Putting the State on the Map: Cartography, Territory, and European State Formation

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Looking at any wall map or atlas, we see a world composed of states. The earth's surface is divided into distinct state territories. Each is demarcated by a linear boundary, an edge dividing one sovereignty from the next. The division is accentuated when each territory is blocked out in a separate color from neighboring states, implying that its interior is a homogeneous space, traversed evenly by state sovereignty. Our world is a jigsaw of territorial states, and we take this picture for granted. Thus our historical atlases show medieval Christendom also divided into demarcated and homogeneous territories, though perhaps less neatly (see, for example, McEvedy 1992). Only the configuration is different. Familiar to us, such a depiction would have been utterly unknown to people at the time, who rarely used maps to represent geographical information and did not imagine states (or rather realms) as enclosed spaces. The transformation of their world into ours—the way the state was put on the map—is the subject of this essay.

The basis of every sociological definition of the state is delimited territory. That foundation, I will argue, is not a universal property. In its spatial form, the modern state is qualitatively different from the medieval realm, a difference that owes something to the techniques of knowing and representing space originating in the Renaissance. The formation of the modern state depicted on the map was constituted in part through cartography—as a store of knowledge reflecting surveys that rulers sponsored to penetrate the ground over which they ruled; as a spatial form modeled on the map's linear boundary and homogeneous space; and, in the imagination, as political authority symbolized by territory and the earth's surface comprehended as a composite of states. By the beginning of the nineteenth century, rulership and ground had become fused in a peculiarly modern form—the territorial state.

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In the sociology of European state formation, the dominant interpretation conceives the state as a machine for fighting and taxing. State building is therefore the story of wars becoming deadlier and states wealthier. This interpretation is most forcefully advanced by Charles Tilly (1992), but sociologists of opposing theoretical orientations tell a similar story, whether in the guise of Marxism (P. Anderson 1974) or rational choice (Levi 1988). While the renewed emphasis on military imperatives is valuable for reviving the insights of Otto Hintze and Max Weber, recent work tends to efface the distinctiveness of the modern state. It is symptomatic that Weber's well-worn definition of the state—an organization claiming the legitimate monopoly on violence—is continually misread as defining a universal social form. In fact he used the term state to denote the modern occidental state, characterized by rational law and bureaucracy, as a peculiar species of the genus, political organization (see Weber 1922:904).

What does this matter? It can be useful to treat the state as an entity that has variable attributes. State-building then can be conceptualized as quantitative growth: more officials, greater revenues, and larger armies. This has proved empirically fruitful, as in Michael Mann's (1980) analysis of English state finances over several centuries. This quantitative approach, however, requires qualification. The modern state is the product of a qualitative transformation, and it is necessary to understand this both for adequate historical description and for conceptual clarification. Exploring the nature of the state, rather than taking it for granted, is surely worthwhile.

This essay is about the natural ground of the state: territory. The state, after all, is a spatial form, a dimension given valuable emphasis by Mann, who defines the state as "both a central place and a unified territorial reach" (1984:123). The definition is intended to be universal. Yet feudal kingdoms were neither centered nor unified. The state was a "mobile camp" (Mumford 1961:353). King and household were peripatetic, ceaselessly traveling from place to place. The state's reach was severely limited. Hugh Capet, for example, was titled King of France, but his real power extended no further than some lands in the north which he held in his own right as count. We should not elevate the shape of the modern state to an inherent property of rulership.[1]

As an ideal-type, our concept of the state is "abstracted from the unclear syntheses which are found in the mind of human beings" (Weber 1904:99). "[T]he manner in which those syntheses are made . . . by the members of a state, or in other words the ideas which they construct for themselves about the state . . . is of great practical significance." This study investigates the relationship between state and territory known through cartography, shown on the map. After

[1] To overcome the difficulty of maintaining terminological consistency while avoiding anachronism, this essay resorts to the terms rulership or rule (and rulers), to denote something akin to Weber's *Herrschaft* (cf. Roth's 1968 introduction to Weber 1922:cx).

all, the modern conception of the state is represented as an image as well as a word; for it is depicted as well as written and spoken. An investigation of this image is a contribution to the "conceptual history" of the state, begun by historians of political thought like Quentin Skinner (1989). That body of work, unduly ignored within sociology, is limited, however, by the assumption that concepts are expressed only in words (see Parr 1989:38). While political theorists deduced Leviathan as a philosophical necessity, cartographers discovered it as a geographical reality.

The terrain of this inquiry—western Europe, particularly France and England—is confined to maps of European lands and does not treat the vast subjects of colonial and maritime cartography. My work follows in the steps of several excellent studies by Benedict Anderson, Peter Sahlins, and Thongchai Winichakul that connect cartography with broader historical processes. The research draws on the evidence of the maps themselves and on specialized work by historians of cartography. It does not, however, adopt the theoretical stance of J. B. Harley, the most prominent historian of cartography to theorize the relationship between knowledge and powers.[2] He pursues an interpretive strategy familiar from other fields of cultural studies. Maps are unmasked as tokens of power which circulate to sustain its omnipotence. They are propaganda if published by rulers and, if not, testify to a conspiracy of silence. Above all, maps serve to "reinforce and legitimize the status quo" (1992:247). Knowledge and power are thus conflated: the former reduced to a mere tool of the latter.[3] There is a similar conflation of decoration with content. The aim here, by contrast, is not to expose cartography as a ruse of power, but rather to show how it shaped that peculiarly modern form of power—the territorial state.

My argument begins by sketching the significance and origins of modern cartography. It then examines three parallel processes: acquiring spatial knowledge, shaping spatial form, and grounding political authority.

MODERN CARTOGRAPHY

Medieval Christendom was essentially a mapless world, as P. D. A. Harvey points out. We can impose our concept of "map" on various images, just as we can group various institutions under the heading "state." At the time, however, there was no conception of a distinct category of representation (Harvey 1987:464). This category entered the English and French languages in the sixteenth century. There were no maps drawn explicitly to scale, and any kind of

[2] Harley (1988a, 1988b, 1992) is not the only one to "deconstruct" cartography; similar claims are advanced by Denis Wood (1992). An incisive critique, from within the field, is supplied by J. H. Andrews (1994).

[3] An instrumental notion of knowledge is not confined to such work; it is indeed predominant in sociology. Chandra Mukerji (1983: ch. 3), for example, considers maps as "capital-goods" for the world-system, "useful to governments for centralizing political authority and controlling the economy" (p. 117).

graphical depiction of the earth's surface was a rarity. Most familiar to rulers would have been the *mappamundi* (literally, cloth of the world) which graced cathedrals and court chambers (cf. Barber 1992:26; mappamundi are analyzed by Woodward 1985). It depicted a sacred, cosmological space, where Earth and Heaven cleaved together. The map was oriented (literally) towards Paradise, a definite place. Space was depicted in accord with its quality, so Jerusalem occupied a preponderant area and was often depicted as the center of the world. Finally, the image had no temporal location: disparate pasts, Noah's Ark and Alexander the Great, mingled in cosynchronous time (see B. Anderson 1991:22–24).

Rulers certainly did not see the "medieval states" delineated so surely in our historical atlases.[4] How, then, did they know the ground over which they claimed dominion? In the virtual absence of appropriate maps, the realm must have been known primarily as a succession of places (Hale 1971:52). This accords with the medieval itinerary, usually written but sometimes drawn as a schematic map, recording the route and time taken to travel between places—without any attempt to indicate their relative position (Harvey 1980: ch. 9). More important, it accords with lived experience; for rulers saw their realm from horseback. In the year 1205, John I spent less than four weeks in London or Westminster (Pounds 1990:83). "He was always on the move," wrote Walter Map, "in this respect merciless beyond measure to the household that accompanied him" (quoted in J. Burke 1978:89). Three centuries later, the complaint was echoed by the Venetian ambassador to François I, who was forced to follow a court which never spent two weeks in the same place (Febvre 1925:18). Besides the peregrinations of the royal household, there was also hunting, commended by Machiavelli as providing "an exact knowledge of the lie of the land in which the sport takes place" (1531, III, 39:511).

