P.D.A. Harvey and Medieval Mapmaking: An Essay Review

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LOCAL MAPS AND PLANS FROM MEDIEVAL ENGLAND / edited by R.A. Skelton and P.D.A. Harvey. Oxford: Clarendon Press, 1986. xvi, 376 p., [16] p. col. plates: ill. maps. ISBN 0-19-822363-3: US$450.

MEDIEVAL MAPS / P.D.A. Harvey. Toronto; Buffalo: University of Toronto Press, 1991. 96 p.: ill. maps (some col.). ISBN 0-8020-2806-3: CDN$40. Available from: University of Toronto Press, 10 St. Mary Street, Toronto M4Y 2W8, Canada; or, 340 Nagel Drive, Buffalo, NY 14225, USA; or, International Book Distributors Ltd., 66 Wood Lane End, Hemel Hempstead, Hertfordshire HP2 4RG, UK.

THIRTEEN years have passed since I greeted P.D.A. Harvey's *The History of Topographical Maps* with the assertion that its publication marked the coming of age of the history of cartography.[1] What so distinguished his effort for me was its concentration on what Harvey referred to as "general problems," that is, its *nomothetic* aspect. Although Harvey's passion for the artifacts he had chosen to study was patent, it was evident that what most interested him was their evolution, that is, the regularities discernible in their historical unfolding (that is, the laws governing the way they succeeded each other in space and time). Because Harvey saw maps *evolving* from map*like* antecedents, rather than simply getting better or worse with time, what he chose to regard as maps continuously evolved as well. Harvey was explicit about this: "As the reader may or may not have noticed — we have silently adjusted our idea of what is and what is not a map as we have moved to different cultures and different ages."[1] This disturbed some reviewers, but since it is apodictic that maps as we know them today did *not* spring full-born from the brow of early humans (any more than the car, the comic book, or the skyscraper), their antecedents doubtless *were* map*like* rather than just more or less accurate versions of what we call maps today. It follows from this that the further back in time the origins of maps are sought, the less and less likely it is they should resemble the maps we know today (the less and less likely it is they *were* the maps we know today). This is thinking about evolution the way biologists do. Harvey's construction of the history of maps from map*like* antecedents is like the story we tell about human evolution, which is less one of *humans* changing from one form to another (so-called vertical change), than of human *speciation* from antecedent *pre*human forms (from some ancestor common to us *and* the contemporary great apes, from some earlier mammalian predecessor, from ... *single-celled protozoa*). Indeed, *just* as *Homo habilis* didn't exist until *Australopithecus afarensis* speciated in east Africa two to four million years ago, so Harvey insisted that what many think of as "real honest-to-goodness maps" didn't distinguish themselves as a tradition in Europe prior to the fifteenth century. For Harvey, these *surveyed maps* evolved as a third and final "species" in a process which had previously already taken *pictorial* and *symbolic* forms.[2]

Given the paucity of the cartographic and protocartographic record (paralleled in human evolution by the paucity of the fossil record), Harvey's reach was necessarily sweeping (he drew on examples from five millennia of global history). Because the history he constructed stopped and started at different points in different places for different reasons, it did not take the form of a nice, neat, linear progression (mapmaking got going here ... but died out; it started independently somewhere else; it got going in a third place but didn't evolve). Some readers found the results unconvincing. Wilbur Zelinsky complained in his review that "despite his extraordinary diligence, Harvey is unable to cite even one society that has experienced all three of the postulated phases in the proper order."[3] Like a Creationist barking at the theory of evolution, Zelinsky argued that Harvey's "evidence is too fragmentary, too widely dispersed areally and temporally to offer firm footing for any general explanation of the history of topographic mapping."

This is *not* a criticism Zelinsky could level at either *Local Maps and Plans from Medieval England* or *Medieval Maps*, both of which provide the coherent areal and temporal evidence he called for. The first is a massive volume. At just under 400 pages (sixteen of them in full color), and

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weighing more than my postal scale can handle, *Local Maps and Plans from Medieval England* is larger than most atlases and harder to read in bed. Published in an edition limited to 500 hand-numbered copies, it was intended to reproduce "all English topographical maps and plans older than 1500 in a single volume." That it fails in this ambition is a tribute to its success. In the first place, as a consequence of the effort to produce the work (initiated with R.A. Skelton in ... *1967*), the number of topographical maps (or closely related sets of maps) known to have survived from medieval England grew from twelve to the thirty published here. Then between the time the book went to press and its much-delayed publication, still four more maps turned up. With the exception of these, the extant maps are described, transcribed, and reproduced (in color where appropriate), along with the Ordinance Survey map of the area in question, and an essay by a specialist on the territory (these can stretch to sixteen provocative pages). Preceding all this is a forty-page introduction by Harvey intended to "discuss the wider questions raised by the maps and in particular their place in the general history of cartography." The incredible spatial-temporal resolution these thirty maps give Harvey permits him to all but 'prove' his hypothesis, and since he's dealing with an *entire corpus* (or as close to it as no-never-mind), he vacates the possibility of having other scholars, in Malcolm Lewis's words, "bring forward piecemeal evidence with which to falsify the hypothesis," at least for medieval England.[4]

