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1001 Inventions
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1001 INVENTIONS

In this era of negativism against anything Islamic, mounting an exhibit bringing to light the valuable contributions of Islamic culture in the "1001 Inventions" exhibition currently running at the New York Hall of Science is eye-opening. The innovative exhibition sub-titled "Discover The Muslim Heritage In Our World" is geared towards children, but is enlightening for people of all ages. It illustrates the innovations of the Golden Age of Islam, from roughly 450 to 1492 CE, in a colorful interactive style. Highlighted are the scientific advancements that spread throughout the Islamic world when knowledge was the unifying force binding cultures and religions together from as far afield as Spain to China.

At a time when the rest of the civilized world was in the period referred to as "The Dark Ages" (sic) and scientific exploration was at a standstill, the Islamic domain was awash in creative thought and scientific advancement. Scholars and scientists of all faiths and cultures contributed, with the only prerequisite for people to work together being scientific investigation. Out of this collaboration came advances in Education, Medicine, Finances, Art, Architecture and City Planning, plus understanding the Natural Universe... including manned flight... centuries before DaVinci!



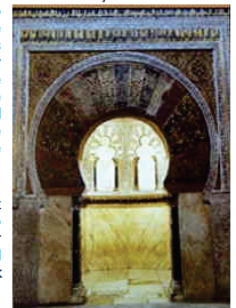
Abbas ibn Firnas, a wealthy merchant amused himself with the study of birds, and in 840 CE built a stationary winged device that he strapped to his arms and flew. Unfortunately until he developed the rotating flap to navigate his descent, he suffered a rather painful landing. Undeterred by his injuries, Abbas ibn Firnas went on to develop the rotating flap which is relevant even today; he also invented magnification by grinding rock crystal into a curved lens. His reading stone resulted in the telescope and of course led to reading glasses.

In the 9th century Caliph al-Ma'mun commissioned his astronomers to determine the earth's circumference and by studying the heavens, they got within 125 miles of the actual figure. And in the early 12th century the geographer al-Idrisi journeyed for 15 years throughout the known world interviewing thousands of travelers and collecting bits and pieces of maps and images of uncharted territories. Since ancient Greece it was known the earth was spherical but he became the first person to create a world map that indicated land masses in a global environment. Al-Idrisi's map was according to the style of the period and indicated that south was up and north was down but otherwise the measurements were astoundingly accurate and he indicated all seven continents, an astonishing feat at a time when most Europeans believed the earth was flat and if one sailed to the horizon they would fall off. In the 11th century, 600 years before Galileo, al-Biruni calculated the theory of the Earth rotating on its own axis, explained the ebb and flow of tides, gave precise measurements of the Earth, and indicated latitudes and longitudes, in his book *On the Determination of the Coordinates of Cities*.



In 13th century Turkey, there lived a skilled engineer, al-Jazari who conceived a method for telling time with robotics, replacing the sundial, Alexandrian clepsydras, and Indian water pots, until then the most accurate measures for registering time. His interest in ancient methods of constructing automated machines caused him to build the elephant clock, the first robotic device for telling time. This extraordinary machine not only told time in accurate half-hour increments, it also celebrated the diversity then present in Islam by honoring the contributions of other nations and peoples. His clock included an Indian elephant, an Egyptian phoenix, Arabian figures, a Persian carpet, and Chinese dragons.

To me, learning of the contributions of women during this Golden Age was the most fascinating. Fatima al-Fihri, a well educated and devout young woman living in Fez, Morocco wanted to improve life in her community and contributed her inherited wealth to building a college/mosque complex. Opened in 841 CE al-Qarawiyyin is considered the world's oldest university. Not only local students were accepted but also those qualifying from Syria, Persia, India and Egypt. The students did not pay to attend and were provided financial support and even a living allowance. The studies were grueling and being awarded a degree could take as much as twenty years.



Advances at every level of human endeavor took place during this Golden Age of Islam that are too numerous to mention, and it behooves the reader to consider these contributions to our world, and remember that all civilizations experience a "Dark Ages" when reason fails and chaos reigns.

1001 Inventions runs through April 2011 at the New York Hall of Science, 47-01 111th Street, Queens - 718-699-0005 - www.nysci.org

May 24 to December 31, 2011 the exhibition will be at the California Science Centre, Los Angeles

June to December 2012 the exhibition will be at the National Geographic Museum, Washington, DC