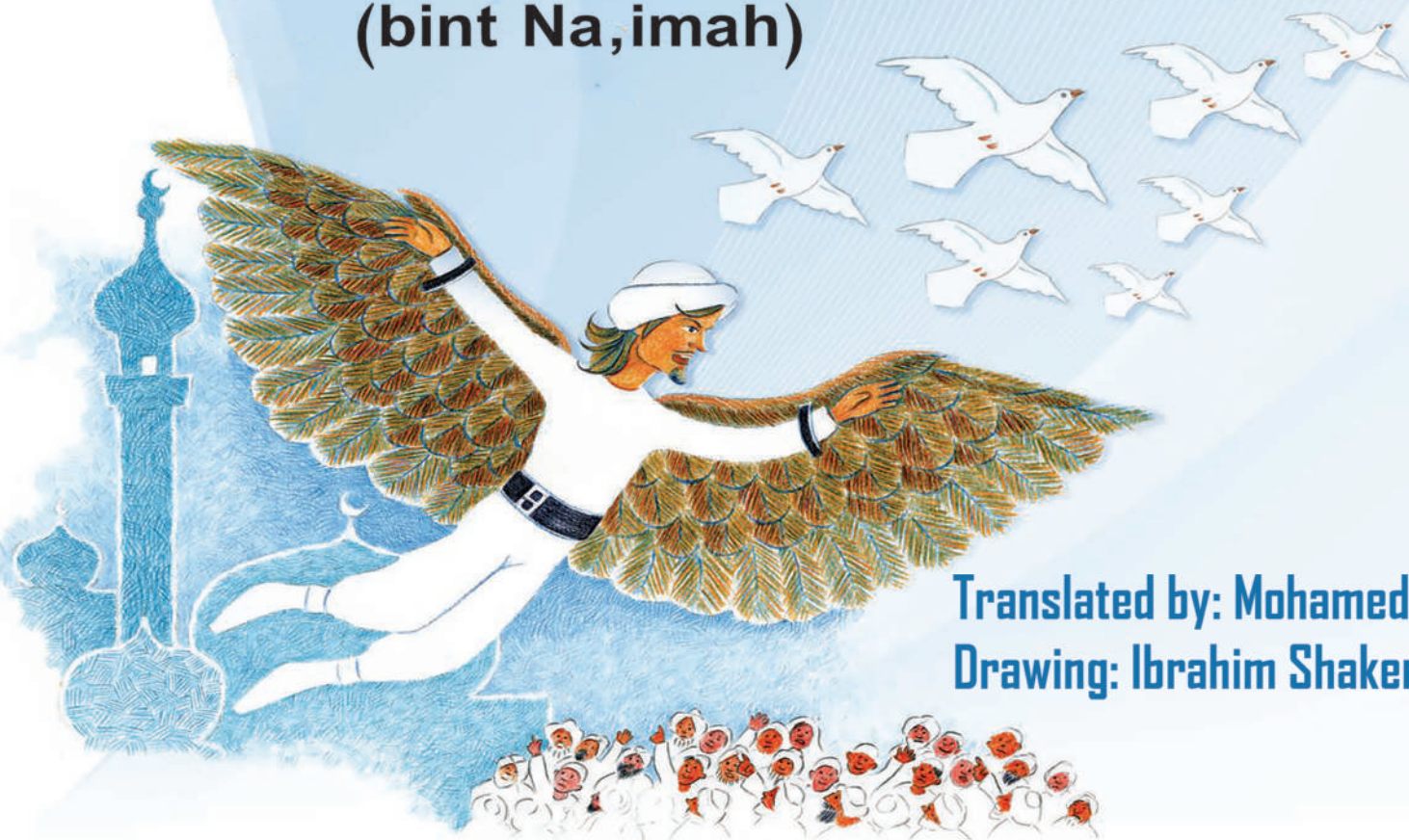


 The Series of Those Who Lit the Path: 3

THE WISE MAN OF ANDALUSIA
ABBAS BIN FIRNAS

Dr. Sanaa Shalan
(bint Na,imah)



