



BELAAD

The Land of Swords and Quills

The Scholars
Guidebook





Abu Nasr Al-Farabi

Birthplace: Farab, Greater Khorasan, Modern Kazakhstan

Born & Died: 872-950

Known as: Al-Farabi or Alfarabius

Overview:

This great scholar lived in Khorasan¹ more than a millennium ago. If there were a golden medal to be awarded to an Islamic philosopher, al-Farabi would have the honor. At first, al-Farabi was a judge, until he retired at 40 and changed his way of life. It's hard to believe but one of al-Farabi's books contains only 5 pages! But its outstanding content caused it to be praised by Avicenna. Also al-Farabi was a professional in the world of music. He was fluent in some instruments and has written *Kitab al-Musiqa al-Kabir* in this regard.

1. Khorasan is a region which formed the northeast province of Greater Iran. The name signifies «the Land of the Sun».



Abu Abd Allah Muhammad ibn Jabir ibn Sinan al-Raqqi al-Harrani al-Battani

Birthplace: Harran, Modern Turkey

Born & Died: 858-929

Known as: Al-Battani, Albategnius, Albategni or Albatenius

Overview:

His father was a manufacturer of astronomy tools and he found interest in the stellar world. Therefore, he began observing stars. Astronomical sciences and spherical trigonometry advanced phenomenally thanks to al-Battani's endeavors. By observing stars, al-Battani designed a precise horoscope. He succeeded in correcting flaws and contradictions seen in former documents and proving the Annular Solar Eclipse theory. Because of the importance and precision of al-Battani's studies, his horoscope was translated to other languages and was influential in editing primary European horoscopes.



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Abu Ali al-Husayn ibn Abdillah ibn al-Hasan ibn Ali ibn Sina

Birthplace: Afshona, Bukhara, Ancient Iran

Born & Died: 980-1037

Known as: Avicenna, Ibn Sina, Abu Ali Sina or Pur Sina

Overview:

He was a teenager when he was renowned as a skilled doctor.

He loved studying and reading and after memorizing the Quran¹ he studied every science of his age; such as, philosophy, physics, geology, biology and music. He became the king's court doctor after curing the ruler of his time and had access to the palace's great library.

Not only have his books been translated to several languages, but they were also studied as a reference for medical sciences in universities around the world. Some of his greatest books are al-Qanun fi al-Tibb about medical sciences and Kitab al-Shifa about several sciences. Because of Avicenna's innovations and discoveries in medicine and other sciences, he was called Greatest Doctor in Europe and Sheikh-al-Raees in Islamic countries. His tomb is in the city of Hamedan.

1. The Quran is the central religious text of Islam, believed by Muslims to be a revelation from God (Allah).



Abu Abd Allah Muhammad ibn Abd Allah al-Lawati al-Tanji ibn Battutah

Birthplace: Tangier, Marinid Morocco

Born & Died: 1304-1369

Known as: Ibn Battuta

Overview:

You probably know about Marco Polo but how about Ibn Battuta?

Ibn Battuta was an explorer and he began his travels at 21. He traveled thousands of kilometres on land and sea and returned home 29 years later. He met many wise men in his journeys. He even earned his trip's cost by judging or trading various merchandise and gifts from rulers. His voyage began from Mecca and finally came to an end in the city of Fez¹. Ibn Battuta recorded his adventures in his Travel Report book which gave readers valuable information about different countries including Iran.

1. A city in Morocco



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Abu al-Walid Muhammad Ibn Ahmad Ibn Rushd

Birthplace: Cordoba, Al-Andalus, Modern Spain

Born & Died: 1126-1198

Known as: Averroes or Ibn Rushd

Overview:

Averroes was a doctor and a philosopher from Andalusia who first studied Fiqh¹ under his father's supervision and after that he studied astronomy. But due to his admiration for Aristotle and his beliefs, he expanded his studies in philosophy until he became renowned as one of the best scholars in Greek philosophy. Although he fell victim to the wrath of some scholars of his time, but his fondness of philosophy was enough motivation for him to stay on his path. Some of Averroes's greatest achievements in philosophy are the theories of Epistemology and Rationalism. He believed that one can reach true recognition of God (Allah) through philosophical thought.

