

3-3. Speculate on, by way of example, how the creation of maps, inasmuch as they document the existing state of the ground, relies as much on the pre-existing conceptions and interests of the mapmaking persons and institutions involved.

Michael Ramage's response

Maps are information, and information is power. Maps are of primary interest to the military and to trade, both of which have been inextricably linked throughout human history. Maps are difficult to make, due to the amount of information they contain and the area they encompass. This makes them expensive, and even today they are a dear commodity, especially in the forefront of mapmaking and digital data.

Because of the great effort and expense in their making, mapping is sponsored by those with the appropriate resources, both financial and technical. Witness the European traders of the sixteenth century, who had accurate maps of the African coastline, as that was their primary interest. The accuracy of the maps increased with the volume of trade and the extension of the route east to India. These maps were certainly closely guarded secrets, but also, interestingly, of little to no use to Africans. The interest of the traders was coastal routes, and only with beginnings of inland trade and colonization did mapping of the interior of the continent begin, again for the benefit of the newcomers.

Maps are sponsored by power, so they are inevitably bent in that direction. An example of this is one of the 20th century's unique contribution to mapping, global positioning systems (GPS). Originally developed for missile guidance, the military discovered it had tremendous potential for mapping and locating troops and vehicles on the ground. Only when a Korean Airlines flight was shot down over the Soviet Union in 1984 (something which would have been preventable had the pilot had GPS and known exactly where he was) did the government consider opening the system to commercial use. The commercial applications of GPS became widespread, but with a caveat: the military intentionally degraded the signal and called it Selective Availability) to any non-military GPS unit. Even though accuracy to the level of a centimeter was possible with the technology, anyone other than the US military had to make do with accuracy only to 100 meters, so the technology couldn't be used against us. During the first Gulf War the military had to change their policy, because there weren't enough military-grade GPS units to serve the troops, but commercial units worked fine when the military stopped altering the satellite signals. Immediately following the war the government re-activated Selective Availability. Competition from other countries and the opportunities for licensing the technology eventually convinced the military to stop degrading the signal.

James Smith's response

Maps are representations of land and water surfaces. The technology of map making has significantly improved since the use of aerial photography. Early Maps relied on the articulation of site measurements and ground data by highly skilled, but relatively unknown cartographers. Maps were a representation of the cartographer and the institution they represented.

Early maps lacked the standardization that modern maps employ. Each map was a unique testament of the author with a variety of symbols and scales used to articulate the mapped area. The variety in the maps influenced the way people read and understood the mapped surface. The large variety of maps that were produced in the 18th and 19th century influenced the development of the “language of maps’ which allowed all data to be matched, compared and compiled together.”

Early maps “responded to the pressing needs, particularly transportation information: canal maps in the 1820's and 1830's, railroad maps and travelers' guides from the 1830's to the turn of the century, large scale county maps in the mid 1800s, cyclists' and thematic (economic and geological) maps by the 1890's.” They represented the particular interests of the institution developing the maps. For example early colonial maps of New England developed by the French, Dutch and English are examples of the distinct variety found in colonial maps. According to David Y. Allen, the Dutch, influenced by their “water-born trading empire” provided detailed maps and charts of the coastline and major rivers. They also included information about their “Indian trading partners.” English maps were preoccupied with boundaries and land ownership, reflecting their desire to acquire large amounts of land. French maps included detailed information of inland areas, focusing on “fur trading, missionary activities, exploration, and building their vast empire.” Information concerning military posts, inland routes and native settlements were highlighted in most of their maps. French maps were highly detailed representations that required a great deal of resources. Unlike the Dutch or British, French efforts were much more “centralized and under state control” supported by Governmental resources.

Maps that were produced in the 18th and 19th century throughout the World are not only representations of land and water surfaces, but they are representations of their authors. Each map is a careful articulation of what the map-makers deem significant. They each include large quantities of information represented by various symbols, scales and techniques of representation. Maps controlled information, and influenced political, religious and military thought. The authors represented particular interests and articulated certain pre-existing conceptions that reflected those interests.

