# 8

# "'Tis All in Peeces, All Cohaerence Gone"

## *Modern Pictorial Space between Self-Consciousness and World Picture*

### Introduction: breakthrough of the modern pictorial paradigm

THE THIRD DECADE of the 1400s sees the arrival of a new paradigm in European pictorial space. That which, in the Middle Ages, had required at best a thematic trigger if it was to be rendered pictorially, is now with startling suddenness transferred to the landscape image in its totality: a space stretching effortlessly from the close foreground to distant, misty horizons; a time manifested in indicators such as sunlight, seasons, clouds, atmosphere and ruins; and a ground so softened that, in addition to mountains, it allows for the presence of eroded earth and plains. This crumbling ground creates space both for traces of cultivation such as fields, hedges, fences, roads, bridges and mining as well as their opposite, the sublime wilderness totally devoid of human presence. The new landscape paradigm could therefore be said to be stretched between two poles: *realism*, which focuses on humankind's control of nature via work, and *romanticism*, which highlights the superior forces of nature.

As described in chapter 4, this new landscape paradigm can be seen as structurally equivalent to the second stage of the Paradise and Golden Age myths – respectively, the Fall and the fall to the Silver, Bronze and Iron Ages – for in both domains we find: [1] an unrestricted space (as opposed to the previously restricted); [2] a variable time (as opposed to the previously eternal spring); [3] a nature marked by work (as opposed to the previously work-free nature); [4] a diversity of terrains rooted in the plains (as opposed to the previously mountainous ground). In accordance with practice thus far, I shall therefore view modernity's paradigmatic shift as registering a transformation of *field* applicable to Western culture in its totality – the

transformation from the antique-medieval to the modern epistemic *field* or, if you like: from Golden Age *field* to Iron Age *field*. As the Middle Ages proceed, the Golden Age *field* assumes the character of a dam that has to withstand increasing pressure of water. Spatially, it is being pressed by infinity, which in late antiquity was displaced to the heavens, but which in the long run seems incompatible with a hierarchical world picture. Temporally, it is being pressed by a continuous-abstract concept of time, which breaks definitively with the supra-temporal thinking of antiquity. And, in terms of work and power, it is being pressed by a new notion of activity which, rather than polarising society into an upper class relieved of work and an under class composed more or less of slaves, levels out the difference between physical and spiritual pursuits, so that the social status of the citizen is not dependent on blood and privileges, but on occupational contribution.

Even though the pressure of water, stemming from these and many other sources, does not lead to a sudden and dramatic bursting of the dam, there is nevertheless a pronounced restructuring of hitherto applicable values in the period here called the Late Middle Ages: the 11th to 15th centuries. It is from this restructuring that the *field* of modernity emerges. The *field*, which has been in the making since late antiquity (cf. chapter 7), reaches a preliminary peak in the 14th-15th centuries (cf. this and the following chapters), but does not culminate until the 18th-19th centuries after a struggle with what I will here regard as a countercurrent: the Renaissance with its revival of antique values (cf. chapter 9 in particular).

That the Renaissance seems to subdue the manifestation of modernity, including that part of modernity which makes its mark in a new pictorial paradigm, is because the Renaissance, like antiquity, has its fulcrum in an ideal and closed cosmos, including this cosmos' pictorial imprint in an ideal and closed human body. The perspectival landscape image, on the other hand, points per definition beyond the closed form, towards space, time, the particular and – in part – the cultivated: all characteristics that burst the Golden Age paradigm. I must therefore count on a pictorial – and altogether cultural – fault line between northern and southern Europe, stretching from the end of the 15th century to the middle of the 18th century. Currents manifested in Italian pictorial art under the aegis of the Catholic rearmament and Counter Reformation – High Renaissance, Mannerism, Baroque – are, despite the habitually emphasised stylistic differences, all characterised by their focus on one or other form of idealised human body. Conversely, Europe north of the Alps, in so far as it breaks away from Italian Renaissance ideals, would seem to be increasingly controlled by a paradigm that points away from the ideal centrality and out towards the particularised environment.

As cultural evolution ensures that the epistemic *fields* are in constant transformation, what is marked out in early-15th-century painting can be seen as merely

Fig. 8.1. J.M.W. Turner, *Ship in Stormy Weather* (*c.* 1825), watercolour and pencil on paper. London, British Museum.

the first hesitant imprints of modernity's *field*. Its actual pictorial implementation first occurs in a period of which I can here unfortunately only sketch a rough outline: modernity's second and mature phase between 1750 and 1900. Even though the principles of an infinite pictorial space are already built-in to the perspective presented by Alberti in *De pictura* in 1435, they are first put to a thorough investigation in the work of Friedrich, Degas and Monet (FIG. 20). The same can be said of the manifestation of time in the landscape image. We might indeed come across effects such as seasonal features and the darkness of night in standard 15th-century landscape images, but Hugo van der Goes was unlikely to have been in a position to fulfil such an extreme mimetic requirement as that expressed by the realist painter Thomas Eakins in a letter sent to his father from Europe (1868): "In a big picture you can see what o'clock it is afternoon or morning if its hot or cold winter or summer [...]. If a man makes a hot day he makes it like a hot day he once saw or is seeing [...]."[2] Ultimately, the in-depth exploration of the landscape's cultivation, or lack of the same, also belongs to the mature modernity. Turner is the first to visualise a sense of the individual's total insignificance in the face of natural forces (FIG. 8.1); and it is not until Millet, Breton and van Gogh that

Fig. 8.2. Jean-François Millet, *L'Angélus* (1857-59), oil on canvas. Paris, Musée d'Orsay.

the human being's status in the cultivated landscape reaches its full ideological potential (FIG. 8.2).

Were we to clarify this pictorial development in relation to a concept that combines its temporal and spatial consequences, we could say that it concerns an accelerating approach to the *momentary sight*: the transient individual gaze born of the instant and looking from the close here to the distant there. In order to realise this gaze in images, one has to relinquish definitively the hierarchies of feudalism, Renaissance and Catholic Church and instead render visible secularised civil life, be it its everyday sights (realism) or spectacular yearnings (romanticism).

As enjoined by my overarching analytical strategy, the tripartite context model (cf. Interlude), I shall also render visible the landscape image's iconology as regards early modernity by making a structural comparison with the domains of self-consciousness, world picture and socially-determined perception of nature. In

the realisation of the momentary sight in 15th-19th-century Western images, we see, firstly, a structural equivalence to a fully autonomised self-consciousness. The moment at which the pictorial view has retreated to its maximum distance from the surroundings and regards them in unrestricted depth of field occurs simultaneously with the phase in which spirit is finally drained out of nature and looks at it in a keenly separated subject-object relationship. The image's well-defined vantage point, foreshortening and surgical cropping refers back to a subject that is capable of forming its own point of view and reflecting on its own position in the world.

As suggested by the survey of the pre-modern stages in chapter 1, this connection finds more general support via the involvement of Hegel's and Piaget's developmental models of the evolution of self-consciousness, because just as modernity's perspectival pictorial space and corresponding autonomous consciousness harmonise with Hegel's third stage of art history – the romantic – they can also be compared with Piaget's formal operational stage in which the child's perspectival drawing appears as a manifestation of mental independence (cf. FIG. 1.28). Besides being able to elaborate upon this connection in terms of the histories of philosophy and religion by reference to nominalism and Protestantism – two movements leading both to the independence of consciousness – I shall involve that part of the socially-determined perception of nature relating to the urban citizen's distance to nature. For, as Joachim Ritter has shown, the full manifestation of the landscape image can also be seen as a response to the modern individual's corresponding alienation from nature.

If we move on to the cosmological domain, modernity's pictorial space appears as structurally isomorphic to the Copernican world picture. In the Late Middle Ages, the scholastics began to wonder if not just God, but also his material creation might be infinite, and it is in the space cleared by this thought that a new and disturbing world system emerges. As proposed with growing self-assurance by a series of philosophers between the 14th and 16th centuries – Nicole Oresme, Nicholas of Cusa, Nikolaus Copernicus – the earth is neither central nor static, but rather an insignificant globe circling the sun on equal terms with the other planets. The physical basis for a geocentric hierarchy from underworld to heavens is hereby eliminated: the underground is no longer the lowest and fallen sphere, but simply a zone within the earth globe; the heavens are not the domicile of perfection and indestructibility, but simply the atmosphere and the immense void in which the earth follows its trajectory around the sun.

