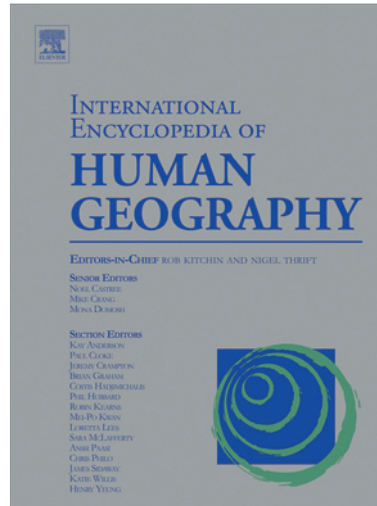


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Maps

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Glossary

History of Cartography Study of the history of maps, map theory, and human context.

Mapmaking Practice of making maps, typically seen as divorced from theory and philosophical issues.

Maps Tangible and intangible objects that locate environmental and human features.

Introduction

Maps, as human cultural artifacts like cars, tables, belt buckles, and spoons, are more readily exemplified than defined. This has not deterred people from trying to define them, however, at least not since the seventeenth century when simultaneously, in places as far-flung as New Spain, Japan, Russia, England, and Massachusetts, maps and mapmaking first became common. A recent collection of hundreds of definitions of the English word 'map', from 1649 to 1996, makes it plain that during this period 'map' has been more or less constantly defined as "a representation of a part of the earth's surface." (Similar collections could be made in Spanish, Japanese, Chinese, Russian, and other languages.) This nearly unanimous definition, however, has to be understood not as an outsider's impartial description of the nature and role of the map, but as a projection, as it were, of the map itself – the map as it would like to be seen – just as people project their own cultural norms into definitions of 'civilized', and those of the 'other' into definitions of 'barbarian'.

Defining the map as a representation of a part of the Earth's surface naturalizes the map, and this has the effect of universalizing it; it also obscures its origins in the rise of the state; and it ignores its role in the establishment and maintenance of social relations in those societies where it exists. Naturalized in this way, maps seem ordinary and unremarkable, indeed necessary; and for this reason contemporary scholars, immersed as they are in their own world of maps, widely conflate maps and mapmaking with fundamental human abilities like orientation, wayfinding, and other features of spatial intelligence (what a recent commentator has suggested calling "our awareness of our familiar environment"). Because of this conflation these scholars take it to be an attack on a population, as a denigration or denial of its cognitive or cultural abilities, to deny that it makes or

uses maps. But just as people long lived, and as many continue to live, without writing, nonetheless carrying on a rich human life, so people have long lived and many continue to live without maps. People create maps only when the nature of their social relations calls for them. The social relations that most insistently call for maps are those of modern states everywhere in the world.

The Map Discourse Function

People make maps to discover their minds and to connect themselves. These are also the reasons people talk. But when talk becomes inadequate, either because the discourse gets too complicated, or there are too many people, or they are separated by too great distances, people develop alternative forms of communication. For the past 30 000 years people have been making artifacts that anticipate the sorts of things that we call badges, genealogies, inventories, almanacs, histories, itineraries, and maps today – 'anticipate' because the distinctions we now draw so automatically among these very different discourse functions took long to evolve, and have often only recently reached their current forms. Paleolithic peoples bundled these discourse functions together on incised bones. Since then, elaborating on Paleolithic achievements, people have constructed an ever-widening repertoire of cultural forms – clothing, rituals, pottery, painting, sculpture, architecture, drawing, writing, books, prints, film, etc. – within which to encode evermore-elaborate communications. Paralleling the growth in these forms have been comparable expansions in the powers of sign systems – gestural, sculptural, pictorial, pictographic, symbolic, numeric, syllabic, consonantal, alphabetic, and others – often mixing and overlapping these in rich syntheses of functions, forms, and meanings.

Among these, the map is a comparatively novel synthesis. Most English speakers use 'map' in a straightforward way to describe an artifact, still most commonly printed on paper though increasingly taking electronic form, that selectively links places in the world ('theres') to other kinds of things ('thises') – to taxes and voting rights, to species abundance or incidence of rainfall, to the presence or absence of roadways, etc. – for the purpose of underwriting the reproduction (or contestation) of the social relations of power. That is, maps are more or less permanent, more or less graphic artifacts supporting the descriptive function in human discourse linking territory to other things, advancing in the process the interests of

those making (or controlling the making) of the maps. Relatively recent phenomena, these map artifacts have comparatively shallow roots in human history. Almost all maps ever made have been made during the past hundred years, the vast majority in the past few decades. So many maps are made today, and in such numbers, that no one any longer has any idea how many. The numbers printed daily just by the world's newspapers are effectively uncountable, but easily number in the billions. In contrast, maps surviving from everywhere in the world for all of human history prior to the rise of the modern state number, in a very inclusive definition of the map, in the very low thousands, as if all the humans on the planet had made a single map each year – here one, there another – across the preceding couple of millennia.