Sharing with *Local Maps and Plans from Medieval England* its defense of his hypothesis about the history of cartography, and advancing it in a similar way but at a regional scale, Harvey's *Medieval Maps* is an otherwise wholly different book. If the former is the specialist's volume *par excellence,* this latter is an amateur's delight. Its ninety-six pages are graced by seventy-seven illustrations, forty-two of them in vibrant color. This beautiful survey not only widens the areal base (while sticking pretty close to Europe) and expands the temporal window (by nine centuries), it treats more kinds of maps than *Local Maps and Plans from Medieval England*: maps of the world, regional maps, and portolan charts are discussed in addition to local maps and plans. Both books are extraordinary, and repay the closest possible attention. In conjunction with *The History of Topographical Maps,* they articulate an evolutionary theory of cartography at local, regional, and global scales.

Mapping, Mapmaking, and Map Consciousness

At the heart of this theory is the assertion that the appearance of a maplike artifact in the historical record is no guarantee that the map consciousness has been born. That has to be the central issue in any history of cartography. It is not the existence of maps, but map *consciousness* that distinguishes the modern age. In *The History of Topographical Maps,* Harvey assumed there would be little dissent from the beliefs supporting this assertion that not all human societies make or use maps; and that in those that do, map use evolves over time (where *evolves* is understood to refer to adaptation to changing circumstances, not 'progress'). The taken-for-granted quality of maps in the lives of his readers made a mockery of these pretensions. Responding to Harvey's "map-making seems to have appeared rather erratically in the course of man's history," Zelinsky writes:

> I cannot agree. Cartography, that is, the production of some relatively durable physical object that represents spatial relationships among various phenomena, is only one part, and a very small part at that, of a larger activity, i.e. mapping. And mapping, I would claim, in one form or another, is a form of behavior that is universal among human beings, young and old, in every society and era and includes bodily gesture and movement and verbal expression, not to mention thought; its cartographic expression, though important, is incidental, and its absence does not denote creatures who do not practice nondocumentary forms of mapping.[5]

Since Harvey was explicit that his concern was with map*making*, not with what Zelinsky refers to as "mapping," it is hard to understand why Zelinsky is so ferocious in his defense of a position *not* under attack.[6] What has to be recognized is that it represents the articulation of a cultural bias — hardly unique to Zelinsky — so blinded by the taken-for-granted quality of maps that it cannot visualize human existence without them. And this makes a mockery of any effort to think about their ... history.

We can see how ahistorical this is if for mapping and mapmaking we substitute speech and writing. Certainly speech is as pervasive in human societies as the putative "mapping," and certainly writing is not, yet even Zelinsky acknowledges that literate societies are markedly different from those which engage in exclusively "nondocumentary" forms of speech.[7] It is *precisely* the social propensity to produce *relatively durable documentary objects* that is at stake in the histories of writing *and* cartography, because these documentary objects are brought into being by, and promote, other momentous social transformations. It is the interlacing of these transformations with the development of mapmaking that make its history unavoidably evolutionary.

Mapmaking and writing are not, of course, the same thing, but what distinguishes maps from writing is *not* their embodiment of spatial relationships. Words, after all, embody spatial relationships too. It is a mark of "cartocentricity" to imagine that spatial relationships have to be embodied in map form.[8] Harvey takes pains to demonstrate the extent to which medieval Europeans produced *written descriptions* where today we might be inclined to draw a map, illustrating, in *Medieval Maps,* both an itinerary and a terrier.[9]

But if not its embodiment of spatial relationships, what is it that makes a map a map? It is nothing other than the way these relationships are embodied *in relatively durable*

graphic expressions mimicking, at every point, a schematized view more or less from overhead. It is only with the appearance of such plan views that the map *as such* comes into being, and only with its widespread adoption that map consciousness is born. Other embodiments of spatial relationships — terriers, itineraries, landscape paintings, diagrams — can then be characterized as more or less maplike, as more or less likely to have contributed to the development of map consciousness, *but only in hindsight.*

It is also important to accept that mapmaking is no Holy Grail. From the perspective of landscape painting or comics, mapmaking is merely one more by-the-way. Yet because of its plan form, the topographic survey *does* constitute a kind of limit case. Its gradual adoption did alter the field of human expression which precipitated it. It constituted a truly novel discourse function, and when it was taken up, it initiated a novel *mentalité* into which today we seem 'naturally' ... *to mature.* Harvey's denial that maps *as such* exist prior to the 15th century is not a denial of prior portrayals of the world in graphic, *or even plan form,* but a testimony to the way in which, after the topographic map was taken up, the field of expression was ... *transformed* (almost as though it had previously been a mess of iron filings ... and the map had been a magnet).