This subversion of geocentricism, then, leads to a quite concrete crumbling away of the foundation for basing the pictorial space on rocks of an underworld quality (cf. chapter 2) and for overarching it with heavens in golden, striped or lapis lazuli-blue colours (cf. chapter 3). The new heavens dawning above the levelled-out terrains are instead made up of atmospheric and temporally marked expanses, which can be

linked with an infinity that is spatially homologous with the one now including the new solar system. Linear perspective – the geometric system which gives the image's infinity its mathematical formalisation – also offers a connecting link to another and more down-to-earth aspect of the new world picture: Westerners' discovery, conquest and colonisation of continents beyond Europe. For, in addition to perspective developing in interaction with a new cartography controlled by grids, the non-Western domains are drawn into the Western cultural sphere in close parallel to the absorption of distant outward views in the perspectival pictorial space. In other words, the horizontal extension of the image not only appears as isomorphic with the spatial expansion of astronomy, but also with that of colonialism.

These sets of image properties and their accompanying homologies in, respectively, the domains of self-consciousness and world picture, will be the main theme of this chapter and will also carry over into the next: chapter 8 thus explores the more unbridled development of subjectivity and infinity in image and culture, while chapter 9 focuses on the complication of this development when it encounters the Renaissance – the idealistic and body-fixated countercurrent to the modernity *field*. If these themes chiefly address the *spatial* aspect of the homologies with the second stage of the Golden Age myth (cf. point [1] in the introduction to this chapter), chapters 10-12 will turn our attention to the domains of *time*, *cultivation* and *soil* (cf. points [2]-[4]), and consequently also to the last unit of my tripartite context model: the socially-determined perception of nature. Chapters 10-11 will accordingly describe temporal circumstances and agricultural work respectively up to and after the paradigmatic shift in the image in 1420, while chapter 12 will deal with a conflict-ridden relic of the pre-modern pictorial paradigm: the bizarre rock formations in 15th-century painting and their partial opening towards the traumatic Iron Age intervention in the earth – mining and quarrying.

## 8.1 The pole of vantage point: modern pictorial space and the emergence of self-consciousness

If the problem for any analysis is the separation of elements which in the real world are closely interwoven, if not indissoluble, this problem is acutely exposed when we separate modernity's pictorial space and its structural homologies into two specific segments: the pole of vantage point and the pole of remoteness. For if the two poles are mutual requirements in the perspectival pictorial space of modernity's paradigm – without outward view, no depth; without depth, no outward view – they are no less so in their respective homologies: the infinite Copernican cosmos and

the autonomous subject. It is first when the universe swells to its maximum extent that the capacity is reached in which the individual can finally step back from the world and be screened off in an independent – subjective or objective – position of observer. And it is first when there is an autonomous subject that infinity can be measured against relatively-defined distances, and thereby be substantiated. The context is metaphorically manifested in modernity's mathematics, late-17th-century infinitesimal arithmetic, for here the onslaught of curves on infinity is often defined in relation to a point that is approached indefinitely, but never reached.

This interaction between infinity and autonomous subject can also be traced in Spengler, whose overall definition of Faustian culture (alias my modernity) is based on the primordial symbol *the infinite*. This epistemic structure, which characterises all Faustian products – perspectival painting, instrumental music, capitalism, long-distance weapons, infinitesimal arithmetic – thus not only points outward towards the immaterial wide expanses, but also inward towards what Spengler terms the "awakening of the inner life": an "infinite solitude" and "ineffable sense of forsakenness" that is incarnated in typical Faustian heroes such as Parsifal, Tristan, Hamlet and Faust.[3]

## *From world cave to eye socket*

In order to make this link between heliocentric world picture and self-consciousness comprehensible in evolutionary terms, it could be said that it is conditional on a collapse of Plato's world cave. As shown in chapter 1, the geocentric world hierarchy is salvaged, for a time, by late antiquity's transference of the infinite to the sphere of God, in that the firmament acts as cave ceiling screening against the transcendental. But eventually, on the threshold to modernity in the Late Middle Ages, infinity breaks through the cave ceiling. This breakthrough does not lead to the disappearance of the world cave, rather it shrinks in order to stabilise in a new membrane. The autonomous soul of modernity is embedded on the inner side of this membrane; the Copernican universe is left on the outside.

That the world cave can implode in this way is because both the geocentric and the Copernican world pictures are characterised by a border between an external reality and an inner image. In the geocentric world picture this border comprises the firmament, the cave ceiling around the mortal earth. Reality here is found in the eternity of the heavens beyond the cave ceiling, whereas the image – the reflection of reality – is the entire earthly cavity with its shadows. In modernity the image is still cut off from reality, but now the border has shifted from the firmament and right down to the human mind, which forms notions of a reality that is no longer the heavens, but the whole and infinite environment. The image is now solely

humankind's thoughts or the outward extension of these in language, scientific models, music, images, and so forth.

The properties of structural preservation inherent in this implosion would seem, particularly from a visual standpoint, to be pronounced, as the eye – the instrument through which the mind forms images of the surrounding environment – serves as a faithful miniature copy of Plato's cave. As demonstrated by modernity's new optical science, images of the eye consist, exactly as in the allegory of the cave, of shadows cast from an outer reality onto the back wall of a cavern. In the eye, the cave entrance is formed by the pupil, while the role of cavern wall on which images are projected is fulfilled by the retina. In modernity, the separation of inner from outer is, however, now so absolute that the inner image can just as well be raised to 'reality' as vice versa. At the one pole, the *objective*, reality is based in the exterior world, whereas the thought constructions of the subject appear as more or less successful approximations hereof. At the other pole, the *subjective*, the interior world would rather seem to be the only accessible reality, reality as experienced by the subject, and the exterior world thereby becomes a projection, a reflection, of the mind. Just as the images of the mind can be equated with more or less clean windows onto the surrounding world (objectivity), they can be understood as smeared panes or even mirrors allowing the mind to reach consciousness of itself (subjectivity).

## *Hegel's romanticism as imprint of consciousness*

And with this insight we are approaching a cultural evolutionary line of thought which places my analysis more specifically in relation to the pole of vantage point, the development of self-consciousness – namely the Hegelian aesthetics of the evolution of spirit, which I last explored in chapter 1. According to Hegel, the definitive emancipation of consciousness from matter occurs in the post-antique period and culminates during the philosopher's own day in the early 1800s: in other words, indeed what I have here designated the period of mature modernity. Since the spirit at the *romantic* stage has withdrawn right into the inner sphere of humankind – has reached consciousness of itself and for itself – it can no longer, as had been the case in antiquity, find conclusive expression in material form, in sculpture, but has to be content with mirroring itself in the outer and now separated surrounding environment – a reflection which in visual art can best be realised on the projective surface of the painting. In this arch-modern medium, the spirit finds resonance in transient and subjective agencies of style (light-shadow effects, colour tones, pronounced viewpoints), at the same time as it becomes engrossed in a repertoire of ever more secularised and sensuous motifs (everything from psychological portraits to interesting or ugly genre pictures to banal still lifes and spellbinding landscapes).[4]

In Hegel's view of romantic art, it thereby appears as an expression of the subjective response of consciousness to its surroundings. Even when the painting settles for a depiction of the surroundings in their mere starkness – mountains, valleys, brooks, thickets, sea, clouds, sky, buildings, rooms, and so forth – it must not be regarded as soulless materialism, for that which

> constitutes the core in the content of such works of art is not the objects themselves, but the *vitality* and soul imported into them by the artist's conception and execution, his emotional life in fact, which is reflected in his work, and gives us not merely a counterfeit of external objects, but therewith his own personality and temperament.[5]

Hegel thus makes the interesting observation that the more the spirit has withdrawn from the material surroundings and views them from the detachment of reflection, the more it nonetheless abandons itself to an illusionist semblance (*Schein*) of their purely sensuous qualities: a semblance which achieves its extremes in the figureless genres of still life and my topic, the landscape image. Through a subjectively-coloured interpretation of the objective surroundings, the pictorial gaze approaches momentary sight.