Paralleling the explosion in map numbers that took place with the rise of the modern state was a corresponding penetration of the map into ever further reaches of daily life. If there *is* a sense in which maps may be said to have existed in the medieval and ancient worlds, they were largely confined to sporadic large-scale property control, and rare small-scale cosmological-speculation, functions (with the exceptional appearance in China of a military mapping function as early as the third century AD, and the late medieval appearance in the Mediterranean of a coastal sailing function). But in sharp contrast, beginning in the sixteenth century, vast swaths of territory were increasingly subjected to systematic surveys by newly self-conscious states. In 1559, for example, the Hapsburg Emperor, Philip II of Spain, commissioned a detailed survey of his possessions in The Netherlands, in 1566 of those in Spain, in 1575 of those in southern Italy, and in 1577 of those in New Spain; in 1591, the Japanese hegemon, Toyotomi Hideyoshi, ordered all *daimyo* to submit summary cadastral records and maps for the construction of a countrywide *cadastre*, and in 1604, the shogun Tokugawa Ieyasu ordered the submission of a second set of cadastral and cartographic documents; in 1663, Louis XIV's minister for home affairs, Jean-Baptiste Colbert, commissioned the collection of surveys and maps to cover all of France; and in 1666, the governor of Siberia commissioned the mapping of Siberia. Most early modern states initiated similar projects. If all the commissions were not completed as initially intended – for example, Philip's, of New Spain, was not, returns from Hideyoshi's request were spotty – these efforts did lay the ground for increasingly comprehensive and intrusive surveys, including the nineteenth-century inauguration of national topographic mapping programs – programs widely completed during the twentieth century – and the production of fire and insurance atlases that detailed plans of individual houses, and even construction details of heating systems.

Today, we map the weather in something approaching real time, the locations of sex offenders, the residences of

donors to political parties and the size of their donations, school attendance zones, atmospheric ozone, the conversion of rain forest to farmland, the route to any cinema from your home address, regularly updated locations of roadblocks in the West Bank, reported instances of the West Nile virus, yesterday's crimes sorted by type of crime, the locations of tomorrow's highway-construction delays, deaths in Iraq, cell phone towers, the tax value of homes, bus routes, bike paths, election returns by precincts, counties, and states, consumer preferences by ZIP code, etc. – Is there something we *do not* map? In fact so pervasive and taken for granted are maps that it will be hard for most readers of this volume to accept the *recency* (and continued relative isolation) of their general use, or to appreciate the *explosion* in their numbers that we continue to experience today.

The History of Mapmaking

Even more recent than maps has been an interest in their history, datable in its current form only to the 1980s. Earlier histories wed the interests of twentieth-century academic cartographers to a preexisting European antiquarianism dominated by a nationalist passion for decorative printed maps of the fifteenth to eighteenth centuries. This spawned a hero saga (Demosthenes, Ptolemy, Mercator, the Casinis, Minard, Edes Harrison, etc.) that plotted cartographic progress from humble origins in Mesopotamia to the putative accomplishments of the Greeks and Romans, the rediscovery of which during the European Renaissance led directly to the development of the triumphant scientific cartography that swept the world in the wake of Western colonialism (Lewis and Clark, Livingstone, GIS, etc.).

As we now acknowledge, this story is false in almost every particular. Although the oldest-surviving uncontested map is Babylonian, this map is in no way the 'origin' of mapmaking, which was originated as called for again and again around the world. Maps such as the Babylonians and Egyptians did make were not 'built on' by Greek, Roman, or subsequent 'European' mapmaking, most of which was independently invented and re-invented. Indeed, Greco-Roman contributions to the history of mapmaking have been unconscionably exaggerated: if ancient Greeks actually made any maps at all, there are no surviving ancient Greek maps, but a few from the Romans. In any case, most subsequent 'European' mapmaking was in no way indebted to either of these, nor was 'European' mapmaking ever the 'scientific' enterprise it has been claimed to be. It was first and foremost a profoundly ideological activity serving national identity-building, colonialist, and other interests; and was paralleled by similarly motivated mapmaking elsewhere in the world.

In general, looking at the historical record through the lens of contemporary mapmaking radically distorts the importance of maps for the administration of the great 'historical civilizations' by assuming they must have done things the way we do them. This has not only led historians to assume that when people wrote about mapping they must have made maps, and that where one map survives, a hundred must have been made, but to postulate 'mapmaking' traditions where instead there were probably traditions of 'cosmological speculation', traditions of 'property control', traditions of 'centralized management', traditions of 'military mapping', and perhaps others, including, for instance, the discourse function fulfilled by 'geomantic site location'; but none precipitating 'the idea of the map', that is, for most readers of this book, so 'self-evidently' common to them all. Other 'maps' appearing in the historical record likely played no part in any of these traditions, but instead arose from isolated efforts to address unique problems (laying new drains, defending property in a law suit, etc.). That is, they were based on no prior model, left no progeny, and so are akin to what geneticists call a 'sport'; which explains why they are so hard to pigeonhole as, *precisely*, map, plan, or drawing (a good example would be the plan and diagram of Canterbury Cathedral, *c.* 1153–61). As their existence and the rest of the record attests, mapmaking was a marginal activity for all these peoples, among whom the functions served by mapmaking today, *'to the extent that they existed at all*, were served by other, typically scripted and/or numeric forms of inventory and control. This is to say that the historical record is spotty not because survival rates were low – which is in any case difficult to entertain given the higher survival rates for so many other, far less consequential artifacts – but because maps were actually infrequently made.

This of course is why uncontested maps more than 500 years old are rare at any scale from anywhere in the world. Cosmographical diagrams are more common (they are nonetheless extremely rare), and large-scale plans more common still (though again the numbers are absolutely tiny), but prior to the fifteenth century small-scale geographic maps are rare almost to the point of nonexistence in any cultural tradition except that of China where they begin to appear in the twelfth century and rapidly become common. But then no unquestioned map of any kind predates the second millennium BC. Whether prehistoric humans made maps is uncertain, because the interpretation of their artifacts is mired in controversy; though if they did not it was not because they were unable, but because the discourse function served by maps either was not called for, or was fused with other discourse functions in a synthesis not recognized as maplike today. Reputable scholars used to assert the recently discredited maplike qualities of the wall painting at Çatalhöyük (6200 BC), and a similar case has

been made for the petroglyphs at Valcamonica (2500 BC) and elsewhere, but if prehistoric humans did make maps – which is doubtful – they were neither made often nor in very many places; they likely served broadly pictorial, religious, ritual, symbolic, and/or magical functions; and their production was discontinuous with the practice of mapmaking encountered in historic populations.

