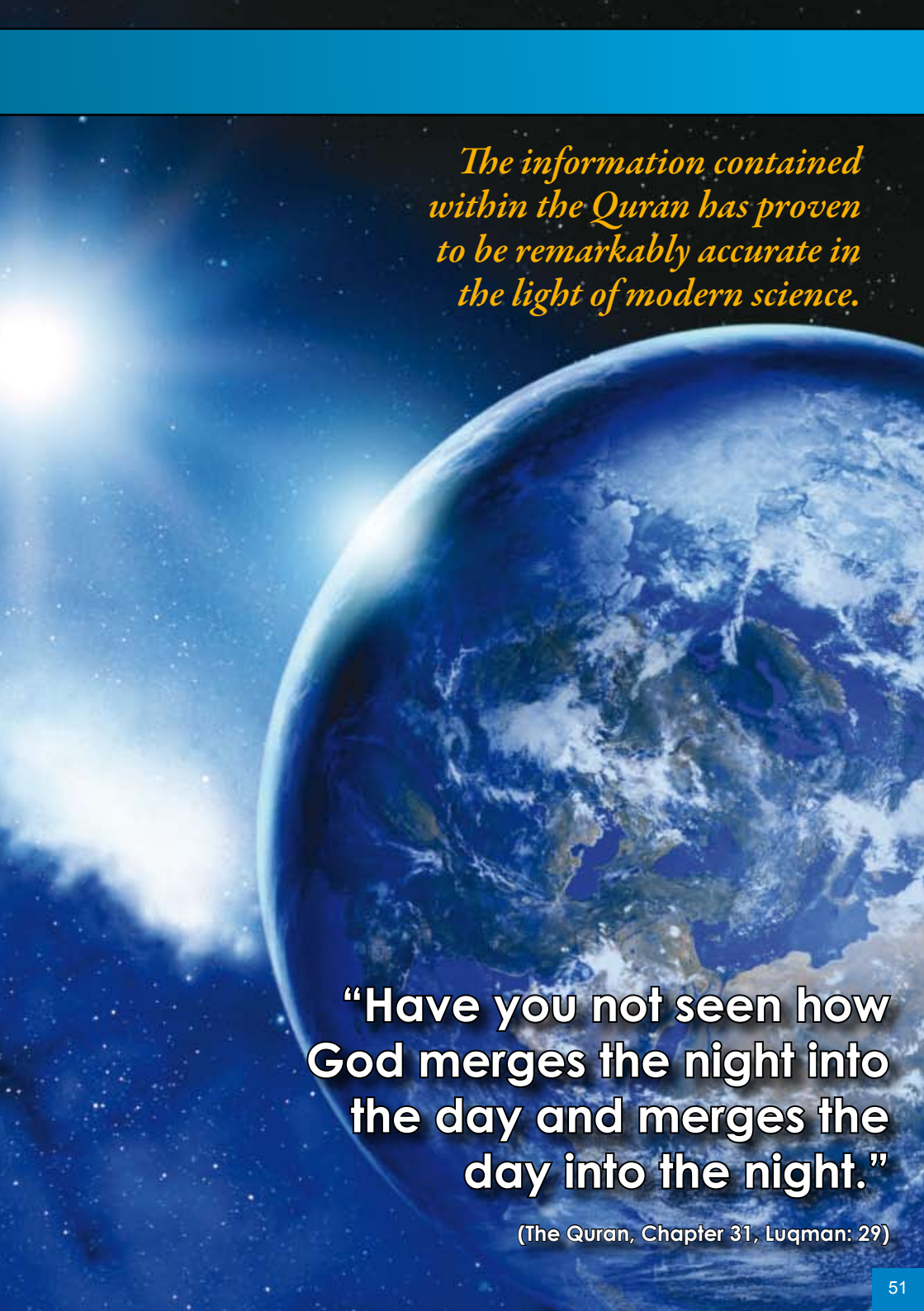
# The Quran & Science

To determine if a religion is true or false should not depend on our emotions, feelings or traditions. Rather, we should depend on reason and intelligence. So when God created mankind He did not leave us alone to fumble blindly after the truth. He sent Prophets and Messengers to guide mankind and He supported them with miracles and evidence so that it would be clear that they were truly sent by God. During the 7th century, God sent Prophet Muhammad (peace be upon him) as the last of these Prophets and Messengers. God revealed the Quran, for the guidance of all mankind irrespective of race, and time through the Angel Gabriel to the Prophet Muhammad (peace be upon him). The Quran is regarded by Muslims as the 'spoken word of God' and has remained unchanged since its revelation over 1,400 years ago.

There are many aspects to the Quran's miraculous nature. Although not a scientific reference, the Quran contains an abundance of accurate scientific information that was not known to man at the time of revelation, simply because the technology was not available in the 7th century to verify it.

The Quran uses a simple but clear language when stating these facts. The most important point is that the Quran does not contain any of the inaccurate theories, myths and superstitions that were widespread at the time. Quranic verses include information on topics such as astronomy and embryology, conveyed in a simple and comprehensive manner. The information contained in the Quran provides further overwhelming evidence that a human being did not author it. Furthermore, the Quran can be regarded as a 'book of signs.' It provides an insight into the workings of nature. The study of the natural world and the 'signs' in the Quran lead us to conclude that the Universe was created by an All-Knowing and All-Powerful Creator.

**These 'signs' which guide the reader to the path of discovery and deeper understanding of the sciences has provided enormous inspiration to Muslims for centuries. The extent of this contribution to world civilisation was so great that it inspired the scientific renaissance of 'Dark age' Europe.**



*The information contained  
within the Quran has proven  
to be remarkably accurate in  
the light of modern science.*

**“Have you not seen how  
God merges the night into  
the day and merges the  
day into the night.”**

(The Quran, Chapter 31, Luqman: 29)

## The Quran on Astronomy

### The creation of the universe

Today, there are various theories that explain the existence of the beginning of the universe. In the Quran, revealed to Prophet Muhammad (peace be upon him) over 1,400 years ago, we are given a clue to the possible beginnings. The Quran states that the heavens and the Earth were one connected entity, which were separated from each other.

**“Have not those who disbelieved known that the heavens and the Earth were one connected entity, then We separated them?”**

(Quran, The Prophets, 21: 30)

### Beginning of the universe

The Quran also refers to the heavens as ‘smoke’ This suggests that the heavens, which includes the galaxies, stars and planets, were nothing but a cloud of smoke or a highly dense and hot gaseous mass. It is now possible for scientists to observe new stars forming out of remnants of that ‘smoke’.

**“Then He turned to the heavens when it was smoke...”**

(Quran, Fussilat, 41:11)

The Quran also mentions the existence of an intermediate creation between the Heavens and the Earth.

**“Who created the Heavens and the Earth and all that is between them in six days (periods of time)...”**

(Quran, The Criterion 25: 59)

The existence of an intermediary creation would appear to correspond with the modern discovery of nebulae (clouds of gas and dust). In fact the voids which separate the stars in our Galaxy are not actually empty at all, there is diffuse gaseous matter everywhere.

### An Appointed term

The Quran highlights that the Sun and Moon have a limited existence in the following verse:

**“...He has subjected the Sun and the Moon (to continue going round), each running (its course) for a term appointed...”**

(Quran, The Thunder 13: 2)

Scientists now predict that the Sun's hydrogen will start to become exhausted after 5 billion years. The main point to be noted from the above description is that the existence of the Sun is limited.