## *The perspectival vista through a Piagetian lens*

Another interpretative framework which allows us to connect the perspectival image bearing indication of time and described in light-shade with the crystallisation of self-consciousness is found in Piaget's ontogenetic development model and its phylogenetic derivatives in Marcussen – and with a few significant changes – Gablik and Blatt (cf. Interlude and chapter 1). Piaget's final stage of child development, the *formal operational* stage from age 12 onwards, is characterised by the child having internalised its experiences of action to such an extent that manipulation and transformation of these is possible independently of concrete objects, since thought representations are acknowledged as hypothetical, i.e. ultimately stemming from and bound to subjective consciousness. In terms of representational space, this autonomy of consciousness is expressed in an abstract, so-called Euclidian space with co-ordinates that are independent of objects, including a perspectival space with foreshortenings and vanishing points, both being effects conditioned by the subjective vantage point.[6]

Most appropriately, it would seem, this stage can be linked phylogenetically with Western modernity between 1420 and 1900. Here, in correspondence with the formal operational stage, the adult, urban individual has developed a consciousness of his or her thoughts as being independent of the physical environment about which

they form conceptions and, as pictorial art testifies, this mental autonomy finds its representational-space manifestation in an image that is indeed characterised by an eventually fully-developed perspectival foreshortening with a homogenising vanishing point and a specifically marked vantage position.

In their phylogenetic translation of ontogenesis' formal operational stage, however, Gablik and Blatt prefer to link it with the late 19th and 20th centuries rather than with the 15th-19th centuries, which are called concrete operational.[7] In Blatt's case, a contributory factor in the latter identification would seem to be his somewhat uncritical appropriation of the Renaissance historical construct: with modernity thought to have its roots in the Renaissance, the revival of antiquity, and with Blatt able to identify those body-fixated features of Renaissance images which derive from this very revival, then it is actually quite logical that the linear perspective ostensibly invented by the Renaissance should be called concrete operational.[8]

As indicated in chapter 1, the wider argument for the displacement of the formal operational stage to the 20th century is that the typical pictorial art of this epoch, abstraction with its pictorial space allegedly devoid of referents, has reached a climax of representational autonomy, and furthermore that this can be connected with scientific parallels such as Riemannian mathematics and Einsteinian physics, as both parties, in Blatt's words, involve: "[...] a shift from an interest in systems of relations to a consideration of the relation among systems of relationships."[9] Although I find it an attractive prospect to attempt a further development of Piaget's model, and in particular consider comparisons between abstract art and post-Newtonian mathematics and physics convincing, I have to reiterate that the actual Blatt-Gablikian translation from onto- to phylogenesis, the identification of 20th-century paradigms with Piaget's formal operational stage, comes across as highly problematic. Apart from the fact that it seems ever more strained to describe all forms of abstract art by means of the Greenbergian label 'the climax of autonomy', neither these art forms nor their scientific-mathematic parallels deal with a 'Euclidian', much less perspectival space. As touched upon in the Introduction and Interlude, I should rather prefer to propose an *expansion* of the Piagetian, purely progressionist model by means of a model that is cyclical in its final phases, so that autonomy and spatial homogeneity, having reached their climax in the 17-1800s, are dissolved in favour of various forms of heterogeneous and compound spaces. At the same time as these spaces allow for a reactualisation of earlier phases in cultural – if not pre-cultural – evolution, they would seem to point to culturally-mediated sense perceptions, technological prostheses of the human body; and accordingly, we should perhaps rather be operating with a *posthuman* stage after the year 1900.[10]

## *Self-consciousness as nominalism, I: ramifications in religious and natural philosophy*

To pursue self-consciousness in a more specifically culture-historical light, as it matures from the Late Middle Ages to the 18th and 19th centuries, a key term could be *nominalism*: an understanding of the world that erects an invincible border between name and thing, between representation of the world's phenomena and these phenomena themselves. For whether the representation is perceived as an organised mental image or its insertion in different outer mediations – language, mathematics, images, and so forth – it appears as the product of an autonomised consciousness, a consciousness that has withdrawn from the world's phenomena and recreates these, independently of their outer location, in the human mind. By this means nominalism becomes the common denominator of such apparently diverse currents in modernity as Protestantism (God as exclusively manifest in the mind), scientific empiricism (theory as pragmatic approximation, but not ontological covering of natural phenomena) and aesthetics (the beautiful and sublime as internal response to a surrounding world that is in itself devoid of quality).

The role of nominalism in an evolution of consciousness model is clarified by its origins in the late medieval discovery – and subsequent writing-up – of the individual mental life. In the 12th century the 'self' appears as a more complex and changeable entity than the either saved or damned soul of the earlier medieval period, and consequently many writers become preoccupied with self-knowledge as the true path to God. The Benedictine Abbot Guibert of Nogent (d. 1123) declares, for example:

> No preaching seems to me more profitable than that which reveals a man to himself, and replaces in his inner self, that is in his mind, what has been projected outside; and which convincingly places him, as in a portrait [*quodammodo depictum*], before his own eyes [...].[11]

In accordance with Guibert's desire for an inner visualisation of the outer self, it is also in this epoch that we find modernity's first images of the individual subject, painted and sculpted portraits as well as written biographies and autobiographies – the latter (by, *inter alios,* Abelard and Guibert himself) with strands back to Augustine's *Confessions*. That making confession – exposure of the self's intentions rather than its actions – signifies a main road to God is also borne out by the 4th Lateran Council in 1215, which made an annual confession obligatory.[12]

It is no great step from this fostering of the self's singularity to nominalism, since Colin Morris points out, the same singularity came to play the role of key

evidence in a new, more general belief in the irreducible particularity of the world of phenomena, including the self (the term *individuum*, an indivisible unit, in fact stems from scholastic logic).[13] According to nominalists such as the Oxford Franciscan William of Ockham (*c.* 1287-*c.* 1349) there is no such thing as actually existing *universalia*, eternal prototypes from which the individual phenomena materialise. In contrast to the beliefs of the contemporaneous Aristotelians, such general concepts could only be understood as *fictiones*, intuitive insights extracted from things by the human individual through experience. Our mental representations of the world – consciousness – thereby become a distillate of the two interacting, but separated sources: the diverse and changeable surrounding environment and the equally turbulent movements of the mind.[14]

For Panofsky, too, nominalism involves a subjective view of the world, and he therefore does not hesitate to detect its pictorial expression in the perspectival interpretation of space that invades European painting in the 14th-15th centuries: "It [perspective] records, to borrow Ockham's term, the direct *intuitus* from subject to object, thus paving the way for modern 'naturalism' and lending visual expression to the concept of the infinite [...]."[15] And in agreement with my idea of a modern connection between *how* and *what*, between paradigm and content, Panofsky also notes that the more specific themes in which perspective materialises are chiefly portrait, interior and landscape – new genres, which all satisfy nominalism's interest for particularity and unlimited variation.[16]

Considering that the perspectival vision and its accompanying empirical details mature into a pictorial paradigm in the 1420s, it is quite logical that at about the same time we encounter the first mature, modern thinking: Nicholas of Cusa's (1401-64) ideas of *learned ignorance*. Even though this German cardinal working in Rome still operated with divine prototypes, *exempla*, which precede the objects of the material world, he is irrevocably nominalist as, unlike Aristotle, he is of the opinion that everything God is able to do is actually also *realised* in what for Nicholas of Cusa is now the infinite world – an idea summed up in the term *possest*, made up of *posse* (to be able to) and *est* (is).[17] Since, however, only infinity covers absolute wisdom, this wisdom is, as he puts it, incomprehensible to every intellect, immeasurable to every measuring, unlimited by every limitation and inconceivable to every imagination.[18] Yet, this fundamental inaccessibility of insight does not mean that the individual should abandon the acquisition of knowledge; on the contrary, the individual should tirelessly aspire to approximate image to reality, approximate *aliud* (otherness) to *idem* (the same): "The image does not settle down, if not in that of which it is an image, and from which it has beginning, middle and end."[19] In this philosophical celebration of an attendance in which the image infinitesimally approaches but never touches its object,[20] the leap does not seem far to a van Eyckian visuality in

which the pictorial gaze from the desiring distance of observation exposes hitherto unseen details in the environment.