1. The theory or philosophy of Islamic law, based on the teachings of the Quran and the traditions of the Prophet.



Muhammad ibn Musa al-Khwarizmi

Birthplace: Khwarezm, Ancient Iran

Born & Died: 780-850

Known as: Khwarizmi or Algorithmi

Overview:

Are you familiar with mathematics? Those who know that Algebra is a branch of math. But who founded it? Yes! None other than Khwarizmi. An Iranian scholar. Khwarizmi was extremely intelligent and he discovered revolutionary solutions to mathematical problems. He introduced Indian numbers into the world of Islam and explained how to calculate using these numbers in his book. The word "Algorithm" which is used in mathematics is an interpretation of the word "Al-Khwarizmi".

Khwarizmi was also a skilled astronomer. His studies were effective in the advancement of astronomy and mathematics. So much that other countries translated his books so they could learn from his discoveries. Khwarizmi also drew a geographical map that was much more precise than those in his time.



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Abu'l Fath Omar ibn Ibrahim al-Khayyam

Birthplace: Nishapur, Modern Iran

Born & Died: 1048-1131

Known as: Khayyam

Overview:

Khayyam was not only an exceptional mathematician, but also unmatched in astronomy. He corrected Iranian calendars, which were much more accurate than the Gregorian calendar. This calendar is called the "Jalali calendar". He invented a scale and named it "Qestaas-al-Mostaqim". This scale could measure the weight of a single grape to much heavier objects. These are just a small portion of Khayyam's scientific endeavors. Other than that, Khayyam is famous for his "Ruba'i"¹ poems, which have been translated to many different languages.

When the canary made its way to the field
In tongues its message in my ear it thus revealed

Found the rose and wine smiling, kneeled,
Hark, no moment in time did twice yield.

.....
1. Quatrain, A type of poem which consists of only four lines.



Thabit ibn Qurrah al-Harrani

Birthplace: Harran, Modern Syria

Born & Died: 210-288

Known as: ibn Qurrah or Thabit

Overview:

Before entering the world of science, Thabit was a money changer and fluent in several languages. A scholar named "Muhammad ibn Musa" who was passing by his hometown, discovered his talent and conversed with him. Thabit grew fond of Muhammad's words and went on the path of science. He translated books of the world's greatest scholars and became a skillful master in mathematics, geometry, astronomy, and mechanics.

Other than important translations, he developed innovative solutions in geometry and the thesis he wrote on numbers, paved the way for future discoveries in mathematics. Additionally, he was an outstanding doctor. His son also pursued medicine and his grandchildren became famed scholars in Islam.



