

“The Power of Disembodied Imagination: Perspective’s Role in Cartography.” *Cartographica*, 31:3, 1994 (1-17). (Lead Article)

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Abstract In almost opposite fashion to medieval maps, perspective technique helps in imagining how the human body conceptually might be set aside by the painter/viewer/discoverer/subject. This would allow a disembodied visual imagination to extend its point of view across a world cartographically laid out in advance. Bird’s-eye-view plans are an intermediate hinge between perspective and cartography that help condition early modern vision, and generate the speculative confidence needed for world discovery. The grid articulates distances, making great expanse manageable in advance, and legitimizes or embodies an imagined “reality” not yet found.

The Renaissance flowering of cartographic activity following rediscovery of Ptolemy’s formulae for map projection is well documented, as are connections between this rediscovery and the oceanic expeditions subsequently undertaken during “The Age of Discovery” (hereafter called Discovery). Ptolemaic perspective, via its transformation into a technique for representation in painting, is also held a contributor to Discovery (Edgerton 1975, 1987; Cosgrove 1984). This second statement, asserting a link between the grid of Renaissance perspective and that of ptolemaic meridians and parallels, has been contested (Alpers 1987). This paper suggests relationships between both types of grid and the optical understandings that guide them. It examines the generation of the individualized confidence needed to undertake a Discovery conceived in advance through certain visual metaphors contained within, and driving both Renaissance perspective and a cartography based on ptolemaic grids.

Alpers' disavowal of a "determining" link (1987, p. 70) between Renaissance perspective and ptolemaic cartography is lent credibility for several reasons. More research remains to be done. Terrain exists for a more considered argumentation of the case for linkage. Arguably, Edgerton (1975) has made the greatest contribution in this area. He makes this suggestion in the introductory and concluding chapters of *The Renaissance Rediscovery of Linear Perspective*, his detailed investigation of the varied origins of Italian Renaissance perspective technique. Elsewhere in the text Edgerton asserts that "In the Florentine mind's eye, all was becoming a matter of scale. Today the painting—and tomorrow the world" (1975, p. 90). Other than drawing the reader's attention to the possible influence of Paolo Toscanelli's letter of 1474 (and the missing map accompanying it) to Fernam Martins, canon of Lisbon, and associate of Columbus, there is no argumentation for ways by which perspective may have played a role in Western voyaging.

This lack is not surprising. Given the destruction and loss of much material that otherwise might have constituted a record of fact, any extant "determining" evidence must arise, in part, from an imaginative resonance in the mind of the researcher—an ability to conceive plausible links between the shards of material that remain (Toscanelli's letter), and the inferences to be drawn from them (Wagner's 1895 reconstruction of the missing map, in Harley 1990, p. 34). Other than in certain suggestive ideas that arise from examining the meaning of the grid, and its role in subsequent perspective and cartographic proto-technologies, the incorporation of evidence as a means of proving the interpenetrating influences of these techniques, while a useful exercise, in itself seems doomed to remain largely unconvincing to a world of enquiry legitimated by the constitution of *fact*.

Finally, however faintly, Alpers' refutation echoes with an insistence on disciplinary distinction. Interdisciplinary implications often seem problematic for academic disciplines to acknowledge. Most researchers acknowledge a connection, for example, between art and cartography but few do more than comment across their disciplinary frontiers (Rees 1980).

A reply to the ongoing question of influences on the Discovery may itself take form in a series of further probes that attempt to relax but not discard the notion that perspective and cartography as events exist as discrete, separately bounded realms, and to suggest a way to examine the microcosmic body of perspective and the macrocosmic world of cartography as complementary processes already conceptually joined, yet *between* which links are impossible to articulate with any certainty. Perspective and cartography depend on the grid—an ancient concept employed, for example, by the Romans in the tradition of the land measurers (*agrimensores*). Perspective and cartography are concerned with proportion, number, and potentially infinite relationships. Both are systems for the imputation of meaning. Unlike medieval representation, they are not saturated with meaning, being explicit in their demand for completion through our according of meaning to them.

During the fifteenth century, a link between visual perception and knowing gains formal expression, as do visual techniques to represent and guide development of this new form of knowledge. The rediscovery of Ptolemy influences fifteenth-century perception through an increasing imposition and interjection of the grid onto representations of the world, and between people and their world. Renaissance linear perspective systematically organizes space visually. It freezes time, makes it accessible at a glance, and redefines it away from a present-centred moment to a movement from past to present to future. Perspective encourages the visualization, and then construction, of relational mental mapping, a causal process that sequentially shifts one's point-of-view from here to there, a progressive movement from the extant position of the body towards the vanishing point at the horizon of the visual gaze that later also will beckon the captains of Discovery. The Discovery is an event, and cartography maps it well, both in advance and after the fact. Perspective pre-conditions the imagination and curious outlook of those individuals who will perform the legwork in making Discovery happen.

Renaissance perspective is an urban viewpoint (Cosgrove 1984, p. 70). Its use meant “that it contained an architectural setting or vista” (Field 1988, p. 253). Bird's-eye views, hybrids between painting and maps, often have cities as their subject matter. When compared to

late medieval antecedents, Renaissance bird's-eye views reveal a change in the point-of-view of the viewer, a vertical shift in power up to the viewer-as-subject, and away from the object of his or her view that now lies below. In perspective's delivering of its unified field of vision to the eye of the beholder, humans trace a path to the place where they may become the measure of things: a role earlier reserved for a medieval God as arbiter of true experience. Painting the picture of this pathway, fixing the world within a single purview, coincides with the rise of a Renaissance Humanist individualism that announces the world can be *used* through the senses of the individual. Linear perspective originates, and is completed in, the eye of the spectator. Distance is implicit. This perspective infinitely extends the range of enquiry of the dispassionate, exploring, scientific individual, and in making this extension, naturalizes these qualities in advance of the implications of the agency they contain.

To Renaissance thought, this Humanized being is “a macrocosm of a universe constructed according to fixed mathematical relationships” (Cosgrove 1984, p. 92). His or her measure can be precisely coordinated within the urban views of quattrocento northern Italian painting as easily as on a map. Perspective maps such as bird's-eye views gain power through their seemingly natural representational structuring of reality. Equally important to discovery of new dominions is a growing sense that individual places individually experienced are the essential constituents of experience.

The Global Body

The distinction between maps and painting was indistinct in the European medieval period, a time when few people used or understood maps (Harvey 1991), though they were not unknown. The most common medieval map was the *mappamundi*, a map of the world or *orbis terrarum*. *Mappaemundi* were multivalent symbols saturated with Christian moral and religious meaning, devotional instruments that also recorded geographic and encyclopedic information. The Ebstorf *mappamundi* (ca. 1240 AD), named after the Benedictine nunnery of Ebstorf in Lower Saxony (Harley 1990, p. 11), explicitly embraces Christian symbolism (Rees 1980, p. 65). As a

mnemonic body of Christ, this T-O map (*orbis terrarum*) embodies not only the values that underlay medieval avoidance of ocean travel beyond the pillars of Hercules, but also understandings about how its medieval viewers were constituted, and how they related to the map.