Even though it is beyond the scope of this study to pursue nominalism in detail as it branches off into the mature philosophies of modernity, it is of fundamental interest in terms of cultural evolution that the distinction between consciousness and world seems to reach its climax simultaneously with the maturation of the modernity paradigm in painting, i.e. in 17th-19th-century philosophy. Obvious examples are accounted for by Hume's empirical scepticism and its further development in Kant's concept of the fundamental inapproachability of *das Ding an sich*, but also such a ratio-centric philosopher as Descartes builds on the basic nominalist premise that the cogito, reflective consciousness, is distinct from its physical environment, an infinite void filled with particles subjected to mechanical laws. However much the individual might aspire to uncover these laws behind the diversity of phenomena, he cannot escape the insight already highlighted by the 14th-century nominalists: that *universalia* such as these can only be traced *through* the sensory experience, while their formulations remain bound to the human consciousness.[21]

Realised in this way, the chasm between mind and world could also be described as a scenario in which the spirit is drained from its hitherto geocentric sites – heaven and its infusion of soul into the earth – ultimately to lose its attachment to any external physical place. Just as punctiformed the concentrated spirit now manifests itself in the inner human, consciousness, just as thinly is it now distributed in its environment, cosmic infinity, in which only the incomprehensible totality, Nicholas of Cusa's *possest*, adds up to divine intensity. This de-localisation of the spirit could thereby also be perceived as a de-sacralisation of nature, in which no earthly or celestial matter can lay claim to spiritual privileges.[22]

This de-sacralisation finds its fulcrum in the reformative movements of the Late Middle Ages, which oppose relic cult, icon worship and ecclesiastical power in favour of a religious outlook in which God is disengaged from an attachment to specific places, things and institutions and is instead revealed in the spirit, the individual's inner consciousness. Protestantism treats of an emancipated subject's relationship to a God who is found everywhere and nowhere.[23] This Protestant scepticism toward the spirit's attachment to matter provides, paradoxically, a crucial condition enabling the new and more sensory image genres of the Late Middle Ages – portrait, genre, landscape and still life – to be emancipated from their previous status as mere attendant phenomena, backgrounds, to sacred or mythological figure-based painting and instead to become genres in their own right. When 16th-century reformers such as Luther, Calvin and Zwingli cast suspicion on the sacred figure-based images as more or less idolatrous, artists are

obliged to explore more prosaic themes, which in turn can then be developed with much greater freedom from religious demands.[24]

By depleting nature of a manifest infusion of spirit, the Northern reformed movements also become significant allies of the new philosophy of nature and its followers: empirical experiments and industrial exploitation of nature. According to, for example, the English philosopher Francis Bacon (1561-1626), a distinction should be made between morality, which applies to the person, and science, which is beyond good and evil. Morality applies to values, science to facts. The human being is given a divine right to rule over nature, make it a slave, and this power is realised when it becomes one with knowledge of its object. We are thus not far from witch trials in Bacon's description of the gathering of knowledge: nature "exhibits herself more clearly under the trials and vexations of art [i.e. mechanical art] than when left to herself." As if to suggest that the modern era can be perceived as a new Iron Age – an Iron Age no longer, however, desecrating nature – Bacon appoints the miner and the smith as the natural philosophers' ideal models: "the one searching into the bowels of nature, the other shaping nature as on an anvil."[25] This is as far away as can be imagined from the civilisatory discontents of the Golden Age *field*.

Not least as a consequence of this association with metalwork, Western science gradually saw its goal as identifying eternal natural laws that could describe nature as a gigantic machine, *machina mundi*. Descartes even considered plants and animals, along with the human body, comparable to machines.[26] A culmination of this mechanistic thinking occurs again in the Enlightenment, more specifically in the work of the French mathematician and astronomer Pierre-Simon Laplace (1749-1827) who assumed that, if an independent observer had access to all the parameters of the universe at a single moment, then the conduct of the universe could be predicted for all time.

## *Self-consciousness as nominalism, II: the aesthetic ramification*

It could well seem paradoxical that the epoch responsible for developing this mechanistic world vision also fostered its approximate opposite: an aesthetic sphere in which eternal natural laws have to give way to such unregulated entities as originality, emotion, taste and disinterested gratification. But rather than belonging to two incompatible spheres, science and aesthetics span the extremes within the same epistemic *field*, the modern, whereby cohesion can be ascertained partly through complementarity and partly through common structural features.

As regards complementarity, it should be noted that in practice the mechanist

models were only capable of addressing a limited aspect of the sensory nature. In this respect, mechanics could be said to have pulled the Platonic heaven down to earth – a heaven qualified by eternal natural laws outside historical time. However, beyond the new natural sciences – physics, astronomy, chemistry and, to some extent, biology – we are overwhelmed by that disorder and changeability which was previously the sole province of all things chthonic.[27] At the greatest distance from natural science we find aesthetics, which, with the outer unpredictability as resonance space, appeals to humankind's inner non-rational needs: emotions, intuition, imagination. The aesthetic exposure of the chaos and purposelessness of nature supplies the bourgeois citizen with a metaphysical framework for his emancipation: freedom from an imposed destiny. And by embracing nature with emotion, the aesthetic view of nature simultaneously affords a kind of atonement for the sins of rationality, be these the emotionally neutral formulae of science or industry's cynical exploitation of nature.

As Joachim Ritter remarks in his invaluable study on the sociological stipulations of the aesthetic understanding of nature, this mutually reflective relationship is already fully acknowledged in Alexander Baumgarten's (1714-62) *Aesthetica*, the first attempt at a systematic formulation of this concept, written in 1750-59.[28] According to Baumgarten, essential aspects of the modern human experience evade the domain of reason and science. These aspects are therefore referred to art, which has its own *veritas aesthetica*, the truth of emotion and sense perception. Baumgarten thus considers aesthetic art and logical science to be in a complementary relationship: what is ignored by one finds expression in the other.

This relationship recurs in the work of Alexander von Humboldt (1769-1859) who, in his mammoth undertaking *Kosmos* of 1845-58, attempts a unifying description of the universe, a feat which was no longer obvious in his day. Humboldt also realises that if nature is to be understood in depth, harmoniously and in its totality, it is not enough to know about its external appearances and how the natural sciences describe it in objective terms; rather nature should be presented "as it is reflected in the interior of the individual". Thereby, the reflection of the external image will speak through the senses to "the emotion and the poetically tuned imagination".[29]

Besides the complementarity of science and aesthetics, we should here note that the aesthetic understanding of nature does not apply to nature as such, but to the effect it has on the subject's mind – a characteristic also found in Kant's *Critique of Judgment* (1790), where the sublime feeling (as somewhat distinct from beauty) is independent of any intrinsic quality in the exterior nature.[30] Aesthetics, then, also shows itself to be an unmistakeably nominalist phenomenon, whereby its structural kinship with science should be evident. Both domains can be assigned to the modern individual with his or her independent vantage position in an infinite universe.

The scientist is *objective*, i.e. he emphasises the similarity between his response and the environment. The aesthetician is *subjective*, i.e. she emphasises the distinctive characteristic of her response in relation to what she is reacting to. The former must, however, to the same extent as the latter, exact a clear dividing line between object and description, because were the two to merge then the object would be altered and the description would no longer be objective. It is therefore crucial to both approaches that spirit has been drained from nature and condensed in the human mind.