Abu Musa Jabir ibn Hayyan

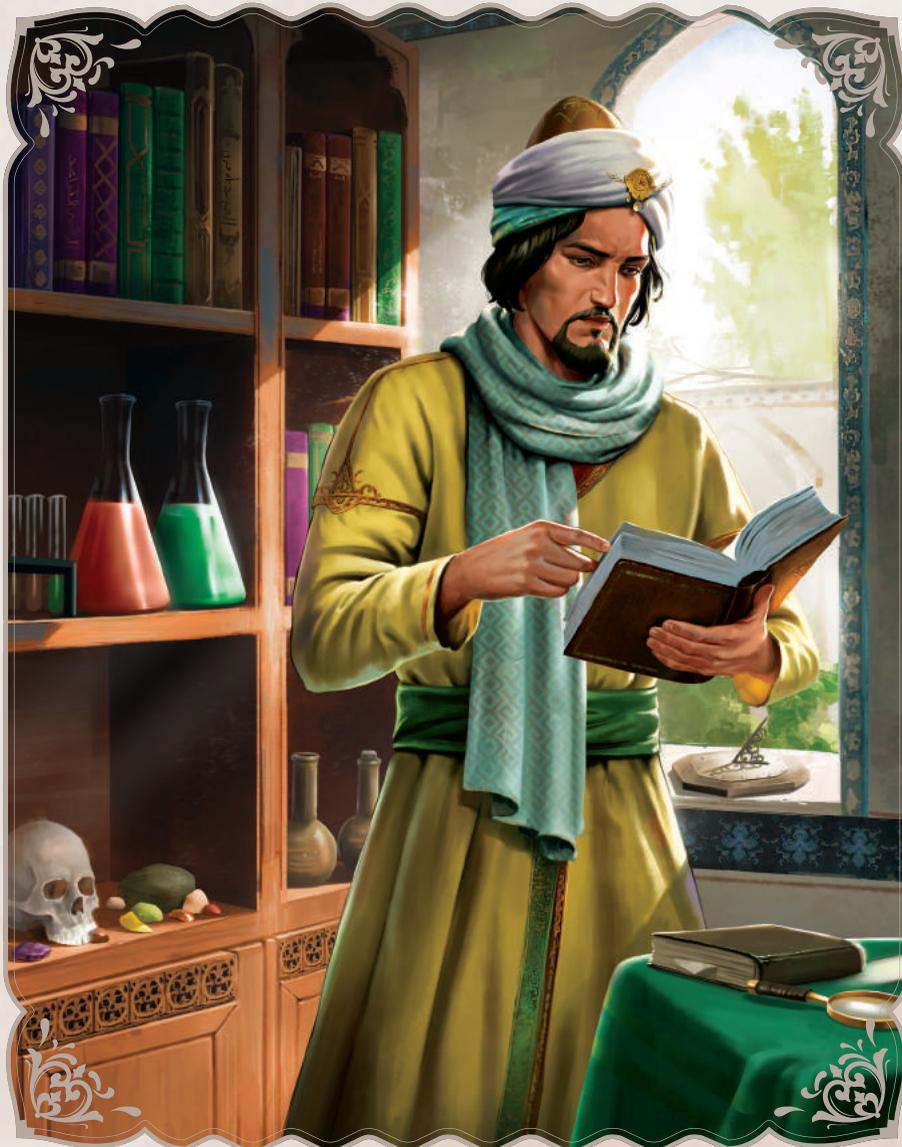
Birthplace: Tus, Khorasan, Modern Iran

Born & Died: 721-815

Known as: Hayyan

Overview:

If you've ever heard of alchemy, you must know that Jabir ibn Hayyan was a real life alchemist! He discovered acetic acid and citric acid and many other chemical substances and presented new solutions to purification (like distillation and crystallization). His innovations don't end here, he also created new tools like retorts and alembics. Jabir is known as the father of chemistry. Today he has more than 250 books which were mostly translated in Europe. He was so famous in Europe that several scientists wrote their books in his name.



Abu Yusuf Yaqub ibn Ishaq ash-Shabbah al-Kindi

Birthplace: Kufa, Modern Iraq

Born & Died: 801-873

Known as: Al-Kindi or Alkindus

Overview:

Messages were transferred via pigeons in Kindi's time. Therefore, they had to be light and encrypted by trustworthy people. Al-Kindi created encryption for the first time and specified rules for encrypting codes. He is the first Islamic physician who had access to the writings of Greek philosophers and translated them. Therefore, he is known as the founder of Islamic philosophy. Al-Kindi corrected many different books in several fields such as; astronomy, mathematics, medicine, mineralogy, optics, sundials, alchemy, logics and philosophy.



Abu Ali al-Hasan ibn al-Hasan ibn al-Haytham

Birthplace: Basra, Modern Iraq

Born & Died: 965-1040

Known as: Ibn Haytham or Alhazen

Overview:

Ibn Haytham is the greatest physicist of the middle ages. He stated optics as a science and is known as the Father of Optics. But do you know how his life was?