However the realm was known, we should not underestimate the difference of rulership in a mapless world. Before examining the origins of modern cartography, it is worth clarifying its characteristics and significance. I will use the term cartography to denote a set of techniques for producing spatial knowledge and also a form—the map—for representing that knowledge.[5]

Cartography apprehends space as pure quantity, abstracted from the qualities of meaning and experience. What matters is "the relation of distances" (Ptolemy 2nd century:26). It objectifies the world as a mundane surface, no longer

[4] The danger of these convenient reference tools is pointed out by Denis Hay (1959, 1968, 1975).

[5] The word "map" can encompass myriad forms of representation. The maps defined here as cartography should be differentiated from two other forms. One is the schematic map, drawn without reference to scale, like Henry Beck's celebrated diagram of the London underground (see Garland 1994). Another is the picture of town or landscape drawn according to the conventions of linear perspective; the higher the point of view, the closer the resemblance to a map. A beautiful example from the seventeenth century is Jan Micker's bird's-eye view of Amsterdam (see Alpers 1983:plate 3). Both have flourished alongside the kind of maps investigated here, but they have not helped to define the territorial state.

the hub of a sacred cosmos or a succession of tangible places. It differentiates the form of knowledge from its content. A map can represent ocean or land, the entire earth or one parish. Such abstraction, objectification, and differentiation are characteristically modern. Cartographic space is analogous to the modern apprehension of time, a quantity measured by the tick of the clock (B. Anderson 1991:24). Indeed, cartography is predicated on the differentiation of space and time; it makes an acre a measure of two-dimensional area, no longer as much land as a man can plow in a day.

As a form of representation, the cartographic map is defined by the explicit measurement of space. The kind of measure depends on the map's scale. A small-scale map, depicting a sizable portion of the world, locates positions on the earth by reference to the graticule: lines of latitude and longitude. Positions are transferred from the spherical earth to the flat map by projection, a mathematical function. There is an infinitude of possible projections, so the choice of any one is arbitrary; but, once chosen, the projection determines the position of every point on the map. A large-scale map depicting a small portion of the world measures distance between points by means of a linear scale: One inch on the map corresponds to so many miles on the ground. The larger the scale, of course, the greater the approximation of the graticule to a rectilinear grid. In addition to the explicit measure of space, the cartographic map is defined by its orthographic representation of space. This is very different from linear perspective, where space is pictured from a single vantage point which the viewer is invited to share. The map reader is not so much above space as outside it.[6] The map's surface corresponds to the ground in a way that is arbitrary and yet completely determined, given the projection and scale. It is at once mimetic: It claims exact correspondence with the ground, and artificial, for it shows something no one could ever see.

The map represents spatial knowledge produced by observation. Following the distinction between graticule and linear scale, there are two kinds of techniques for producing spatial knowledge. One is astronomical observation. This readily measures latitude; longitude was far more difficult because of the need to measure time so as to synchronize observations in different locations. The second kind of technique is distance measurement. Estimating it from travel time, corrected for deviations from a straight path, entailed serious inaccuracy. Observation was introduced by the method of triangulation. This meant first measuring a short base line on suitably level ground and then extending it by a chain of sighted triangles over the landscape, calculating distances trigonometrically from observed angles. Triangulation thus allows the exact measurement of horizontal distance and vertical height.

The elements of modern cartography were brought together in Renaissance Europe. Although this still awaits systematic explanation, two forces were undoubtedly crucial. One was the Italian *rinascita*, the revaluation and revival of Antiquity. At the beginning of the fifteenth century, a quest for Greek manuscripts in Constantinople turned up Ptolemy's Geography, a systematic treatise written in Alexandria in the second century. Though long known in the Islamic world, it was new to Latin Christendom.[7] It established the basic theoretical principles of cartography, by introducing latitude and longitude, providing a method of projection, and stressing empirical observation and rational calculation. It also specified the coordinates of several thousand locations, shown on twenty-seven accompanying maps of Eurasia, North Africa, and the Middle East. A codex was taken to Florence, and translated into Latin by 1415. The importance of this new (albeit ancient) knowledge is attested by the surviving manuscript copies, an impressive fifty (Harvey 1980:12).[8]

A second critical development was print-capitalism.[9] Copying maps by hand severely restricted their number and accuracy (Eisenstein 1979:479–83). By means of woodcuts and engravings, identical copies of maps could be reproduced in unprecedented numbers, spreading the new knowledge north of the Alps. The first image of the world to be reproduced was a medieval diagram, but only five years later came the first edition of Ptolemy, complete with maps printed at Bologna in 1477. Five more editions (Rome, Florence, and Ulm) appeared before the end of the century.

Ptolemy provided the elements of cartography on a small scale. From the same milieu came techniques for mapping at a large scale. Leon Battista Alberti, the theorist of linear perspective, undertook perhaps the first recorded survey of a city for a map of Rome (Gadol 1969:72–73). Each landmark was located by sighting its bearings from a central point and pacing out its radial distance. The same method was later used by Leonardo da Vinci (Clayton 1996: cat. 49–50, pp. 90–94). These ventures are significant for what they reveal about the mapping impulse of the quattrocentro: Because they languished in obscure manuscripts, their subsequent influence was slight. More important in this respect were printed maps with an explicit linear scale. One of the first appeared in 1492, a map of Nuremberg (Harvey 1980:147). Really accurate measurement on the ground had to wait for the invention of the technique of triangulation. This was codified in a treatise published in 1533 by Gemma of Frisius, who had studied mathematics at Louvain University.

[6] This parallels the distinction between map and 'mirror' drawn by E. H. Gombrich (1975).

[7] This is invariably described as the "rediscovery" of Ptolemy, as if the Roman Empire and Renaissance Europe were stages in the growth of an enduring entity. Alexandria is not in Europe.

[8] Some scholars (notably Edgerton 1975) conjecture that Ptolemy directly inspired the invention of linear perspective. This is unwarranted (Kemp 1978). Nevertheless, it is intriguing that both these novel techniques of representation germinated in Florence in the first third of the fifteenth century.

[9] This apt phrase is Benedict Anderson's (1991:36); the connection was made previously by Garrett Mattingly, who describes printed objects as "the first standardized, mass-produced commodity" (1955:107–8).

By the early sixteenth century, then, the basic principles and techniques of cartography had been established in maps and manuals replicated through printing. In the following centuries, methods were refined and new instruments introduced, but there was no departure from the cartography of Ptolemy and Gemma. Fundamental change would come only in the late twentieth century, with positioning by satellite and mapping by computer.

ACQUIRING SPATIAL KNOWLEDGE

These techniques for producing and representing knowledge were not created to serve the needs of princes. Knowledge could be produced, however, only with material support. There were two sources of support by the beginning of the sixteenth century. Print-capitalism enabled mapmakers to sell their products to a reading public. Alternatively, they could look to princes (and nobles) for patronage and commissions. Therefore interests in accumulating cartographic knowledge became intertwined with interests in aggrandizing monarchical power. Rulers acquired knowledge; cartographers in return gained material support. Viewing cartography as merely a means to the end of state building would be misleading. In this confluence of power and knowledge, each came to define the object of the other.

In the fifteenth century, rulers rarely commissioned maps. Leaving aside the jealously guarded maritime charts of Portugal, there are only a few precocious examples of terrestrial maps, ordered by the Duke of Burgundy and by the Venetian Council (Harvey 1980:96; Marino 1992:6). Cartography became an instrument of rule in the sixteenth century. It was initially adopted for war. Around 1495, the first map, commissioned by a king of France, showed the Italian peninsula along with Alpine passes suitable for an invading army. Maps became used regularly under François I, stimulated by the Italian campaigns of the early sixteenth century (Buisseret 1992:101–3). Conversely, fear of invasion led Henry VIII of England to commission maps of the coastline in the 1530s (Barber 1992:32–34). In both cases, the most common early cartographic productions were large-scale maps, or plats, for the design of new artillery fortifications; engineers trained in Italy played a significant role in diffusing these techniques.