If we now look at the placing of the modern pictorial paradigm vis-à-vis these extremities, we will see that it covers them both. The rational perspectival construction and its projection on the flat surface, the pictorial window, here appears as an offshoot of the mechanistic world vision, the description of which can be monitored with mathematical accuracy. As writers of a phenomenologist leaning such as Merleau-Ponty and Lacan have noted, this is a way of looking which ultimately breaks free of the subject's optical impression and instead thrives in a Cartesian abstract space that could just as well be perceived by someone who is blind.[31] Outside this obviously linear domain – in areas such as the interplay between light and material, seasons and diurnal rhythms, clouds and undulating terrains, not to mention the representation of these phenomena in the highly unruly medium of paint on canvas – rational calculation loses, however, its grasp and viewing is consigned to a more intuitive form. Through topics such as these, in which the boundlessness of the environment seems hazy and discontinuous, and chance and the passage of time become dominant factors, consciousness is then reflected in its manifold and irrational form. It must be stressed, however, that the two ways of looking – linearity and discontinuity – in practice thrive in close interaction in the paintings of modernity; indeed, as will be shown below in the discussion of the Northern European tradition, they are often inseparable.

Finally, we could question the perception of history that determines the simultaneous emergence of the mechanistic world view and aesthetics. Both approaches probably owe their existence not least to the fact that nature was long untouched by an actual natural history that could be written in concert with the history of humankind. Until Comte de Buffon (1707-88) in the 1770s suggested a drastically expanded period of genesis for the earth and its seas, continents, plants and animals, and Darwin with *The Origin of Species* (1859) followed up by enrolling humankind in the animal section of this evolutionary creation, nature had, on the whole, no history beyond its week-long Biblical creation and subsequent degeneration, which was assumed to have resulted from the Fall, the Flood or Cain's fratricide (cf. Chapter 5). For natural science, this lack of natural history constituted an ideal basis on which to develop the mechanistic world picture with its fundamentally reversible

processes, and a theorist such as Descartes quite logically regarded history as irrelevant in a scientific context.[32] For aesthetics, nature's lack of history was not a case of repeatable rules, but of unrepeatable singularities, and nature could thereby act as suitable otherness for the man-made domain, including human history, which is thus also played out on virgin ground. Because nature, on this scale, seemed random, chaotic and devoid of development, the individual had the opportunity to push through his or her inner will and in aesthetic form enjoy the emancipation from external demands.[33]

## *Landscape as expression of urban alienation*

In making nature accessible in pictorial form, the category of landscape represents a key manifestation of the aesthetic sense of nature. While I have above explained this sense as one of nominalism's many guises – as an expression of consciousness's autonomisation and distance from the infinite cosmos – I shall in conclusion move away from the pole of vantage point and into the middle distance, the socially-determined perception of nature, since I shall also identify it as expressive of the second distance to the surroundings, namely the one due to the urban individual's alienation from nature. Even though this alienation, as shown in chapter 1, is active from the very earliest beginnings of culture, when enclosure in the urban space facilitates the first pictorial depth of field, it could be said to culminate in the epoch of modernity between the 15th and 19th centuries, when the urban pictorial culture has become fully perspectival and equipped with landscapes which are manifold, marked by temporal variation and, frequently, overlaid with territorial grids.

This landscape culture has been the focal point for Joachim Ritter, who does indeed regard it as compensation for the modern individual's isolation in the metropolis – a compensation that is not limited to painting or literary exposition, but also chips in as a filter when we seek out nature itself. The beautiful landscape is *picturesque*, meaning that it draws to mind the painterly simulation of nature.[34] Leonardo actually already poses the question in his polemic on poetry:

> What moves you, O man, to abandon your home in town and leave relatives and friends, going to country places over mountains and up valleys, if not the natural beauty of the world [*la naturale bellezza del mondo*] which, if you consider well, you enjoy with the sense of sight alone?[35]

A general definition of the concept of landscape could therefore be: *nature elevated to image*. Ritter writes:

> Landscape is nature which in the eyes of an aware and sensitive beholder has become aesthetically present: neither the fields facing the city, the watercourse as "boundary", "trade route" and "problem for bridge builders", nor the mountains and the steppes of the shepherds (and oil prospectors) are yet "landscape" in themselves. They only become such when a human being turns to them with no practical objective, in "free" appreciative contemplation as though himself wanting to be in nature.[36]

Nature, then, is not landscape in itself, but first becomes so when experienced by a sensitive beholder. And in order to have the right aesthetic dimension, the experience has to be free and elevated above practical purposes. We are, as the Germans say, *im Freien* (in the open; literally: in the free).[37] Even though Ritter's concept of landscape identifies a fundamental property of modernity's view of nature, we could object that this focusses a little one-sidedly on what I have called the romantic part of this view, landscape divested of any utilitarian function. When an artist visualises a landscape through a realistic lens – a lens that highlights traces of cultivation such as roads, fields and canals – this lens might indeed in the first instance be coloured by an aesthetic distance resembling total romantic freedom, and yet this freedom can very well have undertones of nationalism, duty, valour of work, and so forth. These concepts, as I shall develop further in chapters 10 and 11, put the free individual into a social function whereby pure pleasure is moderated by morality.

Nevertheless, it seems to be a fact that the urban dweller's distance is actually requisite in order for a value of beauty to be read into the spatial image of nature, cultivated or not.[38] Leonardo's enjoyer of nature is an urban-dweller who has left the city behind. Conversely, having followed Leonardo's advice, Cézanne could express his doubts as to whether the countryside's residents, the Provençal peasants, understand what a landscape is – that they have seen Mont Sainte-Victoire, that they sense the green of the trees or the red of the soil – apart from their utilitarian, unconscious view of it.[39] The observation was corroborated by Le Roy Ladurie when he undertook his famous study of the Inquisition records made around 1300 relating to the Pyrenean village Montaillou. The closest the villagers got to expressions of beauty were phrases such as "beautiful young girl", "beautiful men", "beautiful fish pâté", "beautiful songs in church" or "beautiful orchards in Paradise". Nor did the villagers use terms for space, but mainly words associated to the body, such as *corpus* and *domus*. The explanation of this form of perception is again that the villagers have nature at too close a hand to be able to take the necessary step back and look at it in a spatial and aesthetic perspective.[40]

## 8.2 The pole of remoteness: modern pictorial space and the genesis of the open cosmos

### *Genesis of the Copernican world picture*

In the above, I have chiefly explained the modern pictorial paradigm from the perspective of the pole of vantage point, i.e. based on the structural homology between the pictorial space's well-defined vantage point and the autonomised consciousness. This strategy led us from the world reflected in the eye socket to Hegel's romanticism and the Piagetian formal operational stage and on to the various branches of nominalism: Protestantism, scientific empiricism and aesthetics.

I shall now make the contrapuntal leap to the pole of remoteness and show that the infinite wide spaces, towards which the observing gaze is positioned in the same pictorial paradigm, are structurally equivalent with modernity's new world picture: in the first instance, the Copernican infinite cosmos; in the second instance, the colonisation of the earth's surface that takes place in Western culture at the same time as the perspectival landscape image comes to maturity. Thereby, overall, a mutual dependence is extrapolated in which the autonomisation of consciousness is just as fully based on the expansion of the world's boundaries as vice versa.

The homology between infinite cosmos and perspective could appropriately take its starting point in remarks made by the historian of science Pierre Duhem on the extreme continuity characteristic of the development of science: "Science, no more than nature, makes no brisk jumps." And: "Not even the most unforeseen discoveries have ever been made in all detail in the mind which generated them."[41] Both the Copernican universe and the modern perspective are indeed discoveries that go through lengthy incubation periods, and their developments are surprisingly simultaneous.[42]

With regards to the Copernican cosmos, preparations are found right back in the Early Middle Ages, especially in the Islamic sphere. At this time, when antique natural philosophy was suffering straitened circumstances in both the West and Byzantium, its salvation was that its Greek branch from Alexandria was exported to more free-thinking cultural centres in Syria, Armenia and Persia. Here the philosophers of antiquity, particularly Aristotle and Ptolemy, were closely studied by Arab scholars, who wrote commentaries on the works and added new, analytic ideas. In the 11th and 12th centuries this refurbished corpus of scholarship was introduced to the West via translation centres in Spain and southern Italy, border regions to Islam. Used at the new seats of education in the West, the universities, these studies triggered off the late medieval revolution in natural philosophy.[43]

The prerequisite of the modern cosmos is a dissolution of differences between heavens and earth. For as long as the celestial bodies are placed outside time and ascribed particularly perfect movements owing to proximity to *primus mobile*, the unmoved mover, homogeneity is obviously out of the question. As we saw in chapter 1, not even the atomists of antiquity, who toyed with the thought of an infinite void, escaped the idea of isolated worlds controlled by a universal downwardness. The dissolution is assisted, however, by the Church Fathers who distrust the idea of divinity of the stars. In chapter 3 we saw, for example, how Augustine refused to restrict God's presence to any specific place and would rather call him omnipresent.