The oldest extant maps about which there is scholarly consensus are, as noted, Babylonian. Dozens of large-scale, Babylonian, cuneiform maps and plans survive from the second and third millennium BC, but only a couple of small-scale maps survive, and these from the first millennium BC. The existence of the so-called Turin gold-mining map from about 1150 BC is the sole survivor of a putative Egyptian mapmaking tradition of roughly similar age that otherwise is represented only by cosmographical diagrams and pictures of gardens, canals, and other features. Recent scholarship posits an Indic tradition of mapmaking stretching back to the first millennium, but the earliest extant artifacts are an allegorical wall sculpture from about AD 400, and a Jain cosmographical diagram of the thirteenth century AD. There is textual evidence of a Hindu tradition of cosmographical globe construction dating from the first millennium BC, but again no actual globes predate the fifteenth century AD. In China, three maps survive from the second century BC, but few others until the twelfth century AD when, again, maps first become common. Evidence also suggests a Tibetan mapmaking tradition rooted in the first millennium BC, though again, with the exception of a *mandala* transmitted to Japan in the ninth century AD, no survivors predate the eighteenth century. Textual evidence also supports a Hellenistic mapmaking tradition, but no maps survive of any character. Except for medieval European copies of Roman itineraries, no small-scale Roman maps survive, despite the elaborate instructions for producing them in Ptolemy's *Geography*, and even large-scale survey and property maps do not exist in abundance. That is, with respect to the ancient world there are many more textual suggestions that something 'like' mapmaking was carried out than there are surviving artifacts, the numbers of which, with the exception of Babylonian and Roman plans and surveys, *may be counted on the fingers of two hands*. That is, mapmaking was comparatively widespread and uncommon everywhere.

The record is not much different for the medieval world. Islamic scholars elaborated sophisticated theoretical schemes for the construction of maps from the seventh century on, but if any were made, none survive from periods prior to the tenth century, and maps remain rare until the fifteenth and sixteenth centuries. In medieval Europe, handfuls of cosmographical diagrams and large-scale plans are extant from the seventh century, but with the exception of the late medieval portolan

charts, maps were otherwise unknown. There is textual evidence of relatively small-scale mapmaking in Japan as long back as the seventh century AD, but again, nothing survives; maps of state allocations of arable property are extant from the eighth century, but no maps are common until the sixteenth. Textual evidence supports a mapmaking tradition in Vietnam as early as the eleventh century, but again no artifactual maps predate the fifteenth century. The oldest surviving Malay maps are from the sixteenth century. No Mesoamerican maps predate the Conquest, though again there is ample reason to assume a preexistent tradition of cosmographical diagrams and some evidence of limited property (or 'community') mapping among the Nahuatl, Mixtec, Otomi, Zapotec, Totonac, Huastec, Chinantec, Cuicatec, and Mazatec. No indubitable maps made prior to the fifteenth century survive from sub-Saharan Africa, South America, Australia, Oceania, or North America, though in many places the record was systematically destroyed, and historical research may yet uncover evidence of mapmaking traditions unknown today (sporadic mapmaking at large and very small scales is predicted for all civilizations with large bureaucracies and extensively mediated relationships). Despite these lacunae, the record suggests that large-scale property maps and small-scale cosmographical diagrams were made rarely, but with increasing frequency, everywhere in the world since the third millennium BC. Other mini-traditions seem to develop often, only to die out again, except in China. The limited number of extant map artifacts clearly sketches the tenuous hold any of these discourse functions had in the notational repertoire of these societies.

The significance of these data is obvious. Human societies did not need maps and got on handily without them for hundreds of thousands of years. But during the last two or three millennia BC, larger, more complicated societies including Babylonia, Egypt, perhaps the Indic societies centered on Mohenjo-Daro and Harappa, and China began to articulate, sporadically and apparently independently, but among and continuous with other indigenous textual productions – memorial inscriptions, memory aids, almanacs, genealogies, inventories, histories, and descriptions of routes and territory (in mixtures of sculptural, pictorial, pictographic, syllabic, consonantal, and/or alphabetic forms) – graphic notation systems linking 'location' with 'rights and obligations' (as in the large-scale property maps), and with 'speculative attributes' of the larger environment (as in cosmographical diagrams). Similar graphic notation systems filling broadly similar social functions emerged fitfully in other ancient civilizations around the world, again apparently independently, although extensive trade and other connections among these groups are acknowledged and cross-fertilization undoubtedly took place. The articulation of such similar notation systems in so many of

these societies strongly supports the notion that map discourse functions of this character inevitably emerge in societies whose increasing size and complication call for them (the specialization required for making maps demands at least a population of the size maps permit to function), of which, again, the best example is China. But the sporadic nature of this articulation no less strongly suggests that at the size and degree of complication reached by most ancient civilizations, the map discourse function as it has come to evolve could be satisfied by other, better-established discourse functions (generally scripted and/or numeric); and so the map discourse function failed to establish itself no matter how many times it was seeded. The map discourse function is nowhere well-rooted until the rise of the early modern state (which in China may mean the Song) with which it co-evolves as an instrument of polity, to assess taxes, wage war, facilitate communications, and exploit strategic resources.