By the end of the century, maps had become instruments of rule in the more advanced monarchies, and not just for military campaigns and frontier defense. One example of how they were used in practice is the annotated map collection of William Cecil, Lord Burghley, Secretary of State and Lord Treasurer under Elizabeth I (Barber 1992:68–77). His maps were used for locating nobles and gentry, either as potential rebels or as local agents of government; for assessing taxes; for establishing the boundaries of administrative units; and for planning communication routes. Maps were also used to manage the royal domain, as for any landowner.

Cartography was not only valued for its utility. As a component of Renaissance learning, maps of all kinds were possessed and displayed as part of the paraphernalia of princely magnificence or, literally, "stateliness" (Anglo 1992:6–10). Moreover, a few monarchs of the sixteenth century—when cartography was still a novel way of knowing the world—shared the fascination of maps. One was Henry VIII. In 1539 the Lord High Admiral, who described him as "marvellously inflamed" by a chart of the Dutch coast, secretly sketched for a plan to bring Anne of Cleves to England from Guelderland, "supposing many things to be done thereon" (quoted in Barber 1992:39). Another interested monarch was Henri IV. Sully recounts an incident from his long campaign for the kingdom. Coming upon a strategically sited abbey, "he resolved to fortify it, and immediately began to draw it *(faire le desseing)* himself, calling me to give him my advice, knowing that I had studied mathematics, and liked to make maps *(cartes),* to draw plans *(plants)* of places, and to design fortifications" (Buisseret 1992:107; Sully 1638:167–8).

Rulers had ample motivation, therefore, to map the lands over which they claimed to rule—whether to gain geographical information, to indulge an interest, or simply to represent the fact of their dominion. But it was one thing to commission a map, quite another to have it completed, and yet another for it to survive. The history of territorial surveys from the sixteenth to the eighteenth century reveals an important facet of state formation: the institutionalization of agencies and archives for producing and preserving knowledge.

First to be surveyed by triangulation was probably the Duchy of Brabant, when Jacob van Deventer, a fellow student of Gemma, presented his map to its Council in 1536. He executed similar commissions for four other provinces in the Low Countries (de Vries 1995:25–26, 28–29). The Duke of Bavaria commissioned a survey (at a scale of 1 to 50,000) by Philipp Apian in 1554. Within two decades, surveyors went to work in England, Ireland, France, and the Iberian peninsula. Their methods were generally not recorded, and triangulation over such large areas was hardly feasible. But they were based on observation—timing distances on horseback, sighting angles between landmarks, establishing locations by astronomical readings—on the ground.

The English survey had the most enduring results. Christopher Saxton was appointed to survey England and Wales "by special direction and commandment from the Queen's Majesty" in 1573 (quoted in Skelton's 1974 introduction to Saxton 1583:8). The venture was a combination of royal initiative, noble patronage, and commercial enterprise (Barber 1992:64–65; Helgerson 1988:328–9; Morgan 1979:140–1). Patronage came from the queen's Master of Requests, Thomas Seckford, who financed the survey. The motive force behind the project was probably Burghley. Direct government support took the form of official passes, grants of land and offices to Saxton, and a 10-year printing monopoly for Seckford. Printing was the third component, for the maps (at

scales varying from a scale of 1 to 300,000 to that of 1 to 141,000) were gathered into an atlas in 1579, and transferred to a wall-map (at a scale of approximately 1 to 444,000) in 1583.

The project was a remarkable success. It not only furnished Burghley and other ministers with geographical information of unprecedented detail and accuracy but also established an image of England that was to be reproduced for two centuries. The fate of other contemporary surveys, however, reveals the pitfalls of patronage. Since each project was entirely in the hands of one individual, if he could not finish, then it languished. Surveying an entire kingdom, however, was a long and arduous task; Saxton was exceptionally quick, perhaps because he could use the existing network of beacons (for warning of invasion) as triangulation stations (Ravenhill 1983). More typical was Robert Lythe, sent by the Privy Council to Ireland in 1567, who covered over half the island before he retired—lame and almost blind—to England (Andrews 1965).

It was not simply that many projects remained incomplete. More remarkable is the fact that their results simply disappeared, so they made no lasting contribution to geographical knowledge, and were never used by the rulers who commissioned them. Lythe's maps were lost, though some information was obtained by commercial map-makers in England and the Low Countries. The Spanish survey, which Philip II commissioned from Pedro de Esquivel, was largely finished by the time Esquivel died in 1575. But nothing was recorded in the posthumous inventory of Philip II's possessions (Parker 1992:130–1). An incomplete atlas and a list of coordinates, presumably based on the survey, were discovered in the nineteenth century; but this came too late to help the Habsburgs. In 1642, when Portugal and Catalonia were in revolt, the royal cosmographer could only resort to a commercial atlas (by Abraham Ortelius), first published seven decades before (Parker 1992:124).

Knowledge was preserved only through publication because the state had no institutional memory. Attempts were made during the sixteenth century to establish central archives and to institute the separation of public from private characteristic of bureaucracy. "In the Collection of things I would wish a distinction between that which is public and that which is private" pleaded the author of an Elizabethan treatise on the office of Principal Secretary (Beale 1592:431). This was not maintained in practice, however. Burghley built up his collection by pillaging the royal library at Whitehall and the papers of other councilors after their deaths; and in turn his own library suffered the same fate (Barber 1992:73, 83). Equally telling is the fact that Nicolas de Nicolay, commissioned by Catherine de Medicis to survey France, kept an extensive collection of drawings at his chateau, where they were consulted by Henri III and later by Sully (Karrow 1993:442).

Over the seventeenth and eighteenth centuries, surveying and map-making gradually became institutionalized, conducted by permanent agencies. This provided the continuity required for national surveys based entirely on triangulation and adhering to rigorous standards of scientific accuracy. The duration of these surveys was on the order of decades rather than years. The foremost agencies responsible for cartographic projects were military and scientific. They ensured that projects would continue despite changes in personnel; they preserved (and, in some cases, circulated) information, thus ensuring its accumulation; and by the eighteenth century they often provided technical training.

It is worth tracing the lengthy gestation of the most influential and ambitious national survey, the cartographic epitome of French absolutism (this account follows Konvitz 1987:ch. 1). Nicolay had completed maps for only a few provinces. Both Richelieu and Colbert issued orders for a survey of the kingdom shortly after coming to power, but nothing came of either initiative (Buisseret 1992:113, 99–100). One obstacle was the lack of technical expertise. The Géographe Ordinaire du Roi, Nicolas Sanson, was a compiler of maps, not a surveyor. Colbert nevertheless persevered. He asked the newly founded Académie Royale des Sciences to recommend more accurate surveying methods and lured Gian Domenico Cassini, an expert on the astronomical determination of longitude, from Italy. The problem was of great scientific consequence, for Newton's theory could be tested if distance could be measured accurately enough to ascertain whether the earth was flattened or elongated at the poles.

After various techniques had been tested, and existing coordinates of many places proved inaccurate, the king in 1679 approved a new map of France. Within a few years, the outline of the kingdom was redrawn, trimming its area by a fifth. The backbone of the work, triangulating the length of France along the Paris meridian, was not completed—by Cassini's son—until 1718. Continuity did not depend on personal lineage, however. The Academie facilitated the cooperation of many scientists in different fields, thus ensuring the circulation of the latest findings. A second stage of field work, extending triangulation chains across France, began in 1733. The impetus this time was practical. The Corps des Ponts et Chausées required maps for planning a network of improved highways to integrate the kingdom. The result was an eighteen-sheet map of France, published in 1744.