It is this thought, then, that is intensified in the Late Middle Ages when many scholastics, after a thorough digestion of the newly-imported Aristotle, are offended by his ideas on the closedness of the universe. As far as the Bishop of Paris is concerned – and for this very reason he excommunicated Aristotle in 1277 – God's creative power simply cannot be spatially restricted or curbed to the earth as the absolute centre of the universe. The idea is extended by the Oxford mathematician Thomas Bradwardine, Archbishop of Canterbury (*c.* 1290-1349), as in his opinion there was an infinite void before the Creation. As he made clear in a remark taken from the pseudo-Hermetic *Liber XXIV philosophorum* (*Book of the 24 Philosophers*), written in *c.* 1200: "God is an infinite sphere, whose centre is everywhere and whose circumference is nowhere."[44] And Nicholas of Cusa eventually takes the decisive step of comparing the question of God's locality with the question of the geometry of the physical world itself: "Thus, the fabric of the world [*machina mundi*] will *quasi* have its center everywhere and its circumference nowhere, because the circumference and the center are God, who is everywhere and nowhere."[45]

In the hyper-reflective climate of the 13th-14th-century universities, the world hierarchy is also attacked in its particulars. As a result of the nominalist scepticism of actually existing universals, the Franciscan Oxford nominalists Duns Scotus (*c.* 1270-1308) and William of Ockham question the idea that the celestial bodies are privileged with a special immutability.[46] And, parallel to this, the Parisian Jean Buridan (d. shortly after 1358) turns to the Arabic idea of incorporeal motive energy first advanced by the Byzantine John Philoponus in the 6th century. Aristotle had – somewhat hesitantly – ascribed projectile motion to pressure of air from behind. Buridan, on the other hand, thought that inner energy, which he called *impetus*, had been imparted to the projectile and that the motion could only be arrested by external resistance. In particular, the celestial bodies are not impelled by *primus mobile*, but by the constantly unchanged *impetus* imbued in them by God at the Creation.[47] As Pierre Duhem pointed out, this idea is identical to Newton's First Law (the Law of Inertia)[48] and fuels the Second Law (definition of force):[49]

> One day Newton will write on the last page of his *Principia*: "By the force of gravity I have given an account of all phenomena that exist in the heavens, and those which our oceans display" [...]. On that day Newton will announce the full bloom of a flower whose seed Buridan had sown. And the day the seed was sown is, as it were, the day that modern science was born.[50]

The ideas of God's placelessness and *impetus* are both closely linked to the concept of local *relativity* – and thereby also with the observing subject, self-consciousness simultaneusly identified by nominalism. The Byzantine philosopher who introduced the concept of *impetus* is also the man who first contradicted Aristotle's idea of concord between place and body and who made the alternative proposal that place is actually identical with the void in its three dimensions.[51] But as the void by definition has no tangible fixed locations, its places can only be described on the basis of arbitrarily – subjectively – selected points of reference. This insight is explicit in the work of Buridan's pupil Nicole Oresme (*c.* 1323-82) as for him, in nominalist fashion, it is purely a question of language, as to where a centre is placed in relation to which something else is being described. As Oresme remarks in his commentary to Aristotle's *On the Heavens* (*Le livre du ciel*, 1377), a man in a sailing boat will not notice that he is moving if his point of reference is another boat sailing at the same speed as his own. And relativity is no different when applied to the cosmos:

> Therefore I say that if the higher [or celestial] of the two parts of the universe [...] were today moved with a diurnal motion, as it is, while the lower [or terrestrial] part remained at rest, and if tomorrow on the contrary the lower part were moved diurnally while the other part, i.e., the heavens were at rest we would be unable to see any change, but everything would seem the same today and tomorrow.

Oresme rejects all counter-arguments to this observation, be they physical, logical or indeed even Biblical. The old objection that things would fly off a rotating earth can, for example, be dismissed by *impetus*: as things have *impetus* from earth, they continue with their speed even when they have lost contact with the earth. Nonetheless, Oresme claims that he does not personally believe in a rotating earth.[52]

Oresme's relativistic thinking resulted in an invention which, in the 17th century, was to revolutionise mathematics: *the system of co-ordinates*. In 14th-century Oxford, scholars had reached the point of describing changes in quality – for example, increase in speed – as a function of time; this theory was named *latitudo formarum* (breadth of forms). Oresme's system of co-ordinates visualises the theory via a division of qualitative changes and time following two axes at right angles, which he calls respectively *longitudo* (length, i.e. the later *abscissa*) and *latitudo* (breadth, i.e.

the later *ordinate*).[53] The system thus has distinct similarities to the agrimensorial orientation via the *kardo* and *decumanus* axes (cf. chapter 4) and, as we will soon see, it is indeed also developed at the same time as cartography introduces the square grid as reference. Like the observer in Oresme's boat experiment, his system of co-ordinates is extremely flexible vis-à-vis the phenomena it describes. It only distinguishes relative changes, and its centre can be freely chosen.

Just under relativity lurks infinity. In order to select one's centre independently, it is necessary to claim a limitless space, because natural limits are inevitably accompanied by naturally imposed – and not subjectively selected – orientation points. The concept of infinity is therefore also an essential ingredient in early modern philosophy. Avicenna (980-1037), one of the Islamic commentators on Aristotle, had already suggested the possibility of an actual, all-embracing infinity.[54] The concept is further developed in 14th-century Parisian physics, both in respect of the infinitely large and the infinitely small, and it has become an essential element of Nicholas of Cusa's philosophy.[55] As Panofsky already remarked in his little treatise on perspective, the result of the breaking up of the geocentric world picture is "an infinity not only prefigured in God, but indeed actually embodied in empirical reality (in a sense, the concept of an *energeiai apeiron* [actualised infinity] within nature)."[56]

According to Nicholas of Cusa, this realised infinity is impervious to an absolute definition in a man-made image: "The infinite identity cannot be received in the otherness, because it is here received with difference."[57] In this passage we sense the mutual conditioning between infinity and subjectivity. The world being infinite, all cognition is referred to limited, subjective consideration. Conversely, this consideration is possible precisely because the world is infinite: the subjective is the relative, and the relative requires, as we have seen, the absence of natural borders. While space expands out into infinity, the viewing mind must contract to a point whose location can be selected with exclusive subjectivity, and from which relative observations can be made. The concept of the outer infinity was also stimulated by the simple feeling of enormousness that followed in the wake of nominalism. By disbanding tradition in favour of sense perception, a new and alien world opened up. In Leonardo's words: "Nature is full of an infinity of operations which have never been part of experience."

As can be seen, these early Copernican shoots were more the product of existential-philosophical than mathematical deliberations. Even though Nicholas of Cusa takes Oresme's ideas on the motion of the earth seriously, they lead neither him nor his predecessor to toy with similar thoughts of placing the sun at the centre of the planetary system. Nicholas of Cusa does certainly stress that the earth, like the other celestial bodies, is in constant motion and, if observed from beyond the fiery sphere, will seem to be a luminous star, just as the sun is for us. And yet he still

includes celestial spheres in his calculations and works out that the earth moves to a lesser extent than the other celestial bodies.[58] Leonardo comes a little closer to a heliocentric system in that, besides declaring the sun immobile, he states firmly, recalling Oresme's remarks above:

> The earth is not in the centre of the Sun's orbit nor at the centre of the universe, but in the centre of its companion elements and united with them. And any one standing on the moon, when it and the sun are both beneath us, would see this our earth and the element of water upon it just as we see the moon, and the earth would light it as it lights us.[59]

Despite Leonardo's early attempt to fix the sun and detach the earth, we actually have to go all the way to Copernicus' *De revolutionibus orbium coelestium* (*On the Rotations of the Spheres of the Heavens*) published in the year of his death, 1543, before the sun is systematically placed at the centre of the earth's – and the other planets' – trajectory. Copernicus, on the other hand, was motivated purely by mathematical dissatisfaction with the old system. The older astronomical theories seemed inconsistent and unsystematic, and they did violence to the principle of regularity.[60] In response to this, Copernicus suggested that the centre of description be moved from earth to sun – not because the sun would then be the new absolute centre, as the earth had been, but solely because it simplified and tidied up the mathematics.

