

Omar khayyam was a  
persian  
mathematician history  
essay



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Omar Khayyam was a Persian mathematician, philosopher, astronomer, physician and a poet. He was born in Nishapur, Persia on 18 May, 1048 (AD) and he died on 4 Dec, 1131 (AD). He wrote treatises on mechanics, geography, and music. Khayyam had superior intelligence, his expertise were in many different subject areas. Just like most ancient scientists Omar Khayyam was also a polymath. Khayyam's full name was Ghiyath al-Din Abu'l-Fath Umar ibn Ibrahim Al-Nisaburi al-Khayyami. A literal translation of al-Khayyami is "tent maker" which possibly came from his father Ibrahim's trade.

Khayyam was an established astronomer and mathematician of the medieval period. He was recognized for the most important treatise on algebra, as shown in his Treatise on Demonstration of Problems of Algebra giving geometric method for solving cubic equations by intersecting a hyperbola with a circle. One of his greatest achievements in astronomy was that he came up with a calendar to figure the length of the tropical year. This calendar was so accurate that it is still used today. Khayyam was truly an intellectual being, whose legacy continues in the 21st century. Khayyam may have proposed a heliocentric theory a long time before Nicolaus Copernicus. This theory states that the sun is stationary and is placed in the center of the universe, and the earth and other planets revolve around it.

Khayyam has not only impacted the Persian world but has also had a substantial impact in the west through literature and his scholarly work. Edward FitzGerald was one the man that made Khayyam famous in the western world. FitzGerald translated Khayyams work into English and the result was a small number of quatrains, also known as rubaiyaas in the <https://assignbuster.com/omar-khayyam-was-a-persian-mathematician-history-essay/>

Rubáiyát of Omar Khayyám. Khayyam is well known for his scientific and poetic writings, but he has received very little credit as a philosopher and a teacher. Al-Zamakhshari was a famous medieval muslim scholar of Iranian origin. He recognized Khayyam as a philosopher of the world. Now there are many sources that confirm that Khayyam spent a lot of his life teaching the philosophy of Ibn Sina in Nishapur.

Most of Khayyam's life was spent in Nishapur, and he passed away there as well. He is buried in a masterpiece of Iranian architecture, which is visited by many people every year. Nishapur was located near an ancient civilization of china and India. Every year, the high school that Omar Khayyam attended has a national day of celebration, where they credit this genius mans work and pray that may god bring many more Omar Khayyam in the future. The original Nishapur city does not exist anymore due to some earth quakes and the Mongol invasions later on. Only some remains of Nishapur exist today. This was a very large city, in 1040AD Persia was invaded by the Turkish tribe know as the Sultans. They defeated the rulers and made this city the capital of their new empire. The sultans came converted to Islam and had knowledge of agriculture and civilization and they had no intention to destroy the land.

During the time of Khayyam, the ruling king was Malik Shah, also known as JalÄl al-Dawlah Malik-shÄh. He was remembered as one of the greatest Seljuk Sultan's and he ruled from 1072 to 1092. Under Malik Shah's ruling colleges in Nishapur were opened where some of the finest scholars studied, and Khayyam was one of them. People would come to Nishapur from all over the world to study and they would take Nishapur's great name back to their

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home with glory. Khayyam became so famous due to his work that a lunar crater and a small planet is even named after him.

About 900 years after Khayyam's death, his name appears everywhere in what is known in the modern days as Tehran. Many people were inspired by Omar Khayyam's genius work and a person with a name of Ali Dhebashi even wrote a book called "May va Mina" translated in English as "Wine and the Wine Glass". The author mentions that he only wrote the book to satisfy his own curiosity. This book contains a collection of the most important articles about Khayyam on different aspects of life. This book presents a very accurate picture of Omar Khayyam, about his poetry, mathematics and his understanding of how he managed to understand the depth of the human spirit.

Every summer professors and intellectual people gather in the University of Cambridge to celebrate Omar Khayyam's achievements. The man responsible for making Omar Khayyam well known in the west was Edward FitzGerald. He was from a very wealthy Irish family, and his parents were known to be one of the richest people in England. FitzGerald went to Cambridge University, but never really had a profession or a job. He had a very nice personality and was a very friendly person. FitzGerald soon became friends with a young linguist called Edward Cowell. In 1857, Cowell found some Persian poetry written by Omar Khayyam in a library located in Kolkata, India and gave them to FitzGerald. He translated this book and the first edition was published during January in 1859, it was titled as "Rubaiyat of Omar Khayyam". This book did not gather much attention at first and it

was not until 1868 that the Rubaiyat started to become famous and FitzGerald was urged to write a revised second version.

The original Rubaiyat was produced around 550 years ago, and still it has been kept in its original condition. It is still hard for a person that speaks Persian now in the 21st century to translate just a couple of lines of the Rubaiyat into English. For that reason it is still recognized that FitzGerald had great talent and was also a very intelligent being. Mainly, people have seen Omar Khayyam's as such a great figure because of the aspect in his poetry. Khayyam demonstrates his understanding of human nature, man's loneliness and the complex inner being of a human through poetry. Around 1070AD Omar Khayyam moved to a place called Samarqand which is now known as one of the oldest cities located in Uzbekistan. It was only here that Khayyam did his mathematical work, which would make him even more famous for that as well. Abu Tahir, a well known jurist supported Khayyam in Samarqand which allowed Khayyam to write some his most famous algebra work.