Only three years later, a wholly new project was launched. At the scale of 1 to 86,400, this new map would cover France in 180 sheets. It was ordered by Louis XV after being impressed by a map of this scale—made by the third generation Cassini for military campaigns in Flanders—when compared against the actual terrain. This massive logistical exercise was at first funded by the state, but financial stringency soon forced the third Cassini to float a company. Shares were bought by prominent nobles, including several ministers; revenue would come from map sales. It was assisted by a subvention equivalent to 2 years' expenses, raised from the *généralites.*[10] The work took more than 4

[10] Several opted instead to conduct the survey on their own lands; they were *pays d'états* (like Burgundy, Provence, Brittany), jurisdictions most recently brought under the king's authority.

decades to complete, with all but 21 sheets published by 1789. The state reclaimed direct control in 1793, when the Convention transferred all materials to the army.

This Cassini map of France became the model for eighteenth-century surveying projects and was even emulated, eventually, across the Channel. For most of the century, the British landscape was surveyed county by county, in a multitude of private ventures (Harley 1965). Each map was funded by subscriptions from local notables and by sale of the engraved plates to London printers. As an additional stimulus, the Society of Arts offered an annual prize for the most accurate county map at the standard scale, one inch to the mile (1 to 63,360). The result was a mosaic of maps, generally at a larger scale than the Cassini map but varying in accuracy and without the unifying framework of national triangulation. The most persistent advocate of a national survey was William Roy (Seymour et al. 1980). As Lieutenant-Colonel in the army, he helped survey the rebellious Scottish highlands and later proposed a military map of England. As Fellow of the Royal Society, he supervised a joint effort with the Academie to extend triangulation across the Channel in the 1780s. Prodded by the Royal Society, the Board of Ordnance began a survey of England at one inch to the mile in 1790. The last sheet would be published eight decades later, and full coverage of Scotland would take even longer.

The Ordnance Survey and the Cassini maps were public projects. They were not only directed and (largely) funded by the state; they were also intended for—and even demanded by—a map-reading public. Thus the institutionalization of knowledge production did not entail bureaucratic secrecy. Publication helped subsidize the cost of surveying, of course. More important, it reflected a degree of symbiosis between the state and an emerging public sphere. Whatever the difference between Britain and France in the timing and level of state involvement, this symbiosis was common to both. A contrasting example is the Habsburg monarchy. In 1764, following the Seven Years War, it commissioned a comprehensive series of maps of its possessions. There existed only three hand-drawn copies, for the Emperor, the archives, and the president of the military board. They remained a closely guarded secret well into the nineteenth century (Vane 1992:163–4).

Whether made public or kept secret, a national map survey had become obligatory by the end of the eighteenth century (for a summary of other surveys, see Brown 1949:266–75). It was no longer a matter of ruling over land; the land had to be traversed by surveyors and subjected to measurement. The result was geographical knowledge of unprecedented accuracy and detail. Louis XIV was the first king to see the shape of France we know today. The magnification of knowledge is indicated by the following comparison: the first printed modern map of France, which appeared in a versification of Ptolemy (Berlinghieri 1482), was about 2 square feet in size; three centuries later, the Cassini map sheets covered 1,300 square feet. These sheets gave Versailles a commanding view of the entire kingdom: "One knows that the smallest parishes and the finest details are marked there to a great degree of exactitude" (Sièyes 1789:4). The confluence of interests in accumulating knowledge and aggrandizing power had given rise to the cartographic institutions of the modern state—a state of knowledge.

RESHAPING SPATIAL FORM

The acquisition of cartographic knowledge helped rationalize the activities of rule. Maneuvering armies, assessing taxes, and planning roads could be undertaken more effectively with detailed and accurate maps. Cartography was thus indispensable as a means for the accretion of power. Yet it also came to define the shape of power and to constitute the object of state formation. As lands were surveyed and mapped, they were reshaped into a territory: a homogeneous and uniform space, demarcated by linear boundaries. The old dynastic realm was transformed into a distinctively new shape, the territorial state.[11] This spatial rationalization was modeled on the map.

Because the territorial state is so often mistaken as the universal shape of rule, it is worth sketching the characteristics of the dynastic realm. That covered a certain amount of ground, to be sure; but it was an agglomeration of disparate jurisdictions, with varying relations to the prince—a "composite monarchy," in H. G. Koenigsberger's (1986) apt phrase. The inheritance of Emperor Charles V is an extreme instance, but other monarchies differed only in degree. For one thing, monarchs ruled multiple entities. The King of France ruled recent acquisitions as Duke of Burgundy, Count of Provence, and so on, before they were absorbed into the kingdom itself. Monarchs therefore confronted more than one representative assembly. An exception was the single parliament for England and Wales; the Irish parliament was of lesser status, subordinated to the English council from the end of the fifteenth century. Moreover, each kingdom was divided into disparate jurisdictions for different functions. In France, there were distinct units for customs, taxation, justice, and so on[12]; different parts were governed according to fundamentally different rules.

Just as the dynastic realm was not unified, it was not clearly demarcated. In principle there were definite limits, for while a village might have many lords, it should have only king (Bloch 1940:382). There were two qualifications, however. Lordship over lands within a kingdom could be held by a neighboring monarch—in theory as vassal of the king, but often with effective control. Interpenetration was exacerbated by princes acquiring jurisdictions that were not

[11] "Dynastic realm" and "territorial state," ideal-types of the relation between rulership and ground, are borrowed from B. Anderson (1991:19) and Sahlins (1990), respectively.

[12] One example will suffice. "The *èlection* of Vèzelay is in the province of Nivernais, in the bishopric of Autun; in the Généralité and jurisdiction of Paris; and the town of Vézelay in the Gouvernement of Champagne. . . . Its composition is all the more bizarre because, as small as it is, it contains several enclaves in neighbouring *èlections,* in which it also has isolated exclaves."

contiguous with the rest of their lands. The result was a border riddled with enclaves and enclaves. In addition, a monarch's effective control tended to fade before reaching the realm's limits. In less-populated areas, limits became marches, where authority was contested not only by the neighboring prince but also by local lords and bandit gangs. In practice, the realm's limits could be a horizontal area rather than a vertical division.

In sum, the dynastic realm did not map neatly on to geographical space, as we expect. This did not matter, however, when there were no maps. The composition of the realm could be adequately recorded in writing. Any area could be described by listing its component units (Konvitz 1990:7). At the highest level, this was articulated in the monarch's style, which proclaimed the separate kingdoms, counties, duchies, and lordships acquired by the ruling dynasty (see Bindoff 1945). This conception of dominion over a concatenation of places rather than a two-dimensional space extended to lower-level jurisdictions. The wording of the Treaty of the Pyrenees in 1659 is revealing: It defined the area annexed to France as the "countries, towns, castles, boroughs, villages, and places" comprising the Counties of Rousillon and Conflent (quoted in Sahlins 1990:299).

The geographical extent of entities such as the county or kingdom was in turn defined by tradition and relationships (Hay 1959). To determine the precise limits of a kingdom, it was necessary to send a commission there. An example is the investigation of the border in Picardy ordered by Henri IV in 1602, the first to record its results in cartographic form. The oldest villagers were asked to whom they owed allegiance, where they paid taxes and bought salt, and which courts judged local disputes (Buisseret 1982:104). Actual relationships with royal authority thus determined the realm's spatial extent, and not the reverse; rule was exercised over subjects rather than land (Sahlins 1989:28). Custom did not imply permanence, ironically. A village could change jurisdiction within a generation or two; a seigneurie could shift from allegiance to independence (Buisseret 1984:74).

As rulers began mapping their lands, they did much more than multiply the quantity of geographical knowledge. The map represents an area as a demarcated space located in relation to an imaginary grid, without reference to tradition or relationships. Cartography revealed anomalies and suggested new possibilities. While early maps portrayed the space of the dynastic realm, they also implied a rationalization of that space—its demarcation and homogenization.

On the map, separation is drawn by a line, a vertical edge between spaces. By implication, there should be a corresponding linear boundary on the ground. The power of cartography to divide is exemplified by the use of nonexistent lines as boundaries. Soon after the translation of Ptolemy, in the 1420s an attempt was made to resolve a boundary dispute between Florence and Milan by resorting to longitude (Edgerton 1975:114–5). It cannot have been calculated with adequate precision to have practical effect, but this has significance nonetheless as a harbinger of the future. A similar attempt was Pope Alexander VI's division of the non-Christian world between Castile and Portugal in 1493. Within Europe, the power of cartography to draw arbitrary lines was less important than its potential to delineate existing borders. France can serve as an example of the gradual process of demarcation.