In order to make space for his circular planetary trajectories, however, Copernicus found himself obliged to inflate the diameter of the world at least 2,000 times beyond the 20,000 terrestrial radii to which Ptolemy had already set it. Even if his mathematical sobriety prevented him from letting the fixed-star sphere dissolve into pure infinity – an infinity beyond what he calls *immensum* (immeasurable) – the step was there for the taking. As Koyré remarks: "the world-bubble has to swell before bursting." This bursting of the bubble and entry into the infinite universe, which had already been proposed in the Late Middle Ages, was formalised by Copernicans such as Thomas Digges, Giordano Bruno, Kepler, Galileo, Descartes, Newton and Laplace.[61] As Bruno (1548-1600), for example, writes in his pioneering work *De l'infinito universo e mondi* (*On the Infinite Universe and Worlds*, 1584): "This science does not permit that the arch of the horizon that our deluded vision imagineth over the Earth and that by our phantasy is feigned in the spacious ether, shall imprison our spirit under the custody of a Pluto or at the mercy of a Jove."[62]

Today it has become a cliché that human alienation in a fragmented world is a characteristic specifically resulting from the post-1800 industrial modernity when, according to Marx' view of capitalism, "all that is solid melts into air".[63] But actually this feeling of estrangement is put into words as soon as the philosophical

consequences of the Copernican cosmos are examined. As early as 1611, in John Donne's *An Anatomie of the World*, we read:

> And new Philosophy calls all in doubt,
> The Element of fire is quite put out;
> The Sun is lost, and th'earth, and no mans wit
> Can well direct him where to looke for it.
> And freely men confesse that this world's spent,
> When in the Planets, and the Firmament
> They seeke so many new; then see that this
> Is crumbled out againe to his Atomies.
> 'Tis all in peeces, all cohaerence gone [...].[64]

That all is in pieces, all coherence gone, is, for better or for worse, the prerequisite for cultural evolution's realisation of the free and independent individual. As Giordano Bruno – martyr of the unlimited cosmos – claimed, it is precisely because of the ability to confront an infinite environment at variance with the human identity that the individual is equipped with self-consciousness. In the Copernican universe, the human being is not enrolled in a stable hierarchy, but floats in the void between what Pascal, too, calls the two infinities: the infinitely large and the infinitely small. As Kant notes, these two infinities – made accessible via the new inventions from the science of optics: the telescope and the microscope – have no absolute value, but are exclusively the result of comparison between the individual human being and the items that appear behind the lenses.[65] This relativism is also the prerequisite for Michel Serres' observation that modern matter has become strangely weightless. Rather than matter with numinous or demonic power, it occurs as accumulations of particles without value, metaphysics or capacity to lay foundations.[66]

## *The image as window on the world*

The modern pictorial space can be read as the visual homology of this Copernican universe. If the depth of field is actualised, and no screening has been inserted into the image – in the form of a wall, a rock, a collection of ideal human bodies – the beholder's view will open towards the same infinity as that exposed in the new universe, and furthermore the point of view towards this infinity can be selected just as freely as the centre from which a movement is described. As Thomas Bradwardine wrote: "God is an infinite sphere, whose centre is everywhere and whose circumference is nowhere." The same can be said of the perspectival scrutiny of the infinite plane as, from a centre that can be placed everywhere, the view is of a periphery,

the horizon, which is located nowhere because it is solely an optical phenomenon generated in a subject looking towards infinity.

The connection between the two spheres – world picture and perspective – was brilliantly outlined by the young Panofsky. According to Panofsky, the "perspectival achievement is nothing other than a concrete expression of a contemporary advance in epistemology or natural philosophy."[67] Nor, historically, can perspective be pinned down to a sudden Florentine invention, as Damisch and Kubovy still – quite inexplicably – seem to think.[68] It is far more likely, as adduced by Samuel Edgerton, that it emerged from the same culture that established the new world picture and the new subject: the universities of the Late Middle Ages.[69] Its forum was that with which, in the 15th century, it was still synonymous: *optics*. Influenced by the Islamic Alhazen's (*c.* 965-*c.* 1039) *Optics* – a work that had reformed the ideas of Ptolemy and Euclid – comparative Western studies were made on the anatomy of the eye and the reflection and transmission of light through glass.[70] As early as the 13th century, these studies resulted in the introduction of two quintessentially modern items: *eye spectacles* and the *camera obscura*, both based on vision originating in the individual point of view. While spectacles were a new invention, the camera obscura went back to Alhazen, who refers to experiments with images of candlelight sent through a hole in a screen. When this work is resumed by scholastics such as Roger Bacon, Witelo and John Peckham, the principle is primarily used for the study of solar eclipses.[71] The significance of optics is also stressed by another popular phenomenon, the *mirror*, which inspires many a treatise title in the Late Middle Ages – *Speculum humanae salvationis, Speculum fidei, Mirroir du monde, Sachsenspiegel*, and so forth – and which in this usage cannot be traced further back than the 9th century.[72] Reflection is the epitome of subjective consciousness, as it signifies the pondering – speculation – in that Narcissus mirror which, with surgical precision, separates consciousness from environment.

In the first section of this chapter, I described the formation of subjective cognition as a kind of implosion of Plato's cave. The firmament, which separated the ideas from their earthly reflection, here shrank into the membrane separating the infinite environment from the receptive mind. This implosion can also be tracked when focussing on the membrane's visual imprint, the pictorial surface. As described in chapter 1, the medieval icon was seen as an equivalent to the firmament, which also functioned as an area of refraction between the fundamentally unattainable world and us. This firmamental identity of the icon reaches a form of climax in stained glass, a speciality of Gothic architecture going back to, at most, Carolingian time. In the writings of Abbot Suger, the founder of Gothic architecture, we read about the preciousness of the windows, the exquisite workmanship and splendour of stained glass, sapphire glass and ornaments crafted in silver and gold[73] – all of which are materials

associating to the heavens (cf. chapter 3). And yet, the light that makes the panes shine is not extrasensory, but physical; and, furthermore, it breaks through the surface of the glass at a remarkably great distance from the transcendental heavens – in Suger's case in the choir of Saint-Denis, which closes around the beholder in a semicircle. Taking into consideration that the modern image emerges as a projection from the outer world onto a surface – a window – which separates viewer from surroundings, and also bearing in mind that the celestial infinity, in Cusanian fashion, is in the process of absorbing the outer world in its entirety, how great, then, is the leap from Gothic stained glass (the celestial infinity illuminating the earthly icon) to perspectival window (the infinite environment projected into the image plane)?

The connection may be substantiated by an observation I will develop further in chapter 9, namely that Gothic pointed arches anticipate mathematical perspective. In order to create the modern image, the pointed-arch perspective has to be, so to speak, laid down horizontally and placed in front of the window painting. No wonder Suger sees the church pervaded with a *lux nova* and in his meditation feels transported to a new, indeterminate place in the universe beyond the customary duality: "[...] then it seems to me that I see myself dwelling, as it were, in some strange region of the universe [*sub aliqua extranea orbis terrarum plaga*] which neither exists entirely in the slime of the earth nor entirely in the purity of Heaven."[74]

The assumption is also corroborated by the contemporaneous attitude to windows and images as being two equal entities. During the renovation of Salzburg Cathedral in 1127, for example, we learn that Archbishop Konrad "adorned the walls with windows and with a painting shining of gold." And Bishop Egbert of Münster (in office 1127-32) had "illuminated the walls of the House of God with windows."[75] Spengler is, therefore, on the right track when he remarks of Western window architecture that it is one of the most significant symbols of the Faustian experience of depth, the will to force the way from inner to infinite. Of the glass windows in cathedrals, in particular, he states that they comprise a "translucent, and therefore wholly bodiless, painting".[76]

If, on the other hand, we turn to Alberti's early manifesto for the modern painting, *De pictura* (1435), we will also see that his language involves several indications of a link with this Romanesque-Gothic tradition. Besides the window as general metaphor for the image, Alberti also refers specifically to *coloured* windows, which ensure the penetration of the visual pyramid: "when [the painters] draw lines around a surface, and fill the parts they have drawn with colours, their sole object is the representation on this one surface of many different forms of surfaces, just as though this surface which they colour was so transparent and like glass [...]."[77] And when Alberti compares the image with a *veil*, he is following the thread right back to the *Mandylion* and the icon's identification with the firmament (cf. chapter 3).