He had good handwriting and wrote books. Gradually he started reviewing books and writing his own books about mathematics and physics. When he was supposed to calculate the overflow of the Nile, the Khalifa didn't accept his studies and sent him to prison. But he didn't give up and continued his studies. In the time of his imprisonment, he began examining the rays of light which entered his cell through the prison windows. In this time he reached some theories about light and after he was freed, by conducting several experiments, he discovered valuable data about optics and eyesight. Using this data, future scientists were able to invent modern cameras and darkrooms.



Abu Marwan Abd al-Malik ibn Zuhr

Birthplace: Seville, Modern Spain

Born & Died: 1094-1162

Known as: Avenzoar or ibn Zuhr

Overview:

Avenzoar was a skillful doctor and trained many pupils. He has written many valuable books about medicine, like *Al-Taysir fil-Mudawat wal-Tadbir* which is one of the boldest books about medicine and the Latin translation of this book were studied for years in European schools. Avenzoar also practiced surgery and autopsy and introduced new methods for treating patients. He was the first person who before operating on humans, experimented his methods on animals so that no humans were harmed, such as piercing and placing a pipe in the windpipe which was first experimented on goats.



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Abu Zayd Abd ar-Rahman ibn Muhammad ibn Khaldun al-Hadrami

Birthplace: Tunisia

Born & Died: 1332-1406

Known as: Ibn Khaldun

Overview:

Between different sciences, Ibn Khaldun admired history the most. He is known as a historian and a sociology pioneer.

His most valuable book is *Kitab al-Ibar* which is translated to "Book of Lessons". The introduction to this book was viewed as a separate book and even became more famous than the book itself. Ibn Khaldun did political work in some rulers' courts in Morocco and was imprisoned for some time, which in that time he began writing his books. He studied history in a thoughtful way which is why his books are separated from others. Today's sociologists owe their knowledge to his endeavors and studies.



Ziya Al-Din Abu Muhammad Abdllah Ibn Ahmad al-Malaqi

Birthplace: Malaga, Andalusia, Modern Spain

Born & Died: 1197-1248

Known as: Ibn Baitar

Overview:

Since long ago, plants have been used as medicine. Ibn Bitar was very much interested in this science and therefore, he had many travels and studied the books of more than 150 scholars before him in order to learn about plants and their medicinal properties. He trained many pupils and wrote many books. More than 1400 medicines and medicinal plants are introduced in Ibn Bitar's books and in addition to that, methods for producing medicine is also stated.



Abu al-Qasim Khalaf ibn al-Abbas al-Zahrawi al-Ansari

Birthplace: Medina Azahara, Al-Andalus, Modern Spain

Born & Died: 936-1013

Known as: Al-Zahrawi or Abulcasis

Overview:

There are many doctors in the world but only few can contribute to the advancement of medicine through innovation and hard work. Zahrawi was one of these few.

Zahrawi was the court's doctor and had access to the castle's library containing over 400 thousand books. He was able to write *Kitab al-Tasrif*, the encyclopedia of medicine, by studying these books. He has introduced more than 200 surgery tools with color pictures in this book. In that age, these pictures were a major point for his book. He was also a pharmacist and a mental illness expert. He tried many treatments for the first time in the world and his book is respected by many scientists and doctors around the world.



Abu Rayhan Biruni

Birthplace: Kath, Ancient Iran

Born & Died: 973-1050

Known as: Biruni

Overview:

One of the world's most brilliant and famous scholars is Abu Reyhan Biruni.

He was a master in many sciences, such as astronomy, mathematics, geometry, geography, geology and history. Because of this, he is known as a polymath scholar. He has many books and discoveries in many fields and some are described below:

He was able to calculate the diameter of the Earth and 600 years before Galileo, he bravely declared that the Earth rotates around itself. The connection between the Atlantic and the Indian Ocean was first shown in his geographical map. He was also able to determine the Qibla in any point in the world.