Limitations of the Ascription 'Maps'

While it is not 'wrong' to refer to these early graphic notation systems as maps, it is anachronistic. It is critical to accept, as already intimated, that these graphics were not emitted 'as maps' by those who made them. To imagine this would be to see them through the conceptual filter created by modern mapmaking. For example, early 'map' artifacts were generally free of the 'heightened spatiality' so characteristic of what most readers of this book think of as maps, and there is no evidence that they were discriminated from other graphic-textual productions on this ground. Until modern times no society distinguished – or made – such maps as distinct from religious icons, *mandalas*, landscape painting, construction drawings, itineraries, and so on; and current scholarship stresses the continuity between religious iconography and that which materialized on the earliest maps. For example, the Chinese word *tu*, frequently translated into 'map', can also be translated 'picture', 'diagram', or 'chart'. *Tu* of 'geographical' subjects may have had poems painted on them as was common on 'paintings' of other subjects. This not only reflects the conceptual continuity that tied together the Chinese practices of what today even the Chinese think of as discrete genres ('painting', 'mapping', 'drawing', etc.), but that synthesis of painting, calligraphy, and poetry that so effectively distinguishes, say, a Ming painting from that of the European Renaissance (that, say, of Wen Cheng-ming from that of Michelangelo). This synthesis lent Chinese *tu* an explicitly expressive character inconceivable in twentieth-century conceptualizations of mapmaking, even in China.

Such inclusiveness characterizes other words frequently translated into 'map', including the Arabic *naqshah* (painting, any kind of visual representation), its

Indian derivation *naksha* (picture, plan, general description, official report, etc.), the Sanskrit *chitra* or *alekhyā* (painting, picture, delineation, etc.), the Latin *mappa* (cloth) and *carta* (formal document), the Mexican *lienzo* (linen, cloth, canvas, etc.), and the Aboriginal-Australian *dbulan* (painting, map, diagram, graphic representation, etc.). Not only do these broadly inclusive terms not draw the distinctions among types of graphic production made by contemporary map-using populations, but they refer at the same time to graphic systems that mingled what most readers of this volume keep apart. Mesoamerican *lienzos*, for example, did not privilege space as the maps of modern states do, but rather in their ‘community maps’ drew history and territory together (or, perhaps, from their perspective did not rip history and territory apart). Where the Mixtec made do with one, modern states insisted on using ‘three’ or ‘four’ discrete discourse functions (thus: plat, deed, title search, genealogy, etc.). Were the Mixtec discourse function to exist today, it would more likely be termed ‘map-history’ or ‘pictorial genealogy’ than ‘map’. Another example: Jain cosmographical diagrams mingled places most readers of this volume would locate on topographic survey sheets with places where ‘release’ is possible (places contemporary cartographers would not even locate in ‘space’), thereby constructing, in the words of one expert, “a gigantic theater where transmigrations and reincarnations take place.” Unlike the artifacts most readers of this volume think about as map – artifacts that discourse about the socio-spatial territory we mutually inhabit – Jain cosmographical diagrams discourse about destiny. A third example: in their cosmographical diagrams, medieval Christian Europeans fused the historical commitment of the *lienzos* with the teleological orientation of the Jain cosmograms to create, in the words of another expert, “a visual narrative of Christian history cast in a geographical framework.” Again, most of those reading this book would break this out into separate discourse functions (say, painting, history, maps, etc.).

None of these ways is better or worse, or more or less ‘advanced’, but they *are* differentially capacitated to facilitate life in populations of different sizes, with different rates of social and geographic mobility, and different degrees of labor specialization and hierarchic integration. (Breaking up discourse functions enables specialization, which in turn supports hierarchic integration. This in turn permits higher rates of growth and mobility without loss of social integrity.) There is, here, no question of quality (or even utility); there is no ‘contest’. The *lienzos* served the Mixtec, as their cosmographical diagrams did the Jains and the medieval Christians, every bit as effectively as topographic surveys serve the interests of the modern nation-state. The discourse functions a society evolves (chooses, or has forced on it) depend on what kind of society it is. What is at stake, ultimately, are the

differences in social structure that in the cases of the Mixtec, Jain, and medieval Christian called for pictorial genealogies and cosmographical diagrams, but in the case of modern states call for topographical surveys and the construction of the ‘idea’ of cartography that such surveys seemingly entail.

The Rise of Mapmaking in the Early Modern State

But indeed, few of the graphic notations produced in ancient or medieval civilizations would be considered maps today, whether we spell that ‘map’ (as in the United States), *mapa* (as in Mexico), *carte* (as in France), *kbaritab* (as in Turkish or Arabic), *mana-chitra* (as in Eastern India), or *chizu* (as in Japan). Maps construed as, or theorized in the light of, topographic surveys gained currency only in the last 300 years or so, and within this period, only in relatively stable states with entrenched, centralized bureaucracies and well-established academies. Though few people used maps in AD 1400, by AD 1600, people around the world found them indispensable. There is a divide here that is impossible to evade. Recall the dates at which maps *really* begin to appear in the historical record: Islamic artifacts may date to the tenth century, but maps do not become common until the *fifteenth* and *sixteenth* centuries; the oldest surviving map of China may be from the second century BC, but maps are not common until the twelfth and only become abundant in the *seventeenth* century; large-scale Japanese maps may survive from the eighth century, but national and provincial maps only begin appearing in the late *sixteenth* century and are not common until the *seventeenth*, the oldest surviving Hindu globe is from the *fifteenth* century; Vietnamese and European maps become plentiful only in the *fifteenth* and *sixteenth* centuries; Mesoamerican maps survive largely from the *sixteenth* century; and Malay maps from the *sixteenth* century. Again and again we find large, centralized societies, from everywhere in the world, inaugurating *mapmaking* traditions during their transition to the early modern state (a transition China may have begun in the Song).