This transformation — which led to the explosion in map use that immerses us in maps today — was accompanied by the gradual evolution of a history to explain it. This history had to justify the cartographic practice of those who wrote it, that is, had to justify the progressivist, positivist practices of cartographers bent on construing themselves ... as scientists. They therefore constructed this history in the form of a pedigree which, like any pedigree, highlighted a single descent, one leading exclusively to Anglo-American academic cartography of the twentieth century.

The problem with constructing history this way is that one can construct any number of pedigrees, collapsing to any chosen descent. Recently, for example, Scott McCloud has constructed a pedigree that leads from Egyptian wall paintings, Mixtec codices, the Bayeux Tapestry, and the prints of William Hogarth to ... *comics.* What permits this is his inclusive definition of comics as "juxtaposed pictorial and other images in deliberate sequence, intended to convey information and/or produce an aesthetic response in the viewer."[10] Such a definition, of course, makes atlases into ... *comic books,* transforms Edward Tufte's "small multiples" into ... *comics,* turns much of cartography into ... *cartoons.*[11] But this is exactly the effect achieved by standard histories of cartography equipped with definitions of maps as, "graphic representations that facilitate a spatial understanding of things, concepts, conditions, processes, or events in the human world."[12] Embracing — as this definition does — Cartesian algebra, exploded views of toaster ovens, and building elevations, it can reach back to claim for cartography a lot of what McCloud wants to claim for comics, what Tufte wants to claim for data graphics, what someone like Gombrich wants to claim for art, or someone like Guar for writing.[13] Where there are many descendants but few ancestors this temptation can be irresistible, but it does not aid understanding to claim that cats are humans simply because we share a common ancestry. Nor does it advance understanding to claim that Egyptian wall paintings are maps, any more than it does to claim they are comics. To do so is to *ignore* the manifold lines of descent, the many paths that lead from this progenitor or that to some end other than maps; is to *follow* only this line to only this end. Ultimately this is to decontextualize the descent, to deny the transformations in the encysting systems that require the adaptations that lead to the very changes that are presumably the subject of the history of cartography. It is this false history, this *pedigree,* that Harvey once again assaults in these new volumes.

Alternative Ways of Modelling Change

The standard pedigree constructs a single path — or lineage — that leads from simple beginnings in Babylon and Egypt, through a profound development in Greece and Rome, to a triumphant conclusion in Europe and the United States. This story of straightforward *improvement* in the *map* resembles a discredited but still popular view of evolution, one characterized by what Stephen Jay Gould calls, "the straitjacket of linear advance," and which is often symbolized by a ladder (the famous "ladder of progress").[14] Years ago, in my work on cartographic hillsigns, I introduced an alternative to this linear history, one which acknowledged the branching character of evolutionary lineages. I suggested that the earliest hillsigns were exclusively *profile* views, and that these were succeeded by *oblique,* and finally by *plan* views, all of which were brought forward into the present as signs in common use.[15] This scheme found favor with Harvey, who suggested that thinking about these "stages" as *symbolic, pictorial,* and *surveyed* would give my results greater interest and significance, and at the same time bring them into line with the developmental model he was advancing in *The History of Topographical Maps.*[16] These models of hillsigns and maps were both more reasonable (and liberal) than the linear "ladder of progress," but in the end they took a no less dubious perspective, one characterized by Gould as a "cone of increasing diversity."[17] In this model:

> Life begins with the restricted and simple, and progresses ever upward to more and more and by implication, better and better .... The stem splits to a few basic stocks [in my case profile, oblique, and plan views of hills; in Harvey's case symbolic, pictorial, and surveyed forms]; none becomes extinct ["the full panoply of historically developed hill types is in wide use"]; and each diversifies further, into a continually increasing number of subgroups ["for many years to come the representation of land form on maps will be an interesting and challenging problem"].[18]

