

The Islamic Golden Age in review

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An elephant stands unsteadily, weighed down by an ornate casing on its back. Within that structure, there are Chinese dragons and an Egyptian phoenix. But this is no ornate folly from a film set. The elephant clock may look exotic, but it hides a mechanism that is the precursor of accurate timekeeping, camshafts and robotics, built by the Mesopotamian scientist Al Jazari in the 12th century.

A replica of this weight-powered water clock takes centre stage at 1001 Inventions, a touring exhibition currently at London's Science Museum that aims to highlight just how many of the central tenets of modern mathematics, engineering, physics and culture have their roots in the Islamic Golden Age.

1001 Inventions is the culmination of a project that began at the Museum of Science and Industry in Manchester back in March 2006. Focusing on seven areas – home, school, market, hospital, town, world and universe – and spanning 1,000 years from the seventh century, it underlines the importance of scholars and scientists in a Muslim world that stretched from southern Spain to China.

It is immediately striking how these scientists took their work home with them. There's a model of an environmentally friendly Baghdad house with natural air conditioning, but the more prosaic discoveries are just as interesting. There's evidence of the first fountain pens, developed in Egypt. Toothbrushes, coffee, soap and shampoo are all revealed to have their roots in the Islamic world.

As the influence of the Islamic Golden Age broadened, so did the horizons of its physicists, scientists and creatives. Many associate the first world maps with Marco Polo and Columbus's expeditions. But the 12th-century scholar Al Idrisi drafted a version hundreds of years earlier. A reproduction of it takes pride of place in 1001 Inventions' "world" zone.

Al Idrisi was not the only pioneering cartographer: there is a map of the Americas drawn by the 16th century Turkish captain Piri Reis that is thought to be the oldest surviving example of its kind. Elsewhere, a model of Zheng He's junk ship seems, at first, like so many one encounters in maritime museums across the world. But a closer inspection reveals the staggering story behind the 14th-century ship that the Muslim admiral used on seven voyages of discovery. It was, by the standards of the time, a superstructure. Legend has it He's treasure ship was more than 100 metres long with nine masts and four decks – the biggest wooden ship ever.

Interestingly, there's a contemporary context, too. The exhibition, organised by the UK-based Foundation for Science, Technology and Civilisation in association with the Jameel Foundation, is in a sense setting the record straight.

The erroneous image of Islamic history that many westerners have – of Aladdin, Ali Baba and Sinbad – fails to recognise, as it's put in the exhibition, "how the scientists, scholars and engineers of Muslim civilisation helped lay the foundations of the European Renaissance and ultimately our modern world". So calling the exhibition 1001 Inventions, with all the connotations of 1001 Nights, is delightfully tongue-in-cheek.

The exhibition is similarly accessible in tone. The displays are largely models or replicas, true, and there is a lot of educational text, but there are more than 60 interactive elements. Touch-screen exhibits show how arches and vaults around the world are influenced by architecture in the East, and the world of the Silk Route trader is neatly evoked in an interactive game. There's also a short feature film starring a delightfully cranky Ben Kingsley as a librarian who takes a group of schoolchildren on a journey to meet the famous scientists and engineers who crop up in the exhibition.

Such wide-eyed, almost childlike delight in the spirit of discovery is captured well in 1001 Inventions. There have been criticisms, essentially arguing that faith should not be connected with science in this way. But this is harsh. If anything, 1001 Inventions is overly keen to emphasise that scientists and engineers of completely different backgrounds and beliefs worked together in the Muslim world to further civilisation. That, in the end, is the message.

It's a message the Foundation for Science, Technology and Civilisation will take to as many people as possible. After the exhibition closes in London at the end of April, it transfers to the United States. In the second half of 2010, 1001 Inventions will stop off in Turkey and Saudi Arabia, and there are plans to visit the UAE next year. It is apt, really, that an exhibition that honours and celebrates men such as Ibn Battuta, who explored the far limits of civilisation as far back as 1325, should take its delights on similar journeys across the world.