

Professor Salim Al-Hassani, Chief Editor of 1001 Inventions, and Afzal Khan, former Lord Mayor of Manchester both holding up a replica of the 9th Century flying machine of Abbas Ibn Firnas

Air Travel



Wings

Around 852CE, scientist and inventor Abbas ibn Firnas successfully glided on his flying machine from the minaret of the Great Mosque in Cordoba, Spain.

Flight

In 1638CE, Hazarfen Ahmed Celebi successfully glided his flying machine from the Galata Tower on the European side across the Bosphorus Sea and landed on the Asian side of Istanbul.

Rockets

In 1633CE, Lagari Hasan Celebi launched over the Bosphorus Sea in his seven-winged rocket, powered by a mixture of gun-powder paste. He landed on the water using a form of parachute.



Fuel

Late 8th century chemist Jabir ibn Hayhan developed distillation processes that were later brought to industrial use. Today distillation produces petrochemical fuels to drive modern engines.

Engines

800 years ago, mechanical engineer Al-Jazari invented a 'crank shaft mechanism' to convert rotary motion to linear reciprocating motion that we find used in almost every machine today!

Health and Medicine



Hospitals:

The first modern hospital was built in 874 CE by Ahmad ibn Tulun in Cairo which provided free medical treatment for all patients.

Surgery

During the 10th century, leading Adalusian physician al-Zahrawi was responsible for inventing more than 200 sophisticated surgical tools, and many of the instruments used by surgeons today are very similar to those invented more than 1000 years ago.

Cancer treatment

Uzbek physician ibn Sina developed treatments for cancerous tumours as early as the 11th Century.

Internal stitching

Al-Zahrawi was also responsible for pioneering the use of catgut for internal stitching. Without catgut internal surgery would be less effective as it is the only natural substance which can be safely used inside the body for the purpose of stitching.

Vaccination

Turkish scientists were vaccinating children against the Smallpox virus more than 300 years ago by injecting them with the less dangerous Cowpox virus. When these Turkish vaccinations were introduced to England in the 1700s they faced fierce opposition from church and state. Almost a century later Englishman Dr. Edward Jenner was (erroneously) credited with the discovery of the Smallpox vaccine.

Vision

Muslim ophthalmologists were performing eye-surgery as early as the 10th century, and invented treatments for cataracts, glaucoma and numerous diseases of the eye and eye-lids

Spectacles

Corrective lenses were first invented by the polymath Abbas ibn Firnas during the 9th century, who also perfected a method for creating colourless glass.



The Pharmacy

1100 years ago, pharmacies were a common feature in Baghdad, and were subject to regular government inspections to check that the medicine provided was of sufficient purity and effectiveness and that correct dosages were being dispensed to the public. Severe punishments were in place for anyone impersonating a pharmacist!

Grooming and Hygiene



Soap

Although substances for cleansing the skin have been in use since ancient times, soap as we know it today was invented by Muslims in the 7th century using vegetable oils. The formula for creating soap has remained the same ever since!

Toothbrush

In the 6th century, the prophet Muhammad (pbuh) scrubbed his teeth with a twig of Miswak tree before each of the five daily prayers. Recent research by Swiss pharmacists has confirmed that Miswak contains antibacterial substances which protect against gum disease and tooth decay.



Perfume

Iraqi scientist al-Kindi wrote 'The Chemistry of Perfume and Distillations' in the 9th century, which contained recipes for more than 100 perfumes as well as detailed descriptions of perfume-making equipment. His work was the inspiration for the modern perfume industry in southern France.



Cosmetics

Teeth bleaching, hair conditioning, moisturisers and mouthwashes were a common feature of Muslim life as early as the 9th century. The spread of Islam also brought Henna dye – used on hair and skin – to different parts of the world, which modern scientists have discovered contains anti-bacterial and anti-fungal agents.

Carpets

Until 500 years ago, European buildings would usually cover the floor with rushes (a type of hay) which would be periodically changed. Thankfully, the Muslim world introduced the carpet, which is a far more hygienic and can be used to beautify interiors through elaborate designs and patterns.



Fashion

During the 9th century, Baghdad was the fashion capital of the world, famed for its good tastes and style innovations. These fashions travelled to Europe via Muslim Spain, including deodorants, toothpastes, seasonal outfits, high-heeled shoes and the three course meal.

