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### **Cartography and Navigation**

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Modern cartography and navigation developed alongside European colonization of the Americas, Africa, and Asia, often contributing to the colonization processes while at the same time being shaped by these processes. Of course, cartography is not an entirely objective art or science, and the very act of mapping a space often reveals political and cultural motives or effects. Thus, for example, does the choice to depict Greenwich, England, as the center of world map, with the *prime* meridian running through it, disclose a certain Eurocentric bias that makes western Europe a “home” and other regions “far-flung.” Mapmaking is always and already an ideological activity, even before the maps are decisively put to political uses by one group or another. Similarly, the navigational developments that accompanied the rise of modern cartography in Europe—including the technological advances of the compass, the sextant, and accurate clocks which enabled users to determine longitude (see Sobel 1995)—made possible the more expansive and intensive colonization of remote regions. These developments in cartography and navigation together, then, were simultaneously the result of and the motive force behind European colonization. Not surprisingly, postcolonial theorists have taken a keen interest in matters of space, place, and mapping.

During the so-called “Age of Discovery” the orientation of European thought changed entirely, both literally and figuratively. The very word *orientation* means “facing east,” and medieval Europeans derived their sense of place in the world relative to the Holy Land to the East and, in particular, to Jerusalem. Hence, medieval cartography, exemplified in the form of the *mappamundi*, combined religious instruction and geographical information, as “the geographical ‘facts’ of the classical heritage were now transformed to give them a Christian meaning. For example, the traditional eastern orientation of the map now gained new significance by the presence of the Garden of Eden in the east” (Edson 2007: 15). By the late fifteenth century, however, the dominant worldview afforded by such an orientation was becoming less tenable, owing to new geographical information compiled by ever broader naval voyages and by a new, more abstract worldview. The oldest extant terrestrial globe, the *Erdapfel* of the Renaissance German geographer Martin Behaim, was constructed in 1492, the same year that Columbus, seeking a new sea route to China, would stumble across a “new” world. Prior to the fifteenth century, sailors rarely ventured far beyond the sight of land, and their navigational charts or *portulans* tended to depict mostly coastline or harbors, rather than attempting a more comprehensive overview. Renaissance Europe also witnessed the rise of linear perspective in art and architecture, which literally altered the position of the individual subject with respect to space (see, e.g., Edgerton 1976) and which also changed the way individuals viewed, and mapped, the world. The “discovery” and colonization of the New World sparked a revolution in mapmaking and in overseas exploration, which in turn transformed the image of the world itself and of the social spaces with it.

With circumnavigation and with the development of the globe, cartography was fundamentally transformed, and it was no longer possible to regard the old medieval T-and-O maps as reflecting a credible divine plan (see Edgerton 2009: 12–13). In those models, the *orbis terrarum* was depicted as a circle with a horizontal line across the center and a vertical line midway through the lower half, completing the *T* and effectively dividing the world into its three continents: Asia, Europe, and Africa. As with other medieval maps, Asia is on top (owing to the eastern orientation), so Jerusalem represented the center of the *T*'s crossbar and hence the center of the world itself. But the globe presented a different image, and with the technological development of the compass, magnetic north became the means of orientation for mapmakers. This is not to say that the old superstitions or prejudices disappeared, as we can see in several centuries' worth of efforts by explorers and cartographers to square the circle of physical reality and divine order, which led to maps that sometimes depicted Biblical places (such as Earthly Paradise) or imaginary lands (such as the *terra australis incognita*). Columbus had thought that the new lands he had discovered were part of Asia, and thus his geography of the world was updated, but not transformed. The first world map to use the name *America* for the new world continents, Martin Waldseemüller's 1507 *Universalis Cosmographia*, also exploded the old tri-continental worldview, and assimilated a new, "fourth part of the *orbis terrarum* geographically independent of Asia and Africa and [...] commensurate with the traditional three" (Padrón 2004, 20). The image of the world presented on a map thus brought with it philosophical and ideological reverberations.

Indeed, although some form of mapping has undoubtedly been used throughout human history, what we think of as maps are relatively new. As Tom Conley points out in *The Self-Made Map*, aside from the *portolan* charts of Mediterranean navigators, "at the beginning of the fifteenth century, maps were practically nonexistent, whereas only two centuries later they were the bedrock of most professions and disciplines" (1996, 1). Some of the reasons for this rise of cartography include the development of linear perspective, the growth in quantitative methods, invention of the printing press, new world explorations, social reconfigurations, and various technological advances. Starting with the naval explorations of the late fifteenth century, then, the map became perhaps the preeminent form of knowledge and power in the early modern era, and its preeminence continues on in twenty-first-century societies.

