

Ordnance Survey maps that changed the world

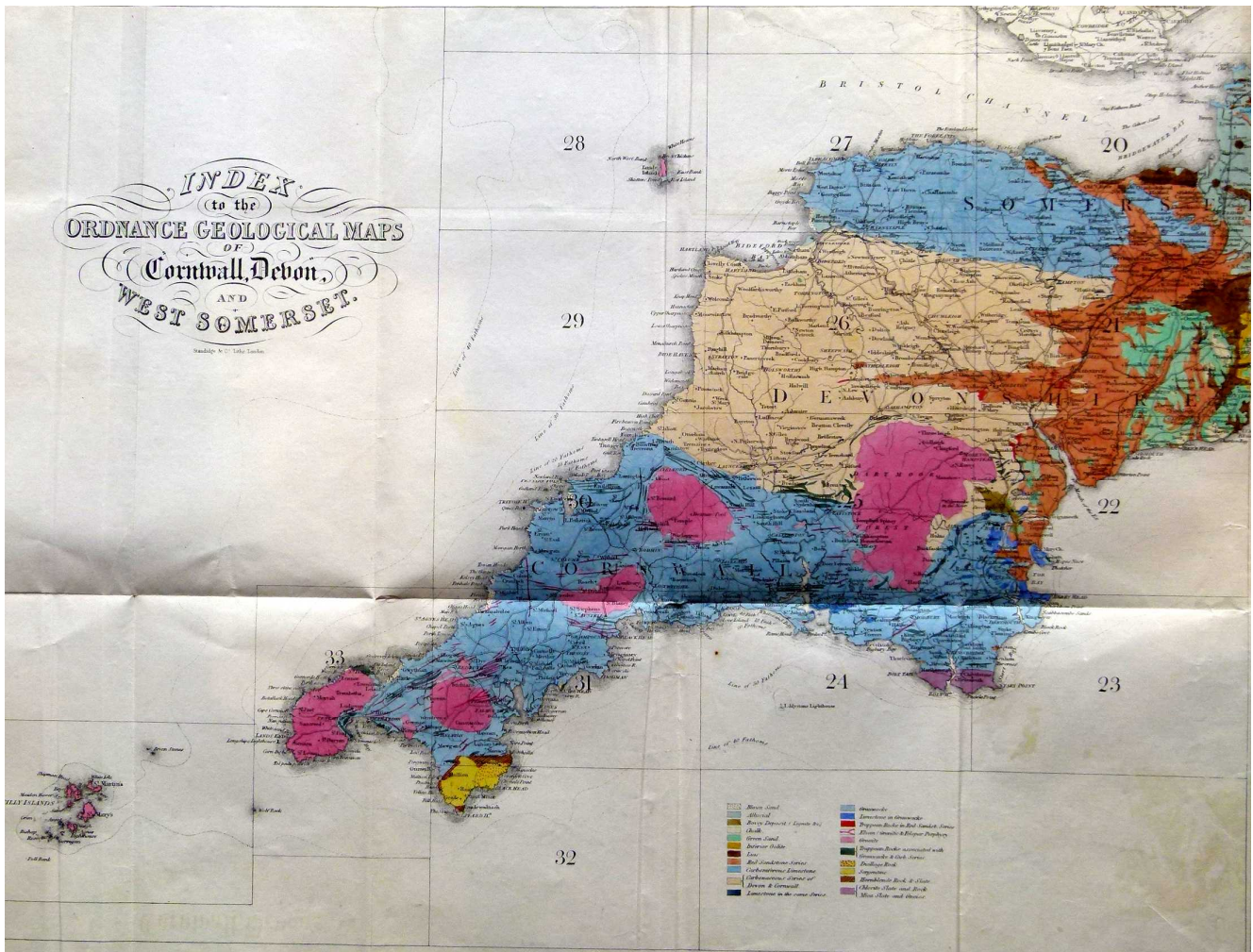
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Scratch a geologist and you're likely to discover a map addict. The reason is simple: geological maps offer the key to understanding the geology, and hence the form, structure and origin of the surface of the Earth. As William Smith, the 'Father of English Geology' put it in a document included with the copy of Smith's Geological Atlas held in the Hope Library at the Oxford University Museum of Natural History: 'By their colouring they [geological maps] bring up the natural features of the Country and facilitate the acquirement of Geology.' And the more accurate the topographic base map, the more accurate and informative the geological map. This helps to explain the close relationship between the Ordnance Survey, the first national topographic survey in the world, and the British Geological Survey (BGS) – the world's oldest continuously functioning national geological survey.

Accurate topographic base maps were something that William Smith, creator of the first geological map of a nation, lacked. The base map used for Smith's 1815 map "A Delineation of the Strata of England and Wales with part of Scotland" – the map drawn to popular attention by Simon Winchester's book, *The Map that Changed the World* – was the index sheet to the second edition of John Cary's *New and Correct Atlas of England and Wales*, published in 1794. Cary's index map, at a scale of around 47 miles to the inch, showed the outline of England and Wales with hills depicted pictorially, but included no other topographic information. Other early geological mappers faced similar difficulties when it came to finding suitable base maps, and generally turned to topographical sheets published by Cary and other commercial firms including Arrowsmith and Crutchley.