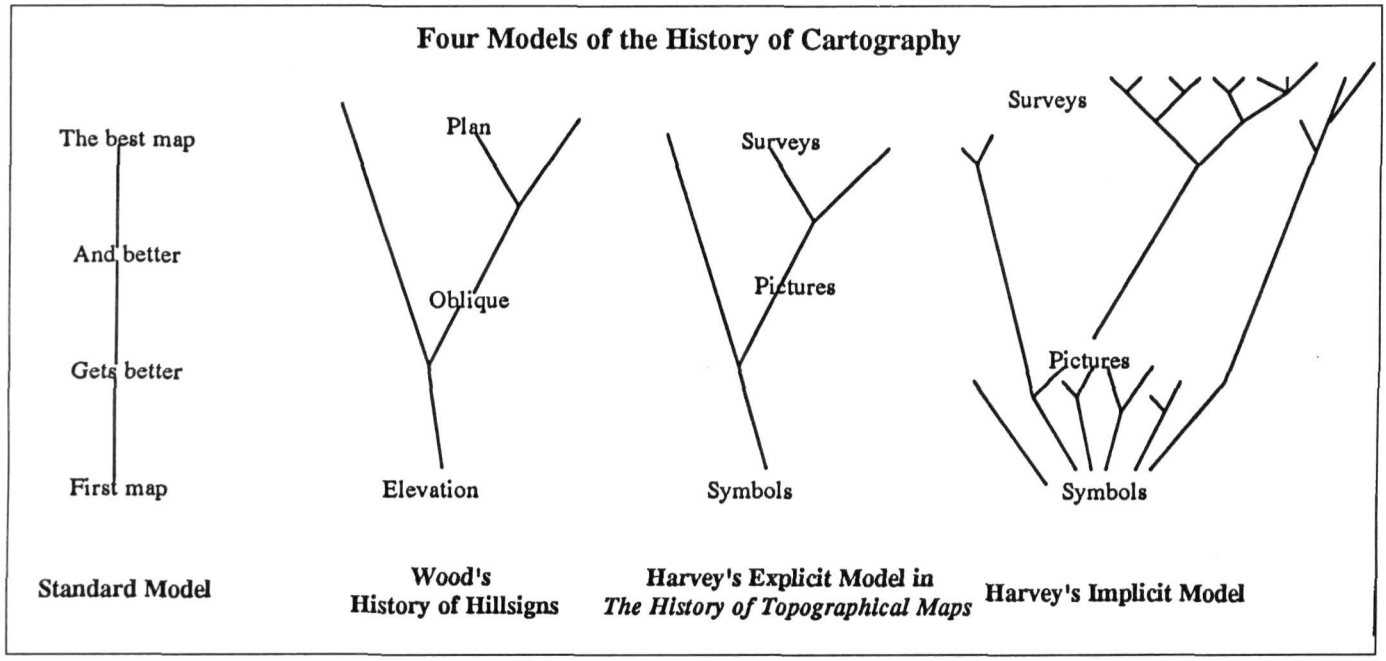

FIGURE 1. *Schematic representation of four models of the history of cartography.*

For Gould, one problem with the "cone of increasing diversity," is that it is all too easy, as with the "ladder of progress," for "placement in time [to be] conflated with judgment of worth."[19] A far more fatal objection is that it fails to reflect the data of either fossils or maps. It comes as no surprise, then, in the works at hand to find Harvey advancing, albeit implicitly, a third model. In this ... *not all of the branches survive,* especially at the local level that is the subject of *Local Maps and Plans from Medieval England*. Indeed, as in biological evolution, most of the branches ...*die.* This model is characterized by Gould as one of "diversification and decimation," and at least for Gould, best fits the data of evolutionary biology.[20] (See Figure 1)

What would it mean to say this of maps? It would mean that some maps — probably most in the beginning — had no progeny, if only because the habits of life that called them into being were not reproduced in successive generations. Take the maps made by Roman surveyors. Whatever use the Romans made of these,[21] medieval Europeans made none, and so the tradition of making them ... *died out.* Medieval surveyors did not make maps (medieval copies of Roman surveyors' manuals notwithstanding). Medieval surveyors made ... terriers. The plans that medieval Europeans *did* make owed little or nothing to Roman traditions: "There is no trace of the Roman surveyors in the Canterbury plan," Harvey writes in *Medieval Maps,* adding that when scaled plans did begin to appear in Europe in the fifteenth century, "they then owed nothing to Roman precedent" either.

The Roman tradition of making surveyed maps simply ... *died out*. As the specialist articles in *Local Maps and Plans from Medieval England* demonstrate, most mapmaking never even got this far, never established itself ... as any kind of tradition. Most mapmaking produced single maps responsive to local circumstances —*local sports* — called into being to address a local need, made, used ... *and filed.* It did not lead to the development of a mapmaking tradition — howsoever brief — much less to a map consciousness. Most mapmaking generated no progeny. It just ... died out.

This death is hard for many to accept. Because it is hard to visualize *our* life without maps, it is hard to visualize any life without maps: it means confronting an alien *mentalité* (it means admitting that history makes us different). Because they seem so close to us, it is especially difficult to envision the Middle Ages without maps, and so it seems more comfortable to think of maps during the Middle Ages as less reliable, less accurate, less common than ancient maps, but not ...*gone for good* (or even more difficult ... *never there*). And because it is so hard to do, Harvey makes a point of establishing the maplessness of the Middle Ages ... *out front*. The first sentence of *Medieval Maps* — and its last — slams the fact in our face: "Maps were practically unknown in the Middle Ages." The polemical force of this opening is justified in *Local Maps and Plans from Medieval England* where Harvey not only insists that "The maplessness of the Middle Ages is something very difficult for us to grasp," but adds that "Many historians of cartography have entirely failed to do so." Among others he cites F.C. Wieder, E. Lynam, R.V. Tooley, and C. Bricker, but indeed most historians of cartography could find themselves on such a list. It's worth quoting the opening paragraph of *Medieval Maps* at length:

> Maps were practically unknown in the Middle Ages. This may seem an absurd way to begin a book that displays a whole pageantry of maps from many different parts of medieval Europe

— but it is a fact, and it is one we must accept if we are to appreciate what these maps were, what they set out to do, how they appeared to the age that produced them. We are apt to take maps of every sort for granted, from the small-scale general map we use to find where places are to the roughly sketched plans we draw to give someone directions or for some other purpose. So far were people in the Middle Ages from our awareness of maps today that there was no word meaning map either in the languages of everyday use or in the Latin used by the Church and for learned writing. When contemporaries referred to what we would call a map they would use some word meaning either diagram or picture, and this was indeed how they must have viewed them: they were pictures of landscapes, of regions or of continents, or they were diagrams setting out spatial relationships in graphic form just as they might set out other relationships — administrative, philosophical, theological.[22]

Then Why Were Maps Made?

What then prompted people to make maps, and with such increasing frequency that by the sixteenth century they were a fact of life that amounted to the dawning of a map consciousness? This is the question Harvey struggles with in both of these books. In *Local Maps and Plans from Medieval England* he puts the question this way: "If then it did not come easily or naturally to the medieval Englishman to draw a map or a plan, what were the circumstances that led him to do so in the thirty examples gathered here?" He answers somewhat generally in *Medieval Maps* that the maps drawn "were more akin to sketch maps produced for a particular occasion" than to our reference maps, and observes that "each was drawn for strictly limited purposes," which he believes explains why so many of them strike us as so ... *weird* (he compares them to our special-purpose highway strip and subway route maps). In *Maps and Plans from Medieval England*, however, he is both more emphatic and much more specific:

> One point emerges clearly. The purpose of all the earliest maps was very practical. The two earliest were both made as guides to partly buried water systems. It is difficult to think of any need that would more cogently call for a plan to be drawn .... The next type of map that survives was drawn as a guide to disputed boundaries, again an extremely practical need that would very easily be met by a map. The earliest of this group, the thirteenth-century map of Wildmore Fen in Lincolnshire, is a straightforward diagram; it is perhaps not too fanciful to see it as an imaginative extension of the systems of tabulation and bracketing found in some books and estate records of the time. After this, the building-plan, represented by a single example, has a clear practical purpose ....

What is Harvey about here? "Practical," "extremely practical need," "clear practical purpose" ... *as opposed to what?* As opposed to the theoretical, as opposed to the general, the merely *potentially* useful. This opposition recalls for us the more general answer Harvey gave when he contrasted "sketch maps produced for a particular occasion" with the general-purpose reference maps *we* bring into being, not to solve any actual problem, *but to make a map*.

Notice the shift in attention, *away* from an actual problem in the present (which a specific-purpose sketch map could conceivably help solve) *to* the map (which *may* help solve problems yet, if ever, to be defined). This set of oppositions may be expanded to include:

practical — theoretical

local, at hand — global, somewhere

specific purpose — undefined general purpose

sketch map — reference map

individual effort — institutional effort

Harvey imagines that problems calling forth practical sketch maps have arisen again and again in human history, sort of like little spot fires in a forest. But just as these isolated fires don't necessarily come together and give rise to a major conflagration, so these sketch maps failed to ignite a map consciousness. All this means is that they failed to enter human consciousness ... *as maps*. Harvey imagines this is because they entered the consciousness of those who made them within the *local intellectual environment* of the problems that called them into being. The sketches were conceived of in terms of *drains*, or *land disputes*, or *the building trades*, but not thought of in connection with theological speculation about the cosmos, or with paintings of the British Isles, or with each other.

Generally Maps Weren't Made

Now, this is precisely the argument advanced by the classical scholar, Richard Talbert, for ancient Rome. *Contra* Dilke, whose descriptions of Roman cartography Talbert flatly denies, *there was no map consciousness in ancient Rome*.[23] In fact, the situation was identical to the one Harvey postulates for medieval Europe, lots of spot fires at the local level (like the *forma urbis Romae*), here and there a larger flare-up (Hellenistic-Roman philosophical speculation about the globe, Roman surveying), but never connecting up, never coalescing into the conflagration of a genuine map consciousness. This is not the place to rehearse Talbert's arguments about Rome, which are technical, detailed, and authoritative, but it is worth considering the relevance of Talbert's broader conclusions for medieval cartography:

> To widen the discussion, I think it important that Dilke's favourable view of the significance of cartography to the Romans' conception of their surroundings be set not just within the context of classical civilization (as so far in this paper), but

also within the whole development of Near Eastern and Western civilizations. This is where the *History of Cartography*, Vol. 1, plays such an invaluable role because it offers for the first time ever a survey of the entire sweep to about 1500 A.D. taking in prehistoric Europe, Babylon, Egypt, Greece, Rome, Byzantium and the Middle Ages. If Dilke's claims for Rome are modified along the lines I have been advocating, then what emerges is a striking uniformity up to around 1500. All the literate peoples of Europe and the Near East preferred to set out and record topographical relationships by written descriptions, rather than graphically. The individual experts' contributions to the volume each demonstrate separately how that applied as much in ancient Babylon and Egypt (not to mention Greece and Rome) as it did in Byzantium and during the Middle Ages. It is nicely said of medieval world-maps (*mappaemundi*) that they were "as much written as drawn." Nor were there in any of these civilizations what we most readily take for granted today — general maps designed to be put to a wide variety of uses.[24]

In taking this position Talbert corrects what has been an egregious problem with the standard history of cartography, its insistence on a "decline" in mapmaking during the Middle Ages. What Talbert establishes once and for all is that there was nothing ... *to decline from*. Given this, Harvey's claims for the maplessness of the Middle Ages are the more easily accepted and the more readily explained: the Middle Ages were mapless for exactly the same reasons that prior ages had been, namely that the historical conditions that call maps into being had yet to develop. It was changed circumstances that fanned the spot fires of sketch mapping, and world-diagram drawing, and landscape painting of the Middle Ages, into the conflagration of map consciousness so evident in Europe in the sixteenth century.

Until the Rise of the Modern State

What were these changed circumstances? This is not a question Harvey can answer from within the Middle Ages, but there are more than ample suggestions in the papers collected by David Buisseret in *Monarchs, Ministers and Maps*. Here we can watch, with nearly the same degree of resolution Harvey gives us for medieval England, the local spot fires — burning in the minds of those who made modern Europe (those with the need to manipulate increasingly elaborate data sets *and* the connections with others in similar circumstances) — coalesce into the conflagration we know as map consciousness. Echoing Harvey, and taking his assertion about the maplessness of the Middle Ages for granted, Buisseret wonders, "How did it come about that whereas in 1400 few people in Europe used maps ... by 1600 maps were essential to a wide variety of professions?"[25] In the introduction to *Monarchs, Ministers and Maps*, Buisseret epitomizes the conventional answers which no longer strike anyone as sufficient. In particular the Renaissance rediscovery of Ptolemy seems very much ... *by-the-way*, while the emergence of topographical views (and thus maps of town and country) seems increasingly indebted to a great deal more than the painterly realism of the Van Eycks or the Limbourgs. At the same time, changes induced by the development of science, while still not irrelevant, take on a radically different appearance when illuminated by the growth of the modern nation-state, and so does the rationalization of land management that presumably called forth the mapping of estates. It is the rise of the nation-state that is the missing piece of the puzzle: it is what ties everything together, through the bureaucratic medium it so dramatically expands.

The evidence marshaled in *Monarchs, Ministers and Maps* makes it clear that both the ministers and their monarchs were sophisticated enough to recognize Ptolemy for the ancient he was. It's obvious that by the time Ptolemy became widely known, those reading him knew much more of the world than he had ever dreamed of, but it's also obvious that their mapping interests were obsessively local, at least in the beginning. It's also obvious that interest in quantification in early modern mapmaking was driven less by science (in any event in its infancy) than by the pragmatics of fortification, and that realism *per se* was less important than information (here the many inelegant sketches made for military lodging-masters are exemplary). This is precisely what Harvey's careful documentation of medieval mapmaking practice would have led us to expect. Projections, quantification, realism; in a phrase, the *geographic accuracy* that the standard history has invariably taken as its subject, seems to be — at least in the beginning — entirely beside the point. As Peter Barber reminds us in one of his articles on England: "The sort of precision to be found in scale maps was often not required by decision-makers, who could make do perfectly adequately on most occasions with rough-and-ready picture or position maps, lacking scale or standardized conventional signs."[26] It was this sort of *spatial intelligence* that so recommended itself to the new bureaucrats of the Early Modern Age.