### **Formation of multiple worlds**

According to modern science there is a strong possibility that the initial formation of the universe resulted in the formation of multiple worlds. Over one thousand four hundred years ago, the Quran already gave us this notion as in the following verse;

**“Praise be to Allah, the Lord of all the Worlds.”**

(Quran, The Opening, 1: 1)

### **The expanding universe**

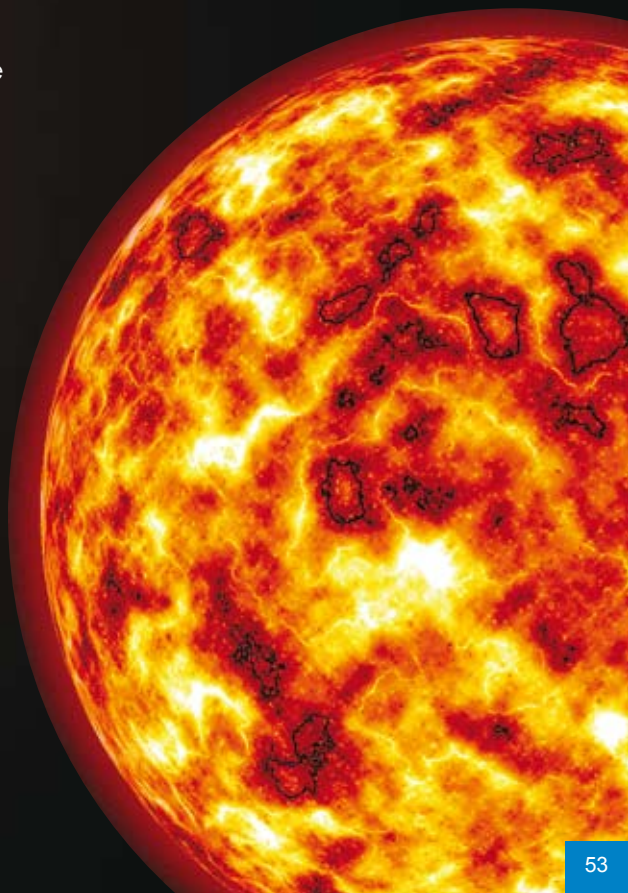
In the 1920's at the Mount Wilson Observatory, Edwin Hubble (1889 to 1953) used the 100-inch Hooker telescope to show that there were celestial bodies lying beyond our own Galaxy and that these were receding from us. This led to further support for the idea that the universe was expanding. However, the Quran, revealed centuries earlier, has already mentioned these recent findings by scientists, telling us that the universe is expanding all the time.

**“And the heaven We (Allah) constructed with strength and indeed, We are (its) expander.”**

(Quran, The Winnowing Winds, 51: 47)

### **The Sun and the Moon**

The Sun is a massive thermo-nuclear reactor generating a tremendous amount of light and heat with a core temperature of around 10 million degrees. The Moon, on the other hand, is a small inert body, which reflects the light of the Sun. The fine distinction between the Sun and the Moon was unknown in the 7th century. It was thought that the Sun was the greater light which lit up the day and that the Moon was the lesser light which lit up the night.



This indeed is how the Sun and the Moon were described in books before the Quran. The simplicity and comprehensive detail of the Sun and the Moon in the Quran is astounding. It describes the Sun as a torch (Siraj) and a blazing lamp (Wahhaj) ie. a source of generated light, whilst the Moon is described as a light (Nur). It has now been discovered that, this is the true nature of the Sun and Moon as first revealed in the Quran.

**“Blessed is the One Who placed the constellations in heaven and placed therein a lamp (Siraj) and a moon giving light (Nur).”**

(Quran, The Criterion, 25: 61)

### **Orbiting Sun and Moon**

Today, it is common knowledge that the Moon, like a satellite, orbits around the Earth. It was once believed that the Sun was stationary. However, modern science has discovered that the Sun also has an orbit. It is estimated that the solar system is between 25,000 and 28,000 light years away from the galactic centre.

We know today that the Sun revolves around the centre of our Galaxy, taking 225 million years to complete one circular orbit. Remarkably, the Quran mentions both of the orbits of the Sun and the Moon each travelling with their own Motion.

**“The Sun must not catch up the Moon, nor does the night outstrip the day. Each one is travelling in an orbit with its own motion.”**

(Quran, Ya-Sin, 36: 40)

The Quran revealed this piece of information over 1,400 years ago. It would be centuries later before modern technology discovered these facts of the Quran. For Muslims, this provides further support for the Quran's divine origin.



The most widely held view during Prophet Muhammad's (peace be upon him) time was that, the Earth must be flat and located at the centre of the universe. It was further thought that the Sun travelled around the Earth once every day. So, why weren't these theories mentioned in the Quran if it indeed originated from man.

These erroneous theories existed for many centuries but were finally abandoned after the publication of Nicolaus Copernicus' book 'On the Revolutions of the Heavenly Spheres' in 1543. There is also substantial evidence to support the notion that Copernicus relied heavily on the translated works of the 13th century astronomer Nasir al-Din al-Tusi and the 14th century astronomer Ibn Shatir. Before Copernicus, these two Muslim astronomers were the most influential astronomers in the world.

**Rotation of night and day**  
In the Quran, there are a number of verses that refer to the sequence of the night and day, yet no mention is made of the movement of the Sun around the Earth. When it is considered that the most widely held view at the time was that the Earth was the centre of the universe and that the Sun moved around it, a human author of the

Quran would not have failed to refer to the Sun's apparent movement around the Earth when discussing the sequence of the night and day.

**"Have you not seen how Allah merges the night into the day and merges the day into the night."**

(Quran, Luqman, 31: 29)

In view of the state of knowledge in Prophet Muhammad's (peace be upon him) day, it is inconceivable that the statements in the Quran which are connected with Astronomy could have been the work of a man, further highlighting the Divine origin of the Quran.



## The Quran on Biology

### The Importance of Water

It is common knowledge that cells make up the biological structure of all living things. Through modern scientific discovery, we also know that a large percentage of the living cell is composed of water. It is remarkable to read the following verse from the Quran that gave mankind a clue to the essential role of water.

**“And We (God) made from water every living thing. Will they then not believe?”**

(Quran, The Prophets, 21: 30)

### The Honey bee

It was once believed that worker bees were male soldiers and answered to a King. In 1637 however, Richard Remnant discovered that worker bees were in fact females (Richard Remnant; A Discourse of Historie of Bees, London: R. Young for T. Slater, 1637). Over one thousand years before this discovery, during the 7th century when the Quran was revealed

to Prophet Muhammad (peace be upon him), God had already mentioned this fact. In the verse opposite, the Quran uses a female word, al-Nahl, when describing the bee (Arabic words can have male or female genders). We know that the Quran is referring to the worker bee because the bee is said to leave it's home to gather food.

The bee is also known to collect nectar from various kinds of flowers and form honey within its body, which it then stores in wax cells. The process of honey production was discovered only a few centuries ago.

However, a clue to this mechanism was given in the Quran, which informs us that honey is made within the bee itself. Furthermore, we are now aware that honey has healing properties. This is also mentioned in the verse, further highlighting the miraculous nature of the Quran.





**“And your Lord inspired the bee (al-Nahl), “Take for yourself among the mountains, houses and among the trees and (in) that which they construct. Then eat from all the fruits and follow the ways of your Lord laid down (for you).” There emerges from their bellies a drink, varying in colours, in which there is healing for people. Indeed in that is a sign for a people who give thought.”**

(Quran, The Bee 16: 68-69)

### **Communication Between Ants**

In the past people would probably have mocked the idea that ants can communicate with each other using sophisticated messages. However, recent research has shown that ants do in fact communicate. It is remarkable therefore, that in the Quranic verse below, it mentions ants communicating with each other. It is also known that ant colonies have complex divisions of labour, composed of managers, supervisors, foremen, workers and even soldiers.

**“And there were gathered before Solomon his hosts of jinn and men and birds and they were set in battle order (marching forward). Till, when they came to the valley of the ants, one of the ants said: O ants! Enter your dwellings, in case Solomon and his hosts should crush you, while they perceive not.”**

(Quran, The Ant, 27: 17-18)



### **Wind Pollination**

Between 1760 and 1766, Joseph Koelreuter carried out various plant breeding experiments. During this period, he was the first Western scientist to discover the role played by wind in flower pollination. However, this process was already familiar to Muslims over one thousand years before these experiments were carried out, as in the Quran Allah had mentioned the winds as 'fertilising'.