For Edgerton (1987, p. 29) the Ebstorf map's unique feature is "that Jesus's body is . . . superimposed on the *mappamundi*." I would suggest, however, that the map is superimposed on the body of Christ. The hands emerge from slits in the fabric of the map, as if from the openings of a garment. The body-referencing eucharistic world is a textured cloak the Saviour wears and carries with Him. The Ebstorf map symbolizes the salvation of the world (Woodward 1985, p. 515), but also that the world is imbued with the spirit and presence of the Divine. Circular in form, like the communion wafer, the map calls attention to the miracle of transubstantiation, the central and renewing mystery of Catholic teaching in which the wafer becomes the body of Christ. That the medieval mind accords to a painting a value as real as that which it represents (Evernden 1992, pp. 44-45) reflects the logic of transubstantiation. The medieval map "is literally true" (Tomasch 1992, p. 67). Images are animated by something beyond the viewing self, and are not mimesis, for they participate with/in nature. Paintings, including the Ebstorf map, are virtually reality. In their *becoming* the world they represent, they offer an understanding of that world that dissolves what now is called the subject-object dichotomy. If the world is coeval to the body of Christ, then the map depicting the earth is as complete as the earth itself (Edgerton 1987, p. 29). There is nothing more. The *ne plus ultra* at the pillars of Hercules (on the Ebstorf map the upturned feet of Christ) was *proof* to any devout mariner against sailing across the western sea. The Ebstorf map instructs that one would have been abandoning the body of Christ and heading no-where, a kind of self-imposed excommunication from a belief system teaching that God "always was, always will be, and always remains the same."

How to contemplate the experience of devotees making and looking at maps like Ebstorf? The accordance of virtually real character to medieval representation has been noted. The medieval artist was unconcerned with depth, and "considered himself not detached and

outside the things he was depicting, but rather among them, as if he himself were right ‘in’ the picture surface” (Edgerton 1987, p. 38). From this radically interiorized position, the painter saw each compositional element separately and independently (Edgerton 1975, p. 21). Panofsky reasoned that what might today be judged a medieval inability to render homogeneous, uniform space, flowed from artistic concordance with Aristotle’s belief that space was discontinuous and finite (Edgerton 1975, p. 159).

Not unlike how we receive sound, medieval artists were absorbed and centred within the visual world they were representing. This does not imply a static, timeless position for the viewer. As Harvey (1991) notes, such maps were made to be seen from several directions at once. The Ebstorf map reaffirms that such *mappaemundi* cannot be taken in by any one viewer in a single glance. It takes time to take in this map's information, and the viewer must move his or her body through space in doing so. Inclusion of time as a factor in viewing concurs with the Hereford *mappamundi*’s (ca. 1280 AD) own author having referred to this earlier map as a history (Woodward 1985, p. 514).

The viewer of a *mappamundi* was also likely in a church. The Ebstorf map served either as an altarpiece or hung behind the altar (Thrower 1972, p. 32). Discussing the presentation of scripture in religious art, art historian Norm Bryson (1983) suggests such images form part of a total world where “the body is enclosed on all sides and addressed in all dimensions. . . . [t]he spectator . . . is constructed as a physical, ambient witness to the Sacred Word; he is not yet the optically specified and disembodied presence he will later become” (p. 96). Clearly a finite, discontinuous medieval sense of space in no way prevented the richly textural yet multiple understandings of the world to which these visions bear witness. The events and places they inscribe form a unity before Christ. They show the reach of spiritual and temporal power of the age (Schulz 1970, p. 447). The viewer’s bodily movement in making sense of the image acknowledges the spatio-temporal continuum of God’s domain contained within and depicted by the map. For example, ancient Carthage is shown. One might even say Carthage lives. The past remains a *place* amenable to geographical representation.

The Ebstorf map expresses a cyclical vision of life through its deeply symbolic style, and its use of multiple point-of-view. Later, the Renaissance version of past, present and future will dovetail more snugly with an individual understanding of the reality of the body that moves from birth to death. The medieval meta-physical conception, while not refuting individual progression through space (indeed incorporating it), has a communal sense of culture gained from being witness at countless births and deaths, changes of season, and passages of the planets in the sky. Renewal and destruction are part of this world-without-end, and not yet the discrete book-ends a post-Renaissance individual will place before and after linear personal experience.

The Ebstorf *mappamundi* is Christ incarnate on this earth. Substance and form here are not the separated phenomena they will later become. Other medieval *mappaemundi*, not unlike Scripture revealed, also were meant to be interpreted. The Hereford map is a world as the realm of death—M O R S encircles the world-as-wafer. Yet this does not contradict the message of the Ebstorf map. If there is such a thing as medieval “world picture,” it is one of multivalent ambiguity (more than only a duality of signs in art) within which a form of synthesis is always possible. That the plague-ridden world is a garment on which is embroidered the beauty and art of Christ is not inimical to the limitations that circle the form of the human body reminding us that *this too will pass*.

The Ebstorf map employs multiple bodily meanings. Rivers resemble the arteries of the circulatory system of the human body. The entire compendium of details reveals a sinewy organicity. Africa on the Ebstorf and Hereford *mappaemundi* is bordered by a series of humanoid and fantastical creatures. While Moderns might now conceive of these as others or aliens, in the thirteenth century they remain part of the wafer-world. Only after Europeans begin their discovery of the world will alien representations move to the margins of the now-squared map-face, at one remove from the main body of the image. There, beyond the border of gridded experience, the alien will be encountered. By incorporating the alien within the world, the Ebstorf and Hereford *mappaemundi* acknowledge the savage as a reflection of who we imagine we once were, or have the potential to become (Romanyshyn 1989, p. 19). Incorporating these

figures also inscribes a belief that “as there were no limits to God’s power there could be no rightful bounds to Christendom’s geographical sway” (Tomasch 1992, p. 79). But the alien is also the image of the ancestor, the child is father to the man. This circular understanding of events will straighten out into the linear alienation of the externalized other, who will be situated along the pathway leading the eye to Renaissance perspective’s vanishing point. The medieval visual world, what we see when, somewhat as in viewing a Cubist painting, we orient ourselves to objects from all sides, will yield to what Gibson (1950, pp. 26-28) calls the bounded visual field of visual space—what we perceive when we fixate with the eyes.

Figure 2 suggests something of this visual world as perceived by the late medieval mind. Rudimentary perspective is present, an illusion of depth is rendered by side views of buildings and heightened through positioning details conceptually further from the viewer higher along the vertical axis of the canvas. The modern eye, conditioned by a perspectival technique introduced by Brunelleschi only after 1425, finds these depictions cluttered, and mistakenly labels them as conceived in error (Rees 1980, p. 65). But this later eye is stationary, its view framed behind the coordinating, gridded, or veiled window of linear one-point perspective. Alberti was the first to codify in his 1436 treatise *De pictura*. This eye is not walking about the city. Johannes’ *View of Venice* conveys movement and activity, both on the viewers’ part, and on the part of the rest of the world, as captured in the conflicting, juxtaposed, yet coherent positionings within the frame of the canvas. A modern sense of individuality, requiring us to freeze time so that our finite abilities may be permitted the illusion of taking the entire measure of things, is not supported by images like this, which testify that “planes of truth that we see as distinct and clashing . . . were seen as concurrent parts of a harmonious whole” (Rees 1980, p. 65). *View of Venice* imparts what it might have been like to be *in* the town, a position that challenges individuality (Edgerton 1984, pp. 90-92; Romanyshyn 1989, pp. 35-38) in the lack of distance and, hence, lack of personal control over space it portends.