Yet there's still something missing. So focused are the articles in *Monarchs, Ministers and Maps* on bureaucratic centralization that they manage to ignore the concomitant rise of capitalism (the word doesn't even make it into the book's index). Yet John Marino, in the volume's only quantitative analysis, notes that in Italy, "three discontinuities — times of increased mapping production — stand out: the late fifteenth century, the mid-sixteenth century, and the late seventeenth century. Why did maps increase in each of these periods?"[27] In his account, each is marked not only by increased rationalization of bureaucracies but also by *pronounced upturns in the economy*:

> By the mid-sixteenth century, however, two new variables had transformed the Italian states and help to explain the proliferation of maps. First, rational bureaucracies and government offices established increased control over their domains. We

have already found that in Florence and Milan institutions overseeing borders, roads, water, and buildings all took on new life in the sixteenth century. And for some reason these new offices became the chief users of maps.[28]

I think we can say why it was that *new* offices used maps. Old offices had *well-established, scripted* forms of property management and inventory control, practices with which the *novel, graphic* notation system of the map was ill-equipped to compete. But in the new offices, as in disturbed soil (as in any new niche), the novel species ran amok:

Almost 75 percent of the ten thousand maps in the Florentine state archives are preserved in only two collections: that of the captains of the Guelph party after 1538 and of territorial possessions from the mid-seventeenth century. Similarly in Venice, almost one-half of the state archives' ten thousand maps were commissioned by only one agency, the Office of Rural Lands, founded in 1566.[29]

In the modern world, numbers of maps such as these are commonplace, but just think about the twenty *thousand* maps with which Marino is so off-hand against the thirty maps Harvey was able to assemble for all of medieval England. The contrast vividly dramatizes what Harvey means by *mapless*: he means ... *maps are comparatively non-existent*. And to what to attribute the virulence of this florescence?

The foundation of these offices reflected the second variable, the upturn in the economy often called the Italian Indian summer. The end of the Italian wars with the peace of Cateau-Cambresis in 1559 allowed for increased demand, credit, and eventually production in the cities of the North. Maps were among the goods produced for these revived markets. Not unlike their sister industry, the book publishers, mid-sixteenth-century map publishers began to employ new experts in map compilation — surveyors instead of artists .... The extensive diffusion of maps in state bureaucracies followed the fortunes of the economy that built the map market, employed surveyor-cartographers, and filled state treasuries with the means to purchase such products. The third burst of mapping intensity in Italian administrative affairs, corresponding to the recovery from the long economic crisis of the seventeenth century, confirms that this periodization is not coincidental. The political and economic climate in mid-sixteenth-century Italy tapped the received tradition of the budding mapping mentality and employed that vision to carry out the reorganized functions of the absolutist state.[30]

I have quoted Marino so extensively not just because he restores maps to the economic realities from which exclusively intellectual histories abstract them, but because his argument rounds out Harvey's. It explains why Harvey's third, topographic, species had to await the birth of capitalism and the modern nation-state. Individuals *could* have produced the diagrams and drawings collected by Harvey in *Maps and Plans from Medieval England* (though I acknowledge their social origins). But topographic surveys — in whose light so many other images of spatial relationships come for the first time to be seen as maps — require the support of large, state-supported institutions if only because of their scope.

Industrial capitalism, the emergence of the modern nation-state, the development of science ... each is a facet in the rise of the bourgeoisie whose *Gestalten* are most graphically embodied ... *in the map*. Certainly the spot fires of the many centers of potential map consciousness could never have spread to form a conflagration without paper and the advent of printing. And not until the awakening of the consciousness this wider spread of printed paper maps encouraged could map *problems* — for instance, fixing longitude — be defined and attacked. Solutions to these problems, achieved with further institutional encouragement and support, produced a global framework that for the first time could effectively *consume* the products of local mapmaking efforts (to say nothing of other products). This of course ... *fueled* the fire (it is the cartographic face of colonialism), but what really kept it burning was the continuous rationalization of management indispensable to the capitalist state.

Harvey took us nearly to this conclusion at the end of *The History of Topographical Maps*, but there he cautioned us about the "very scanty evidence available."[31] After *Maps and Plans from Medieval England* and *Medieval Maps*, though the number of maps remains small, it is impossible to think of it as scanty. There's nothing deficient about our evidence: it's all there. The simple fact is ... *once they didn't make maps*.

And now they do ....

[1]P.D.A. Harvey, *The History of Topographical Maps: Symbols, Pictures and Surveys*, Thames and Hudson, New York, 1980. My review appeared in *Cartographica*, 17(3), Autumn, 1980, pp. 130-33.

[2]Harvey, *History of Topographical Maps*, p. 101.

[3]Species of what? Species of ... *discourse*.

[4]Despite my extraordinary diligence I have been unable to discover where this review was published. I quote from an undated mimeographed copy. Zelinsky's opinion was not unique. Helen Wallis (*Antiquaries Journal*, 63(2), 1983, pp. 398-99) and J.H. Andrews (*Joumal of Historical Geograhpy*, 8, April 1992, pp. 219-20), for instance, expressed similar reservations about Harvey's thesis, despite their general admiration for his work.

[5]G. Malcolm Lewis, *The Map Collector*, 14, March 1981, p. 45.

[6]Zelinsky, *op. cit.*, p. 5.

[7]As Andrews puts it, "It still takes courage as well as originality for a map-specialist to admit just how well some societies have managed to get on without maps" (*op. cit.*, p. 220).