Border mapping was first carried out under military auspices. The investigation in Picardy marked the beginning of systematic mapping by the royal engineers, established by Henri IV and Sully (Buisseret 1967, 1982, 1984). While the earliest maps were made to record the boundary, subsequent topographic maps were made to prepare for military campaigns on the frontiers and to plan fortifications (Konvitz 1987:38–40, 92–103). From a military point of view, the boundary was irrelevant, since the intent was to advance across it when war began. Fortification nevertheless contributed to the new conception of the state as a demarcated space. "The King ought to think a little about squaring his field," wrote Vauban, master of military engineering, in 1673. "This confusion of friendly and enemy fortresses mixed together does not please me at all" (quoted in Sahlins 1989:68). He planned to replace it with an "iron frontier": "two lines of fortresses . . . like an army drawn up for battle" (quoted in Duffy 1985:85). The choice of words reflected the etymology of the term *frontiere* in French, which had previously denoted the front line of troops in battle formation (Febvre 1928). By the end of the seventeenth century it was defined as "the extremity of a realm or a province which an enemy is faced with when it wants to enter" and had supplanted the older term *fins* (quoted on 1985:210). The border had a new connotation: the glacis of the state's space.

The actual delineation of boundaries belonged to diplomacy. The linear ideal was soon acknowledged. Commissioners appointed to divide the County of Cerdanya between France and Spain, after the Treaty of the Pyrenees, wrote that "the line, which has to be almost mathematical, has necessarily to occupy a very narrow width" (quoted in Sahlins 1989:52). Putting the ideal into effect was another matter. In practice the Commissioners followed the outline of customary jurisdictions, like villages, resulting in a border of the old sort, which included an enclave. These anomalies were shown up sixty years later by a cadastral survey on the Spanish side. That map proposed a continuous boundary line, cutting across the intermingled seigneurial jurisdictions. Land should be divided by this line, instead of according to whether it was owned by a subject of the King of France or of the King of Spain. Cartography thus implied a new kind of space. But it did not always have immediate effect. In this case French officials argued that "to draw straight lines would result in a great prejudice to the king's jurisdiction"; and the opposing intendants ultimately agreed to leave the border unchanged (quoted in Sahlins 1989:86).

Ultimately, though, boundaries were made congruent with the cartographic ideal. The aim was clearly expressed by a royal engineer, the Chevalier de Bonneval, in 1745: to "purge the kingdom of foreign enclaves," to "close the

state as far as the nature of the district permits" (Sahlins 1989:95). This required a comprehensive collection of maps, separate from the army's closely guarded topographical surveys. Bonneval himself outlined a plan to provide diplomats with the necessary information. Decades later, in 1775, a Bureau Topographique pour la Demarcation des Limites was created within the Ministry of Foreign Affairs, acquiring a large private map collection (Konvitz 1987:3–35). At the same time, diplomats were making a sustained effort to delineate boundaries on the ground. In the 1770s and 1780s France signed more than two dozen treaties of delimitation with its neighbors from Austrian Luxembourg to Spain (Sahlins 1990:1438–9).[13]

Parallel to the demarcation of boundaries was the homogenization of territory. The heterogeneity of the dynastic realm was shown in sixteenth-century surveys, even those encompassing an entire kingdom. Saxton's was entitled a survey of "all and singular the counties of England" (quoted in Skelton 1974:8). In the field, Saxton kept within county boundaries, surveying one at a time. Each map depicted one or more counties on a scale that varied with their size. Cartography nevertheless implied a different conception of space, however. The most accurate survey method, triangulation, knit together the entire area to be mapped with a chain of triangles. The map itself depicted space as empty, divisible, and homogeneous; it made sense to divide the whole area into maps of equal size and uniform scale. This did not, of course, dictate what should be the expanse to be mapped. Indeed, several maps—of Austrian Habsburg lands such as Styria and Moravia, and in Aragon (Vane 1992:160–2; Parker 1992:134)—were commissioned in the seventeenth century by territorial estates asserting their rights against monarchical power.

The alliance of cartographic knowledge with monarchical power, however, meant that the area of eighteenth-century surveys was the kingdom. The Cassini survey unified the entire country in a web of triangles stretching from hilltop to hilltop. Disregarding traditional jurisdictions, it divided France on the basis of an arbitrary grid, so that each map sheet depicted a rectangle of 80 by 50 kilometers. Thus, papering over the reality of a confused hodgepodge of intermingled jurisdictions, the Cassini map depicted France as a homogeneous space. As such, it could be divided anew on a rational basis. Cartographic rationalization was advocated by Robert de Hesseln in 1780. His maps divided France into nine square regions, each in turn subdivided into nine *contées,* and so on—in a tenfold progression to the smallest unit (Hesseln 1780). This geometry would allow any property in the kingdom to be easily located.

With revolution, the homogeneous space of the map became the basis of political authority. Among the relics of feudal barbarism which the nation had to

[13] To my knowledge there has been no systematic research on the role of maps in treaty documents, let alone the negotiation process. George Clark states that the earliest treaty known by him as having a map as an integral part of the document dates from 1718 (1947:144); this reference is not superseded by Konvitz (1987), Sahlins (1989), or Jeremy Black (1990).

discard, the "antique divisions" of the ancien régime—reviled because each function had its own spatial division and because each kind of circumscription varied widely in area (Comite de constitution 1789:202). The replacement of these "bizarre and unequal" jurisdictions, "which only habit could render tolerable," was bound up with the creation of a new state structure.[14] Indeed, the initial plan (presented to the Constituent Assembly in September 1789) apportioned representation according to territory as well as population and taxation: A third of the deputies would be allocated to each. The principle of equality was actually applied more strictly to land than to citizens, already categorized as active or passive. The kingdom was to be divided like a chessboard: eighty square *départements* (plus one for Paris), each subdivided into nine communes, and each in turn subdivided into nine cantons (Comite de constitution 1789:202–3).

The inspiration was cartographic. The prime mover on the constitutional committee, Abbe Sieyes, renowned author of *What is the Third Estate?,* "explained that he would begin "by obtaining the great triangulated map of Cassini, which has without dispute the most exact positions; I would divide it first of all geometrically" (1789:3). The resemblance to Hesseln's map is not coincidental. The committee employed his successor to depict the new départements, literally drawn over Hesseln's base map (Hennequin 1911:55–57). Geometrical precision was soon dropped.[15] As Sieyes himself acknowledged, the actual delineation would take account of the historical boundaries and natural features (as revealed by large-scale maps: 1789:4). Thus modified, the plan for partition triumphed over rival schemes. One alternative was to create units equal in population rather than area. But there was no demographic equivalent of the Cassini survey—and without information, the scheme foundered. "The division following the plan of the committee is at least traced on the map," replied a colleague of Sieyes during the debate in the National Assembly, "but can the honorable member trace his own, and in how many months will he show us?" (Thouret 1789:724).

The actual demarcation of départements was the product of intense rivalry among towns vying for the prize of *chef-lieu*, or of at least their own district or commune. As a noble scornfully recalled, "Each deputy, with a pin and a piece of thread, came to mark his département . . . squabbling over vast territories, compass in hand" (quoted in Margadant 1992:179). The Assembly nevertheless maintained the fundamental principle of partition: equality of area. The final delineation was inscribed on the Cassini sheets. Just as the revolutionaries "used the debris of the old order for building up the new" (Tocqueville 1856:vii), so they reshaped the state on the map of the ancien régime. The new entities were named for mountains, rivers, and other physical features, im-

[14] These phrases are respectively from Rabaud de Saint-Etienne (1789:667) and the Comite de constitution (1789:202). The formation of départements is analysed by Ted Margadant (1992) and Marie-Vic Ozouf-Marignier (1986, 1989).