Abu Reyhan was in touch with many scholars. He conversed with Ibn Sina about natural sciences, and he also reviewed some of Rasis's books, an Iranian doctor and scholar.



Muhammad ibn Muhammad ibn al-Hasan al-Tusi

Birthplace: Tus, Khorasan, Modern Iran

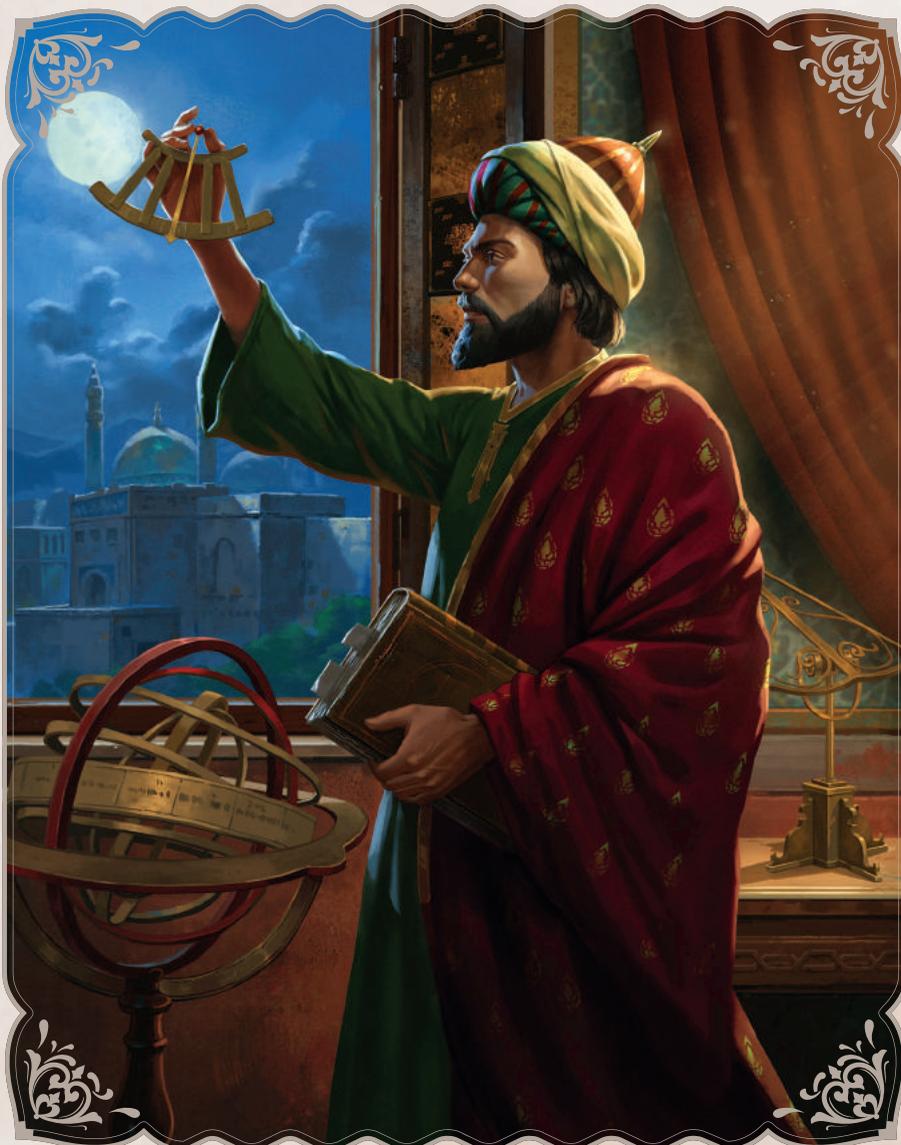
Born & Died: 1201-1274

Known as: Nasir al-Din Tusi

Overview:

Nasir al-Din Tusi was born in the city of Tus, as his name suggests. He had many adventures in his life. One king threw him in prison while another declared him minister. He built a great library after becoming minister and gathered many Islamic scholars from around the world there. They designed an accurate ephemeris¹ and named it the “Zij-i Ilkhani”. They also improved many astronomy tools. Tusi also collected and rewrote previous scholars’ books which were damaged in the Mongol invasion. After Ibn Sina, Tusi was known as the greatest Muslim doctor. Today, 150 books remain from him. His book “Akhlāq-i Nasiri” was the most common ethical book in Iran and India.

1. In astronomy and celestial navigation, an ephemeris gives the trajectory of naturally occurring astronomical objects as well as artificial satellites in the sky, i.e., the position over time.



Abu al-Wafa Buzjani

Birthplace: Buzhgan, Modern Iran

Born & Died: 940-998

Known as: Buzjani

Overview:

Buzjani was from Turbat-e Jam, which was then called Buzjan. Buzjani was a mathematician and astronomer. In his time, people used incorrect methods of measurements and mathematical calculations. Buzjani wrote a book and taught the correct method to others. He had many innovations in trigonometry. His book on geometry is a valued book in said field. Some of the most important subjects in the book are how to draw different geometric shapes using a ruler and compass, and creating regular polyhedrons.

Buzjani and Biruni worked together in astronomy. One of the craters on the moon is named after Buzjani in recognition of this Muslim scholar.



Ala-al-Din abu al-Hasan Ali ibn Abi-Hazm al-Qarshi al-Dimashqi

Birthplace: Damascus, Modern Syria

Born & Died: 1213-1288

Known as: Ibn Nafis

Overview:

Ibn Nafis was a wealthy doctor and had many students. He built a big library using his wealth and because of his many contributions in Egypt, he was called the Greatest Doctor.

In Nafis dreamed of writing the most complete medical encyclopedia and he managed to do it in 80 volumes. However his best book is one in which he wrote about Ibn Sina's medical theories and proposed his own theory about blood flow. Although an Egyptian scholar found and presented his studies about blood flow to the world, 700 years after his death!



Baha al-Din Muhammad ibn Husayn al-Amili

Birthplace: Baalbek, Modern Lebanon

Born & Died: 1547-1621

Known as: Sheikh Bahaei

Overview:

This scholar's mementos are still among us after hundreds of years. There are many wonderful buildings in Isfahan which Sheikh Bahaei has designed; "Si-o-Se-Pol", "Menar Jonban" and "Naqsh-e Jahan Square" are some of his works.

Sheikh Bahei was a skilled expert in mathematics, astronomy, theology, literature and historiography. His books were used for education. He had a high value in the king's court and was known as "Sheikh al-Islam". One of his students was "Mulla Sadra". Shaikh Bahaei connected to other scholars and respected all beliefs. The division of the Zayanderud River into 7 areas is another one of his mementos.



Fatima bint Muhammad Al-Fihriya Al-Qurashiya

Birthplace: Kairouan, Modern Tunisia

Born & Died: 800-880

Known as:

Overview: Al-Fihri

Fatima al-Fihri was born in an educated Muslim family and studied Fiqh. After inheriting their father's wealth after his death, Fatima and her sister, Maryam, decided to establish a new institute for education. She is known as the founder of the first academic institute which presented degrees for students after graduation. This institute is still active in Morocco named "The University of al-Qarawiyyin". It is said that Fatima's sister, Maryam, was also in charge of building this institute's mosque.



Abu al-Qasim Abbas ibn Firnas ibn Wirdas

Birthplace: Cordoba, Modern Spain

Born & Died: 810-887

Known as: Firnas or Armen Firman

Overview:

Although he was known as a poet, astronomer, musician and engineer, the thing that brought him true fame was building a flying machine. He flied successfully with his machine a few times in a desert area. The first time he attempted flying he wrapped himself in a loose cloak stiffened with wooden struts and jumped from a tower in Cordoba and used these wings to glide, similar to modern parachutes or hang gliders.