Owen Barfield (1977) offers the harp as a metaphor for medieval experience. The earliest windows “were designed not for letting in the light and keeping out the air, but for letting in both

of them together. In fact the word ‘window’ is a corruption of ‘wind-eye’” (p. 66). The wind makes a sound of its own, but in the harp’s strings it echoes or imitates itself as it agitates the wind-harp. The harp has neither inside nor hidden dimension. Its medium is the air that enters and leaves the body continually, and is the source of human inspiration (p. 72).

David Lindberg documents well Leonardo Da Vinci's comparison of the eye to a *camera obscura* (1976, pp. 164-68). Though the device may have been known as early as fifth-century B.C. China, and certainly by Al-Hazen in the tenth century (Hammond 1981, pp. 1-3), Barfield nominates it as a fitting emblem for Renaissance enquiry. The *camera obscura*’s tiny window on the world is instrumental in bringing about the human mind's distancing or bracketing of its relationship to what now becomes “environment.” The *camera obscura* is part of the reality it represents (1977, p. 69), in that, for the Renaissance, Nature lay both beyond and within the individual. Its medium is light, entering the body at the eye. Of all the senses, we can block off information the eye receives most easily. Like the modern individual, this camera has an inside hidden from view. The camera receives stimuli and responds in kind, introducing a cognitive paradigm for moulding individual awareness of sequential causality and distance as supposed aspects of our ability to judge. For Barfield, the medieval act of imitation, as expressed in painting (The Imitation of Christ, in the Aristotelian sense of how things *ought* to be), is reduced by Renaissance perspective to a technique of copying: a pattern that counts, that we can view but are not required to feel. Joan Gadol notes that “[p]erspectival art restored and expressed the theoretical outlook in which objectivity is attributed, not to perceptual experience, but to the abstract, general rules which reason discovers in it, those ‘first principles’ which man discerns ‘in Nature’” (1969, p. 69).

This change is anticipated by Roger Bacon in his *Opus majus* (ca. 1260). He recommends elevating geometry as a means of accessing

the *ineffable* beauty of the divine wisdom . . . [so that] at length after the restoration of the New Jerusalem we should enter a larger house decorated with a fuller glory. Surely the mere vision perceptible to our senses would be beautiful, but more beautiful since we should see in our presence the form of our truth, but most beautiful since aroused by the

visible instruments we should rejoice in contemplating the spiritual and literal meaning of Scripture. (in Edgerton 1975, p. 18, emphasis added)

Bacon's proposal is a gamble: stringing a sight-line to render the world of sound and silence visible. In opposition to the immediacy of the medieval auditory world, understanding is to be gained by examining things at the distance that visual inspection requires. It will be reasoned that God's existence logically negates a void implicit in the finite. The world will cease to be understood as finite. The way will be paved for infinite space (Edgerton 1975, p. 18), a conception that favours the grid in imposing order on such a conceptually vast and challenging metapossession.

The Grid

Ptolemy's eight-book *Geographia* was rediscovered in 1400 and translated into Latin ca. 1406. Book One recounts two methods for mapping a flat surface, and outlines a way to conceptualize these representations given a spherical Earth. Ptolemaic mapping relates astronomical observations to the laying of a grid across the convex surface area to be mapped. The lines of the grid then can be numbered consecutively according to meridians and parallels, longitude and latitude. Any point can be identified as separate from any other, though each is interrelated to all other conceptual points by virtue of being equally enmeshed within the grid.

Book Seven presents a third explanation. It outlines a geometrical projection that, arguably, is akin to linear perspective as an aid to making two-dimensional maps as representative as possible of the earth's curved surface. This method differs from Book One's, for here "we see the earth drawn from space" (Woodward 1989, p. 10). This method anticipates Renaissance perspective as a pictorial assist to map makers and users, an aid to transforming a three-dimensional world of places into a spatialized two-dimensional flatworld. Though we see the earth as if from space, still "[t]he viewer was asked to look at the globe as he would a conventional picture—at eye level from a fixed point of observation" (Rees 1980, p. 67). Only with the rediscovery of *Geographia*, lost to Western knowledge for 1,200 years, could this third

concept, one that exchanges the assumed horizontality of cartography for the verticality of perspective, be put to paper. It becomes easier to conceptualize that if cartography can be made to stand up, if it can be envisioned as a two-dimensional vertical plane, then perspective equally can be induced to recline, thereby relaxing one assumed spatial distinction between these technologies, or in Edgerton's words, "linking the celestial to the earthly sphere" (1987, p.37).

Ptolemy intended to represent a systematized relationship between the different geographical features of the earth. Renaissance minds found wider uses latent in the method. McLuhan and McLuhan (1988, p. 101), referring to Renaissance perspective, note that

[r]etrieval is not simply a matter of hauling the old thing back onto stage holus-bolus. Some translation or metamorphosis is necessary to place it into relation to the new ground—as anyone can testify who has experienced "revivals" in our culture, whether in fashion or music or any other form. The old thing is brought up to date, as it were.

Svetlana Alpers, writing of seventeenth-century Dutch art and cartography—a period when the outcome of developments described below had become more apparent than during the quattrocento—asserts that "the Ptolemaic grid . . . must be distinguished from . . . the perspective grid" (1987, p. 71), because, in part, the former is a view from nowhere. As Rees has noted, this view from nowhere is, in fact, always located. What I take to be Alpers' focus on the impossibility of an embodied viewer in ptolemaic point-of-view versus that of Albertian perspective fails to consider that "nowhere" really means that no representative body is intended to stand in direct relationship to the ptolemaic grid. This emphasis on "nowhere" minimizes the power of the imaginative viewer to engage concretely with Ptolemy's proposals from where he or she is standing, and to appropriate them for use "elsewhere." Rees argues that "the Ptolemaic network of meridians and parallels was the model for the scaled, checkerboard pavement of Alberti's 'construzione legittima' of 1435 that was used to determine relative positions" (1980, p. 68). Edgerton has suggested that one of *Geographia*'s inspirations may have been Ptolemy's interest in a theatrical illusion of Greek stage design, specifically how an image seen through an open doorway at the rear of the stage could be rendered as if at a considerable distance. Book

Seven's view from space was meant to represent the known world "as if seen behind and within the 'proscenium' of the celestial circles" (Edgerton 1987, p. 37).

Such a conception prefigures Shakespeare's remark that "all the world's a stage," but if the Bard was correct, where then are viewers physically located, given their dual positions as holistic planetary beings and as viewers looking at themselves? The Ebstorf map's medieval viewer could take consolation from the place-centred specificity reinforced through his or her taking part in the robe of Christ. The world as a robe speaks to human physical need for warmth and shelter.