[15] Not, however, before catching the irate eye of Edmund Burke (1790:152 ff.).

plying the triumph of geographical abstraction over historical tradition. The significance of this erasure did not escape observers, who seized on (and exaggerated) the arbitrary nature of the new spatial units. For Edmund Burke, nothing better exemplified the monstrous nature of revolution. "I cannot conceive how any man can . . . consider his country as nothing but *carte Blanche*—upon which he may scribble whatever he pleases" (1790:138). The map provided the space for this scribbling, or rather ruling, to be conceived; and it provided the geographical knowledge necessary for this ruling to be carried out on the ground.

As revolution burst the bounds of France, it swept away the medieval rubbish of dynastic realms. Most significant was the destruction of the Holy Roman Empire, a hierarchical formation antithetical to the principle of territorial sovereignty (Breuilly 1993:97–98). With the settlement of 1815, the map of Europe was redrawn in territorial states, albeit capped with monarchies. The rationalization of space was not completed immediately, of course. The delineation of international boundaries, as provided by the settlement, took decades (Hertslet 1875, I:8, 346, 625–6). Reform of the English county system came only in the 1830s. Nevertheless, by the early nineteenth century the territorial state had been established both as dominant ideal and as incipient reality.

GROUNDING POLITICAL AUTHORITY

As the map was a model for reshaping spatial form, it was also an image for representing political authority. Here we shift from the calculations and aspirations of kings and ministers (and revolutionaries) to the imaginations of a wider reading public. The "territorialization of rule," the symbolic fusion of political authority and geographical area, had two aspects. One was the cartographic symbolization of the state as territory.

Geographical area did not figure in the concepts and images which represented the dynastic realm. "Kingship," as Benedict Anderson observes, "organizes everything around a high center" (1991:19). In person, the monarch himself (or herself) stood for the realm as a whole, embodying "representative publicness" (Habermas 1962:5–14). Even when the realm was represented as an objective entity, it was symbolized by the coat of arms, like the fleurs-de-lis of France. These various representations of the realm did not define it geographically, by its spatial extent. With cartography a geographical image became possible. Published maps—whether sponsored by rulers or not—engraved the distinctive shape of a particular territory on the imagination. This familiar shape provided an alternative symbol of political authority: a body of land, or "geobody" (Thongchai 1994). It represented an entity that was impersonal—set apart from the person of the ruler (and even from the character of rulership)—and natural, grounded in physical reality.

The earliest example was perhaps Saxton's image of England as an assemblage of counties (Helgerson 1988; Morgan 1979). Aside from the atlas (the first of a kingdom to be published) and wall map, the image was circulated on playing cards (by happy coincidence there were fifty-two counties) and was woven into tapestries to hang in country houses. It was also used as the basis of a portrait of Queen Elizabeth, painted around 1592 on the commission of Sir Henry Lee (see Pomeroy 1989:plate 11). It pictured her standing on Saxton's England, in an oblique view of the globe's surface, with miniature ships navigating the coastal waters. The queen's feet met the ground in Oxfordshire, the home of Lee. By juxtaposing the two symbols of figure and geobody, the painting represented monarchical authority in a new manner.

The relation between these symbols was not necessarily as harmonious as was painted. "The cartographic image of England," argues Richard Helgerson, "strengthened the sense of both local and national identity at the expense of an identity based on dynastic loyalty" (1988:332). That this image fostered local loyalty—with its locus in the county—reflected the way Saxton's survey was conceived and conducted. Very different was the image of France conveyed by the Cassini map. Whether the image was a cluster of counties or a unified territory, cartographic representation undermined the dynastic principle by objectifying political authority, implying that it was located in an impersonal state and not descended from a royal lineage. The decline of dynastic loyalty did not entail the end of monarchy, of course. After all, while county atlases of England were still being published at the beginning of the nineteenth century, by then it was only one part of a United *Kingdom.*[16]

The cartographic image of the state did not imply that it was coterminous with a nation. While every nationalism has its hearthland, the map is less suited to conveying the relation between people and soil. The map rationally represents quantities of distance, not the quality of myth; compare the emotionally freighted symbol of the nation, the flag. Whatever the use of the "map-as-logo" (B. Anderson 1991:175) for nationalism in the twentieth century, this was hardly relevant before the century before, the nineteenth. Europe was divided into territorial states before nationalism became the governing principle of partition.

While cartography came to constitute the object—as shaped and imagined—of state formation, there was also a reverse influence. The state came to constitute the object of cartography by an imposition of state territories on the ground so that they inhered in geographical reality. This was the second aspect of the territorialization of rule. The process can be seen in published maps of

[16] This distinction seems controversial. The skeptical reader is invited to experiment by comparing two images from Nazi propaganda (from our century, and therefore still emotionally charged for us). One figure juxtaposes the cartographic shapes of the British Empire and the German Reich, accentuating the vast imbalance in size (Monmonier 1996:figure 7.11:102). Another is a cartoon: a grotesque Jew looms over a beautiful blonde, her throat slit from ear to ear; a chalice imprinted with a Star of David drips with her blood (Gombrich 1963:figure 112). Is one image more "rational" and one more "mythical"? We react to the first, I would suggest, with skepticism (a cognitive response); we recoil from the second with repugnance (an emotive response).

Europe from the early sixteenth century to the early nineteenth, which together provide a kind of qualitative time series of the place of states in the imagination.[17] Comparison with our depiction of the corresponding time in historical atlases controls for the changing configuration of powers. It reveals how slowly the two converge: Our understanding of geographical reality as a jigsaw of states is surprisingly recent.

The maps of Europe analyzed below were produced by map-makers supported by the sale of their work, although they were not isolated from political authority. Royal titles were bestowed on many commercial cartographers, and almost all maps and atlases were dedicated to a reigning sovereign (or the States General for publications in Dutch). They reached a reading public across western Europe, as the text of a popular atlas would be published in the main vernacular languages and (until the eighteenth century) in Latin. From the late sixteenth century, at the latest, their image of Europe was undoubtedly familiar to nobles, officials, merchants, scholars, and others who read as part of their daily affairs.

The maps accompanying Ptolemy did not include one of Europe. Indeed, maps of the western corner of the Eurasian land mass helped constitute the Renaissance "discovery of Europe," in contradistinction to Christendom (Hale 1993:ch. 1; Hay 1968). One of the earliest was *Carta itineraria Europae,* by Martin Waldseemüller (Strasbourg, 1511). It neatly portrayed the characteristics of the dynastic realm. Political units were not indicated in the space of Europe (aside from the lettering "Anglia Regnum" and "Polonia Regnum"). Political authority was instead symbolized outside space, displayed on the margins of the map: all four sides are adorned with coats of arms, 142 in all. The arrangement was a visual equivalent of the monarch's style, showing separate and disparate units joined only in the person of ruler. The right border was headed by a portrait of Charles V in armor bearing the Habsburg eagle, followed by the arms of three dozen patrimonies. The left border illustrated his parallel role as Holy Roman Emperor. This kind of heraldic detail was not continued in later maps of Europe, though maps of smaller areas commonly displayed their arms within the cartouche.

Waldseemüller's map designated the lands of Europe according to the framework of Ptolemy's *Geography.* That specified regions such as Insulae Brittanicus, Hispania, Gallia, Italia, and Germania. They were defined implicitly by rivers and mountains, but no boundaries were drawn between them. Ptolemaic regions constituted the framework for the map of Europe in Ortelius' *Theatrum Orbis Terrarum* (Antwerp, 1570), which has claim to be the first modern atlas. This again had no engraved boundaries. Illuminated versions of the printed map overlaid each classical region in a different color, fading together at the edges

[17] The depiction of state territories is investigated also by James Akerman (1982, 1995) and Paul Solon (1982), though they do not assemble maps into a long-term time series.

(see Ortelius 1584) (See Figure 1). It was in this regional framework that state territories emerged, gradually and unevenly.