**“And We (Allah) have sent the winds fertilising...”**

(Quran, The Rocky Tract, 15: 22)



## The Quran on Embryology

What will come as a surprise to many people is that many centuries before the invention of the microscope and other modern instruments, the Quran contained accurate statements regarding embryology, which have only recently been verified by science. Many different aspects of embryology are discussed in the Quran, using a simple yet comprehensive language, which is easily understandable at all times by all people. Embryo development in the Quran is divided into three main areas.

### 1. Drop stage - *Nutfah*

Human development begins at fertilisation when a male sperm combines with a female egg (ovum) to form a cell called the 'zygote', which has the form of a drop of fluid. The Quran describes in simple language that the basis of creation is a *Nutfah* (drop).

**“Verily, We created man from mixture of germinal drop (*Nutfah Amshaj*).”**

(Quran, Man, 76 : 2)

In the previous verse the Quranic term *Amshaj* means a 'mixture' and the whole verse refers to a mixture of male and female germinal fluid. Hence, the Quran refuted all of the earlier theories about the beginnings of human development because these did not take into account the dual nature of fertilisation.



The embryo is also known to develop only from the inner cell mass (ICM) of the zygote, the rest becomes nutritive and protective in function. The following Quranic verse accommodates this fact, implying that only part of the *Nutfah* takes part in embryonic formation.

**“He created him from (a part of) Nuffah.”**

(Quran, He Frowned, 80: 19)

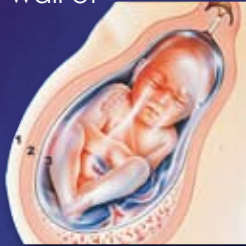
The Quran further informs us that the embryo is not pre-formed but develops in stages, and in three veils of darkness.

**“He created you in the wombs of your mothers, from one stage to another, and all along three veils of darkness surrounded you.”**

(Quran, The Troops, 39: 6)

The three veils of darkness would seem to refer to:

(1) the outer muscular wall of the abdomen, (2) the wall of the uterus, (3) and the fluid bag (chorion-amniotic membrane) in which the embryo floats.



## 2. Shaping stage

After the drop stage, the Quran in chapter 23 (The Believers), verse 14, mentions a number of distinct shaping stages. This period begins from the 3rd week until the end of the 8th week of embryo growth and is characterised by rapid cell growth over four distinct sub-stages. Note that the terms used are also the main characteristics of the embryo at that precise moment in its development.

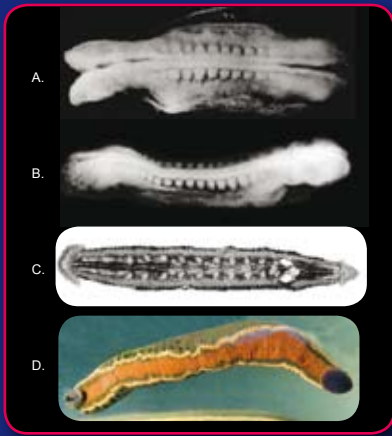
**“Then (thumma) We made the drop into a leech-like structure (Alaqah)”**

(Quran, The Believers, 23: 14)

### i) Alaqah (Leech-like structure)

The first sub-stage is termed Alaqah and it can either mean a) to attach, cling or hang on to something (opposite image), b) a leech-like structure. After twenty days, the embryo loses its drop-like shape as it becomes elongated and segmented rather like a leech (Figure 1).

Both of these meanings describe the appearance of the embryo and its relationship with the womb with stunning precision. The embryo resembles a leech-like organism surrounded by fluid, that is attached to a host and feeds on its blood. The shaping stages follow in quick sequence with relatively little delay between them. However, the fairly slow change from the drop-like Nuffah to the leech-like Alaqah is described by the use of the Arabic term thumma (thereafter), which indicates a time lag. The subtle indications of time frame throughout the Quranic descriptions of embryology point to an author who has a very detailed and in depth knowledge of the subject at hand.



**Figure 1:** Photographs of human embryos (**A & B**) at 22-25 days old. Note the remarkable segmented leech-like appearance.

**C:** A dissected leech showing remarkable similarity to a human embryo. **D:** A medicinal leech in a tank of water showing similarity to a human embryo.

ii) *Mudghah* (chewed-like substance)

**"And then We changed the 'Alaqah into a Mudghah'".**

(Quran The Believers, 23: 13-14)

The Quranic term *Mudghah* literally means a piece of substance which has been chewed and precisely describes the features present on the embryo. At about 26-27 days old the embryo has curved and the main external features are distinct pharyngeal arches and somites. These indentations closely resemble teeth marks

and give the embryo the appearance of a chewed substance as in the images below.



iii) *Izam* (bones) & iv) *Lahm* (flesh)

**"Then we made out of that Mudghah (chewed-like substance) *Izam* (bones), then we clothed the *Izam* with *Lahm* (flesh)"**

(Quran, The Believers, 23: 14)

The C-shaped and irregular appearance of the *Mudghah* starts to change during the 6/7th weeks as the bones in the form of a soft skeleton start to develop. The above verse explains that the bones are formed first and that this is followed by the formation of flesh or muscles which take up positions around the bones. We now know that the precursors of bones and muscle are both formed within the first 40 days. These do not have the shape of bones or muscles, but during the 7th week the embryo starts to appear human as the skeleton begins

to spread throughout the body and the bones take up their positions. By the 8th week the muscles take up their positions around the bones throughout the body and therefore 'clothe' the bones. During this time the embryo also starts to straighten, the surface becomes more even and smooth and various parts such as the head and limbs start to become more proportioned. The Quran refers to these developments by using terms such as *sawwa* (straightened/smoothen, Quran 75:38) and *addalak* (to make straight & well proportioned, Quran 82:8).

### 3) The Growth Stage

**"Then We developed (Ansha'a) out of him another creation."**

(Quran, The Believers, 23: 14)

In the above verse the Quran mentions 'another creation'. This refers to the fact that the developing embryo only begins to look human from about the 7th week.

The verb *Ansha'a* has two meanings; i) to initiate and ii) to grow and develop. Both of these can be applied to the foetal period of development. At 9 weeks old the foetal period begins. It is characterised by

maturation and rapid growth of the body. The most obvious difference with the embryonic period is that the foetus has acquired definite signs of human appearance.



## The Quran on Egyptology

### Knowledge of Hieroglyphs

Hieroglyphics is a system of writing that uses pictures to represent words and ideas. It is important to note that when the Quran was revealed to Prophet Muhammad (peace be upon him) during the 7th century, knowledge of Ancient Egyptian hieroglyphs had been totally forgotten. Furthermore, no one could read hieroglyphs until after the discovery of the Rosetta Stone was made centuries later in 1799 CE.



The discovery of the Rosetta Stone (a bilingual text dating from 196 BCE) was to provide the key to unlocking the mystery of Egyptian hieroglyphics. The Stone, pictured above, is 114.4 centimetres high at its tallest point, 72.3 centimetres wide and 27.9 centimetres thick. Weighing approximately 760 kg, it was originally thought to be granite or basalt but is currently described as granodiorite. The Stone has been kept at the British Museum in London since 1802.

### King or Pharaoh?

Recent research shows that the kings of Egypt were not always called Pharaoh which means 'great house' in Ancient Egyptian. Only in the New Kingdom during the 18th Dynasty (c.1552 - 1295 BCE) was this title applied to the king himself (Encyclopaedia Britannica). Remarkably, this fine distinction is mentioned in the Quran.

Prophet Joseph (peace be upon him) lived during the Middle to Second Intermediate Ancient Egyptian Kingdoms, during which time the Ruler of Egypt would have been referred to as a King. However, the Prophet Moses (peace be upon him) lived during the New Kingdom, when the Egyptian ruler would have been referred to as Pharaoh. Other religious scriptures make no distinction and all of the Egyptian kings are referred to as Pharaoh, regardless of the era. However, over 1,400 years ago during a time when the knowledge of hieroglyphs had been totally lost, the Quran made this fine distinction. The Quran correctly describes the ruler of Egypt at the time of Prophet Joseph (peace be upon him) as a 'King' (Arabic, *Malik*) in the following verse; he is never once addressed as Pharaoh.

