

MAPS

From mid-March until the beginning of June 2008 one of the galleries of the Walters Art Museum in Baltimore, US, was filled with over a hundred maps, globes and artefacts spanning all centuries and covering all cultures. Exhibits ranged from a 3,500-year-old clay map from Mesopotamia to maps of imaginary landscapes created by writers like Tolkien and Faulkner.

The intention of the exhibition was to stretch the public imagination as to the possibilities of mapping. The exhibition also wanted to make the point that maps can be powerful political tools.

National Boundaries

When back in 1766 the British colonists of North America got into a bit of a brawl with King George III, one option that emerged was the establishment of a new nation, unchained from the mother country. Determining the dimensions of a new nation was and remains an essential exercise, and cartography can be a great help; it becomes a matter of drawing lines on maps. During negotiations leading up to the Treaty of Paris in 1783, British and American delegates used a copy of the detailed map of the British and French dominions in North America produced by Jon Mitchell in 1755. The American delegates drew red lines on the map and told their counterparts, "what these lines encircle is the territory of the United States". The red lines demarcated, among others, the boundary between the United States and Canada, which then belonged to Britain. So it was in Paris that the first map of the United States was born, and this is now part of the collection held by the British Library. Drawing lines on maps is not free of political and social implications; up until 1896 the British government banned public access to the said map because the 1783 boundaries were considered more favourable to the United States.

Clay Tablet

Also on display was a clay tablet dating back to around 1500 BC, carved with a plan of Nippur, then the religious centre of the Sumerians in Mesopotamia. It was believed that Enlil, supreme god of the Sumerian pantheon, here created mankind. The city, today within the boundaries of Iraq, was founded around 5000 BC and remained a constantly inhabited religious centre until around 800 AD, but it was never the capital of any kingdom. Nevertheless, its religious nature gave Nippur great political influence and saved it from destruction during the almost constant state of warfare that pervaded the region. The plan carved in clay is possibly the earliest known town plan drawn to scale; on it are marked the principal temple, store-houses, the River Euphrates, a canal to one side of the city and another running through its centre. A wall surrounds the city, which covers about 1.5km by 2km. In common with other structures, the seven gates are annotated with names, while for some structures measurements are also given. Nippur was first excavated in 1888. Clay-tablet maps were part of a more general mode of communication and preserving knowledge. Scribes conserved all sorts of information on thin, moist slabs of clay, which were then hardened by 'firing' in the sun or oven; over 40,000 tables have been discovered. The latest excavation was forced to a halt in 2003.

Presidents

Every US president who, at some time in his life, worked as a land surveyor has been commemorated by having his face carved into the rock at Mount Rushmore National Monument, South Dakota. They are George Washington (b.1732), Thomas Jefferson (b.1743) and Abraham Lincoln, and the names of the first two are closely connected to the birth of the nation. Washington, appointed at the age of seventeen to the post of county land surveyor for Culpeper, a newly created frontier county, was president from 1789-1797. Jefferson wrote the Declaration of Independence, served as first secretary of state under Washington (1789-1793) and was vice-president before becoming the next president (1801-1809). 'Presidents today are more likely to be former lawyers', remarks Rhonda L. Rushing, since 1990 head of Berntsen International Inc, in her fine photo book on survey monuments, *Lasting Impressions*. She continues, 'Perhaps that's appropriate: in the early, relatively under-populated days of our republic, it must have seemed that there was a lot more land than law'. Maps created by presidents were on display, including Thomas Jefferson's 1784 sketch for the proposed new states of the nascent nation.

Leo Belgicus

The Austrian A Michael Aitzinger first introduced a lion-shaped map of the Seventeen Provinces of the Low Countries. After a thirty-year study tour that took in the whole of Europe, he settled in Cologne to write his history of the Low Countries. The book was published in 1583 and contained a map that depicted the shape of the coastline as a lion's back, while extensions to the land borders completed the leonine form. The map, called *Leo Belgicus*, acknowledged the fact that a lion featured prominently in the heraldry of most provinces. And this representation of the territory of the Low Countries became very popular; Baron Aitzinger's remarkable map continued to serve as a prototype over more than two centuries. Political situations were often reflected in symbolisation. For example, the map published by Claes Janszoon Visscher in 1609 depicts the reaching of a truce between Spain and Holland as a sealed sword held in the left forepaw of the lion. This peculiar form of mapmaking remains one of the most enduring cartographic expressions of patriotism.