Early Renaissance perspective painting is theatrical. Perfectly proportioned urban exteriors and views often are peopled by saints or sumptuously attired nobility. Wealth proceeds in tandem with faith. But these paintings are also technical essays into the nature of what they represent, their technique very much a surface examination of visual appearances (see Spencer, p. 17, in Alberti 1956). The detailed treatment of surface details, combined with the procession of finery, may permit an inadvertent devaluation of the sheltering symbolism contained in the idea of Christ's medieval world-garment. Clothing alone may no longer seem adequate to shield the body from continual visual inspection that now comes from many individuated quarters. There may arise within the viewer a need to exit to an off-stage Green Room of one's own, inside the box of the *camera obscura*, behind the "window-as-grid" that Alberti will posit as a central technique in grasping this Realistic method of imaging (see Figure 5).

But what of the nature of the performance to be staged upon the grid? A conceptually uniform overlay presupposes a uniform topic, and denies embodied places by freezing them in the arbitrary moment in time represented by the solitary and removed viewing position the grid is intended to serve. Everything is connected up in advance in a presumption of the unity of the space it covers (Carter 1988, p. 204). When space is depicted only visually, it is reduced to pure dimension, and the places of the world to a multiplicity of things. The grid plots the "form of our truth" Roger Bacon had wished to attain through visual inspection. But if the grid might yield up knowledge through quantitative comparisons between coordinates, for this to be useful, the

observer's physical position would have to be severed from his or her topographical siting. To gain the access to knowledge via the progressive direction and comparative dimension that the marriage of the grid to visual representation would suggest feasible, it would first be necessary to alienate the sense of vision from the body. Extending Alpers, one might even say that Ptolemy had anticipated dispensing with the body. Renaissance cartographic and perspective representation implies something akin to an out-of-body experience, as if the eye were a visual machine located at the end of a very long co-axial cable attached to the body. Though with Alberti the eye's distance from the canvas is the function of a strict set of mathematical prescriptions designed to ensure harmony, proportion and dignity, this eye now begins either to float in space above the map or before the painting. Both forms of representation become the extended territory the eye surveys.

There is a central paradox, a price to be paid, in the Renaissance recycling of Ptolemy's ideas. Fifteenth-century cartography likely concurred with Ptolemy's vision. However, if Book Seven's techniques were to be applied to perspective painting, the human body would become the focus of perspective and subject to scientific visual inspection. The body-as-object (and by extension humanity) would become subject to, even inscribed by, the laws of technique that are intended to render nature more subject to human control.

If there is movement here in the demarcation between nature and culture, it occurs at the site of the body. "The body and its actions . . . have a richly ambiguous social meaning. They can be made to emphasize perceived distinctions between nature or culture as the need arises, or to reconcile them" (Marvin 1988, p. 110). Commenting on a quattrocento understanding of nature, Spencer notes that "Nature, defined as all that is outside the individual and of which he is also a part, is homogeneous and amorphous" (in Alberti 1956, p.18). This "natural" ambiguity, I suggest, allowed Renaissance perspective to place the body-as-object in the same category as nature-as-object. It is possible this worked to undermine a distinction Ptolemy would appear to have assumed between man and nature in his description of his third method. However, it was

the Renaissance that put his theory to the test, in the process learning how to look back upon the human body as a thing.

One might say that the Ebstorf *mappamundi* exemplifies the real (Christ) being cloaked by a (mundane) method of understanding. The same might be argued for the superimposed method of the grid, except that the world-garment of Christ on Ebstorf is itself now a thing cloaked by the grid in an additional weave of unbreakable, infinitely repeatable pattern to which nature is bound. Such an ordered repeatability was infinitely reassuring. Discussing the work of Da Vinci, Cosgrove notes that the Renaissance application of human reason is

suggested to reveal a world whereby God had created the world and man in a consistent and orderly way . . . Proportion and balance produced a harmony which underlay the form and motion of all creation. It was through measurement . . . that the proportion and harmony of the universe could best be apprehended. (1984, p. 84)

Though the Ebstorf *mappamundi* and Renaissance cultural production both organize a Glory to God, on the newly coordinated Renaissance stage there is a marked reduction in inherent meaning. Unlike Ebstorf-as-experience, meaning becomes an event, brought to Renaissance production from separate locations determined by individuated viewers' separate co-axial viewing identities. Unlike Ebstorf, the concrete meaning of the body is not acknowledged, even as its surfaces are relentlessly scrutinized for their relationship to a perfect, proportional harmony within the larger world. The eye of the artist/subject imposes the sense of order with help from the grid.

The late-medieval and Renaissance periods were concerned to find a way to better know the nature of things. Meanings were on shaky ground following the Crusades. Cyclical waves of bubonic plague decimated populations. A new light was needed to guide the faithful, an illuminated signpost to direct events along the right path. As a radical solution to the late-medieval quest for greater understanding of man's environment, the world first is emptied of meaning, so that a new order might then be mapped onto its symbolically bite-sized, yet infinite surface. By the beginning of the sixteenth century

the new grid cartography . . . tended to reinforce faith in the divine mission of Christianity . . . [and] had become in its own right a talismanic symbol of Christian authority . . . believed to exude moral power, as expressing nothing less than the will of the Almighty to bring all human beings to the worship of Christ under European cultural domination. (Edgerton 1987, pp. 11-12)

What is suggested is nothing less than the uniform topic cartography presupposes. What remains unresolved is how individuals might have an imaginative stake within this new order that will privilege an individualism ironically defined and located through number and relational coordination.

The Carto-Spective Hinge of Bird's-eye Views

Imagine you are looking at a coordinated map of a city's central area. You are standing either directly before or slightly to one side looking down at it as it lies flat before you. Next, picture yourself standing before a painting of this city, rendered in unitary perspective. In the foreground are the largest buildings. The ones at a distance diminish in size as transversals along the ground line increasingly converge the closer they get to the vanishing point. An illusion of depth is created for you through relating each object in the image not only to your position, but also to all other objects in the painting. Everything is uniform and measurable, including yourself (as in Schön, Figure 1).

Now, consider *Plan of Florence* (Figure 3) and the artist in the bottom right foreground. For purposes of an optical education, ca. 1480, the young man sketching Florence is you. His inclusion in the painting is a device to condition your understanding of space. Though he is to the right, and apparently beneath you, ideologically your position and his are as one.

The vantage point in Johannes' earlier *View of Venice* was elevated and drawn from “church-tower” perspective (Rees 1980, p. 69), but here we are much higher and more removed from the subject matter. The city is beneath and before us, even if the technique limits showing all its many places.

Finally, still situated above the city, make the quick ascent to the position of the aerial viewer of *Bird's-eye-view Plan* (1500), attributed to Jacopo de'Barbari (Figure 4). Later view plans of Venice such as Matthaeus Merian the Elder's (1638) will lower their sights and drop elevation slightly. In Willem Blaeu's 1614 multiple perspective elevation of Venice the viewing position is actually lower than in Johannes' ca. 1400 painting, though the image is viewed from such a great horizontal distance that the eyes take in the requisite information in one fell swoop.

Earlier views such as Johannes' were empirically inaccurate. Visual fidelity was not their overriding concern. Orthogonal foreshortening created errors of scale that increased commensurately with the area they attempted to image (Rees 1980, p. 69). Yet foreshortening allowed these images to resonate with the verticality of the body. Accuracy could be augmented only if rendered from an abstracted or airborne position. The growing reliance on a horizontal alignment of the image that this more aerial version of accuracy requires, concords with the increasing awareness of the vastness of the Earth's surface transmitted to European centres of map-making via the voyages of Discovery of the late fifteenth and early sixteenth centuries. By 1500, bird's-eye views are sky-high. By 1522, Magellan's expedition circumnavigates the globe.