The transition began with the engraving of linear boundaries, symbolized by a dotted line—"Rows of Pricks, or Points" (Smith 1705:101). This appeared, tentatively, on the maps of Gerard Mercator and sons. Mercator's wall map of Europe (Duisberg, 1554) depicted a dotted line dividing Artois and Picardy, but left the rest of Gallia's border to the imagination of the reader or illuminator. The corresponding map in the atlas (Duisberg, 1595) was more definite. Gallia was divided from Germania and Italia by linear mountain ranges (Vosges, Alps) or, in their absence, by a dotted line. The use of mountains to denote the border reinforced the concept of "natural frontiers," recently scrutinized by Sahlins (1990). It held that political units were, or should be, determined by topography. On occasion map-makers followed this principle to the point of drawing nonexistent mountains. Even real mountains do not neatly divide one space from another, of course. Map-makers represented them as linear chains only because there was not yet an orthogonal symbolization for land surface form.

Whether represented by mountain ranges or dotted lines, boundaries may have implied a territorial rather than regional division. On the second Mercator map, for instance, Gallia could be understood as the kingdom of France. Nevertheless, regions like Germania (still encompassing the Low Countries) did not correspond to any political unit. This inconsistency continued throughout the seventeenth century. On one hand, the regional framework persisted. On the other, interior provinces were commonly given boundaries of equal weight. This can be seen in the map of Europe produced by Willem Blaeu, who founded the greatest family of Dutch map publishers (Amsterdam, 1617, also included in an atlas of 1630) (see Figure 2). Engraved boundaries divided not only the classical regions but also two new areas—the Low Countries (unnamed) and Helvetia. They also divided Catalonia, not even a kingdom, from the rest of Spain. Variation among copies of the same map was added by coloring (compare the Blaeu 1630 facsimile; Koeman 1970: figure 6; Blaeu 1662). Within one atlas, moreover, different maps of the same border frequently drew the same boundary in different places (Akerman 1982; Solon 1982).

Such inconsistencies show that map-makers did not intend to depict contemporary political units. Even more telling is anachronism. Most glaring is the unity of the Low Countries (Akerman 1982:88; compare Krogt 1995:116–7). In the initial stages of the Dutch revolt, to be sure, the situation was in flux and the outcome uncertain. By the armistice of 1607, however, the United Provinces were clearly separate from the remaining Habsburg possessions. This partition cannot have had greater salience than seen from Amsterdam. Yet Blaeu, like other cartographers, did not record it on the map. And when his son Joan prepared the multivolume *Atlas Major* (Amsterdam, 1662), he used the same plate again. By then, after partition was confirmed by the Peace of Westphalia, it truly belied its title, *Europa recens descripta.* Though new engravings were cost-

FIGURE 1. Europe composed of classical regions: Abraham Ortelius' atlas of 1570, in an edition of 1584. Courtesy of Harvard Map Collection.

FIGURE 2. Europe traversed by inconsistent and anachronistic boundaries: Willem Blaeu's map of 1617, in Joan Blaeu's atlas of 1662. Courtesy of Harvard Map Collection.

ly, the old plate could have been altered or updated by the use of color. The political configuration after Westphalia was depicted with greater consistency in a map published soon after by Sanson (Paris, circa 1650). Besides dividing the United Provinces from "Pays Bas Catholiques," it carefully delineated France's eastern border and clearly distinguished internal boundaries from external ones. Nevertheless, when his son Guillaume issued another map "revised and changed in many places—following the most recent reports" (Paris, 1683), it showed Portugal as a province of Spain, four decades after the overthrow of Habsburg rule. Such examples do not mean that map-makers or their readers were ignorant of contemporary political divisions. Rather, the depiction of those divisions was of little importance—political authority still hovered over the ground, as it were.

A more consistent division appears in the eighteenth century. There was no glaring anachronism in Guillaume Delisle's map of Europe (Paris, 1724). Moreover, it used different lettering to sharpen the contrast between states and provinces, between external and internal boundaries. The effect was replicated by the map in Gilles and Didier Robert de Vaugondy's *Atlas Universel* (Paris, 1757; English version by Kitchin (London, 1772), which showed the land "divided into its principle states." Thus Europe was conceived as a political jigsaw. In fact the earliest jigsaw puzzle to have survived depicts *Europe Divided into Its Kingdoms, etc.* (London, circa 1766). The ubiquitous jigsaw originated in "dissected maps" created by London publishers to aid instruction in geography (Hannas 1972:15–21). The land was now literally cut into pieces by state boundaries: Each piece could be held in isolation from its geographical context.

The jigsaw's bounded spaces still did not fully depict contemporary political units. Some of those spaces, like Italy, remained regions. Moreover, there was no attempt to indicate where common sovereignty united different space—such as Hungary and the Low Countries, both under Habsburg rule. This is a cardinal principle of our historical atlases, which use color and shading to unify disparate possessions into a homogeneous, albeit non-contiguous, territory. This modern depiction of states finally appeared in the 1790s, a decade when boundaries and sovereignty were in continual flux. One example is a wall map by Aaron Arrowsmith (London, 1798), which carefully portrayed France's expanded territory.[18] The recently annexed southern Low Countries had engraved boundaries, although they were outlined in the same color as France. Similar treatment was applied to Habsburg and Hohenzollern lands: The possessions of each house—both within and without the Empire—were picked out in one color. "Germany" was finally cartographically fragmented into its component sovereignties, long after the Empire had ceased to be an effective political unit.

[18] Another example is *Bowles's Universal Atlas* (n.d.), first published in 1792. The Harvard University Map Library's copy is colored to show the territorial configuration of the late 1790s; the illuminator has overlaid northern Italy with the Cisalphine Republic. I have found no earlier maps in the modern style. The map of Europe in Rigobert Bonne's *Atlas Encyclopédique* (1787) resembles Robert de Vaugondy's.

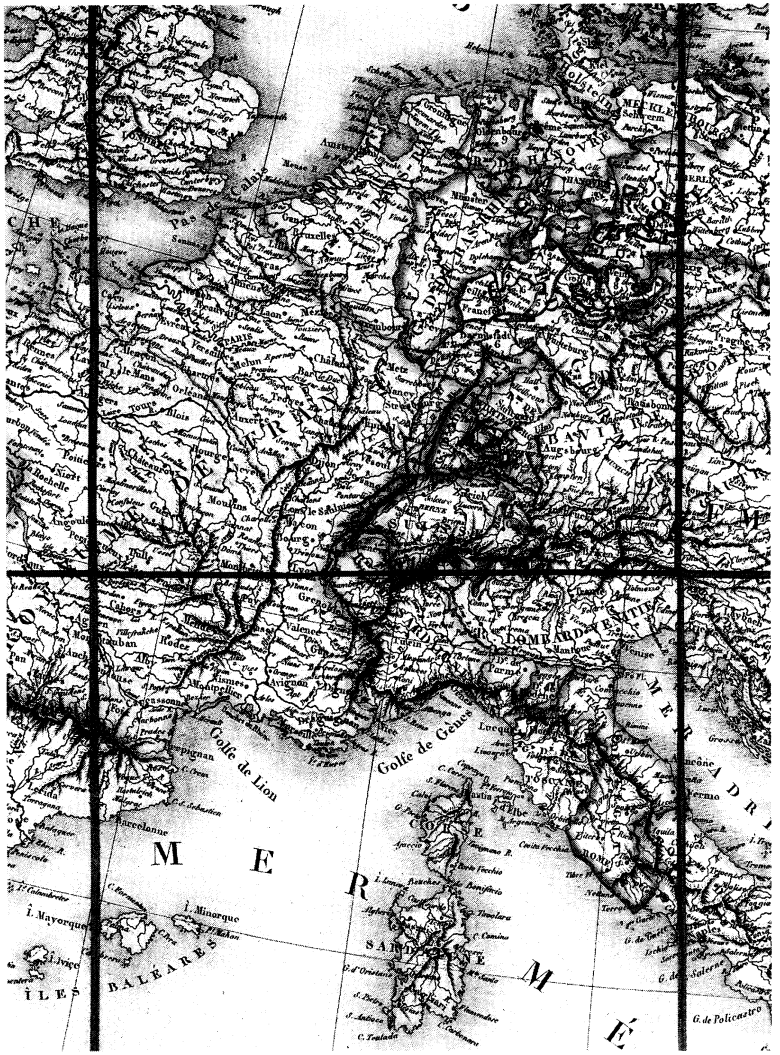

FIGURE 3. Europe portioned among territorial states. A. M. Brué's map of 1821. Courtesy of Harvard Map Collection.