He finished the final prototype of his machine and made a costume out of silk and eagle feathers. In this attempt Ibn Firnas jumped from a hill near a mountain and stayed in the air for about 10 minutes but proceeded to crash and severely injure himself. One of his flaws compared to birds was his lack of a tail! In addition, Ibn Firnas designed a water clock, and came up with a procedure to manufacture glass and a method of cutting crystal rocks.



Abu Bakr Muhammad ibn Zakariyya al-Razi

Birthplace: Ray, Modern Iran

Born & Died: 854-932

Known as: Rasis, Rhazes or al-Razi

Overview:

Muhammad ibn Zakariyya al-Razi, who is mostly known as a chemist, was also skilled in sciences such as philosophy, logic, mathematics and medicine. He was a hardworking mild mannered man and had special regard to his patients, and wouldn't give up on them until he reached a diagnosis. Unlike other doctors who preferred treating kings, rulers and noblemen, he dealt with normal people the most. Razi was the first person who stated the difference between measles and smallpox and presented several treatments for these diseases. He discovered alcohol and presented various simple methods of manufacturing acids. In recognition of Razi's contributions to pharmacology, august 27th is now Razi commemoration day and pharmacy day.



Banu Musa

Birthplace: Baghdad, Modern Iraq

Born & Died: 9th century

Known as: Banu Musa

Overview:

The Banu Musa brothers, three scholars and experts in mechanical engineering, Muhammad, Hassan and Ahmad!

These three brothers were also skillful in mathematics, astronomy and geometry. They were the first Muslim scholars to study Greek books and the founders of Islamic mathematics. Each of the brothers had a specialty and contributions in that field; Muhammad was a dignified politician, Hassan was extremely innovative in geometry and wrote a book about the geometric shape of an ellipse. Ahmad wrote a book containing instructions on building 100 mechanical devices, 75 of which he built with his brothers. One of these devices was a water fountain which using mechanical techniques, automatically changed the water flow shape and created a pleasant sight for spectators. The studies of these three brothers lead to the creation of a new field of science called the Mechanic.



Abu al-Abbas al-Nabati

Birthplace: Seville, Modern Spain

Born & Died: 1166-1239

Known as: Al-Nabati, Ibn al-Rumiya or al-Ashshab

Overview:

Al Nabati which is also known as Ibn Rumiya was one the most outstanding Muslim botanists. His scope of research on plants included botany in addition to medicine. One of the reasons that marks him as a great scholar, is his review method and experimental research on botany. Ib Rumiya traveled many times to study medicinal plants and their properties and made valuable discoveries in North Africa and Hejaz. He collected his studies in a book called Botanical Journey. He was also the mentor of Ibn Baitar.



Ghiyath al-Din Jamshid Masud al-Kashi

Birthplace: Kashan, Modern Iran

Born & Died: 1380-1429

Known as: Al-Kashi or al-Kashani

Overview:

Jamshid Kashani was an expert mathematician who corrected and completed old methods of mathematic calculation, because of which he can be known as the inventor of elementary arithmetic (especially multiplication and division). He had many innovations and discoveries in mathematics, so much that he is known as the most prominent mathematician in the golden age of Islam. Some of his innovations are described below:

1. Determining 16 fractional digits of Pi, in a way that no one could continue it until 150 years later.
2. Categorizing first to fourth degree equations and solving fourth degree equations.
3. Inventing the modern solution to finding square roots.
4. Editing the book "Meftah al-Hesab" which was known as the best reference to mathematic calculations for years.
5. Finding the Sine of an angle.