The lowering of point-of-view in seventeenth-century panoramas and views reflects a world and nature beginning to yield to human control. Though heavenly situated views continue to be produced, the aerial surveillance implied by Jacopo's *Bird's-eye-view Plan* starts to be relaxed, in part because his theatricality has succeeded in its goal. Image by image the Renaissance eye has been taken higher. At each step the increased purview is less important than the incremental conditioning of the detached eye to learn to map, to read an increasingly distant world as detached. It would be misleading to suggest any strict causality here. In Braun and Hogenberg's *Civitates orbis terrarum*, for example, views such as Dordrecht (1575) are rendered from a lower vantage point than, say, that of Aachen (1576), which is almost pure plan (Goss, 1993). Allowance also must be made for regional variations in style due to preferences, patron or client requirements, and time taken to disseminate techniques of representation spatially. However, as the eye learns to read the world as detached, and as methods of rendering distance

from any point-of-view are perfected and disseminated to the point where distance becomes a methodology, techniques such as bird's-eye views, while retaining saliency, somewhat relax, without dispensing with, their aerial orientation. They begin to incorporate more frequently both plans and elevations. The task of training the eye to be distant from, yet curious about, what lies before it is largely accomplished.

There is at least one other interpretation of Jacopo's efforts. *Bird's-eye-view Plan* can be read as a flight of fancy. Jacopo is moved to produce this masterpiece, in part, because he can. His sophisticated perspectival illusion is an act of technical virtuosity, a pre-Nietzschean exercise in the will to power. The surveillance possibilities of Jacopo's aerial positioning converge with the absolutism of unitary perspective. This absolutism insists on its primacy and breaks with the “frustrations” of medieval multivalency. Blaeu's 1614 elevation demonstrates the enhanced sophistication of a reformulated multiple perspective. This later technique evolved from Alberti's “legitimate construction,” but the reintroduction of anything suggesting multiplicity becomes possible only when a society has attained sufficient power and influence that important things—the things that matter—are felt to be already under absolute control.

Returning to the vantage point Jacopo creates, we are so high up that in order to sense the depth of the subject matter positioned below and ahead of us, the city is presented as if on a raked stage. The “rear” or top portion of the image of the woodcut is raised, as if its foreground were on a hinge, so that we can make sense of what is shown. We have the sensation of being almost directly on top of the city, and are not far from Da Vinci's 1502 mathematized city view of Imola, a “true logical copy” (Gadol 1969, p. 180), that dispenses with church-tower perspective and exemplifies the cross-over to pure *plan*. As disincorporated eyeballs floating in space, we are almost able to rotate on the imaginary co-axial cable that connects us to our earth-body. We have almost achieved the same parallel, frontal viewing relationship with cartography as already established with perspective painting. With *Plan of Imola* Da Vinci fuses the measurement of cartography with the art of drawing.

By eliminating the need to suggest three dimensionality, by “raising the viewpoint from oblique to vertical, the artist-cartographers of the Renaissance initiated practices that ironically would allow cartography to dispense with their services” (Rees 1980, p. 71). Perspective’s vertical representation, a static but peopled urban devotional technique, gives way to horizontal, infinite space. The canvas of unitary perspective pivots down from a vertical stance to a horizontal position, but only after the body has learned how to relate to this new form. In a sense one walks before one flies, but more precisely, the re-orientation of medieval embodied vision to a cartographic optical overview offers a bridging symbolism that helps position the Renaissance body within a world of visually ordered cartographized space. With Jacopo, we are almost ready to be guided downward through the image, and passing through the vanishing point, to discover the infinite space of the cartographic map. Renaissance man’s passage into cartography is eased by the perspectival practice of painting the human body behind or in a grid, making it the focus of geometric attention. But in fixing the body as a spectacle for the measuring eye, the relationship between the body and its context is broken (Romanyshyn 1989, p. 116).

With Renaissance bird’s-eye views, space is made visible in a precise and orderly fashion (Harley 1988, p. 292), and it is possible to believe one sees all. Whether bird’s-eye views are a precursor to a cartographic view that extends from nowhere or everywhere, or part of a more general “extending” and disembodied view evolving at this time, one thing is sure. Bird’s-eye views are the view of no-body. Such a view suggests a horizontal world-without-end made possible by shifting the vertical picture-like position of Ptolemy’s third method so that it reclines in a modern cartographic fashion.

The critical device within this method to which Alberti gave fifteenth-century definition was the vanishing point, a convergence at which parallel edges of objects, stretching away from the eyes of the viewer, appear to join. Positioning the vanishing point along both vertical and horizontal axes allowed for the possibility of different vistas along which to organize things represented on canvas, while maintaining both the integrity of proportional relationships between these things, and delivering up the entire image to the eyes of the viewer. Wherever the

vanishing point is located, the illusion of depth produces the effect of an avenue, a road, or track along which things move. Objects no longer float in space as they sometimes appeared to in medieval images, but the trade-off is a momentary freezing in time. The great stillness, and sense of calm in Renaissance devotional art, seems at time's expense, perhaps initially less an issue when ostensibly the subject matter is Divine. This stillness arises, in part, from the body-as-object which retains no capacity to appear as anything but static. This lack of temporal dynamic is compensated for by the introduction of a spatial continuum which the avenue or road suggests. Though the body is frozen, the eye is free to track the different objects arrayed along this transit, and even to speculate about what might lie through and beyond the vanishing point. It understands the vanishing point merely to represent on canvas our inability to see beyond the horizon, over the next tall hill. Though the role of this device is now understood, before its introduction Western art never directed attention to what might lie beyond its own representation. In the Ebstorf *mappamundi*, as in transubstantiation, God and material meld. The *mappamundi* is not a-part from the whole. The irony of perspective is that in its original conception as a pure, uncluttered devotional access/axis to God, a distance, or distancing void, is created. The division of the whole into parts, which the squares of the grid visually exemplify, makes access to this God not only less immediate, but also, and at the same time, a central issue of spatial concern.

In contradistinction to a purer Judeo-Christian theology that posits the creator as distinct from His things, the Ebstorf map could be said to retain the pagan notion that the Cosmos also resides in the thing. Separated from the Divine immediacy that Ebstorf created and which was its contribution to an earlier piety, how is the devout Renaissance individual to *find* God, if the order of the grid now mirrors the proportion and divine beauty of the cosmos? The obvious place to start is “on the road.”

The grid is not unlike the automobile Illich (1973) describes in *Tools for Conviviality*. It can be argued that rather than being a tool to span distances, it creates them. In its coming to be, it causes the fashioning of a world of distance in order to justify its existence. In unitary

perspective, the effect of distance has more than one outcome. There is distance between the objects in the painting. Depth is suggested through a shrinking of the size of the body. The further away the depicted body is proposed to lie from the position of the viewer, the smaller it will be rendered. In medieval art the size of the object indicated its status. Things were not depicted as recorded on the retina but as perceived, in the sense of being judged or valued (Hall 1966, pp. 78-80). But in Renaissance art the foreground is the privileged arena. The viewer may infer that things in the background are less important because they are smaller. Judging between things based on purely visual criteria of surfaces starts to make sense.