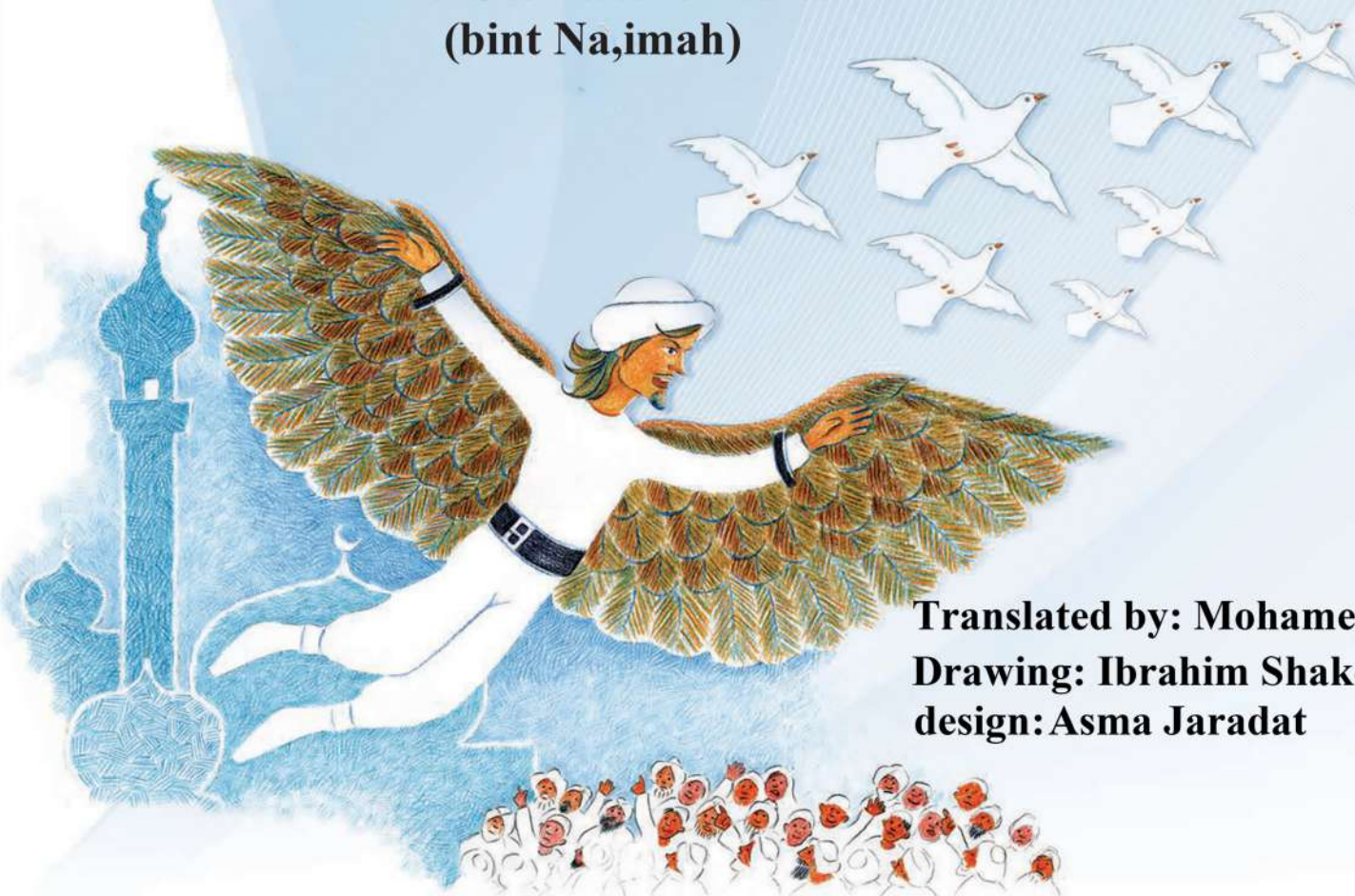
Translated by: Mohamed Fenzari
Drawing: Ibrahim Shaker