[8]Writing and mapmaking are part of a much broader history of signs, including speech and gesturation, but probably *not* "mapping," which, unsigned, would seem to reduce to ... *orientation*. Note, not at all incidentally, that whereas Harvey is interested in a *social* phenomenon, Zelinsky's defense is of an *individual* ability. This attribution of traits characterizing one level of organization to another vitiates much thought about mapping and mapmaking.

[9]For a comprehensive rebuttal see Henri Lefebvre's *The Production of Space* (Blackwell, Oxford, 1991).

[10]This is a point emphasized by John Marino as well in his "Administrative Mapping in the Italian States," in David Buisseret, ed., *Monarchs, Ministers and Maps,* University of Chicago Press, Chicago, 1992, especially pp. 5-6.

[11]Scott McCloud, *Understanding Comics: The Invisible Art,* Kitchen Sink Press, Northhampton, Massachussetts, 1993, p. 9. This is a great book too.

[12]For Tufte's "small multiples" see Edward Tufte, *The Visual Display of Quantitative Information,* Graphics Press, Cheshire, Connecticut, 1983, pp. 170-75.

[13]J.B. Harley and David Woodward, eds., *The History of Cartography, Volume One: Cartography in Prehistoric, Ancient, and Medieval Europe and the Mediterranean,* University of Chicago Press, Chicago, 1987, p. xvi.

[14]Tufte, *Visual Display.* Gombrich broadens his reach by denying the existence of his subject: "There really is no such thing as Art," he writes in the introduction to his 500-page *The Story of Art, Twelfth Edition,* Phaidon, London, 1972, p. 4. Albertine Gaur not only discusses many of the sources of McCloud's comics, but a *lukasa* that has been claimed as a map in her *A History of Writing,* Cross River Press, New York, 1992.•

[15]Stephen Jay Gould, *Wonderful Life: The Burgess Shale and the Nature of History, Norton,* New York, 1989, p. 32.

[16]Denis Wood, "Now and Then: Comparisons of Ordinary Americans' Symbol Conventions with Those of Past Cartographers," *Prologue,* 9(3), Fall, 1977, pp. 151-61; and "Cultured Symbols: Thoughts on the Cultural Context of Cartographic Symbols," *Cartographica,* 21(4), Winter, 1984, pp. 9-37; reprinted together, and revised, in *The Power of Maps,* Guilford, New York, 1992, pp. 145-82.

[17]Harvey, *History of Topographical Maps,* p. 26.

[18]Gould, *Wonderful Life,* p. 38.

[19]Ibid. Quoted text in square brackets is from Wood, "Cultured Symbols."

[20]Ibid., p. 39. This is doubtless what fueled Zelinsky's diatribe, *op. cit.*

[21]Ibid., pp. 46-47. Gould's entire book is an effort to justify this model of "diversification and decimation" by showing that the "ladder of progress" and the "cone of increasing diversity" forced a misreading of the fossils found in the Burgess Shale; and that a rereading of the Burgess fossils forces a redrawing of the "tree of evolution." He explains that his choice of "decimate" is intended to convey both the sense of randomness inherent in the ancient Roman use of the word as well as our contemporary sense that it means "most die and only a few survive" (p. 47).

[22]And R.J.A. Talbert doesn't think they made much of them: "Even the land surveys, incidentally, appear to have been very little used either, except in a highly localized way. Nicolet imagines otherwise, but his view depends upon the presupposition that Rome's rulers shared the passion of a modem government for assembling masses of information, as well as for analyzing it and publicizing the results. Any such presupposition is to my mind largely misplaced" ("Rome's Empire and Beyond: The Spatial Aspect," *Cahiers des études anciennes,* 26, 1990/1, pp. 216-17).

[23] Harvey, *Medieval Maps,* p. 7.

[24]Talbert, "Rome's Empire and Beyond." Also see his review of O.A.W. Dilke, *Greek and Roman Maps: Aspects of Greek and Roman Life,* Thames and Hudson, London, 1985, in *Joumal of Roman Studies,* 77, 1987, pp. 210-12; and his review of Harley and Woodward, *The History of Cartography, Volume 1,* in *American Historical Review,* April 1989, pp. 407-8. Talbert has been giving lectures on the topic as well, making interesting comparisons between Rome and China. I hope these will soon be published.

[25]Talbert, "Rome's Empire and Beyond," p. 217.

[26]Buisseret, *Monarchs, Ministers and Maps,* p. 1.

[27]Peter Barber, "England I: Pageantry, Defense, and Government," in Buisseret, *Monarchs, Ministers and Maps,* p. 38.

[28]Marino, "Administrative Mapping in the Italian States," p. 21.

[29]Ibid., p. 22.

[30]Ibid.

[31]Ibid., pp. 22-23.

[32]Harvey, *History of Topographical Maps,* p. 153.