A second effect of distance concerns the extended object of the gaze as it is directed to the vanishing point. Though the foreground of the canvas commands visual attention because of the proportion of surface area given over to objects, the vanishing point does not coincide with a foreground object, the gaze can be split and also pulled towards this point that lies conceptually to the “rear” of the image. As the gaze scans objects of decreasing size and importance, it finally reaches the vanishing point. This point suggests an infinite continuation of the world which, save for the limitations of the canvas would and could be shown in full. The vanishing point also suggests that the things within this world positioned at points beyond the canvas’ ability to represent them would all be relatively tiny, no larger than what might be represented or visually discerned just this side of the vanishing point of the image. Things beyond the vanishing point might even shrink to nothing. A creative ambiguity is introduced here. The viewer is encouraged to gaze out over a landscape that may appear headed for insignificance, or appear less important than the foreground which seems closer to our viewing position. Yet its reduction must also be a factor in any human imagining of its conquest. Figure 6, for example, resolves this by blocking a view of this point with the base of the foregrounded bust.

This tension also may be partially resolved through a second set of relationships created by the positioning of the body of the viewer with respect to the canvas. If objects shrink in importance as they recede from view, what of the viewer who, in the opposite direction, also is some distance from the objects positioned in the foreground of the image? One might even say

this is a conscious devotional agenda of this technique. As Pedretti notes, Brunelleschi's *perspectiva artificialis*—the inspiration for Albertian one-point perspective—“was still considered the only correct system of perspective” late in the sixteenth century (Pedretti 1964, p. 172). Within this system, the primacy of iconic depiction depends on the position of the viewer being fixed in space, but this also causes her or him to be conceptually smaller and less significant than the foregrounded bodies-as-objects perspective delivers along the viewer’s line of sight. To such a consideration should be appended the alienating dimension of Hieronymous Rodler’s veiled window.

From the position of the viewer behind the imaginary window, to the diminishing importance of the discrete objects placed in decreasing size along the lines that lead to the vanishing point, to the infinite number of things that might lie beyond it, objects (including the body of the viewer) are laid out on a line, a continuum of distance running from the self through the intermediary canvas to infinity. This is one, though not the only, logical result of the late medieval search for a more adequate way of understanding natural processes. Things are “explained,” laid out on a flat surface and opened up (Ong 1977, p. 134). The genius of perspective is to organize this in linear fashion. Its inadvertency is to suggest our position on this line, though the Albertian veil (Figure 5) also functions to partially shield the artist/viewer from too close an inspection that might be directed not outward from the self, as modern subjectivity might first assume, but from any other individual point-of-view “out there” along the line of vision that could be “reversed” back in the direction of the viewer. Behind this window the self is an observing subject. The window helps cleanse the world of imputed meanings, and transforms it to an object of vision (Romanyshyn 1989, p. 42). This transformation of the world differs from the medieval ambiguity between image and reality. Rather, it substitutes or reduces reality—be this Christ or “nature”—to image, whereupon this image is made to suggest to the subject new ways to conceive of reality. This dynamic is alluded to by Rosalind Krauss in her essay *Grids*. Within grids, the window is the

matrix of ambi- or multi-valence, and the bars of the windows—the grid—are what help us to see, to focus on, this matrix. . . . they function as the multi-level representative through which the work of art can allude, and even reconstitute, the forms of Being. (1980, p. 6)

Perspective is referenced visually, not texturally in the sense that would entice our touch. A movement arises within Renaissance painting that de-emphasizes the surface-as-texture. Gold leaf and other distracting adornments are abandoned. Painting techniques reach levels of sophistication and refinement such that the eye may dance across the image as if the surface itself had dissolved. This demands a detached visual sense, one requiring not texture, but reasoned proportion and line to efficiently guide inspection and eye movement.

When things are explained, they have been set apart from each other (Ong 1977, pp. 139-40). The disentanglement of medieval sense from significance has required this parsing operation. What was previously unknown is now made visible. The greater role of auditory culture to the medieval mind, one that produced what the modern eye judges as visual clutter in medieval artwork, but also one that inherently melded the consumer of the image to that which the image represents, now yields to a more illuminated inspection that sheds technical light on what previously were mysteries of the world.

One implication for the viewer is seen in Schön's visual metaphor (Figure 1), or in the amazing drawings of Francesco Di Giorgio, in which people are subsumed within entablatures, columns and other architectural elevations and sundry imaginary machinery (see Scaglia 1993, pp. 199, 212, 221, 245). For Schön and Di Giorgio the grid suggests the iron cage of logic. The lines of perspective have reversed direction back to the viewer, enmeshing her or him within their coordinated, equalizing net. The viewer becomes an object in coordinated space to be examined and scientifically explained. Bryson (1983) writes that when gazing at a perspective painting “something is looking at my looking: a gaze . . . whose vista I can imagine only by reversing my own, by inverting the perspective before me, and by imagining my own gaze as the new, palindromic point of disappearance on the horizon” (p. 106). For Bryson this is how the new Albertian space “returns the body to itself in its own image, as a measurable, visible,

objectified unit,” and how perspective, conceived “in an atmosphere of religious witness . . . solidifies a form which will provide the viewing subject with the first of its ‘objective’ identities” (p. 107). In Figure 6 the truncated figure gazes back at his viewers, as they also look beyond him to glimpse the miniaturized Edenic other-world beyond the arcade within which this “palindromic” gaze is situated and attends.

As a technique, perspective helps initiate a chain of investigations into natural processes by conceptually suggesting a way to illuminate the world. It visually organizes the now-discrete things within it so that they might more clearly reveal their benefit or danger to man. Yet as an exemplar of representative art, unitary perspective manifests a cultural fascination to produce an ever-more-perfect representation of the surface of things. Bryson (1983, p. 7) has written about this as the West’s search for an “essential copy.” The logical outcome of this (after passing through the vanishing point?) is a merging of image with reality, the practical effect being a substitution of visual images for concrete experience in all “walks of life.” What differs here from medieval images is that representation comes to precede or foreground reality, there is a linear temporality at work, unlike the circular simultaneity of medieval devotional art.

For the Renaissance body, with its ancestral memory of cyclical natural calamities, to believe in the Divine inspiration of perspective allows it to more easily embrace the idea of venturing forth, of leaving home, even of finding Roger Bacon's New Jerusalem, even if across the Atlantic. Discovery is made easier still if this body has a dry-run, if it can eye-ball such a possibility conceptually through perspectival art. Yet in doing so, human corporeality is in the process of being discarded (Romanyshyn 1989, p. 19). The floating eye constructs its New Jerusalem in advance of ever leaving town.

The body is not actually physically disowned, yet conceptually this is required to create a space within which the visually stimulated imagination sallies forth, away from the body with all its suffering references to the history of medieval plague and limitation, towards a dealt unknown that must be an improvement over what history reveals to have been nature's hand. This unknown also will be amenable to individual control because it is, as perspective suggests,

still small enough, because beyond the vanishing point, so that it can be preconceived to yield to human agency, a power inherent in the larger size we accord our body-as-object in the foreground of the coordinated line of ex-planation.