Abbas bin Firnas

The Wise Man of Andalusia

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Book Title:Abbas bin Firnas: The Wise Man of Andalusia
First Edition:2024
Author:Professor. Sanaa Shalan(bint Na,imah)
Translated by:Mohamed Fenzari
Drawing: Ibrahim Shaker
Book type:Children's Picture story
Number of pages:20
Filing number: 2023/ 9/5267
Classification number: 813.9283
ISBN:978-9957-545-67-3
Descriptors:/Arabic Ficiton// Translated literature Arabic literature/
All rights reserved to the author: Professor. Sanaa Shalan (bint Na,imah)
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Publisher data:TNOOR Cultural Center AL-Al tnoor Kulttuurinkeskus ry Väinöläkatu 19 B 38- 33500 Tampere Finland Hassan Abbas .Dakhel-altnoor62@gmail.com
printing press:Al tnoor Kulttuurinkeskus ry Press - Finland - Tampere – 33500
Sanaa Shalan owns the rights to the story's illustrations
design:Asma Jaradat - Asma Office for Design and Directing Arabic Edition Design:Hadil Zakarna

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ABBAS BIN FIRNAS

"THE WISE MAN OF ANDALUSIA"

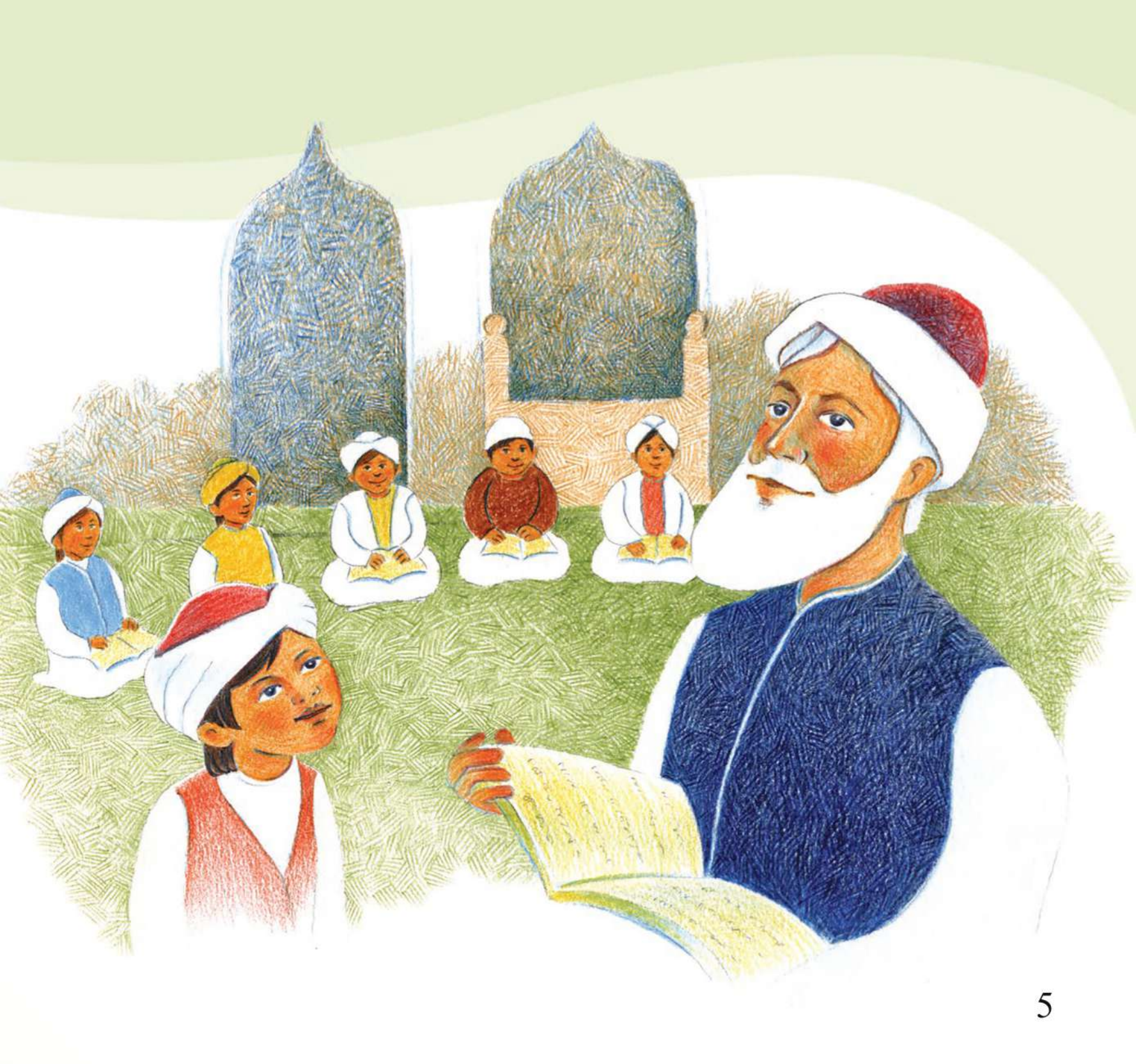
Abbas bin Firnas, the little boy with glistening (bright) eyes, used to pass (spend) hours looking at the movement of birds and stars in the sky. Since his childhood, he has learned the names of many stars and knew their place in the sky.