**“And the king (of Egypt) said:  
“Verily, I saw (in a dream) seven  
fat cows, whom seven lean ones  
were devouring...”**

(Quran, Joseph, 12: 43)

As for the king who ruled during the time of the Prophet Moses (peace be upon him) the Quran repeatedly calls him ‘Pharaoh’ (Arabic, *Fir'awn*). The Quran never once addresses this monarch as King. For example,

**Moses said: “O Pharaoh! I am a messenger from the Lord of the Worlds.”**

(Quran, The Heights, 7: 104)

This further highlights the amazing historical accuracy of the Quran and utterly refutes the claim that Prophet Muhammad (peace be upon him) copied the Quran from other religious scriptures.

### **Pharaoh as god**

The Ancient Egyptians believed their Pharaoh to be a god, identifying him with the sky god Horus and with the sun gods Ra, Amon, and Aton. Even after death, the Pharaoh remained divine, becoming transformed into Osiris, the father of Horus and god of the dead, and passing on his sacred powers and position to the new Pharaoh, his son.

During the 7th century at a time when knowledge of Ancient Egyptian mythology had been totally lost, the Quran accurately informed us that Pharaoh considered himself to be a god.

**Pharaoh said: “O Chiefs! no god do I know for you but myself.”**

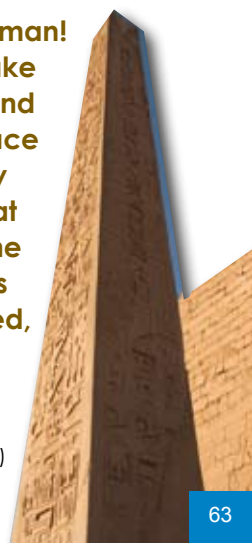
(Quran, The Narration, 28: 38)

### **Pharaoh’s desire to ascend to the skies**

The Quran accurately describes another concept of the Ancient Egyptian religion; the idea of the Pharaoh climbing a tower or staircase to reach the God of Moses. This concept is again in line with the mythology of Ancient Egypt (see *Egyptian Magic: 1985*, Aris & Phillips Ltd). The Quran says that the Pharaoh, ordered his close associate Haman to build a sky-high tower in order to see the God of Moses face-to-face.

**Pharaoh said: “O Haman! light me a (kiln to bake bricks) out of clay, and build me a lofty palace (Arabic: Sarhan, lofty tower or palace), that I may mount up to the God of Moses: but as far as I am concerned, I think (Moses) is a liar!”**

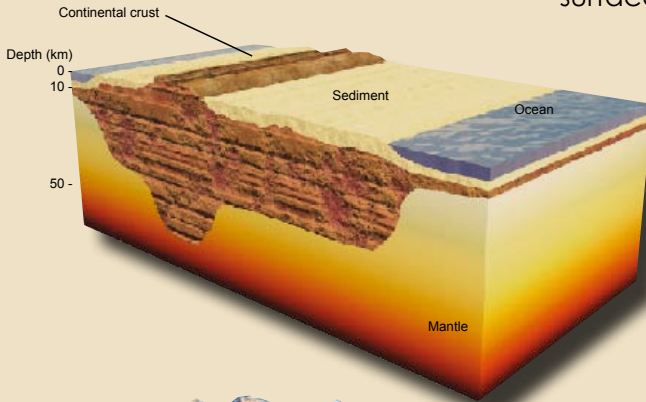
(Quran, The Narration, 28: 38)



# The Quran on Mountains

## Structure of mountains

Mountains are important components of the Earth's crust and together with highland and hill country they cover approximately 36% of the Earth's surface. Scientists have discovered that mountains have underlying roots and only a small part of the mountain actually thrusts up above the surface; the remainder of the structure is hidden deep underground (Earth, Press and Siever, 1982, p.435).



The Quran accurately described the structure of mountains as follows;

**“Have We (Allah) not made the earth as a bed, and the mountains as pegs?”**

(Quran, The Tidings, 78: 6-7)

The roots of a mountain can reach several times their elevations above the surface of the ground. So 'peg' is a very suitable word to describe mountains, as most of a properly set peg is hidden under the surface of the ground.

Diagram showing that huge mountain-like continents can have deep roots under the surface of the ground (Earth, Press, F. and Siever, R., 1982 3rd ed., San Francisco: W.H Freeman & Company: p.413).





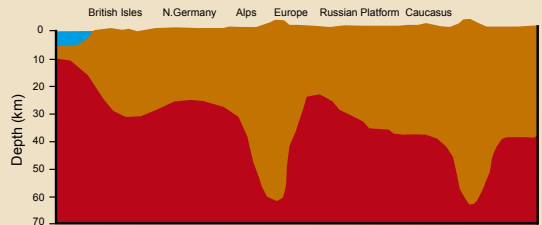
## The role of mountains

Earth scientists have also discovered that the rock which makes up the root has a lower density than the rest of the mountain. Therefore, the root acts as a foundation providing buoyancy and support for the mountain as well as hindering the shaking of the Earth and stabilising its crust (Geological Concept of Mountains in the Quran, p.5).

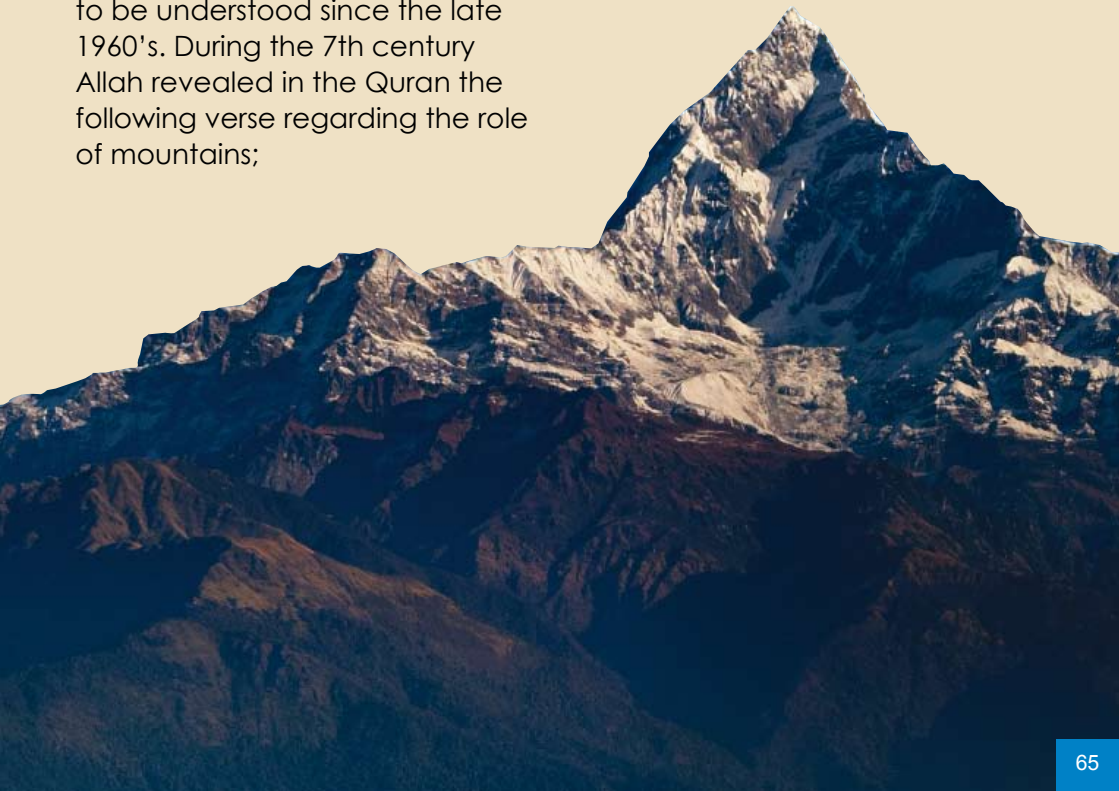
Similarly, the modern theory of plate tectonics holds that mountains work as stabilisers for the Earth. The stabilising role of mountains in the framework of plate tectonics has just begun to be understood since the late 1960's. During the 7th century Allah revealed in the Quran the following verse regarding the role of mountains;

**“And He has set firm mountains in the earth so that it would not shake with you.”**

(Quran, The Bee, 16: 15)



Schematic cross section showing the peg-like shape of continental land masses extending deep underground (Anatomy of the Earth, Cailleux, A., 1968, London: World University Library: p. 220).