The creation of a coordinated distance between things, one that has relational exchange value by virtue of the quantifiable comparisons inherent in the grid, is important in gaining power over nature. It extends and elaborates the natural power of vision to survey things from afar, and elevates that power to a method, a way of knowing (Romanyshyn 1989, p. 33). Hannah Arendt writes that

human surveying capacity . . . can function only if man disentangles himself from all involvement in and concern with the close at hand and withdraws himself to a distance from everything near him. The greater the distance between himself and his surroundings, world or earth, the more he will be able to survey and to measure *and the less will worldly, earth-bound space be left to him*. The fact that the decisive shrinkage of the earth was the consequence of the invention of the airplane, that is, of leaving the surface of the earth altogether, is like a symbol for the general phenomenon that any decrease of terrestrial distance can be won only at the price of putting a decisive distance between man and earth, of alienating man from his immediate earthly surroundings. (1958, p. 251, emphasis added)

Perspective and cartography shrink the earth. Bird's-eye views and *Plan of Imola* prefigure flight (one of Da Vinci's great interests). Arendt targets the boomerang effect of visual investigation. It introduces a displacement that concurs with perspective's forward sense of spatial motion. *Ne plus ultra* is stripped of its sacred association, reduced to one more profane site on the grid.

In detaching vision from embodiment we too are diminished, our left-behind bodies marginalized in similar fashion to that which lies beyond perspective's horizon. This is one reason why it becomes easier for the eye to venture forth. The body that would hold it in place has been reduced to insignificance. Separated from the body, from any point along a line where it is "located," the eye will be able to gaze back or forward on the body, to perform a kind of watching of oneself watching perspectivally. This body will appear smaller in size than if the eye were "back at home," reembodied. What emerges in this contradictory dynamic is an increased curiosity about the margin. The centric line of perspective is a metaphor for a "reality" that can

shrink to a paper-thinness only as high as this horizontal line itself. If this thin line, first seen in Albertian perspective as extending ahead of the vertically oriented body of the self and towards infinity, is looked at from a second point-of-view—that is, if the disembodied eye, now situated high above this horizontal line, and at a point out along it equidistant from his or her original point-of-view and the vanishing point, gazes down upon it, recording what lies along this line in one fell swoop—it (the horizontal line) takes on the infinite dimension thought to be contained within the width of the human gaze. We emerge from a margin or end-zone defined by the verticality of the body, but also by one end of this visual continuum. We come to conceive our interests to lie in investigating the things before us, doing so first, perhaps, along the horizontal line, and finally at its far end and in the new horizontal centres that lie potentially beyond.

Yi-Fu Tuan, writing of the “axial shift” that demarcates the European medieval world view from the modern, has noted the move from a vertically ordered world and universe to a more horizontal set of scientific understandings. These penetrate the “vertical plane” and direct the gaze towards the horizon (1974, pp. 134-35). In spite of the darker possibilities Schön (Figure 1) or Di Giorgio suggest, the dimension of novelty in cartographically sallying forth must not be denied. After centuries of feudal rootedness, perspective views offer an individuating and comforting charm in their progressive, forward novelty, and in their promise to “dictate” the direction to be taken (Carter 1987, p. 172). The notion of margin is important in linking perspective and cartography because it is on or at the margin—that end of the line just described that begins at the subject, and that is required by each of these techniques as a location for viewing—that the modern individual is born. If any thing suggests a missing link between perspective and cartography, it is this individuated location which exemplifies Renaissance spatial repositioning and the establishment of new centres. It becomes somewhat moot to argue which technique first informs the other, but “with the invention of perspective a new way of seeing emerges that is consistent with the central role of the individual” (Evernden 1985, p. 86).

As art, perspective teaches newly emerging individuals what the world will look like from the privacy of their veiled off but measurable coordinates. The geometric primacy of

Renaissance perspective strips natural processes and places of their symbolism and reduces them to things. What remains is a surface shorn of danger and surprise, a blank landscape wherein the farther one casts a perspectival gaze, that is, the farther one conceptually extends the horizon, the more sharpened, like a straight-as-an-arrow highway that joins the horizon as an indivisible point, the convergence of the parallel lines of one's visual field. Da Vinci's refinements to perspective techniques augment the role of distance. Recognizing as early as 1492 that discrepancies in Alberti's method caused distortions in represented objects' breadth and height, Da Vinci proposed, as a corrective, a much narrowed angle of vision. This required painters to position themselves "at a distance twenty times the size of the object" to be represented (Pedretti 1964, p. 169), considerably farther than Alberti had prescribed. Echoing Arendt, Romanynshyn observes that

our knowledge of the earth becomes more precise on the condition that we distance ourselves from it. . . . we assume this habit of distance . . . forgetting the connection between this habit and the kind of convergent knowledge which brings precision. (1989, p. 84)

Distance, as a method of understanding, can render things far afield more beckoning. Though things lying at or beyond an extended horizon may each be small, on the other side of the optical infinity this horizon represents, things no longer recede in size (Hagen 1985, p. 60). In perspective, the farther away these things are from the viewer, the nearer they must be to each other. We do not think about space in this manner, yet have come to see it this way (Barfield 1977, p. 73). This surface is the one on which the world will be cartographically reimagined, printed, distributed and consumed. Though theoretically the grid privileges no one position over any other, the perspectively disembodied eye will remake the grid in its own image. As each mark that delineates an object, place, or event is inscribed along and between the coordinated squares that segregate the flat cartographic surface, and as subsequent map users examine earlier markings and perceive their intention, the real impact of Renaissance perspective on cartography will surface over and over again. This is "not what it did for art per se but how it conditioned the mind's eye to 'see' three-dimensional images a priori" (Edgerton 1991, p. 108).

How the West was Won

Though Ptolemy had knowledge only of the known world of his time, his cartographic methods make clear that he anticipated a “wider” world, and that it would be “susceptible to the same rational, quantitative measurement as the inhabited world” (Edgerton 1987, p. 36). Evernden, noting Da Vinci's contribution to rethinking of natural processes, writes that he “had to show us what this new world looked like before we could begin to investigate it; he made it real. Indeed, he made it the definition of the real” (1992, p. 70). Edgerton's discussion (1987, p. 48) of Da Vinci's *Man in a Circle and a Square* supports the suggestion that this newly spatialized nature will be at the margin of human experience. The limbs of this man point to the edges of the paper, the old centre is deemphasized. In pointing towards the margins of his own illustration, this man points towards us—the new multiple and horizontally dispersed centres—even as we are outside looking on. He points not only in the direction of Discovery but, to the degree that the Renaissance body anticipates its own impending marginality, he becomes the signpost pointing in the direction of the individual subject's newly centrifugal birthright: Bacon's New Jerusalem. The maximal extension of the man's limbs towards the margins of the paper, like a compass rose, speaks to the grid's decentring possibilities, its privileging of no one point in particular. To the man, as for cartography, the margins are as important as the centre. Perhaps more so. North, south, east, and west all call him towards the vanishing point and away from *here*.