Now days, most people think that mathematics was all created by the Greeks. Then, once the ancient Greek empire collapsed, the math discoveries were stopped until the Europeans started to prove new findings around late 1300's. In fact, there were a huge amount of discoveries being made in the eastern side of the world. Countries such as, China, India, Persia, and the Muslim world were discovering specifically a language that would come to be known as algebra during Omar Khayyam's time period. During this time in the west, mathematicians were not aware of the achievements being made by young scholars in the east. Omar Khayyam's greatest achievement in math was the cubic equation. Although he did not solve this <https://assignbuster.com/omar-khayyam-was-a-persian-mathematician-history-essay/>

problem of inventing a cubic equation, he got a partial answer to it. Omar Khayyam was very frustrated with this for some time, and he wrote that later one in the future someone would come uncover this secret and it was actually the Europeans that took Khayyam's partial answer and converted it into a full equation.

Music is a part of our daily life; it is the spirit of our languages. Mohammad Reza Shajarian is well known around the world now to be a master of Persian music. Over 30 years ago, he made an album containing Omar Khayyam's Rubaiyat and it is still one of the best sellers today. One of the famous lines is " Ah, make the most of what we yet may spend, before we too in the dust descend, Dust into Dust and under Dust to lie, Sans Wine, Sans Song, Sans Singer, and Sans - End! (Edward FitzGerald, The Rubaiyat of Omar Khayyam)" Many people still believe that Omar Khayyam's poetry had a substantial influence on him as an astronomer and only this ability allowed him to achieve the great discoveries he made. Khayyam found the lunar calendar, one of his biggest accomplishments throughout his life. Even though Khayyam is mainly known in our world today as a great poet mainly, but he was well known in his time for revolutionizing the way time was calculated. Prior to the discovery of the lunar calendar, people would celebrate spring when it was actually winter or vice versa.

Over the years, the king figured the time was being calculated incorrectly. This was due to the time measurements being taken from the moon. The old time calculating method still had 12 months but it had only 354 days in a year, which were slowly decreasing. The king Malik Shah at the time of Omar Khayyam needed an accurate calendar since he collected tax from the public

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every year. So the rule was that when you harvest your crop, you have to pay the tax. Sometimes, the king's people would claim to want more tax due to the year being shorter, or other times the farmers would say we don't owe any tax this year. The founder of the Seljuk dynasty, Toghril Beg had made Malik Shah, his grandson the ruler of Esfahan. So in the early 1070's the king Malik Shah and his chief Nizam al-Mulk requested Khayyam to go to Esfahan and setup a place built for the intellectual astronomers, known as an observatory. Omar Khayyam led the scientists and studied the movements in space over 18 years and they made their greatest discoveries here. This period of time was of political peace, which helped to dedicate Khayyam to this scholarly work. These astronomers were ingenious, they learned from the Greeks achievements in the past that one had to observe accurately, be extremely careful and they required high technological instruments.

Khayyam observed that the planets and the sun change position all the time. However, the stars stay fixed but only relative to each other, so the astronomers used certain stars as reference points. Later, these were known as the signs of the zodiac. The astronomers calculated the time it took to go from one star to the other, and these are now called the months. This allowed Khayyam to calculate the time it took for the sun to make a complete revolution around the earth, which is known as a year. Khayyam came up with the length of the solar year which is very accurate even until today. He measured the length of the year to be precisely, 365.

24219858156 days. Scientists have now proven that Khayyam's calculation was correct upto sixth decimal places, since the earth's revolution only goes to six decimal places accuracy, Khayyam actually had predicted with the

over amount of significant figures and this is how accurate his calculations were. Khayyam would use an instrument called Astrolabe. It was an amazing technology, which would allow one to accurately check what time it is at a certain point in the day.

Even until after about 900 years, there exist some clubs named after Omar Khayyam and Edward FitzGerald who took the ingenious author out of the shadow. A dinner club dedicated to both these authors still exists today in London. This club was built in the early 1890's and does not allow women to be a part of it, even now. Its members eat dinner together in the remembrance of both the great authors. There exists a Club of Omar Khayyam in the United States as well and in the University of Texas, they have the world largest collection of the Rubaiyat. Ever since FitzGerald started to publish Omar Khayyam's work in the west, advertisements started using Omar Khayyam's name in the books. There were games made after Omar Khayyam's name and many dinner menus.

In Khayyam's poetry, his main message across the audience was life is short; enjoy it while you still can. He used to say that one should maximize life, and have another glass of wine while still they can. The argument still continues about how much FitzGerald translated the Rubaiyat and how much of it was his own work. The original Persian copy of the Rubaiyat was not written in much order but FitzGerald arranged the Rubaiyat in a chronological manner increasing the poetries depth and meaning. It was not too long until the peaceful political period ended during Khayyam's time. In 1092, Malik Shah died and his chief Nizam al-Mulk was murdered in Esfahan due to a terrorist movement known as the Assassins. Then later, Malik Shah's wife ruled for <https://assignbuster.com/omar-khayyam-was-a-persian-mathematician-history-essay/>



two years and many people did not support her. Consequently, the observatory was shut down and the funding was stopped. This meant that Khayyam's mission to reform the calendar was put on hold. After a little while, Khayyam had been attacked by a group of religious people that claimed Khayyam was questioning the faith of the believers. Soon, Khayyam came to know that no one was in his favour, but he still tried to remain calm and hoped to regain favour. As the time passed on, he wrote a book a book which described Iran's previous rulers as being great men of honour, since they had supported the scholarly works of science. At this point in time of Omar Khayyam, the rulers of this empire were not in favour of promoting any sort of scholarly work.

Sanjar, Malik Shah's third son became the leader of the Seljuk Empire in 1118AD. Under Sanjar's ruling Merv became the capital of the empire. It is now located in Mary, Turkmenistan, here Sanjar built a great center of Islamic studies and Khayyam found many more of his mathematic findings here. Khayyam discovered here that the a cubic equation can have more than one solution. Sadly, he was not able to prove that there could even be three solutions but he wrote in his work that he hopes one day arithmetic solution might be found one day.