# The Quran on Clouds

## Formation of clouds

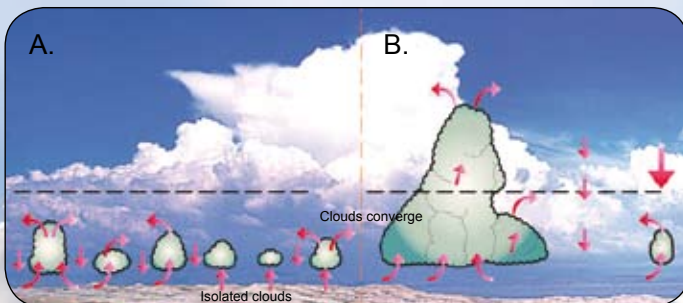
There are a number of steps involved in the formation of most types of cloud. For instance meteorologists have studied how cumulonimbus (thunderstorm) clouds are formed and are able to reveal how they produce rain, hail, and lightning. Cumulonimbus clouds go through the following steps to produce rain:

1) Cumulonimbus clouds begin to form when wind pushes some small pieces of clouds (cumulus clouds) to an area where these clouds converge.

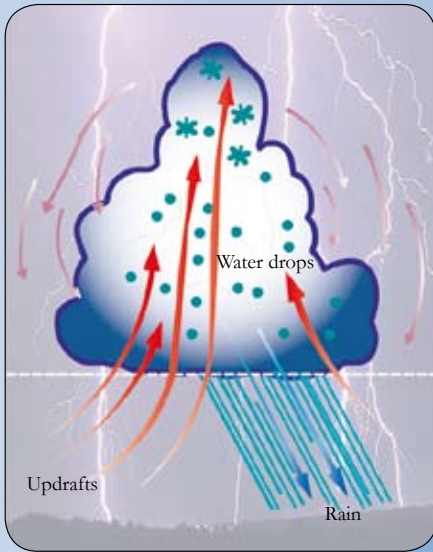
2) The small clouds join together forming a larger cloud (The Atmosphere. Anthes et al., p.269: Elements of Meteorology, Miller & Thompson, p.141: see figure 1).

3) When the small clouds join together updrafts within the larger cloud increase. The updrafts near the centre of the cloud are stronger than near the edges because they are protected from the cooling effects by the outer portion of the cloud. These updrafts cause the cloud body to grow vertically, so the cloud is stacked up.

The vertical growth causes the cloud body to stretch into cooler regions of the atmosphere, where drops of water and hail form and begin to grow larger. When these drops of water and hail become too heavy for the updrafts to support them, they begin to fall from the cloud as rain, hail etc. (see figure 2: The Atmosphere, Anthes et al., p.269, & Elements of Meteorology, Miller & Thompson, pp.141-142).



**Figure 1:** (A) Isolated small pieces of cumulus clouds. (B) When the small clouds join together, updrafts within the larger cloud increases, so the cloud is stacked up (The Atmosphere. Anthes et al., p.269).



**Figure 2:** A Cumulonimbus cloud. After the cloud is stacked up and the drops of water become too heavy for the updrafts of wind then they begin to fall as rain (Weather and climate, Bodin, 1978: p.123).

Over fourteen hundred years ago Allah revealed in the Quran the following verse; in chapter 24, verse 43:

**“Have you not seen how Allah makes the clouds move gently, then joins them together, then makes them into a stack, and then you see the rain come out of it”.**

(Quran, The Light, 24: 43)

Meteorologists have only recently come to know the details of cloud formation, structure and function by using advanced equipment. Aeroplanes, satellites, computers and weather balloons

and its direction, to measure humidity and its variations, and to determine the levels and variations of atmospheric pressure.

### **Hail and lightning**

The Quranic verse, after mentioning clouds and rain, speaks about hail and lightning as follows:

**“ ...And He sends down hail from mountains (clouds) in the sky, and He strikes with it whomever He wills, and turns it from whomever He wills. The vivid flash of its lightning nearly blinds the sight.”**

(Quran, The Light, 24: 43)

Hail is produced by convective clouds, such as the cumulonimbus. Meteorologists have found that these types of clouds can reach heights of up to 25-30,000 ft. The Quran refers to these types of clouds as *mountains in the sky* when describing the formation of hail and lightning. It is also interesting that the Quranic verse mentions lightning with reference to a hailstorm. In fact we know today that oppositely charged particles of hail and ice crystals play an important role in producing lightning.

Hence, for Muslims, the fact that God had already provided an insight into the cause of lightning over 1,400 years ago, further highlights the unique and miraculous nature of the Quran.

## The Quran on Sea & Rivers

Modern science has discovered that in the places where two different seas meet, there is a barrier between them. This barrier divides the two seas so that each sea has its own temperature, salinity, and density (*Principles of Oceanography*, Davis R., 1972, p.92).

For example, Mediterranean sea water is warm, saline, and less dense, compared to Atlantic ocean water. As Mediterranean sea water enters the Atlantic over the Gibraltar-sill, it moves several hundred kilometres into the Atlantic at a depth of about 1,000 metres with its own warm, saline, and less dense characteristics (see figure 1). The Mediterranean water stabilises at this depth. Although there are large waves, strong currents, and tides in these seas, they do not mix or transgress this barrier.

The Quran mentions the existence of a barrier between two seas that meet and which they do not transgress in the following verse.

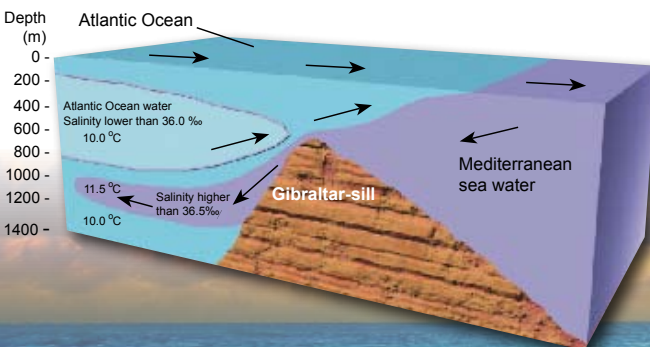
**“He has let free the two seas meeting together. There is a barrier between them. They do not transgress.”**

(Quran, The Mercy Giving 55: 19-20)

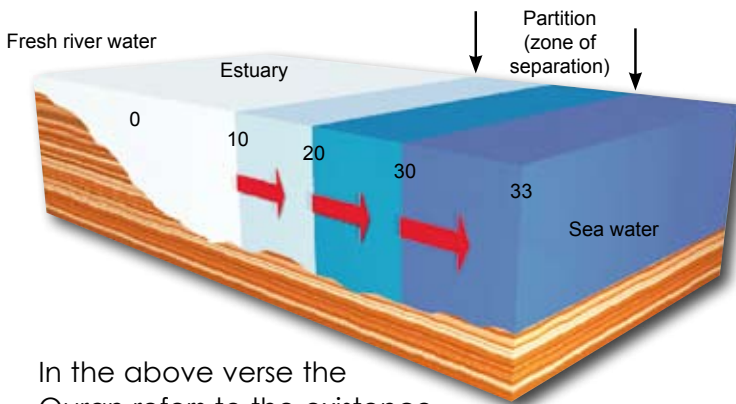
In another verse when God speaks about the divider between fresh and salt water, He mentions the existence of “a forbidding partition” with the barrier:

**“He is the One who has let free the two bodies of flowing water, one sweet and palatable, and the other salty and bitter. And He has made between them a barrier and a forbidding partition.”**

(Quran, The Criterion 25: 53)



**Figure 1:** Mediterranean sea water enters the Atlantic over the Gibraltar sill with its own characteristics, because of the distinguishing barrier. Temperatures are in degrees Celsius and salinity is in parts per thousand (Modified from *Marine Geology*, Kuenen, H. 1960).