For mapmaking, this transition has had the recent attention of scholars working on Japan, China, Thailand, Russia, Europe, the North American colonies, New Spain, and elsewhere; and there is reason to believe that not dissimilar processes were at work in all societies struggling with a more or less common socioeconomic transformation, no matter how diverse the individual histories. Undoubtedly, the nascent European mapmaking tradition was transported around the globe; but the ability it demonstrated to ‘import’ material from other traditions (well documented, e.g., in the cases of Islamic, Burmese, Chinese, and Japanese mapmaking) and the

'ease of its apparent adoption', seems actually to describe a 'merging' of mapmaking traditions that we are prepared today to acknowledge as at equivalent levels of development, a merging into a kind of 'transnational' or 'worldwide' tradition that differentiated not West from East, but modern nation-states from the smaller face-to-face societies out of which they evolved and which they would soon enough gobble up.

Intriguingly, the functions the new maps initially served were not those that might strike us as obvious (e.g., wayfinding); nor were the state functions they did initially serve newly created in the fifteenth century (they were functions that had been previously served by scripted forms, even by talk). For example, in 1602 the *duc de Lesdiguières* commented to Henry IV of France that, "Your majesty will understand much better than I can set it out in writing, if [you] will look at the map of Dauphiné with the Piedmont border," while Michelangelo complained that if only the Hapsburg Emperor, Charles V (r. 1519–58), "... had ordered a drawing to be made of the course of the river Rhône, he would not have met with losses so severe, nor retired with his army so disarrayed." Charles, in fact, did use maps, extensively. About the very battle to which Michelangelo referred, Martin de Bellay wrote of seeing Charles, "Studying the maps of the Alps and the lower region of Provence so enthusiastically that the emperor had convinced himself that he already possessed the land in the same way he owned the map." More generally, Marshall Vieilleville observed in the 1560s, apropos the campaigns of Henry II of France that, "A military commander must no more move without a map than a pilot or galley captain, unless he wants to court disaster," though the most general admonition seems to have been Castiglione's of the 1520s to the effect that there were, "matters, the which though a manne were liable to keep in mynde (and that is a harde matter to doe) yet can he not shew them to others" without a map or painting. These anecdotes illustrate the growing currency of maps in the early modern period, but they also make very clear their novelty. Indeed the anecdotes seem actually to catch a more comprehensive discourse function – could we call it 'describing'? – in the very act of differentiating. These anecdotes presage a steep increase in the use of maps for military, administrative, and speculative humanistic purposes.

Why? What happened after AD 1400 that called people to start making maps? The canonical answers, with their focus on so-called 'scientific' mapmaking and dependence on the presumption of a European exceptionalism, can be dismissed as largely irrelevant even for Europe, where the substantive explosion in mapmaking took place outside their purview. Canonical accounts have always focused on small-scale mapping of the world – and on the heroic growth of European knowledge about the world – but such accounts have no bearing on the

explosion in large-scale mapmaking of local areas that accounted for the overwhelming bulk of new maps. Consider the northern Italian plains. Extant maps predating the fifteenth century can be counted on the fingers of one hand, but in the sixteenth century, mapmaking explodes. For example, less than a 1% of the 10 000 maps archived by the Venetian state predates AD 1565, and almost half – that is, thousands of maps – were commissioned solely by the Office of Rural Lands, an office founded in 1566. In another example, only a dozen maps among the 10 000 archived by the Florentine state predates AD 1565, where the bulk of archival maps, devoted to property control, dates from the seventeenth century. The offices commissioning most of the vast Milanese archive of over 76 000 maps were also founded in the sixteenth century: *Acque* (sixteenth century–1801), *Acque e strade* (1574–1801), and *Confini* (1518–1802). Identical accounts can be given for the Papal States and Naples.

But they can also be given for the rest of Europe. In England where the history of medieval mapmaking is particularly well known, scholars have identified no more than 35 domestic maps produced before 1500. Yet by no later than 1540, England's Henry VIII had available to him maps for a wide variety of purposes; in 1574 Christopher Saxton began the publication of his atlas of English counties; and in 1593 John Norden began the publication of his series of county topographies. Indeed such a mass of maps – and other papers – had been generated during the sixteenth century that in 1610 a State Paper Office had to be established to marshal them. In France, where only ten domestic maps have been found that predate 1500, maps began to be used for military purposes early in the sixteenth century, and their use gradually expanded until, under Henry IV (r. 1589–1610), the country was more or less systematically mapped. Indeed during the sixteenth century, mapmaking took such root in France that, in 1663, Louis XIV and his chief minister, Colbert, could envision using maps for military and naval purposes, for making political and judicial decisions (especially about jurisdictions, an obvious use today), for economic and financial planning (mines, canals, fiscal divisions, etc.), and for establishing the boundaries of ecclesiastical dioceses. By then, there were also plenty of presses capable of printing and distributing maps of every size and character.

