Abbas Ibn Firnas (810–887 A.D.), also known as Abbas Qasim Ibn Firnas, was a Muslim Andalusian polymath: an inventor, engineer, aviator, physician, Arabic poet, and Andalusian musician. Of Berber descent, he was born in Izn-Rand Onda, Al-Andalus (today's Ronda, Spain), and lived in the Emirate of Córdoba. He is known for an early attempt at aviation.

Abbas Ibn Firnas designed a water clock called Al-Maqata, devised a means of manufacturing colorless glass, he invented various glass planispheres, made corrective lenses ("reading stones"), developed a chain of rings that could be used to simulate the motions of the planets and stars, and developed a process for cutting rock crystal that allowed Spain to cease exporting quartz to Egypt to be cut.

In his house he built a room in which spectators witnessed stars, clouds, thunder, and lightning, which were produced by mechanisms located in his basement laboratory.

He is also said to have made an attempt at flight using a set of wings. The only evidence for this is an account by the Moroccan historian Ahmed Mohammed al-Maqqari (d. 1632), composed seven centuries later.

The crater Ibn Firnas on the Moon is named in his honor.

[Condensed from Wikipedia]

Biorefinery

A biorefinery is a facility that integrates biomass conversion processes and equipment to produce fuels, power, heat, and value-added chemicals from biomass. The biorefinery concept is analogous to today's petroleum refinery, which produce multiple fuels and products from petroleum.

By producing multiple products, a biorefinery takes advantage of the various components in biomass and their intermediates therefore maximizing the value derived from the biomass feedstock. A biorefinery could, for example, produce one or several low-volume, but high-value, chemical or nutraceutical products and a low-value, but high-volume liquid transportation fuel such as biodiesel or bioethanol (see also alcohol fuel). At the same time generating electricity and process heat, through combined heat and power (CHP) technology, for its own use and perhaps enough for sale of electricity to the local utility. The high-value products increase profitability, the high-volume fuel helps meet energy needs, and the power production helps to lower energy costs and reduce greenhouse gas emissions from traditional power plant facilities. Although some facilities exist that can be called bio-refineries, the bio-refinery has yet to be fully realized. Future biorefineries may play a major role in producing chemicals and materials that are traditionally produced from petroleum.

[Condensed from Wikipedia]