**Figure 2:** Longitudinal section showing salinity (parts per thousand ‰ in an estuary). We can see here the partition (zone of separation) between the fresh and the salt water (slightly modified from Introductory Oceanography, Thurman, p.301).

In the above verse the Quran refers to the existence of a barrier which prevents the mixing of fresh water when it meets sea water. One may ask, why did Allah mention the partition when speaking about the divider between fresh and salt water, but did not mention it when speaking about the divider between the two seas?

In estuaries (e.g. Nile, Tigris, Euphrates) where fresh (sweet) and salt water meet, the situation is somewhat different from what is found in places where two seas meet. It is now known that the mixing of the fresh with the salty water only occurs very far out at sea. It has also been discovered that in estuaries, between the fresh and salt water, there exists a "pycnocline zone with a marked density discontinuity separating the two layers." (Oceanography, Gross M., 1993, p.242).

This partition (zone of separation) has a different salinity from the fresh and salt water (figure 2). This information has been discovered only recently, using modern instruments to measure temperature, salinity, density, oxygen solubility etc. The human eye cannot see the difference between the two seas that meet, rather the two seas appear to us as one homogeneous sea. Likewise, the human eye cannot see the division of water in estuaries into the three kinds: the fresh water, the salt water, and the partition (zone of separation). As we have seen, Allah revealed this phenomenon in the Quran over 1400 years ago.

# Jesus in Islam

*Muslims respect and revere Jesus (peace be upon him). They consider him one of the greatest of God's messengers to mankind.*

The Quran confirms his virgin birth, and a chapter of the Quran is entitled 'Maryam' (Mary). The Quran describes the birth of Jesus as follows:

**"(Remember) when the angels said, "O Mary, God gives you good news of a word from Him (God), whose name is the Messiah Jesus, son of Mary, revered in this world and the Hereafter, and one of those brought near (to God). He will speak to the people from his cradle and as a man, and he is of the righteous." She said, "My Lord, how can I have a child when no mortal has touched me?" He said, "So (it will be). God creates what He wills. If He decrees a thing, He says to it only, 'Be!' and it is."**

(Quran, The Family of Imran, 3: 45-47)

Jesus was born miraculously by the command of God, the same command that had brought Adam into being with neither a father nor a mother. God has said:

**"The case of Jesus with God is like the case of Adam. He created him from dust, and then He said to him, "Be!" and he came into being."**

(Quran, The Family of Imran 3: 59)

During his prophetic mission, Jesus performed many miracles. God tells us that Jesus said:

**"I have come to you with a sign from your Lord. I make for you the shape of a bird out of clay, I breathe into it, and it becomes a bird by God's permission. I heal the blind from birth and the leper. And I bring the dead to life by God's permission. And I tell you what you eat and what you store in your houses...."**

(Quran, The Family of Imran 3: 49)



Abu Huraira reported: The Messenger of God, peace be upon him, said,  
***“I am the closest of people to the son of Mary. The prophets are brothers from different mothers, and there is no prophet between him and I.”***

(Saying of Prophet Muhammad (peace be upon him),  
Sahih Muslim, Book 30, No. 5834)

# Women in Islam

What makes one gain value and honour with God, is not the level of one's prosperity, position, intelligence, physical strength or beauty, but rather one's consciousness and awareness of God Almighty. However, due to the social disparity between men and women in the West and other cultures influenced by it, and the common lack of understanding about Islamic teachings regarding

the status and role of women, it is important to address this topic in a clear manner.

In Islam, women are highly protected, favoured and respected by the Divine law. This can be ascertained when one considers the rights and freedoms endowed upon women by Islam.

**Prior to Islam women were denied any part of inheritance, Islam gave them their share.**

**Women did not have the right to choose a husband, Islam put an end to this inequality.**

**Men could divorce women at will and take them back at will, Islam diminished this practice and decreed that if a man was to divorce, he had to sustain the women for four successive months.**

**Women were given complete rights of owning property by Islam and in addition to that they could spend their wealth when they liked while previously this was not the case.**

**Islam declared that even if women were wealthy, it was the responsibility of the husband to provide sustenance.**



The teachings of Islam are based essentially on the Quran (God's revelation) and *hadeeth* (sayings of Prophet Muhammad, peace be upon him). Women have always enjoyed a very high status in Islam, indeed the very first person to become a Muslim after the Prophet Muhammad (peace be upon him) received revelation was his wife, Khadija bint Khuwailid. Moreover, some of the most learned Islamic scholars have been women. History records few scholarly enterprises, at least before current times, in which women have played an important and active social, economic and intellectual role alongside men.

The science of *hadeeth* literature forms an outstanding exception in this respect. Since Islam's earliest days, women took a prominent role in the preservation and cultivation of *hadeeth*, and this function has continued through centuries. At every period in Muslim history, there lived numerous eminent women-traditionalists, treated by their brethren with reverence and respect. Biographical notices on very large numbers of them are to be found in biographical dictionaries.

Islam considers kindness to parents next to the worship of God. **“Your Lord has decreed that you worship none save Him, and that you be kind to your parents. . .”** (Quran 17: 23).

Moreover, Prophet Muhammad (peace be upon you) recommended the good treatment of mothers by saying:

*“Paradise is at the feet of mothers.”*

(Ibn Majah, Ahmad).

**And we have  
enjoined  
upon man  
(to be good)  
to his parents:  
His mother  
bears him in  
weakness upon  
weakness...**

(The Quran, Chapter 31, Luqman: 14)

# Muslim Women's Dress

## Suppression or Liberation?

"Why do Muslim women have to cover their heads?" This question is one which is asked by many people. For many women, however, it is the truest test of being a Muslim. The answer to the question is very simple - Muslim women observe HIJAB (covering the head and the body) because God has told them to do so.

**"O Prophet, tell your wives and daughters and the believing women to draw their outer garments around them (when they go out or are among men). That is better in order that they may be known (to be Muslims) and not annoyed..."** (Quran, 33:59).

Other reasons include the requirement for modesty in both men and women. Both will then be evaluated for intelligence and skills instead of looks. A Muslim woman who covers her head is making a statement about her identity. Anyone who sees her will know that she is a Muslim and has a good moral character. Many Muslim women who cover are filled with dignity and self-esteem; they are pleased to be identified as a Muslim woman.

The question of Hijab for Muslim women has been a controversy in the West for centuries and will probably continue for many more. The word "Hijab" comes from the Arabic word "hajaba" meaning to hide from view or conceal. The Quran says:

**"Say to the believing man that they should lower their gaze and guard their modesty; that will make for greater purity for them; and Allah is well acquainted with all that they do. And say to the believing women that they should lower their gaze and guard their modesty; and that they should not display their beauty and ornaments except what must ordinarily appear thereof; that they should draw their veils over their bosoms and not display their beauty except to their husbands..."**

(Quran, 24: 30-31).

These verses from the Quran contain two main injunctions: A woman should not show her beauty or adornments except what appears by uncontrolled factors such as the wind blowing her clothes, and the head covers should be drawn so as to cover the hair, the neck and the bosom. Islam has no fixed standard as to the style of dress or type of clothing that Muslims must wear. However, some requirements must be met.