But similar accounts – which in Europe could be repeated for the Spain and Austria of the Hapsburgs, the United Provinces of Maurice of Nassau, the Sweden of Gustav Adolph, and the Poland and Lithuania of Mikołaj Krzysztof Radziwiłł – can also be given for emergent states elsewhere in the world. The case of Japan is exemplary. Extant maps from classic and medieval Japan are sufficiently numerous (well over 200, according to the latest scholarship) to suggest that Japan had one of the

most robust mapmaking traditions in the premodern world. Certainly, no European polity has anything like its record to display. Though most of the extant maps are large-scale maps of local property holdings (the earliest from the eighth century), a map of Japan attributed to the Buddhist priest Gyōki is believed to have been made during the early classical period. Although Gyōki-type maps were occasionally reproduced in the medieval era, there is no evidence after the ninth century of either resumed national surveying or efforts to revise the classical prototype. The possibility does exist that a second national mapmaking effort took place in the late twelfth century but, again, if any such maps were actually drafted, none survives. As we have seen, however, in 1591, Toyotomi Hideyoshi ordered all *daimyo* to submit summary cadastral records (*gozen-chō*) and maps for the construction of a countrywide *cadastre*, his successor, Tokugawa Ieyasu, repeated the order only 13 years later; and other surveys followed. In the late 1630s, a national map assembled from provincial surveys was released to commercial printers who issued it as a woodblock atlas. By 1700, literally ‘thousands’ of Japanese maps covering, in the words of a recent scholar, “virtually every domestic subject and in virtually every format,” had issued from government offices and commercial printers.

A different story, but to a similar end, can be told about Russia beginning with Ivan IV (r. 1533–84), both the large-scale mapmaking involved in Muscovite property litigation and the small-scale mapping of Siberia; about the mapping of New Spain; and about the late seventeenth and early eighteenth-century mapping of the British colonies in North America. Indeed variants of the story can be told about every corner of the globe. In the words of another contemporary expert, “Medieval societies rarely produced maps. This generalization holds historically throughout Eurasia, from England to Japan. Mapping was not a routine part of any official transactions or procedures in medieval times,” and this can be expanded to the rest of the world. Yet shortly thereafter, maps were not only routine parts of numerous procedures, but they were being made in mind-boggling numbers.

The explanations for this explosion in mapmaking vary, of course, from place to place. In the case of Italy, for example, a quantitative analysis argues that, “three discontinuities – times of increased mapping production – stand out: the late fifteenth century, the mid-sixteenth century, and the late seventeenth century,” each of them marked by both increased rationalization of bureaucracies and pronounced upturns in the economy, most notably the ‘Italian Indian summer’ of the fifteenth century, and the late seventeenth century’s recovery from its long economic crisis. In the Japanese case, an expert draws attention to the simultaneous disorientation and reorientation that characterized sixteenth-century Japan:

“On the one hand, warfare wiped out not only the geography of the medieval polity but many of the petty lordships formed in its wake. Sweeping campaigns and mass transfers made governors into strangers in their own lands. On the other hand, administrative change advanced a model of integration,” and she also draws attention to the importance of a spike in urbanization. Russian mapmaking, a scholar has recently argued, “allows us to invert the way we have come to imagine the relationship between central state mapping projects and local interests,” adding that, “In an immense, unmanageable land where centralization could never have set roots without the participation and support of local communities, maps brought local knowledge to the service of the central state,” and this was as true for the large-scale Muscovite property mapping as it was for the mapping of Siberia too. The general implication that mapmaking emerges as a rationalizing tool of control during periods of relative or increasing prosperity in early state economies is broadly supported by the evidence from the Hapsburg, Bourbon, and Tudor realms, from Southeast Asia, and the North American English colonies as well.

This is all doubtless true, yet all the bureaucratic functions fulfilled by the maps during this period ‘could’ have been carried out in other ways, as they largely had been during the later middle ages. As experts on cadastral mapping have reminded us, maps are not indispensable even for *cadastres*, pointing out that even today there is no comprehensive map-based *cadastre* in states like Norway and the United Kingdom where it could certainly be expected. Attempting to explain what prompted the adoption of cadastral mapping during the early modern period by so many states, these experts point out that, “Conviction of the merits of mapping was a precondition for mapping itself.” This is actually a theme – variously put – in much contemporary scholarship, where a particularly significant merit was the ability of the map to figure the new state itself.

It is important to accept that if the map was essentially a novel function during the fifteenth, sixteenth, and seventeenth centuries, so was the state itself. Although we take the state for granted today, as we do maps, nothing like it existed in earlier periods. Doubtless there were earlier polities that resemble the modern state in many ways – the Greek *polis* does, the Roman Empire does, China does under the Tang – but they differ from the modern state in essential ways as well, and in any case, the modern state did not derive directly from any of them. Although, again like maps, the state too is more readily exemplified than defined, experts on the state can point to a number of characteristics that states invariably possess, among which the development of more or less permanent, more or less impersonal political institutions is paramount. Evolving from a period in which loyalty had been directed to one’s lord, to one’s immediate

community, and to one's family; and that was typified by a powerful sense of mutual obligations among face-to-face acquaintances, this new political structure with its impersonal institutions and ultimately abstract character required new forms for its embodiment.

Contemporary scholarship is unanimous that the map possessed an all but unique power to give the abstract idea of the state some kind of form, initially to those living within the embryonic state, later to those outside it. In fact, one recent commentator has urged that, "Ever since Abraham Ortelius and Gerard Mercator published their world maps and atlases in the sixteenth century, single-sheet maps had presented the sovereign states as visually and territorially unified constructs." More particularly, it has been argued about Russia that, "From the point of view of the state, and as experienced by its subjects, mapping the heartlands and the frontier constituted two pieces of a single project: the creation and imaginative consolidation of a territorial tsarist empire;" about Japan that, the "nascent state struggling for survival used two general programs of registration – the cadastral survey and the cartographic survey – to put on paper, and in the minds of participants, the tropes of union;" and about the young United States that, "the image of the national map was one of the few visual artifacts demonstrating what many perceived to be either an abstract or even untenable fiction, namely that there could be a national union between disjointed regions and politically disparate people." Such maps also spoke to outsiders, as in the case of Qing China where it has been argued that, "Using scaled maps, easily interpretable by anyone trained in the same map idiom, was an effective way to stake out claims of empire to an encroaching Europe; the Kangxi atlas defined what China was territorially to the rest of the early modern world;" and in the case of Britain, whose imperial maps sought "to persuade the maps' readers on either side of the Atlantic of British ownership rights regarding the North American continent." Similar conclusions have been reached with regard to early modern – and even much later – mapping programs in France, Thailand, and elsewhere.