In *Inventing America*, José Rabasa analyzes the allegorical significance of Gerhard Mercator's 1595 *Atlas*, showing how its semiotic system both reinforces and calls into question the Eurocentric worldview (1993, 180–209). Mercator's world map not only changed the way many Europeans imagined the global spaces, but it affected the imagined geopolitical framework of the world, and its effects continue even into the twenty-first century. Mercator is perhaps most famous for the Mercator projection, a mathematical formula used to solve the representational problem of depicting round space on a flat map. The first world map using Mercator's projection was Abraham Ortelius's 1564 "mappemonde" (reprinted in his 1570 *Theatrum Orbis Terrarum*), and it shows a grotesquely aggrandized northern hemisphere; the farther away from the Equator, the larger the land appears. Modern maps that depict Greenland as roughly the same size as South America—in reality, Greenland has less than one-sixth the area—are based upon this projection. Mercator's projection knowingly distorts the actually existing space in order to serve better the needs of navigation. Although its places look oddly out

of shape or scale, these maps were useful to navigators who could plot their courses using straight lines.

Understandably, such maps are controversial, and Mark Monmonier, in his book *How to Lie with Maps*, has shown how the exaggerated zones served ideological purposes. For instance, during the Cold War, anti-Communists might enhance their arguments of a “Red menace” by pointing out how frighteningly large the Soviet Union appeared on the world map. Moreover, as Monmonier points out, even though more accurate “equal-area” map projections had been available since at least 1772, “Mercator’s projection provided the geographic framework for wall maps of the world in many nineteenth- and twentieth-century classrooms, and more recently for sets of television news programs and backdrops of official briefing rooms” (1991, 96). The popularity of this image of the world was also undoubtedly the result of some strategic political maneuvering: “The English especially liked the way the Mercator [projection] flattered the British Empire with a central meridian through Greenwich and prominent far-flung colonies in Australia, Canada, and South Africa” (1991, 96).

Today, in the wake of postcolonial and critical theory, we are less surprised to hear that maps, or any “scientific” device or discourse, for that matter, are also ideological, that they are imbedded within and often serve the interests of structures of power or domination. But this is partly because the ascension of cartography in the early modern era made the map the primary way of viewing the world, which in turn became the mode by which power was exercised in the world. As the geographer J.B. Harley has noted, cartography is “thoroughly enmeshed with the larger battles which constitute our world. [...] Since the Renaissance they have changed the way in which power is exercised. In colonial North America, for example, it was easy for Europeans to draw lines across the territories of [American] Indian nations without sensing the reality of their political identity” (2001, 167). Among the most significant effect of the rise and dominance of cartography is that the view afforded by the map enables the viewer to detach himself or herself from the phenomena studied, as with a military leader poring over maps rather than trudging through the battlefields, and this abstraction necessarily alters the underlying reality.

Further, the imagery on the map projects far more than the pictorial depiction of geographical information. In Joseph Conrad’s novel *Heart of Darkness*, for example, Marlowe describes the thrill he felt when looking at the “blank spaces” on his map, especially the central part of Africa, since those were relatively unknown places to be explored. Later, as he looks at a colonial map of the Belgian Congo, Marlowe notices how the blankness has been filled in with “all the colours of a rainbow. There was a vast amount of red—good to see at any time, because one knows that some real work is done in there, a deuce of a lot of blue, a little green, smears of orange, and, on the East Coast, a purple patch to show where the jolly pioneers of progress drink the jolly lager-beer” (1969: 11, 14–15). In “Geography and Some Explorers,” Conrad ridiculed the “fabulous geography” of the Age of Discovery, which had filled in the unexplored spaces with sea monsters and other fanciful illustrations, preferring the “blank spaces” of “honest” modern maps: “From the middle of the eighteenth century on, the business of mapmaking had been growing into an honest occupation registering the hard won knowledge but also in a scientific spirit recording the geographical ignorance of its time” (1921, 19). The need to “fill in” those blank spaces, to inscribe toponyms or to paint them with colors that

indicate “activity” (and, sometimes, thereby ignoring the place-names already in use by, not to mention the activities of, the inhabitants of these spaces), is itself a principal aim and effect of colonization.