The first of these requirements is the parts of the body which must be covered. The second requirement is looseness. The clothing must be loose enough so as not to describe the shape of the woman's body. One desirable way to hide the shape of the body is to wear a cloak over other clothes. However, if the clothing is loose enough, an outer garment is not necessary. Thickness is the third requirement. The clothing must be thick enough so as not to show the colour of the skin it covers or the shape of the body. Another requirement is an over-all dignified appearance. The clothing should not attract attention to the woman. It should not be shiny and flashy so that everyone notices the dress and the woman. The clothing should be modest, not excessively fancy and also not excessively ragged to gain others admiration or sympathy.

The Islam Hijab is both modern and practical. Muslim women wearing Islamic dress actively participate at work and education. They feel confident to engage with wider society without any problems or constraints. Hence women, should be allowed to choose what they wear, and if they choose to wear modest clothing, veil their face or cover their head with a scarf, then society should appreciate that that choice is entirely their right.



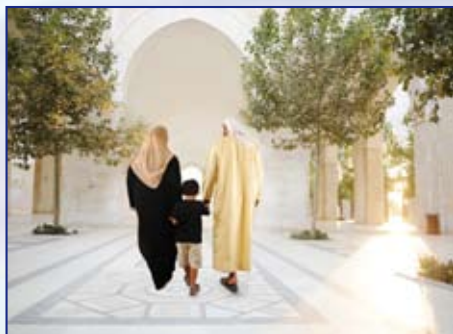
One of the misconceptions about this mode of dress is that it implies that Muslim women are submissive or inferior to men. Muslim women actually argue that on the contrary, Islamic dress is one of many rights granted to Islamic women, empowering them to impose their intellectual identity in the public sphere. Modest clothing is worn in obedience to God and has nothing to do with submissiveness to men.

Muslim men and women have similar rights and obligations and both submit to God. Jewish, Christian, Sikh and other faith groups also instruct their women to dress modestly and in some cases cover their heads with scarves, however they are not deemed to be 'inferior' but instead perceived as 'pious'.

The Muslim community in Europe and America is growing rapidly. As the community grows, more Muslim women enter and participate into the mainstream society and workforce. In many cases, these women wish both to play their role in society and to maintain their religious conviction and individual identity. It is completely plausible to be able to fulfil both goals as Islamic dress is not indicative of individual competence.

There are some, who believe that the face veil, the Niqab or Burqa is a threat to social integration or security. Muslims and many proponents of women's rights and personal freedom believe otherwise. The Niqab or Burqa are not a threat to social integration since Muslim women have been donning the Niqab for decades in Europe and this issue has not caused any controversy until only recently.

There is an increasing feeling within the Muslim community that mounting hostility to the Niqab and Hijab have got little to do with 'womens liberation' or integration, but more to do with the rise of Islamophobia in modern Europe. One of the problems in the discourse surrounding 'integration' is that whilst often referring to integration, many of its proponents actually mean assimilation, a totally different concept and certainly not one to be expected in secular, liberal and democratic Europe in a post-colonial era that has prided itself on its multiculturalism.



## Conclusion

The fact is that modern 'Western' dress is a new invention. Looking at the clothing of women as recently as seventy years ago, European clothing was similar to what Muslim women wear today. These active and hard-working women of the West were not inhibited by their clothing which consisted of long, full dresses and various types of head covering. Muslim women who wear Hijab do not find it impractical or interfering with their activities in all levels and walks of life.

Narrated by Abu Hurayrah, The Prophet (peace be upon him) said:

*'Among the Muslims the most perfect, as regards his faith, is the one whose character is excellent, and the best among you are those who are best to their wives.'*

(Saying of Prophet Muhammad (peace be upon him), Al-Tirmidhi Hadith 628)

# An invitation to think

The question of why mankind came into existence has been contemplated by every civilisation since the beginning of creation. However, in this age of science and technology we do not give much thought to actually finding out the purpose of our existence. From the cradle to the grave we strive in some way to obtain the material goals that society has set for us. No longer do we have the time or are we encouraged to ponder about questions of life for ourselves. Instead, we place our trust in scientists and theologians who claim to know the answers to life.

For example, have you ever wondered about the perfect order of the universe? Look at the world around you. Why is pure water tasteless, and why does it have such life-giving qualities to plants and animals, that no other liquid has? Man has discovered that water boils at 100 degrees, and that the speed of light is  $3.0 \times 10^8$  metres per second. However, he did not make these laws to be so. Man did not design the earth to be spherical nor did he design the universe as we know it. Man has no power whatsoever to change these laws.

Think about the fine-tuning of the universe; our universe is governed by constant numbers, untune or alter any one of them and the stars, planets and humans would then not exist at all. The first crucial number **D** ( $=3$ ) is the number of spatial dimensions: we live in a three-dimensional universe. Life couldn't exist if **D** were two or four. Time is a fourth dimension, but distinctively different from the others in that it has a built-in arrow: we 'move' only towards the future.

The cosmic number *omega* (**W**) measures the amount of material in the universe - galaxies, diffuse gas, and 'dark matter'. A universe within which **W** was too high would have collapsed long ago; had **W** been too low, no galaxies would have formed. The inflationary theory of the Big Bang says **W** = 1.

Another number, *epsilon* (**e** $=0.007$ ) defines how firmly atomic nuclei bind together and how all the atoms on Earth were made. The value of **e** controls the power from the Sun and, more sensitively, how stars transmute hydrogen into all the atoms of the periodic table. Carbon and oxygen are

**D = 3**

**E = 0.007**

**N = 1036**

**Q = 1/100,000**

**W = 3**

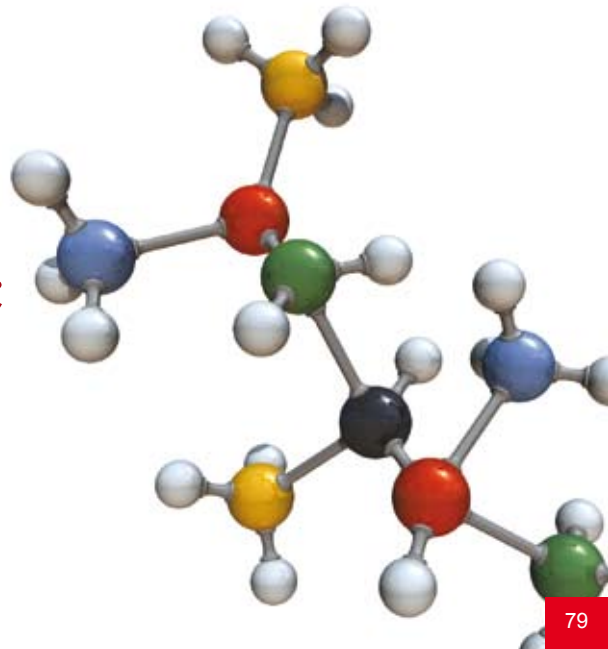
**I = 0.7**


common, and gold and uranium are rare, because of what happens in the stars. If **e** were 0.006 or 0.008, we could not exist. The cosmos is so vast because there is one crucially important huge number **N** (=1036). This is the ratio of the strength of the electrical force to the gravitational force. The fabric - or texture - of our universe depends on the number **Q**, and represents the ratio of two fundamental energies.

**“And among His (God’s) Signs is the creation of the heavens and the earth and the variations in your languages and your colours; verily in that are Signs for those who know.”**

(The Quran, Chapter 30,  
The Romans: 22)

If **Q** (= 1/100,000) were even smaller, the universe would be inert and without structure; if **Q** were much larger, it would be a violent place, dominated by giant black holes. The last number **I** (=0.7) controls the expansion of our universe. Fortunately for us, **I** is very small. Otherwise its effect would have stopped galaxies and stars from forming. Hence, the existence of a life permitting universe is due to conditions that must have been fine-tuned to a degree that is literally incalculable. The reality rationally points to the decisive fact that there must have been an intelligent Creator.