The most striking feature about these assertions is their insistence on the map as an artifact that 'constructed' the state, that helped to bring the state into being. It is almost as if it were the map that conjured the state 'as such' into existence, out of the disjointed rabble of the American colonies, out of the far-flung possessions of Chinese emperors, out of the territories of the recently warring *daimyo* of Japan, out of the disparate peoples of tsarist Russia. One researcher has termed this map-made construct the 'geo-body' and has characterized the emergence of Thailand's geo-body as "a victory of mapping." The geo-body is produced by mapping in three related but distinct ways. In the first place, the very act of mapping requires that the state be something

mappable, that is, a geo-body, a 'thing', which is to say, with edges, with borders. State borders are brought into being through mapping, both by the imperative 'to be mapped' and 'through' the medium of mapping. Second, these borders establish a shape, the shape of the nation, the nation's visual form; and this mapped shape rapidly becomes iconic, totemic, "the map-as-logo" as one student of nationalism has put it. For example, in the young United States "the national map permeated American material culture": maps of the new nation were prominently featured in portraits (where the maps stressed the sitters' identities as Americans); they decorated the walls of American homes and schools; they were integrated into textbooks and didactic puzzles; and they were displayed in public offices, coffee houses, and taverns. Third, the map through its presentation of the state as 'an existent thing' obscures the origins of the state in history, in effect assuming, and so projecting, the prior existence of the geo-body. This was especially useful for colonial regimes which claimed to 'inherit' ancient geo-bodies which, as one theorist of nationalism has put it, the colonial regimes then constructed by drawing "historical maps designed to demonstrate, in the new cartographic discourse, the antiquity of specific, tightly bounded territorial units" that had, in fact, not previously existed. This, in turn, promotes rhetoric about the inviolability, and so the necessity of defending, borders, which returns us to our first consideration. It was these interlocking benefits – that created the geo-body and gave form to the state – that convinced leaders of early modern states of the merits of mapping, and that constituted its necessary precondition.

Large-scale, local mapping may seem far removed from these considerations, but, in fact, the mapping of the state, the mapping of the larger world within which it situates itself, and the mapping of the local worlds it nurtures, are reciprocally linked. For example, in Japan Hideyoshi conceived of mapmaking as a localized and incremental program which, while doubtless an expression of control, was also and more importantly, through the collaborative, ongoing labor itself, an instrument of conversion: "Precisely because union was fractious and unfamiliar, cartography served the conquerors by instilling a fugitive idea of cohesion, not by reflecting any palpable reality ... In this way Hideyoshi and his successors not only normalized a nascent polity but invented, and instructed countless participants in the very imagining of 'our country'." Similarly, in Russia, the unabashedly local maps made during litigation over property "represent the authority of the central state in the provinces. They exhibit the skill of the central state apparatus at extending its influence and bringing its routinized practices and language to the local arena. The interests of center and periphery intersect in the use of the maps." At the same time, the state emerges stronger

against the image of other states in a world context. So Jesuit maps, for instance, through their depictions of alien worlds, provoked a heightened consciousness of 'our country' in the case of Japan: "A 'Japan' assumed its strong cartographic profile as attention to the globe and lands that were 'not Japan' reoriented the geographical imagination." Recent scholarship in Russian and Chinese mapmaking has stressed the importance to each of its awareness of the other. Russian envoys to the Qing court were making maps of China as early as 1682. Later the Kangxi Emperor made a gift of the atlas he had commissioned of China to Peter the Great, to impress the Tsar both with the state-of-the-art science the Qing Emperor patronized and of Qing claims to territory. Examples such as these can be multiplied almost endlessly as the number of states proliferated during the nineteenth century.

What cannot be overlooked in all of this is what it was about the map that endowed it with its ability to embody this novel entity, the state. It certainly could not be, as the canonical definition would have us believe, the map's ability to "represent a part of the earth's surface," since scholars are unanimous about the fact that maps 'constructed' the state, brought it into being, forcing into existence previously nonexistent borders (especially well documented for the United States, Russia, and Thailand), giving shape to the shapeless (as in the case of China), unifying the disparate (as we have seen for Japan, Russia, and the United States), furnishing form for what was in essence no more than a dream (the dream of every early modern state). But thinking about the map as a representation was from the beginning no more than a mask, a cloak, a way of making this 'creative' aspect of the map ... disappear. From the beginning, it was essential that the state appear to be a fact of nature, something real, enduring – to, at all costs, obscure its recent origins in violence, its tenuous hold on tomorrow – and the map granted this: "We no more than show what exists," said the map (even today it says this about situations in dispute, as between Pakistan and India, Israel and Palestine, India and China). What the map thereby avoided saying was, "*Exists*, yes, but only on this map which, in fact, *affirms* its existence."

