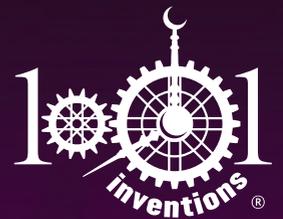
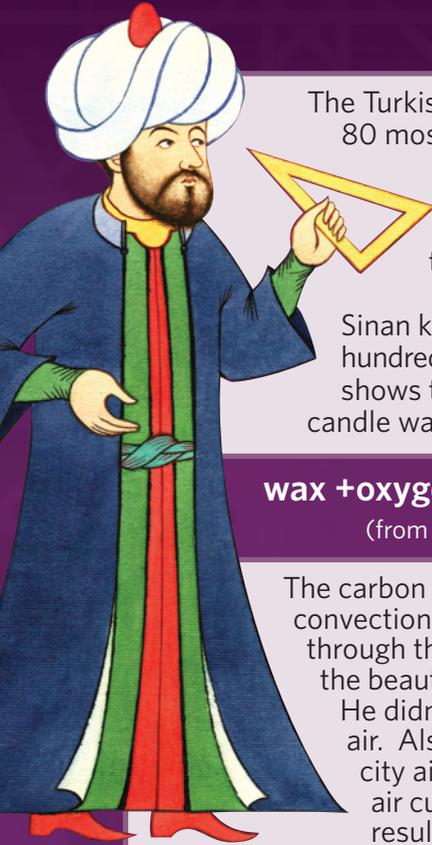


Clean air



Have you ever coughed in a smoke-filled room, or breathed in traffic fumes? Not nice! Muslim architects have provided clean air in buildings for centuries.



The Turkish architect Sinan designed more than 80 mosques and 50 schools. His Suleymaniye Mosque, finished in 1557, is magnificent. It is one of the first big public buildings to have a system for supplying fresh air to the people inside it.

Sinan knew that the mosque would be lit by hundreds of candles and oil lamps. The equation shows the products of the burning reaction of candle wax:



The carbon is a fine black powder – soot. Normally, convection currents would make the soot spread through the whole mosque. But Sinan didn't want the beautifully-decorated inside walls to go black. He didn't want worshippers to breathe in dirty air. Also, he didn't want to send soot into the city air outside. So Sinan experimented with air currents – and thought creatively about his results – to make sure the air and the walls stayed clean.



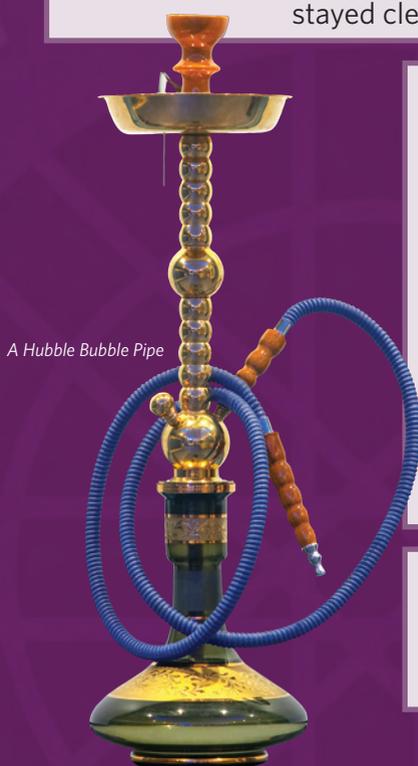
Suleymaniye Mosque, Istanbul, Turkey



One of these experiments apparently involved Sinan sitting in the centre of the unfinished mosque smoking a *hubble bubble* pipe. Suddenly, Sultan Suleyman, who was paying for the mosque, turned up. He was furious to find Sinan not getting on with his work, and even more furious to find him smoking in a holy place. The Sultan calmed down when Sinan explained that he was testing his newly-designed ventilation system...

The ventilation system involved drawing currents of smoky air through a vent and into a small chamber above the entrance hall. Soot was deposited on the chamber walls, and was collected to make ink. The stale air left the building, with very little soot getting to the outside environment. Fresh air came in to replace the polluted air through vents near the floor. So it wasn't necessary to open the windows – especially on cold winter days.

European and North American architects took a while to catch on to low-energy natural ventilation systems like that of the Suleymaniye Mosque. A similar ventilation system in a 2005 London building is seen as new and exciting.



A Hubble Bubble Pipe

Image of Sinan from Muslim Heritage in our World, FSTC (2006), page336.