Yet, he seems so busy today that he did not follow Arabic grammar courses with passion (great love) as usual. He has been pondering upon (thinking deeply) the holy verse he has learned today, and repeated it many times in his heart, saying:

“O assembly of jinn and humans! If you can penetrate beyond the realms of the heavens and the earth, then do so. ‘But’ you cannot do that without ‘Our’ authority.”¹

Then, his heart jumped with joy when he realized (knew) that the verse shows signs to humankind that they can one day fly, but with authority (with strength and hard work).

¹- The Quran, verse 33 from Surah Ar-Rahman, translated by Dr. Mustafa Khattab.



He enthusiastically asked his teacher: "By what authority can humans fly, my great teacher?"

Then, the teacher, who reckoned (**knew**) that Abbas was a sharp-witted (**clever**) and an inquisitive (**asking many questions**) student, said happily with a smile: "By science, Abbas".

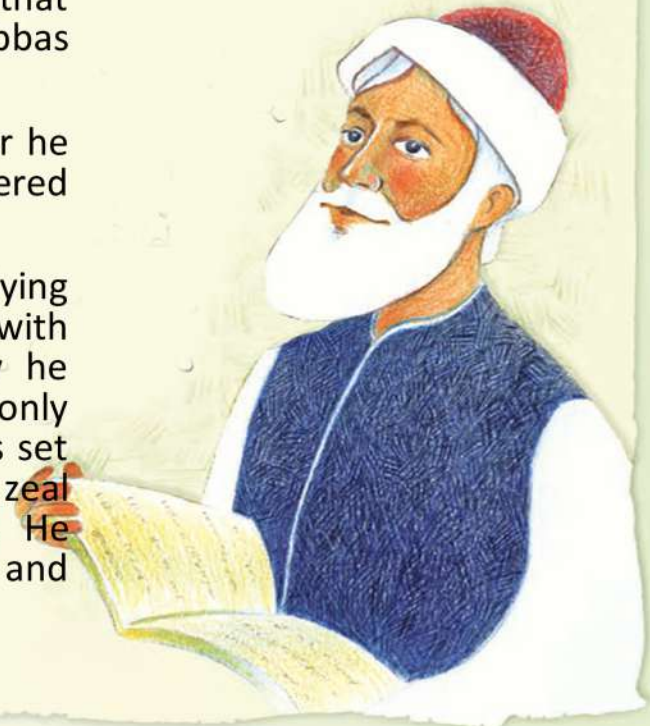
"How is that dear teacher?", replied Abbas (**interestingly**).

"My son, if you learn sciences, God may bless (**give and gift**) you with many things, and so be guided to (**reach**) where no one has ever been before. Therefore, you may invent or discover what benefits all humanity, for which you will be rewarded twice", said the teacher.

"Can I discover how a bird flies in the sky so that humans can do the same?", asked Abbas (**happily**).

"God is all-knowing, but learn and work, for he lets not the reward of doers be lost", answered the teacher.

The little Abbas returned home, almost flying with happiness. He flied in his imagination with the birds whose joy of flying in the sky he wished to experience. At last, he knew that only through science can humans fly. So, he was set out to (**started**) learn sciences with zeal (**eagerness**) that never wanes (**weaken**). He rehearsed the Quran and noble Hadith and understood the principles of Islam.





Afterwards, he read works (books) on medicine; he studied diseases and their treatment. He studied herbs and the characteristics of stones and metals. Then, he became an adept to (mastered) all of these until he received the nickname of (The Wise Man of Andalusia), a title which Arabs used to grant (give) to those who were preeminent (excellent) in working in the craft (profession) of chemistry and medicine.