This is what the map actually does, affirms the existence of everything on it. "This is here," the map says, "and that is there," affirming as it does the precedent existence of the thing in question 'together' with its location; and so at the same time saying, "Here is this" and "Over there is that," in the process making 'powerful' existence claims. In effect, the map is actually a system of propositions (a proposition is a statement affirming or denying the existence of something), an argument about existence; and if it started with paddy fields and long fields and manor lands and with the states these made up and the world these states composed, or wanted to ima-

gine, wanted 'everyone' to imagine they composed, the map has gone on to a long career rich in the affirmation of the existence of a bewildering variety of things, some whose existence we continue to affirm (e.g., all the nation-states we have mentioned), some we have come to deny (the island-continent of California, the Northwest Passage, the open polar sea, etc.), but, in any case, things very hard to imagine without the creative intercession of the map (geologic strata, frontal weather systems, the hole in the ozone, etc.).

When we said earlier that most English speakers use 'map' in a straightforward way to describe an artifact that selectively links places in the world ('theres') to other kinds of things ('thises'), we deliberately failed to draw attention to the propositional character of these links; but it was precisely this propositional character in a vehicle that likewise failed to draw attention to it (that cloaked the propositions in facticity) that, as we have seen, made maps useful to the early modern state which, for precisely this reason, heavily promoted their use. Propositions supported by evidence and argument, or even merely sufficiently often repeated, soon enough solidify into facts. That the world is a sphere seems to lack the provisional character we expect in our propositions, and though it remains eminently a proposition, it feels like something else. So today do continents (but is it Europe and Asia or ... Eurasia?), nation-states (despite the fact that they get hammered together and fall apart with unnerving frequency: think Czechoslovakia, 1918–92; the United Arab Republic 1958–61; or the Soviet Union, 1922–91), and coastlines (though they all move around). Some maps are a little more open about their propositional character: the maps of proposed legislative districts, of proposed subdivisions, of next year's school attendance zones, of which states are going red and which blue, even that map you just downloaded of the route to that convention you are going to ... Is it accurate? Do all those roads exist? Can you really make a right turn there?

Like all maps, it assures you that you can, but what does it say down there in the small print in the corner? "You may find that construction projects, traffic, or other events may cause road conditions to differ from the map results"? Hmmmm ... When we said earlier that the "maps selectively link places in the world ('theres') to other kinds of things ('thises')," we added "for the purpose of underwriting the reproduction (or contestation) of the social relations of power," and this capacity of maps for ignoring construals of reality alternative to those they propose – and the facticity they thereby manage to project – is what most substantively underwrites the reproduction of the social relations of power. Effective maps can absorb change without changing. For the continuously evolving early modern state this was critical. New data could be absorbed into apparently timeless frames, and stripped of disturbing novelty. A Japanese

scholar has noted that the issue “is succinctly conveyed in the phrase ‘newly revised,’ which became a commonplace in the titles of the information library [of seventeenth century Japan]. The words insisted that something new in a text was new enough to merit special attention, though not quite new enough to merit a fresh beginning. Something fundamental survived – something susceptible to revision rather than reimagination,” and she has gone on to generalize about the way “expectation remains the most powerful preservative of models. Map-makers and map users learn to expect the kind of maps they are accustomed to seeing. In the end, then, the strength of models is the facility to frustrate, as either unthinkable or perverse, the revision of their underlying conceptions. An alternative representation of Edo [Tokyo] would have required not so much new evidence as a new vision. Had commercial mapmakers accorded privilege to commercial wards rather than martial mansions, they would have projected a rival plot: this is a financial and mercantile capital (say), administered through the neighborhood associations of townspeople, where entertainment is a major enterprise. For that leap, they needed no fresh data. They needed a radical philosophy.” We still do. All of us.

See also: Cartography, History of; Map Types; Mapping, Philosophy; Maps and the State.

Further Reading

- Anderson, B. (1991). *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (revised edn.). London: Verso.
- Berry, M. E. (2006). *Japan in Print: Information and Nation in the Early Modern Period*. Berkeley, CA: University of California Press.
- Brückner, M. (2006). *The Geographic Revolution in Early America: Maps, Literacy, and National Identity*. Chapel Hill, NC: University of North Carolina Press.
- Buisseret, D. (1992). *Monarchs, Ministers and Maps: The Emergence of Cartography as a Tool of Government in Early Modern Europe*. Chicago, IL: University of Chicago Press.
- Edney, M. (1993). Cartography without progress: Reinterpreting the nature and historical development of mapmaking. *Cartographica* 30(2/3), 54–68.
- Harley, B. and Woodward, D. (eds.) (1987–present). *The History of Cartography*, 4 vols. Chicago, IN: University of Chicago Press.
- Hostetler, L. (2001). *Qing Colonial Enterprise: Ethnography and Cartography in Early Modern China*. Chicago, IL: University of Chicago Press.
- Kivelson, V. (2006). *Cartographies of Tsardom: The Land and Its Meaning in Seventeenth Century Russia*. Ithaca, NY: Cornell University Press.
- Mundy, B. (1996). *The Mapping of New Spain: Indigenous Cartography and the Maps of the Relaciones Geográficas*. Chicago, IL: University of Chicago Press.
- Seed, P. (1995). *Ceremonies of Possession in Europe's Conquest of the New World, 1492–1640*. Cambridge: Cambridge University Press.
- Turnbull, D. and Watson, H. (1989). *Maps Are Territories: Science Is an Atlas: A Portfolio of Exhibits*. Geelong, Victoria: Deakin University.
- Winichakul, T. (1994). *Siam Mapped: A History of the Geo-Body of a Nation*. Honolulu: University of Hawaii Press.
- Wood, D. and Fels, J. (2007). *The Natures of Maps: Cartographic Constructions of the Natural World*. Chicago, IL: University of Chicago Press.