Architecture

Many European buildings feature distinctive characteristics that would not be possible without advances in civil engineering pioneered by Muslim civilisation. Many of the most celebrated buildings in Europe, like St. Paul's Cathedral (London) and the Sagrada Familia (Barcelona), were inspired by engineering principles developed in the Muslim world, which introduced elaborate domes and spires to architecture.

Arches

Muslim engineers were constructing elegant arches as early as the 8th century. They took structural design to new heights by using thin tall arches to support high and heavy ceilings. The Great Mosque of Cordoba (Mezquita) is one of the finest examples of this craft. This great advance inspired similar constructions throughout Europe, and it would take another millennium, and the arrival of metal girders, before a superior alternative appeared.



Domes

Muslim architects were constructing majestic domes for grand Mosques as far back as 670CE, and these were the inspiration for the many bulbous domes we see throughout Europe today. St. Paul's Cathedral in London, with its apex of Dome and Spire, reflects the admiration of its designer, Sir Christopher Wren, for Ottoman and Moorish domes.

Skyscrapers

The world's oldest surviving "skyscraper" is the Qal'at Tower of Benu Hammad, which was built in Algeria more than a thousand years ago. This tall, thin building was used as both a watchtower and a Minaret. It was able to stand at such an extraordinary height thanks to innovative weight-saving design features.



Gardens

The first Royal Botanical Gardens appeared in Muslim Spain during the 11th century, and were filled with exotic plants from the East. Elaborate geometric designs ensured that spring blooms produced stunning patterns of colour and beauty, and canals and fountains kept the foliage in peak condition. It would be further five centuries before similar endeavours appeared in the rest of Europe.

Fountains

In the 9th century, the Banu Musa brothers developed ingenious fountains which were capable of continuously changing the shape of the water they produced. This complicated engineering feat featured innovative designs incorporating worm gears, balance arms and wind turbines as well as valve designs that would revolutionise the world of fluid mechanics.



Culture/Lifestyle



The Coffee Shop

A 9th century shepherd named Khalid observed the stimulating effect of coffee when his herd were grazing on the Ethiopian slopes. This discovery gave rise to al-qahwa which became one of the most popular beverages in the Muslim world. The traditional coffee house came to Europe in the 17th century via Egypt, and cafés are now a common feature in every European town.



Bookshops

Ibn al-Nadim's 10th century bookshop in Baghdad sold more than 60,000 titles! The shop also sold refreshments and had regular readings from visiting speakers. The modern bookshop takes its inspiration from the Baghdadi booksellers from 1000 years ago!



Libraries

As early as the 8th century, great public libraries appeared throughout the Muslim world which gave access to knowledge of science, technology and the arts. Large mosques usually had their own libraries (dar al-kutub) which featured both religious and scientific texts, with some collections growing to more than 100,000 titles! Being a Librarian was a title of great honour and could only be earned through decades of scholarly accomplishment.

Chess

The elaborate and elegant game of chess came to Europe through Muslim Spain. The gambits used by today's Chess Grandmasters were often invented centuries ago by the likes of al-Suli and al-Razi. The Rook takes its name from the Arabic word for "chariot", while Checkmate comes from the Persian Shahmat ("the King is dead").

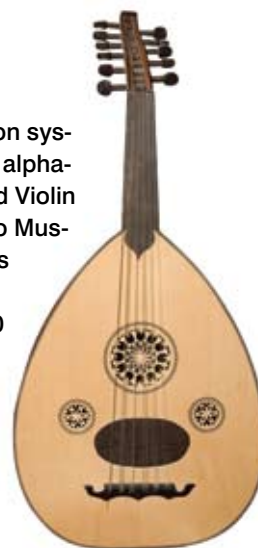


Fine Dining

The tradition of a three course meal, laid upon a tablecloth served in fine ceramic plates and delicate crystal glasses can be traced back to 9th century Muslim Spain, where the trend-setting "pop star" Ziryab was instrumental in bringing a sense of flair to the humble evening meal.

Music

The modern musical notation system comes from the Arabic alphabet, and both the Guitar and Violin can trace their roots back to Muslim Spain, where the world's first Conservatory was established more than 1000 years ago. At around the same time, in Baghdad, accomplished scientist Al-Kindi was the first to explore "music therapy" as a tool for healing!



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