For so many years, he has studied physics, philosophy, architecture (construction), and Nahw (syntactic rules of Arabic), prosody (patterns of rhythm and sound used in Arabic poetry) to the extent that he was the first to be adept to (master) prosody in Andalusia (Spain). He explained it to the inhabitants of Cordoba after it was intricate (difficult) for them to understand. Before, they thought it was a science hard to grasp (understand). His knowledge enwreathed (was crowned) with learning music which he considered a joy for the soul. He mastered playing many musical instruments.

Yet, his first concern was to make the dream of flying come true. He dedicated himself to reading what the sons of Moses, Thabit bin Mansur, Al Khwarizmi, Tabani and Yahya bin Mansur had written about this subject. They were Arab scholars well known for astronomy (the science of planets and stars). One day, he asked the governor of Cordoba to lend him a book about Ephemeris² that contains symbols of the science of stars and their terminology. The governor did so with pleasure (happily). Abbas dedicated himself to (engaged in) reading it until he learned it by heart and comprehended (understood) every word it contained. Then, he gave it back to the governor and thanked him.



²- A table or data file giving the calculated positions of a celestial object at regular intervals throughout a period.



And so, the smart little boy, born in Cordoba in 180 AD during the reign (the period of rule) of Caliph (the ruler) Al-Hakam bin Hisham, was able to master many sciences until he turned into (became) a walking scientific encyclopaedia. He came out with the wisdom that whoever is given knowledge must benefit people with it, otherwise he deserves the wrath (anger) of God. Therefore, he promised himself to benefit Muslims and all people with his science.

However, Abbas bin Firnas continued to observe the movement of birds, studying their body parts that helped them fly, the movement of their wings, their way of flying up and landing on the ground. He recorded all of that in a special compilation (book) until he became aware of how a bird flies; he imitated them and wondered whether it was possible for a person to fly like a bird and whether he would be destined to be the first person to fly. Abbas, of course, did not know the answer to his two recurring (repeated) questions, but he continuously dreamed of flying like a happy bird in the sky.

The good-looking (handsome) boy reached the top (became famous) and soon became the doctor and poet of the court and the close confidant of the caliph (the ruler), who appreciated his knowledge and admired his enthusiasm and intelligence, and so provided him (gave him) money to continue his research.

Abbas decided to make one of the rooms in his house a laboratory, containing tools and machines that he needed in his research and experiments. He was specialized in the making of metals with heat, so he invented many gadgets, the most important of which was a transparent glass made of stone.





Abbas began to stun (amaze) people with his inventions, which he devoted (made) to the service of people. He invented what looked like an ink pen, which was a cylindrical device used for writing, facilitating (simplifying) writing for people. He also invented a device he named the Miqatah (water clock) to measure time and know its intervals, especially prayer times; it relied on the shadow and measured its degrees and angles. It was a precise device as it measured minutes and seconds. It set the basis of the Sundial, which was subsequently (later) invented.

He also invented a marvellous machine (armillary sphere) that monitored the movement of planets, stars and the moon at night and the sun during the day.

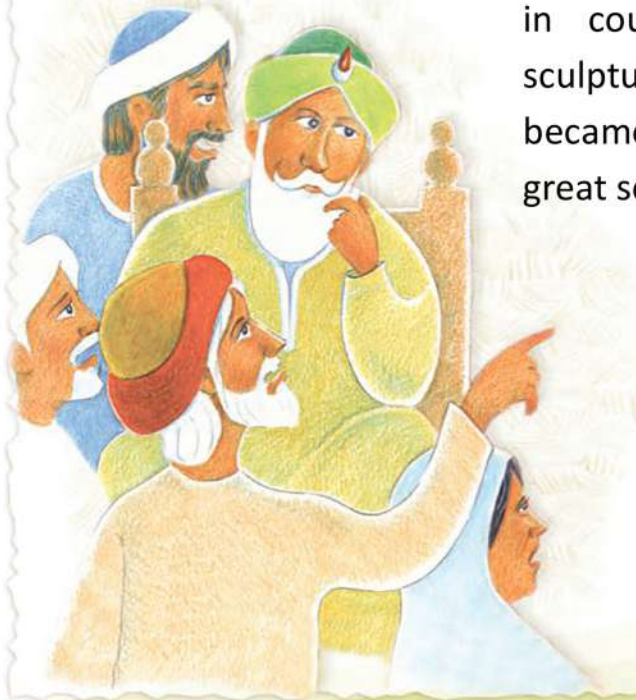
This last invention inspired (led) Abbas bin Firnas to build a planetarium in his house, which was a marvel at the time, and a place for people to visit. He made it on the ceiling of his house like a sky, with stars, clouds, lightning, and thunder. He was able to create the phenomena of thunder, lightning, and the fall of sprays of water in the form of rain by mechanical means using some of the tools and machines he made and placed in various (multiple) places to use when needed.