Changing Insights

Maps can make the invisible visible, and thus reveal new insights about the world. And that is exactly what William Smith did when he published the geological map of England, Wales and parts of Scotland in 1815. This hand-painted map was one of the biggest maps on display. The work by Smith, a surveyor by training, has become well known thanks to Simon Winchester's bestseller *The Map That Changed the World: William Smith and the Birth of Modern Geology* (New York, 2001). Smith had access to pits and industrial dig sites. He observed that throughout the country rock layers were arranged in a predictable pattern, consistently characterised by the same succession of fossils, from older to younger rocks. He collated his findings not only in map form, but also in a book in which he recognised that fossils enabled matching of rock layers across regions. On the map he used conventional symbols to mark features such as canals, copper and tin mines, roads, tunnels and tramways. But how should he represent geological type? He found that the best way was to colour-code them. And these colours depict not only the spots where rock layers surface, but also represent time; lots and lots of it,

millions and millions of years.

The map revealed that the globe must be much older than the six thousand years claimed by the contemporary church, so enabling Charles Darwin in the early 1840s to outline his theory of evolution by natural selection as an explanation for adaptation and specialisation. Processes of evolution require many millions of years, and Smith's map proved the viability of such immense time-spans.

John Snow

Maps are capable not only of revealing natural phenomena. William Smith proved that they are also able to illustrate social issues. Industrialisation brought mining and excavation to Britain, but also strong migration from rural to urban areas. Living closer together meant a higher risk of contagious disease. Cholera was the curse of the age. The prevailing theory was that this was spread by 'miasma', bad air. John Snow, however, was convinced that cholera was spread by contaminated water, and he proved his hypothesis by plotting on an existing street map the homes of victims of the Soho (London) cholera outbreak of August 1854. From the map he identified a water pump in Broad (now Broadwick) Street as the source of the disease in that neighbourhood. Removal of the handle of the pump and sealing off the water source resulted in an immediate fall in numbers of new cases (see GIM International September 2007). His map was also on display as part of the section on visualising nature and society.

3D World

We have always sensed the inadequacy of our attempts to represent the 3D world on a flat surface, held back as we were by technological limitations. The desire to move beyond two dimensions is far older than the last decade. Today's computers and advanced sensors have simply made it possible to create 3D-city models and digital elevation models time efficiently and at a reasonable price. No, the wish to map the world in its full three spatial dimensions has been with us for centuries, and the exhibition bore testimony to this. Among the exhibits was a 3D perspective map of Amsterdam produced in the "Golden Age", and the manuscript of a map created by Leonardo da Vinci, the greatest artist of the renaissance. With his map of central Italy, created around 1502, da Vinci introduced the cartographic convention of using colour to indicate changes in elevation.

Imaginary

Also on display was the first edition of Mercator's projection of the world onto a flat surface. Mercator is famous not only for publication of beautiful maps, but also for the method of map projection named after him. The ability of the projection to represent lines of constant true bearing or true course, known as rhumb lines, as straight lines made this a standard map projection for nautical purposes. Shapes too are truly represented, but size is increasingly distorted with distance from the equator. To reduce size distortion while using one map projection system over the entire globe, the United States Army Corps of Engineers in the 1940s developed the Universal Transverse Mercator (UTM) projection, which still serves as coordinate system in many countries. Also on display were maps of the imagination, drawn to enhance novels or to support readers of fiction. Examples of these included Thomas Moore's Utopia, Jonathan Swift's Lilliput, a country visited by Gulliver during one of his travels, and maps by J.R.R. Tolkien and William Faulkner.

Final Remarks

The MAPS exhibition is now over and this article is intended to bear humble witness to a laudable initiative. In a world in which geographical awareness is increasing among the general public, not only thanks to present generations travelling more than did their predecessors, but also due to ubiquitous use of Google Earth and MS Virtual Earth, map events like this one actually deserve to be permanent features.

Textbox:

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The Walters Art Museum brings art and people together for enjoyment, discovery, and learning. In 1931 the museum's founding benefactor, Henry Walters, donated the core collection to the City of Baltimore "for the benefit of the public". The MAPS exhibition was organised by The Field Museum and Newberry Library in Chicago, curator William Noel. The organisers claimed it was the most ambitious show of its kind in more than fifty years.