One might take momentary poetic license and superimpose Leonardo's man on an image of Columbus, the first voyager to view a ptolemaic gridded map “with utter confidence that the depicted ratios of parts to whole corresponded with physical reality” (Edgerton 1991, p. 151). Renaissance man, already more individualized through the new relational dynamics between subject and object that perspective demands and confers, is able geometrically to conceptualize how he can go beyond *ne plus ultra* even for the glory of God. It becomes possible to undertake what would have been a sacrilege to medieval faith, to set forth on a pilgrimage in any direction (Tomasch 1992, p. 89). In *The Mariner's Mirrour* (ca. 1588), after a Dutch work of the same period, a ship sails towards the vanishing point that is obscured by a block of text (see Cohen

1980, p. 166). Astrolabes and quadrants depend from the heavens, as the vessel transits an opening framed by two dividers used to measure map distances. The Pillars of Hercules, the feet of Christ: both are reduced to mathematical instrumentation, as this form of substitution also has released the energy needed to go forth into the wider world.

Once at sea, Columbus' mind's eye will understand that the grid *articulates* all the spaces that will need to be crossed, and that it does so in a way that seems realistic and attainable. It does not minimize distance, but its effect allows a voyage of Discovery to be taken one step at a time, making great distances conceptually manageable. The map lays down an ordered harmony, "a Nature of certainty and reason" (Evernden 1992, p. 78), it calms a stormy sea in advance. Columbus the individual sails forth across the grid, yet his authority already rests on the kind of proto-social consensus contained within the grid that pre-legitimizes a reality not yet Discovered. For such a user the map, at least for a time, must become the territory, replete with all those things that make it attractive, in the sense that its form generates a speculative confidence (Carter 1987, p. 212) that transcends the limits of situated bodily knowledge. The map as territory, as a strategy to help mold a form of spatial agency, is necessary to clear the way for geographic accessibility (Sack 1986, p. 86).

Concluding Remarks

This essay has examined affinities between perspective and cartography with emphasis on any relation therein to Discovery. What if *Geographia* had not been lost to the West for 1,200 years, or if Ptolemy's methods had had greater application in his own era? Alpers (1987) argues that Ptolemy was already a Modern in many respects. The Renaissance classical revival that led to his rediscovery in this case unearthed a radically old way of knowing. To Renaissance Humanism, aware of its recent medieval past, mapping conceptually realized an overcoming of a world view that resisted the movement of places and things. The medieval era suffered from a surfeit of meaning that may have weighed too heavily on its own foundations. The refinement of mapping exemplified by Jacopo represents the increasing ability to move things about at will.

Yet in everyday life people count on things to keep their place. Things remaining in place root human sanity, and give us our place (Romanyshyn 1989, p. 192). When, as in coordinate mapping, it becomes conceptually possible to dislocate things, then it is possible too for us to be displaced. A scant 57 years separate Alberti's *De pictura* from Columbus' 1492 voyage. The rapid displacement of the Renaissance, variously understood as a "paradigm shift" or "cultural revolution," was also a freeing up from the stickiness of encrusted medieval meanings and ritual enactments, and abetted the possibility of Discovery to gestate over such a brief span of progressive time.

Visual technologies such as perspective and cartography help form a dream of transcendence. But first there must be resources to make this possible. In materialist fashion, one might argue that *ne plus ultra* gave expression to the relative material impoverishment of its era, and conclude that the "vision" of the Ebstorf *mappamundi* is fundamentally mundane in its blending of, what seems to modern eyes, a conflicting amalgam of transcendence and place, sacredness and the body. One might also advance the notion that perspective, cartography and Discovery are playthings that accrue to a richer, more confident society. It is well to remember that the latent power of representation of any kind is to guide concrete manifestation of what the representation initially suggests. A people get the technology some of its members imagine, but first there is the technology of the image.

I have attempted to trace a few of the implications flowing from early Renaissance experiments that, arguably, dislocate the body from vision, because I understand the material body, eyes included, to form the basis or actuality of geographic experience from which we negotiate an ongoing and intersubjective relationship with history. I want to save a place within this experience for the medieval richness a purely materialist approach might be tempted to dismiss. As Medievals understood, the body is material. They also knew it was a House of God, wherein, if pure, a culture of faith and humility might take place.

Perspective severed these reciprocal understandings. It prefigured a material individual, ironically made possible by a conceptual de-materializing of point-of-view to a position spatio-

temporally askance from the body's. To such a Modern, perpetually in motion, in two or more places at once, shifting between an active, dis-embodied agency and a passive bodily stance, the flat, virgin surface of cartography combines a perpetual vestibule, a secular and tiled narthex of infinite length, and a lighthouse that signals

W.E.L.C.O.M.E. . .H.O.M.E.

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FIGURE 1. *Erhard Schön, Unnderweissung der Proportzion und Stellung der Possen, Nürnberg, 1542. The perspectival gaze turns back on itself, rendering the human subject as an object of scientific enquiry and placing it within the iron cage of logic. Everything is uniform and measurable, including you. (Special Collections, Memorial Library, University of Wisconsin—Madison)*

FIGURE 2. *View of Venice, by Johannes, ca. 1400. Though rudimentary perspective is present, the immediacy of the viewpoint in relation to the scene depicted, and the multivalent “planes of truth” that do not permit the eye to take in the scene in a single glance, challenge that part of Modern individuality based on a methodology of control through distance and the freezing of time. (Bodleian Library, Oxford)*

FIGURE 3. *Plan of Florence, attributed to Lucantonio degli Uberti, after Francesco Rosselli, ca. 1480. The young man on the bottom right is a device to condition the viewer's understanding of space represented at a distance. “Church-tower” perspective is abandoned. The viewer is no longer in or near the city, which now lies beneath him or her as a thing amenable to possession at a single glance. (Staatliche Museen, Berlin)*

FIGURE 4. *Bird's-eye-view Plan, 1500, attributed to Jacopo de'Barbari. It is as if the image is hinged at the bottom or foreground. Given the viewer's heavenly point-of-view, such a device allows him or her to sense the subject matter's depth. But “where” is the viewer's body located? The disincorporated eye takes in this raked scene, one that prefigures the merger of cartography's horizontal measure with perspective painting's vertical stance. (Museum of Art, Cleveland)*

FIGURE 5. *Hieronymus Rodler and Johann II of Bavaria, Eyn schön nützlich büchlein und underweisung der kunst des Messens mit dem Zirckel, Richtscheidt oder Linial, Nürnberg, 1531. The Albertian window-as-grid separates the artist/subject from the world. The veil is meant to*

focus the outward view of the subject, but also isolates the subject from the discrete world-as-viewed. The veil also implies an interest in this world, satisfied by cutting it up and rendering it less formidable, a situation required for Discovery. (Special Collections, Memorial Library, University of Wisconsin—Madison)

FIGURE 6. Title page of Giacomo Barozzi da Vignola, *Le Due Regole della prospettiva pratica*, 1583. The truncated figure gazes back at us. Our eye is drawn beyond the columns, towards the vanishing point, whose distance renders what lies there more beckoning. The bust beckons vision's curiosity forward, out along the line of perspective, towards new horizons. The gridded arcade suggests the articulation of discrete, manageable spaces necessary for the goals of Discovery to have seemed realistic and attainable. (British Library, London)