Abbas also invented what looks like a tear gas bomb, which he made from chemical mixtures. He invented a war machine resembling a tank that the ruler of Cordoba used in his war with some of his non-Arab enemies. Because of it, he defeated them, ravaging (destroying) their fortresses (fortified buildings).




The enemies were resentful (**envious**) of the genius of Abbas. They tried to eliminate him, so they accused him of witchcraft and sorcery. Yet, the prudent (**good**) Islamic judiciary backed him (**supported and helped him**), acquitted (**freed**) him after a fair trial, and encouraged him to continue his research and inventions, as the judiciary realized that Abbas was a man of knowledge who deserved appreciation, not imprisonment.

He offered the people of Cordoba the most beautiful architecture, as he built water fountains in courts and public gardens, and set up sculptures, pictures, and statues. So, Cordoba became a beautiful masterpiece because of its great scholar, Abbas bin Firnas.







However, the dream of flying never left the imagination of Abbas, the ambitious. So, he went deeper in his studies of aeronautics (the science of flying) and started trying to implement what he had learned about flying. Then, he surprised the people of Cordoba with the most important event in history. He announced that he would fly. He scheduled a day (set a date) for that, so people gathered around the Mosque of Cordoba, and Abbas climbed up to the minaret (tower) of the mosque and threw himself from above in the air trying to fly. He succeeded for a short time and flew higher in the air, having used the wings of a large bird, and tied them to his arms with thin ribbons of silk.

The dream of Abbas was finally fulfilled, but it was dispelled (lost) in the last moments. Abbas failed to land safely. He did not know the importance of the tail in a flight. He did not make a tail, so he fell on his back and was severely (seriously) injured, which confined him to bed (forced him to stay in bed) for many months.





However, Abbas bin Firnas was indifferent to (did not care about) his pain. Rather, he kept watching the birds flying in the sky from the balcony of his room, where he laid (slept) sick, wondering: Where was the mistake in his flight? What was missing for a safe landing?

He repeated the two questions to himself over and over again without a definitive (correct) answer, and without knowing that the mistake he made was in not using a tail. With it, a bird can land safely without being harmed. This is what Abbas lacked to land safely.

The perplexing (tiring) question remained unanswered in the mind of Abbas, who had invented wonderful and useful inventions throughout his lengthy (long) life. He was over ninety years old when he passed away (died) in Cordoba in 887 AD during the reign of Caliph Muhammad bin Abdulrahman. Abbas believed (was sure) that the future must be endowed (equipped with) with noble (intelligent) people who will fulfil humanity's eternal dream of flying.

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Dear children, I would be glad to know your thoughts on this story. Contact me at the following address:

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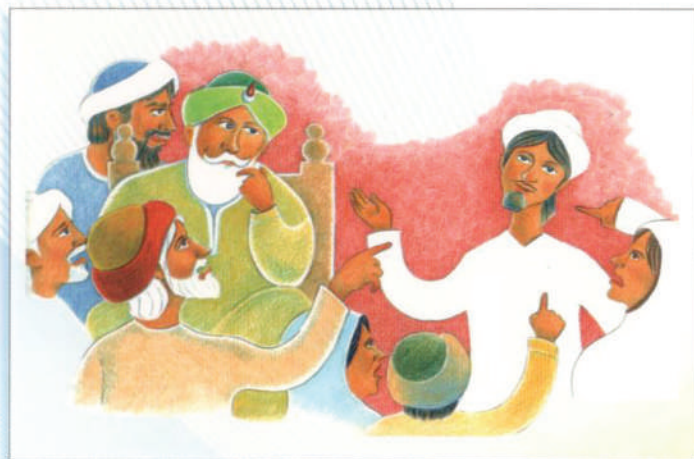


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978-9957-545-67-3



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