1:Edney, Matthew. “Surveying and Mapmaking,” Chapter 3 in Mapping an Empire; The Geographical Construction of British India. Chicago: The University of Chicago Press, 1997. pg.96

2: Mano, Margaret Jo. “Annotated Bibliography of Selected New York State Maps: 1793-1900” <http://www.nysl.nysed.gov/msscfa/mapsbibl.htm>

3: Allen David Y. "French Mapping of New York and New England, 1604-1760"
<http://www.sunysb.edu/libmap/french/frenchne.htm>

Indigenous Authority in the Relaciones Geograficas of Mexico

Elizabeth Nguyen

Prior to Britain's 18th century mapping and documentation of India and its other colonies, the Spanish Crown likewise required a detailed understanding of the land and resources it held in the Americas. In the 16th century however, the growing fields of military and civil engineering, honed in the mapping of Britain and its territories, did not as yet exist. Spain instead relied upon a series of written questions posed to the indigenous leaders of Middle America (predominantly present-day Mexico) beginning in 1577. Information requested included such topics as population, demographics, political jurisdictions, languages spoken, physical terrain, and native vegetation. The illustrated and textual responses are collectively known as Las Relaciones Geográficas (examples of the maps can be viewed online at <http://www.lib.utexas.edu/benson/rg/index.html>). These maps expose the competing institutions of Spanish and indigenous authority.

Just as the Spanish project came from a desire to maximize their extraction of resources from the colony and politically dominate its subjects, the indigenous leaders drew up a vision of their own military conquests and right to authority. The languages used to define place names are still contested— some maps name with Spanish glosses, others only native languages. Catholic Churches figure prominently, as do sacred places in the native traditions. The technique of mapping differs from one to another map, sometimes more expressive of the imposed colonial grid, and at other times a map of both the natural world with very few churches of the city.

The indigenous conception of territory and land is inextricable from their myths of creation and kingship. Representations of regional royal lineage are traced onto the territory, sometimes including signs of significant military conquests and the submission of subjects. These mapping conventions belong to a long tradition of sacred texts (mostly destroyed by Spanish priests) in which extended narratives are illustrated visually and phonetic symbols merge with iconic images of kingship and conquest. In these texts and the maps of the Relaciones Geográficas Subjects are shown bringing offerings to the kings representative of the industry of their regions. The movement of the narrative is always associated with a movement through space and time in these books, and thus the representations of specific places in the mode of a European “map” belong to a highly codified narrative of indigenous power and authority.

Subjectivity and Cartography

Robert Campos

Among cartographers, it is a given that maps contain a degree of distortion, and subjectivity, that cannot be designed or computed out. It can be argued in fact, that cartography is a process of calculated distortion: a given projection will minimize error in shape of surface features at the expense of area, or vice versa, but never both—and never mind that the earth is not perfectly spherical to begin with but rather “spheroid”. While the advent of GIS technology has changed the nature of how we measure and represent the earth’s surface and its features, the problem of how we translate “raw” geographic information into the semiotic system of cartography, and how maps are interpreted and used by different interest groups, has not disappeared.

Books such as *Maps and Politics* by Jeremy Black and *How to Lie with Maps* by Mark Monmonier are rife with examples such as this one: during the height of the Cold War, a world map hanging behind the desk of an evening news program in the U.S. used a projection featuring the Eurasian continent at the center of view, true in shape but with an exaggerated area, so that the Soviet Union loomed large and menacing to viewers at home. It is paramount to understand that the choice of a map projection, and its orientation etc., is *in every case* a subjective one. There are dozens, if not hundreds, of projections one could choose to display on a wall for a given purpose; that the map in the above example, in this context, was chosen can surely be read as symptomatic.

In general, “accuracy” in mapmaking was not a preoccupation of Western mapmakers until the 18th century. Enlightenment philosophy and its imperialist/colonialist assumptions required maps of a different sort than the Ptolemaic which had survived relatively unchanged since Hellenic times. With the prospect of vast “new” worlds to explore, new subjects, terrain, new markets, came the demand for new ways of making maps.

For the British East India Company, the process of surveying and mapping the Subcontinent was inseparable from that of establishing hegemony over the colony. But as Edney demonstrates in detail, the available methods of “route survey”, “traverse”, and even trigonometrical survey contained flaws which undermined the Orientalist conceits of the British, and underscored the role in which human subjectivity plays in most any seemingly “scientific” endeavor. The route survey or traverse, for example, conducted often by a lone technician in difficult surrounds, was a measure of overland segments which change direction at their endpoints. Just where those endpoints happened to be located, however, depended “only [on] when the surveyor’s sense of direction and his experiential sense of place tell him that the road has changed” (Edney, 95). The territory was reduced to a series of interconnected Picturesque vistas, with temples, hills, bridges, and the like serving as “natural” landmarks for the survey.