Modern principles of representation were fully realized in maps of the configuration established in 1815. It was now essential to be up to date. One of the foremost London map publishers, John Cary, issued A *New Map of Europe* in 1816. Revised editions of his world atlas were advertised as showing states and kingdoms "arranged according to the Congress of Vienna, and Treaties of Paris" (Fordham 1925:21). Every characteristic of the modern depiction of states appears in a map by A. M. Brue (Paris, 1821) (see Figure 3). Italy was finally distributed into territorial states; the tiniest German stateless were distinguished, where necessary by a numbered key; Prussian and Austrian possessions were each unified by color. It could be a page out of our historical atlas—only the configuration of states is different on maps today. In the imagination of mapmakers and readers, political authority had been imposed on the ground, turning the earth' s surface into a jigsaw of state territories.

CONCLUSION

By the early nineteenth century, the modern, territorial state—with its cartographic techniques and mapped image—had been established in Europe. Since then, it has spread throughout the world. It was applied to lands conquered and colonized by Europeans, of course; but it was also adopted by foreign monarchies. This happened in nineteenth-century Siam, the subject of Thongchai's (1994) important work. It underwent a transformation remarkably similar to that which happened in Europe, telescoped into a few decades. Mapping was spurred by colonial expansion, but it was not only a matter of defending territory from predation. Even a friendly power, Great Britain, was anxious to demarcate a boundary between its annexations and Siam. Thus, the dynastic realm was forced into the mold of a territorial state. Aside from compulsion, cartographic techniques had their own power. The policy of westernization was adopted under king Mongkut, who was converted to the superiority of European science and spent much of his time calculating geographical coordinates and planetary movements.

This essay has examined European state formation from a particular perspective; as with any map, it has depicted some things by leaving others invisible. While the specific and peculiar form of the modern state can be conceived in many ways, my inquiry draws attention to three salient characteristics. The modern state consists of agencies and archives for producing and preserving objective knowledge, including knowledge of the ground on which it stands. It exists in the shape of territory, a uniform, homogeneous space demarcated by a linear boundary. And it exists in the imagination as an object symbolized by territorial shape, one piece of a terrestrial jigsaw.

My argument has advanced two claims: first, that state formation involved a transformation of the relationship between ground and rule; second, that the modern form was constituted, in part, through cartographic knowledge. The claim for transformation may seem obvious, even trivial. Yet there is a persistent tendency to project our image of the territorial state back into the past. More formidable than what we see in the historical atlas is how we write about historical change. Our language leads us to conceive of change as additional rather than integral, as the variation in an entity's attributes rather than the transformation from one kind to another (see Elias 1978). It is easy to say "the state mapped its territory," implying that a preexisting entity increased the quantity of its knowledge. It is much harder to say that, through the process of mapping, a new kind of territory and hence a new kind of state came into being. The difficulty of conceptualizing change in kind brought about by gradual modification, rather than by sudden replacement, is not confined to social science. The same problem faces evolutionary biology: Organisms within a single species may change so much over generations that descendants and ancestors, if placed side by side, would not be classified as the same species. Similarly, a line of descent can be traced, revolution notwithstanding, from the Capetian monarchy to the French Fifth Republic—but to include both under the same concept of state is to stretch that to breaking point.

The second claim, for knowledge as constitutive, may seem curious, even dubious, at least from the perspective of "organizational materialism" which dominates the literature on state formation. Yet the development of knowledge has its own timing and proceeds according to its own logic. Modern cartography did not originate in the functional requirements of rulership; once established, it was driven by internal imperatives of greater accuracy and larger scale. Moreover, knowledge exercises its own fascination and interest. Lives were devoted to surveying and map-making, while rulers were sufficiently impressed by maps to support them. All this is not to imply that we should substitute for a one-sided materialistic an equally one-sided idealistic causal interpretation. The development of knowledge requires material resources: Thus, knowledge must always attach itself, as it were, to power. And power inevitably influences the content of knowledge. So it was with cartography and rulership. Whatever the interplay between forms of knowledge and forms of power, all action is predicated upon what is thought as real. Putting the state on the map meant knowing and imagining it as real—and, so, making it a reality.

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Editorial errors in "Putting the State on the Map"

Without giving me any opportunity to make final revisions, or even to see the page proofs, the journal printed this article—having introduced over thirty errors (virtually every French word is wrongly spelled).

p. 374, fn.	spelling error "John Glenn **III**"
p. 374, fn.	omitted names "**Benedict Anderson, Malcolm McKinnon, James Scott, Yasemin Soysal**"
p. 375	separate sentences "spatial form**. This is** a dimension"
p. 377	spelling error "mappa**e**mundi are" (this is the plural form)
p. 378	omitted words "mimetic**, for it** claims" (as it stands, the sentence is meaningless)
p. 379	misplaced comma "Ptolemy~~,~~ complete with maps**,** printed" (this changes the meaning)
p. 381	"Lord High Admiral~~, who~~ described"
p. 382	omitted words "private **that central** characteristic"
p. 383	spelling error "Acad**é**mie"
p. 385	spelling error "Si**e**yes"
p. 385	garbled sentence "shape of power**,** ~~and~~ to constitute"
p. 385, fn. 11	spelling error "***é****lections*" (occurs twice)
p. 385, fn. 11	spelling error "V**é**zelay"
p. 385, fn. 11	source omitted "**(Vauban 1696, p. 274).**"
p. 387	spelling error "*frontièr**e***"
p. 388	spelling error "D**é**marcation"
p. 388	"conception of space~~, however~~."
p. 388	spelling error "*contré**e**s*"
p. 389	spelling error "Comit**é**" (occurs thrice)
p. 389	spelling error "Abb**é**" (occurs thrice)
p. 389	erroneous quote mark "*Estate?* ~~"~~explained"
p. 389, fn. 14	spelling error "Saint-**É**tienne"
p. 390	misquotation "***b****lanche*"
p. 391	fn. 16 reference misplaced; it follows "the flag."
p. 391	"before ~~the century before,~~ the nineteenth"
p. 396	"Kitchin**,** London"
p. 396	garbled "boundaries, **but** they were" (the meaning has been changed)
p. 397, caption	spelling error "Europe **partitioned**"
p. 398	spelling error "Bru**é**"
p. 398	spelling error "state**lets**"
p. 400, Bloch	insert period at the end of entry
p. 400, Burke	delete 1987 at the end of entry
p. 401, Delisle	spelling errors "*Dress**ée** pour **l'**usage*"
p. 401, Duffy	delete colon after "*Warfare*"
p. 401, Febvre	spelling error "*Frontièr**e***"
p. 401, Fordham	insert space "*Globe Maker*"
p. 401, Gombrich	spelling error "Carto**o**nist's"
p. 401, Harley	spelling error "**D**econstructing"
p. 402, Krogt	spelling error "van de**r**"
p. 402, Machiavelli	spelling error "Nicol**ò**"
p. 402, Machiavelli	spelling error "[1**9**70]"
p. 402, Machiavelli	bungle "Walker**, S.J., trans.**"
p. 403, Mercator	spelling error "***I****nseln*"
p. 403, Mercator	spelling error "*Welt**k**arte*"
p. 403, Mercator	spelling error "K**ü**hl"
p. 403, Ozouf	spelling error "Strat**é**gies"
p. 404, Saxton	move "[map, 20 sheets]" to after *1583*
p. 404, Saxton	delete ", 1974" at end of entry
p. 404, Sieyès	spelling error "**n**ationale"
p. 404	insert Smith, John. 1705. *The Art of Painting in Oyl*, 4th ed. London: Samuel Crouch.
p. 405, Weber	insert date "1922 **[1978]**."