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Edinburgh, Geology, Geography, and Islam

Among its many claims to fame, one of Edinburgh's great achievements is its contribution to the fields of geology and geography. With respect to the former, the key name is that of James Hutton, born in Edinburgh in 1726, who, after studying medicine in Edinburgh, Paris and Leiden, inherited a farm in Berwickshire, to which we moved and from where he began the geological investigations which led to the publication in 1785 of his 'Theory of the Earth', in which he outlined his theories on the composition of rocks and their layering. In the light of the prevailing interpretations of the Bible at the time this was highly controversial, but Hutton based his views on careful empirical observation at such places as Siccar Point in Berwickshire, Salisbury Crags (which still has a formation known as Hutton's Section), the Isle of Arran, the Cairngorms and many other locations throughout Scotland, and over the course of the next half century or so his views gradually became generally accepted.

In the field of geography, Edinburgh's greatest contribution probably lies in its extremely distinguished tradition of mapmakers, the most famous of whom, John Bartholemew and Sons, are the focus of a fine exhibition at the National Library until 7th May 2013. Bartholemews were not the only significant Edinburgh-based mapmaking firm, however, as other publishers such as Gall and Inglis and W. and A.K. Johnston, later Johnston and Bacon, whose 3-miles to the inch road atlas of Great Britain will have sat in the car pocket of many touring motorists, were also based in the city.

What may be less well-known is the contribution to cartography and mapmaking made by the World of Islam. The earliest map of Scotland, as is fairly well-known, and as recounted in 'Scotland: Mapping the Nation', edited by Christopher Fleet, Margaret Wilkes and Charles Withers, is that of Ptolemy, the 2nd century geographer who lived in Alexandria. In the recent 'History of the World in Twelve Maps' by Jerry Brotton, Ptolemy's map of the known world, essentially the land around the Mediterranean Sea, is the first. The second, however, is that of the twelfth-century Muslim geographer al-Idrisi, originally from Morocco but who worked in Sicily under the Norman king Roger II. Ptolemy is characterised by Professor Brotton as a representative of 'science' in mapmaking, while al-Idrisi by contrast as representing an approach which he calls 'exchange', since his world map, published in 1154, was originally called 'An Entertainment for He Who Longs to Travel the World'. Muslim travellers also traversed huge distances, with the tenth century geographer Ibn Fadlan providing some of the earliest information about the Vikings whom he met on

the Volga, as recorded in the exhibition about the Vikings which is currently on at the National Museum, until 12th May. The greatest of all the medieval Muslim travellers, Ibn Battuta, is reckoned to have journeyed around 75,000 miles during his lifetime, roughly equivalent to two and a half times round the earth.

In the field of geology too medieval Muslims made very significant contributions, with the great eleventh-century figure who is best-known as a philosopher, Ibn Sina or Avicenna, discussing mineralogy and meteorology in his Encyclopedia, and al-Biruni, who died in 1048, devoting a great deal of attention to the study of rocks and gems, including calculating the specific gravity, or density, of many of them. Al-Biruni also travelled widely in India, and produced what has been called 'the first book of comparative religion' for his very fair description of Hinduism.

Significant contributions to the fields of both geology and geography have thus been made in both Edinburgh and the World of Islam, and in a world where many commentators continue to speak in terms of an inherent clash between the World of Islam and the West, these commonalities deserve to be better-known.

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