In *Orientalism*, Edward Said shows how the “imaginative geography” represents different spaces and types of space according to the rather arbitrary distinctions made by individuals or groups. As he puts it, the “practice of designating in one’s mind a familiar space which is ‘ours’ and an unfamiliar space which is ‘theirs’ is a way of making geographical distinctions that can be quite arbitrary. [...] It is enough for ‘us’ to set up these boundaries in our own minds; ‘they’ become ‘they’ accordingly, and both their territory and their mentality are designated as different from ‘ours’” (1978, 54). Drawing upon Gaston Bachelard’s arguments in *The Poetics of Space* (1964), Said then notes that “space acquires emotional and even rational sense by a kind of poetic process, whereby the vacant and anonymous reaches of distance are converted into meaning for us here” (1978, 55). Just as the “country” and the “city” emerged, in different ways, as models for organizing the domestic spaces of Great Britain (and, eventually, the world), the ancient dichotomy of “our land—barbarian land” translates into a basic structure with which to organize the spaces of one’s imaginative geography (see Williams 1973). For Said, this lies at the heart of the orientalism that develops in European culture. In *Culture and Imperialism*, Said engages in what he calls “a kind of geographical inquiry into historical experience,” and he takes as a starting point that “none of us is completely free from the struggle over geography,” a struggle that is not only about imperial armies and direct conquest, but also “about ideas, about forms, about images and imaginings” (1993, 7). Indeed, narrative is as much the contested “territory” that Said wishes to explore as the physical spaces of the earth. As he observes, “The main battle in imperialism is over land, of course; but when it came to who owned the land, who had the right to settle and work on it, who kept it going, who won it back, and who now plans its future—these issues were reflected, contested, and even for a time decided in narrative” (xiii). Clearly, the profit motive and the geopolitical balance of power inspired the expansion of colonial empires, but Said emphasizes the cultural aspects of imperialism (which is distinct from, though obviously related to colonialism), that “allowed decent men and women to accept the notion that distant territories and their native peoples *should* be subjugated” and “these decent people could think of the *imperium* as a protracted, almost metaphysical obligation to rule subordinate, inferior, or less advanced peoples” (7). In his examination of the topic in *Geographical Imaginations*, Derek Gregory alludes to this as “dispossession by othering” (1994, 179), whereby a “they” can be deemed unfit to govern themselves, which allows the colonizers to adopt the humanitarian stance of the “civilizing mission,” where it becomes the duty of those in the metropolitan center to “look out for” their colonized populations in the periphery. Both cartography and navigation played significant roles in establishing these cultural attitudes.

Said points out that the so-called “age of empire” coincides neatly with “the period in which the novel form and the new historical narrative become preeminent,” but he insists that “most cultural historians, and certainly all literary scholars, have failed to remark the *geographical* notation, the theoretical mapping and charting of territories that underlies Western fiction, historical writing, and philosophical discourse of the time” (58). A proper analysis would require greater attention to the spatiality of empire, to the geographical and cartographical aspects of the imperial mission and its multifarious

effects. An example of the type of work Said has in mind can be found in Paul Carter's magnificent book, *The Road to Botany Bay: An Essay in Spatial History* (1987), in which he explores the polyvalent uses of myth, history, geography, and mapping in the colonization of Australia.

In a note on modernism, Said suggests that the new aesthetic forms reflect a growing apprehension of the irony of imperialism, of the overlapping territories of the "other" in the metropolitan centers, or of what Marlowe in Joseph Conrad's *Heart of Darkness* (originally published in 1899) enunciated when noting that "this also has been one of the dark places on the earth," thus showing how Europe's supposed superiority is itself contingent and ephemeral. "To deal with this," writes Said, "a new encyclopedic form became necessary," and the features of the modernist novel would include "a circularity of structure, inclusive and open at the same time" (as, for example, in the stream-of-consciousness of Joyce's *Ulysses*), and whose "novelty [is] based on a reformulation of old, even outdated fragments drawn self-consciously from disparative locations, sources, and cultures." This also relates to Fredric Jameson's sense that the age of imperialism or of monopoly capitalism brought about a schism between "truth" and "experience," where one's London-based experience lay in Jamaica or India or elsewhere: "The truth of that limited daily experience of London lies, rather, in India or Jamaica or Hong Kong; it is bound up with the whole colonial system of the British Empire that determines the very quality of the individual's subjective life" (1991, 411). However, for Said, this aesthetic of modernism was a reaction to the impending breakdown of the imperial system, as the artist attempted to hold an imaginary reality together which was no longer feasible in the "real world." As Said concludes, "[s]patiality becomes, ironically, the characteristic of an aesthetic rather than of political domination, as more and more regions—from India to Africa to the Caribbean—challenge the classical empires and their cultures" (190).

In this, postcolonial writers and theorists have challenged the dominance of an ideological and geographical representation of the world still based on early modern cartography and navigation. In Africa and Asia, for example, the anti-colonial revolutions sometimes included reverting to indigenous or inventing new toponyms (e.g., in renaming a nation-state, like Rhodesia's becoming Zimbabwe). Also, for example, mapmakers in Australia, Canada, and the Americas have introduced aboriginal place names to revisionary maps, and a famous "upside-down" or "corrective" world map, centered at the international date line with New Zealand prominently near the top, is a popular poster. The work of postcolonial critics and writers to de-naturalize the ways we tend to think of space and geography has led to a greater appreciation of the cultural and ideological underpinnings of the cartographic art and science. With new, critical mapmaking techniques and dramatic changes in geographical, travel, and communication technologies in the era of globalization, the cartographic and navigational revolutions of the fifteenth and sixteenth centuries take on even greater historical significance, even as their results and repercussions are challenged, reassessed, and overturned. The "spatial turn" in the humanities and social sciences, which has been motivated in part by the work of postcolonial theory (see Tally 2012, 11–17), has placed greater emphasis in recent years on cartography and navigation, enabling critical interventions into these fields and suggesting new possibilities for them.

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