Abu Uthman Amr ibn Bahr al-Kinani al-Basri

Birthplace: Basra, Modern Iraq

Born & Died: 776-869

Known as: Jahiz

Overview:

Jahiz was a literary zoologist. His best book is about animals which is also a literary book. In the Islamic world there is no book on zoology as extensive as his. Another one of Jahiz's books is a collection of humorous stories based on greed and avarice.

There isn't much information about his life but we know that he had a difficult life, wherein he sold fish for a living. Despite these challenges, Jahiz never gave up on studying and gaining knowledge. He participated in lectures and debated scientific matters with a group of young men in Basra's mosque. Until after 25 years of perseverance and hard work he became one of the world's most famous scholars.



Abu al-Fath Abd al-Rahman Mansur al-Khazini

Birthplace: Somewhere in Greece

Born & Died: 12th century

Known as: Al-Khazini

Overview:

Khazini was a slave among the people of Rome who gained access to the library of the great city of Merv via Ali ibn Muhammad Khazen (the treasurer). He reached a respectable position in King Sanjar's court, but lived in simplicity. Khazini dedicated his best work in astronomy named "The Astronomical Tables for Sanjar" to King Sanjar.

In his most famous book "Mizan al-Hikmah" he explains building and working with scales including one called the Hekmat Scale. According to Khazini in addition to weighing objects, the scale can also be used to determine the purity of metal, distinguishing real gems from fake ones, and measuring specific weight. He claimed the accuracy of this scale is one Mithqal¹ error in one thousand mithqals of matter. This book contains accurate discussions on physical principles.

1. A unit of mass equal to 4.7 grams.



Zayn al-Din Sayyed Ismail ibn Husayn Gorgani

Birthplace: Urganj, Ancient Iran

Born & Died: 1040-1136

Known as: Jurjani

Overview:

Jurjani was the court doctor of King Sanjar. He was writing an encyclopedia in Arabic, but when he realized how much the people of Merv¹ needed this information, he decided to write “Zakhireye Khwarazmsahi” in Persian. This encyclopedia is written in ten volumes which played an important role in the improvement of the Persian language. Although other scholars have also written Persian books on medicine, it is said that Jurjani’s book is the most complete Persian book on medicine and many scientific phrases we use today were originated from this book and other works of Jurjani.

1. A city in ancient Iran, now located in Turkmenistan.



Mariam al-Asturlabiyy

Birthplace: Gilan, Modern Iran

Born & Died: 10th-century

Known as: Asturlabi

Overview:

Mariam was a mathematician and astronomer of the 5th century born in Gilan who studied astronomy and using the astrolabe with her father. She migrated to Syria in her adolescence and lived under the rule of the time's government. Mariam had many innovations in astronomy and mathematics and because of her proficiency in using astrolabes she was nicknamed "Asturlabi". Her innovations caused development and performance improvement of astrolabes. These innovations were in a way that the position of the sun and stars and their movements were accurately visible. The main-belt asteroid 7060 Al-Ijliya was named in her honor.

Acknowledgement

to popular belief, Lorem Ipsum is not simply random text. It has roots in a piece of classical Latin literature from 45 BC, making it over 2000 years old. Richard McClintock, a Latin professor at Hampden-Sydney College in Virginia, looked up one of the more obscure Latin words, consectetur, from a Lorem Ipsum passage, and going through the cites of the word in classical literature, discovered the undoubtable source. Lorem Ipsum comes from sections 1.10.32 and 1.10.33 of «de Finibus Bonorum et Malorum» (The Extremes of Good and Evil) by Cicero, written in 45 BC. This book is a treatise on the theory of ethics, very popular during the Renaissance. The first line of Lorem Ipsum, «Lorem ipsum dolor sit .amet.», comes from a line in section 1.10.32

The Lorem Ipsum used since the 1500s is reproduced below for those interested. Sections 1.10.32 and 1.10.33 from «de Finibus Bonorum et Malorum» by original form, accompanied by English versions from the 1914 translation by H. Rackham