It wasn't until the first topographical maps prepared by the Ordnance Trigonometrical Survey, the forerunner of the modern Ordnance Survey, became available that detailed geological mapping, in the modern sense, became possible. Among the first geologists to make use of new topographical maps for geological mapping – and the first to geologically colour the whole extent of an Ordnance Survey one-inch sheet – was Henry De la Beche. Born in 1796 in London, but following the death of his father, brought up mainly in Devon and Somerset, De la Beche became seriously interested in geology after settling in Lyme Regis in Dorset in 1812. Although he joined the Geological Society of London in 1817 it wasn't until he came of age in 1819 and began to receive an income from his family's estate in Jamaica, that De la Beche was able to fully take up life as Gentleman Geologist, and travel extensively on the continent to meet and learn from other geologists. Following an extended visit to his Jamaican estate he published the first modern account of the geology of Jamaica, 'Remarks on the



*The map in 'Report on the Geology of Cornwall, Devon and West Somerset' by Henry De la Beche, Director of the Ordnance Geological Survey, 1839
 illustration courtesy of John Henry*

geology of Jamaica', which was read at the Geological Society and published in the Society's Transactions in 1827.

During this time he also continued his studies of local geology in Devon, and began colouring geologically the new topographic maps of Devon prepared by the Ordnance Trigonometrical Survey. When events in Jamaica meant that his income failed, de la Beche applied to the Ordnance authorities, then headed by Lt-Col. Thomas Colby, for £300 to allow him to complete his geological map of Devon. His request was granted and in 1832 De la Beche became a 'Geologist to the Trigonometrical Survey of Great Britain'. Other holders of similar titles included John MacCulloch, whose geological work in Scotland led to his appointment as a 'Geologist to the Trigonometrical Survey of Great Britain' in 1814; and Joseph Ellison Portlock, who was appointed 'Geologist to the Trigonometrical Survey of Ireland' in 1832.

De la Beche's geological mapping in Devon turned up some unexpected fossils that led to a bitter controversy about the age of the rocks and De la Beche's skills as a field geologist. Feelings ran high among the 'Gentleman Geologists' of the Geological Society – with one prominent member, Roderick

Murchison, writing that ‘De la Beche is a dirty dog... I knew him to be a thorough jobber & a great intriguer & we have proved him to be thoroughly incompetent to carry on the survey.’ The dispute wasn’t resolved until the 1840s, after further studies were carried out by another geologist, William Lonsdale, and by Murchison himself, resulting in the establishment of a ‘new’ geological System – the Devonian.

But in spite of the opprobrium De la Beche completed his Devon map in May 1835. He was then asked to carry out a geological survey of Cornwall – and the Geological Survey of Great Britain was born. The first Geological Survey memoir, Report on the Geology of Cornwall, Devon and West Somerset, published in 1839, was the result of De la Beche’s work and contained a folded geological map, along with sections and plans. A revised version included eight sheets of geological mapping on one-inch OS base maps of Devon. The Geological Survey remained a branch of the Ordnance Survey until 1845, when it was transferred to the Department of Woods, Forests, Land Revenues, Works and Public Buildings. De la Beche served as its Director-General until his death in 1855.

Although claims are made that earlier government-funded geological surveys were established in France, the United States, Ireland and Scotland, the Geological Survey of Great Britain (now called the British Geological Survey or BGS) remains the oldest continuously functioning geological survey organisation in the world. Its successful start was thanks to a combination of De la Beche’s own geological skills, determination, diplomacy, and what some would call, deviousness; the teams of hard working and skilled field geologists; and the availability of the accurate topographic maps produced by the Ordnance Survey.

Further reading:

David G Bate, ‘Sir Henry Thomas De la Beche and the founding of the British Geological Survey’, *Mercian Geologist*, vol. 17 (3), 2010, 149-165, available for download from <http://nora.nerc.ac.uk/11264>

Paul J McCartney, *Henry de la Beche: observations on an observer*, Cardiff: Friends of the National Museum of Wales, 1977.

John Flett, *The First hundred years of the Geological Survey of Great Britain*, HMSO, 1937.

JA Secord, *Dictionary of National Biography*.

Simon Winchester, *The Map that changed the world: William Smith and the birth of modern Geology*, Harper Collins, 2001.

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John Henry adds: The map above is the only one that I have come across with Ordnance Geological Survey in its title. I don’t think it was issued separately from his report and often it has been removed from reports that I have seen. The scale is not stated but it is one inch to ten miles. It is not included in OS small scale map indexes: 1801-1998, although it may be alluded to on page 189, item 2.

See page 2 for details of CCS visit to the map library of the Geological Society of London.