**“...Truly, in the  
remembrance of Allah  
do hearts find rest.”**

(The Quran, Chapter 13, The Thunder: 28)



# The Purpose of Life

**Since the teachings of Islam encompass all aspects of life and ethics, God-consciousness is encouraged in all human affairs. Islam makes it clear that all human acts are acts of worship if they are done for God alone and in accordance to His Divine Scripture and Law. As such, worship in Islam is not limited to religious rituals, and for this reason it is more properly known as 'way of life' than a religion.**

The teachings of Islam act as a mercy and a healing for the human soul, and qualities such as humility, sincerity, patience and charity are strongly encouraged. Additionally, Islam condemns pride and self-righteousness, since Almighty God is the only judge of human righteousness.

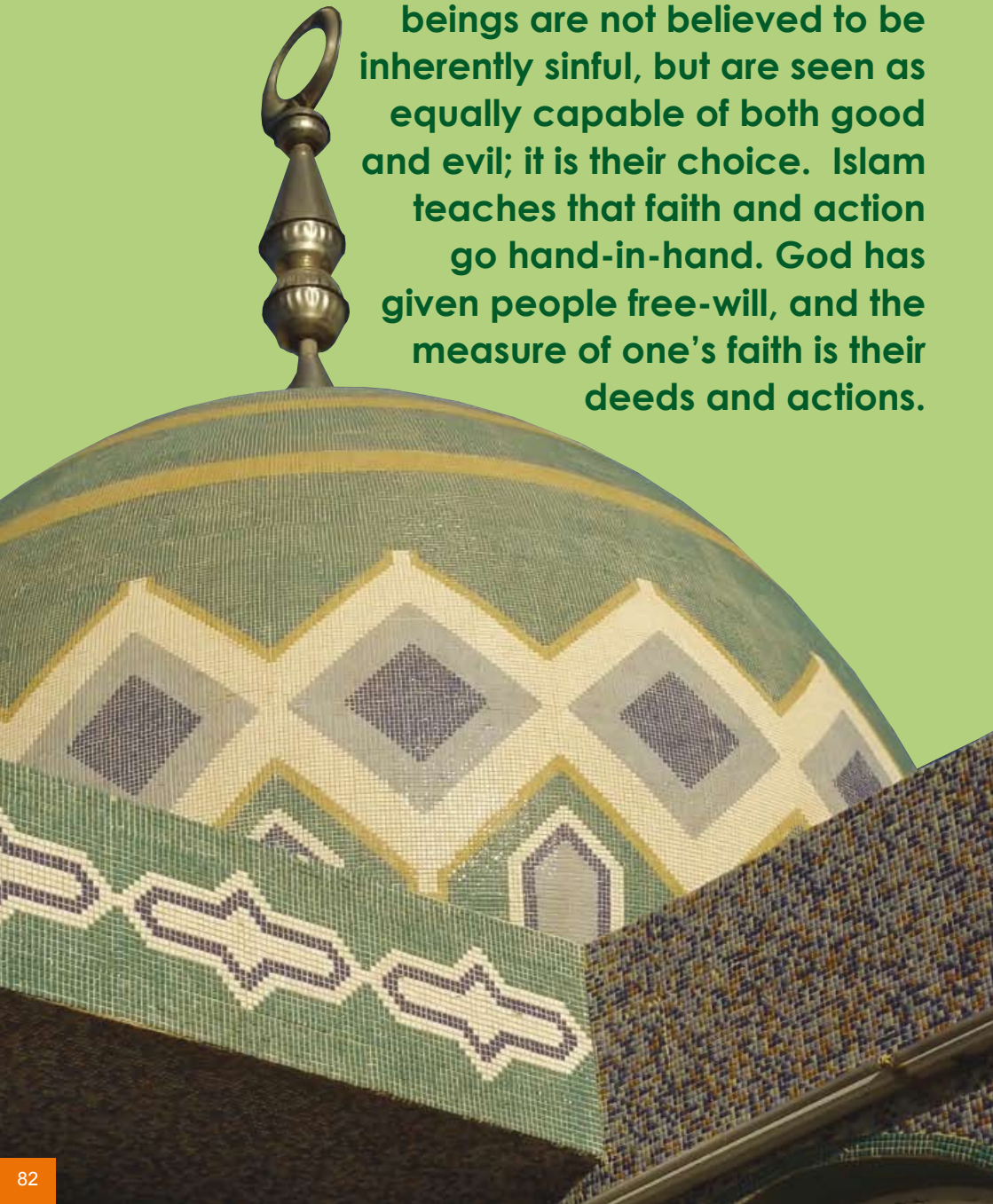
The Islamic view of the nature of man is also realistic and well-balanced in that human beings are not believed to be inherently sinful, but are seen as equally capable of both good and evil; it is their choice. Islam teaches that faith and action go hand-in-hand. God has given people free-will, and the measure of one's faith is their deeds and actions.

However, since human beings have also been created innately weak and regularly fall into sin, they are in need of continually seeking guidance and repentance, which is, in itself, also a form of worship loved by Allah. The nature of the human being as created by God in His Majesty and Wisdom, is not inherently 'corrupt' or in need of repair.

The avenue of repentance is always open to all. Almighty God knew that humans were going to make mistakes, so the real test is whether they seek repentance for their sins and try to avoid them, or if they prefer a life of heedlessness and sin, knowing well that it is not pleasing to God.

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The true balance of an Islamic life is established by having a healthy fear of Allah's rightful punishment for crimes and sins, as well as a sincere belief that Allah, in His infinite Mercy, takes pleasure in bestowing His reward for our good deeds and sincere worship to Him. A life without fear of Allah leads to sin and disobedience, while believing that we have sinned so much that God will not possibly forgive us only leads to despair.

The Noble Quran as revealed to the Prophet Muhammad, peace be upon him, also contains many teachings about life in the hereafter and the Day of Judgment.

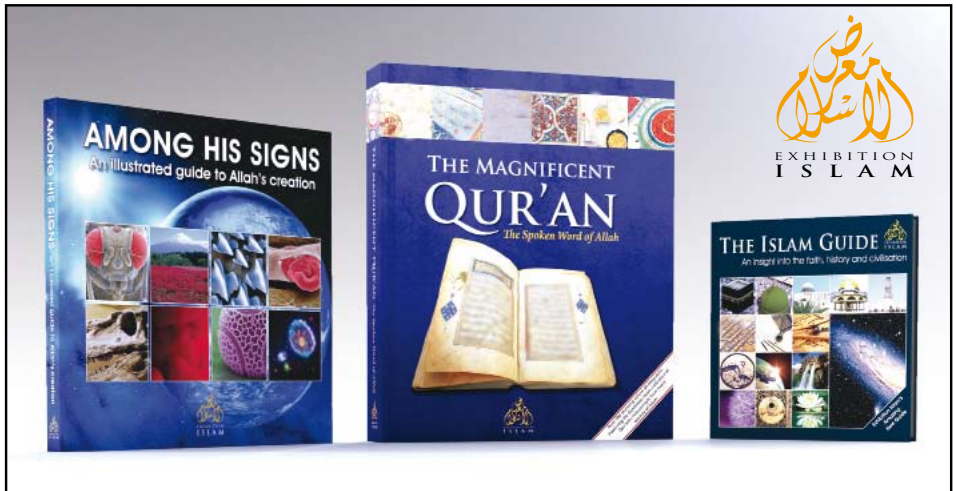
Muslims believe that all human beings will ultimately be judged by Allah, for their beliefs and actions in their earthly lives. In judging human beings, Allah the Exalted will be both Absolutely Just, by only punishing the truly guilty and rebellious unrepentant criminals, and Absolutely Merciful for those people who He, in His wisdom, judges worthy of mercy.

None will be judged for that which was beyond their capacity, or for that which they did not actually do. It is sufficient to say that Islam teaches that life is a test designed by Allah, the Creator; and that all human beings will be accountable before Allah for what they did with their lives.

**A sincere belief in the life of the hereafter is the key to leading a well-balanced and moral life. Otherwise, life is viewed as an end in itself, which causes people to become more selfish, materialistic and immoral by their blind pursuit of pleasure even at the expense of reason and ethics.**

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