## *Perspective between intuition and linearity*

As mentioned, there are two aspects to perspectival pictorial space: it more or less intuitively conjures up a feeling of depth through optical impressions such as foreshortening and atmospheric blurring with distance; and it freezes some of these impressions in the abstract-geometric system of linear perspective. Realisation of linear perspective depends ideally on knowledge of points of reference in the space being described, in such a way that the projection of the space appears as a geometric reconstruction. Less ideally, familiarity with known phenomena in the depicted space – in particular elements of a geometric profile, such as buildings, roads and fields, but also human figures, animals and trees – can lead to plausible hypotheses of spatial behaviour, although it must be stressed that accurate knowledge of space can never be reached via the sense of sight alone.

Landscape, then, is in the outer zone or completely beyond the reach of linear perspective, constructed as it is by nature's amorphous phenomena. Is it a twig or a branch we are looking at; a mound or a mountain? Have we spotted a small cloud or a broad expanse of mist? Where the wilderness begins, clear proportion comes to an end. It is only where cultivation makes for lines of connection across the terrain that the landscape can be calculated in more exact spatial terms. Landscape in modern painting is thus stretched between these two extremes: on the one hand, the proportions extract power over it via the levelling of cultivation; on the other hand, it manifests a chaos, the infinity of which eludes the comparative scale and therefore has to be pinned down through an intuitive rather than a linear perspective.

Regardless of its varying dealings with intuitive perspective, however, I am in no doubt that linear perspective is still the plane-geometric system which comes closest to visual impression – visual impression understood as the momentary sight, *das Augenblickliche*. The linear perspectival eye-point, which gathers the lines leading out to the objects in the environment – what Alberti calls the visual rays – corresponds to the centre of the eye's lens; and the surface, which cuts off this visual pyramid, corresponds to the projection on the retina.[78] There is, indeed, endless discussion as to whether linear perspective is artificial or natural, construed or realistic. One point of argument is that linear perspective is monocular, whereas eyesight is stereometric; another, that the perspectival projection is flat, whereas that of the eye is convex, which makes for problems at the sides of panoramic prospectuses. In practice, moreover, we do not register things in a single glance, but piece vision together from many single glances. These objections do not, however, upset the fact that linear perspective operates with momentary sight as the ideal and that, considering its mathematical rigorism, it gets pretty close to this objective.

In the first instance, therefore, we should look at the distinguishing features of momentary sight rather than at the technical methods by means of which it is fixed on the image plane. Momentary sight distils down to two properties: [1] it sees the surrounding environment in an isolated moment; [2] it does this from a specific point of view, which is determined by the momentary element. To isolate this gaze from the broader perception and elevate it to pictorial ideal is – as shown in the Interlude – anything but 'natural'. If in doubt, we should simply bear in mind Aristotle's reasoning as to why a very small animal cannot be beautiful: it cannot because *our perception becomes indistinct when it approaches the momentary* (cf. chapter 1). The primacy of momentary sight in the image is therefore determined by, and inscribed in, an epistemic *field* that breaks with antiquity's ideal of total knowledge – an all-surveying insight before which the objects settle in their ontological essence – in favour of a fragmented cognition satisfied by limited and subjectively-bound aspects of an object.

It is on this basis that the essential quality of modernity can be called nominalism – a property which is actually also embodied in the etymology of perspective. In the perspectival vision we cannot look the world directly in the eye, but have to look *through* something, *perspicere*. This something that we look through is the projected image – cast onto the back wall of the eye socket or its outward extension in the painted image plane – a projection which thereby becomes both mediation and barrier, window and mirror, symbol of liberty and prison. It is only by dint of being enclosed behind the wall of individuality that there is need to open that window which is not merely represented by the modern image but also by the momentary sight. As Leonardo so elegantly – and Platonically – writes of the eye: "The eye is the window of the human body through which the soul views and enjoys the beauties of the world. Because of it the soul in its human prison is content, and without it this human prison is its torment."[79]

The clearest manifestation of the image plane as this kind of window is most probably to be found in the latticework – equivalent to the window's crossbars – which underlies so many painting designs following the emergence of linear perspective and which is also a feature of the new pictorial aid, the latticed perspectograph. In Dürer's famous woodcut illustration from his treatise on perspective, *Course in the Art of Measurement* (1525), the reclining nude is scanned through the grid of this instrument, which in its *Durchsehung* simultaneously offers an opening towards and an appropriate screening from the woman's prominent crotch, an apposite synecdoche for that nature the male viewer wants to control. In this latticework we find, furthermore, an apposite visual parallel to the system of co-ordinates developed by Nicole Oresme 150 years earlier to describe the change of quality as a function of time. Both systems signify, in nomalist fashion, the membrane through which

consciousness reaches cognition of the infinite environment while simultaneously realising its separation from the same.

However, in a wider sense, the *Durchsehung* of perspective also deals with the arrangement of objects out in the spatial surroundings. A significant innovation in 15th-century painting is thus the framings – windows seen frontally or, a particularly bold Netherlandish speciality: as very narrow slots – through which the gaze glides smoothly from dim interiors and out to distant landscapes. This mode of presentation is in sharp contrast to the sacral-idyllic paintings' discontinuous leap between architectural walls and their inserted depictions of landscape (cf. chapter 6). Out there in the landscape expanses, trees are likewise set up with no antique anxiety about what can be seen in the distance behind them, whether it be other trees, remote hills or the clear blue sky visible between the branches. In this ongoing juxtaposition of foreground and distance, landscape becomes one big perspective: everywhere, we move *through* something in order to get further into the depth.

The role of linear perspective in modernity's epistemic *field* is particularly apparent from the fact that it crystallises simultaneously with the new pictorial paradigm.[80] It is still a matter of discussion as to whether its precise mathematical formulation is the work of Brunelleschi in the 1420s, Alberti in 1435 or an *éminence grise* such as Brunelleschi's friend, the mathematician and geographer Paolo dal Pozzo Toscanelli (1397-1482), but Masaccio's use of *costruzione legittima* in his *Trinity* fresco of 1427 or 1428 (**FIG. 8.3**) suggests that at least Brunelleschi, who according to Vasari was Masaccio's teacher, must have been familiar with the method. Manetti's biography of Brunelleschi (*c.* 1480) indeed claims that the architect actually invented or re-discovered perspective and that he demonstrated his method through two now vanished depictions of Florence's Baptistery and Piazza della Signoria. In order to ensure the desired illusion in the Baptistery panel, Brunelleschi drilled a hole at the spot which later became known as the vanishing point. As a manifestation of the correspondence between outlook and remoteness, subject and infinity, this point was now transformed to eye-point, as Brunelleschi stipulated that the beholder should look through the hole from the verso of the panel and observe the reflection of the view as it appeared in a mirror (of identical size) held at arm's length.[81]

But the regime of linear perspective also clearly had its limits given that "he placed burnished silver where the sky had to be represented, that is to say, where the buildings of the painting were free in the air, so that the real air and atmosphere were reflected in it, and thus the clouds seen in the silver are carried along by the wind as it blows."[82] The gold ground of medieval skies is thus transformed to a silver plane no longer symbolising the indestructible celestial sphere but, on the contrary – as a visual counterpart to the literary *speculum* – reflecting the atmospheric sky in all its changeability. In Hubert Damisch's key statement, we are here dealing with

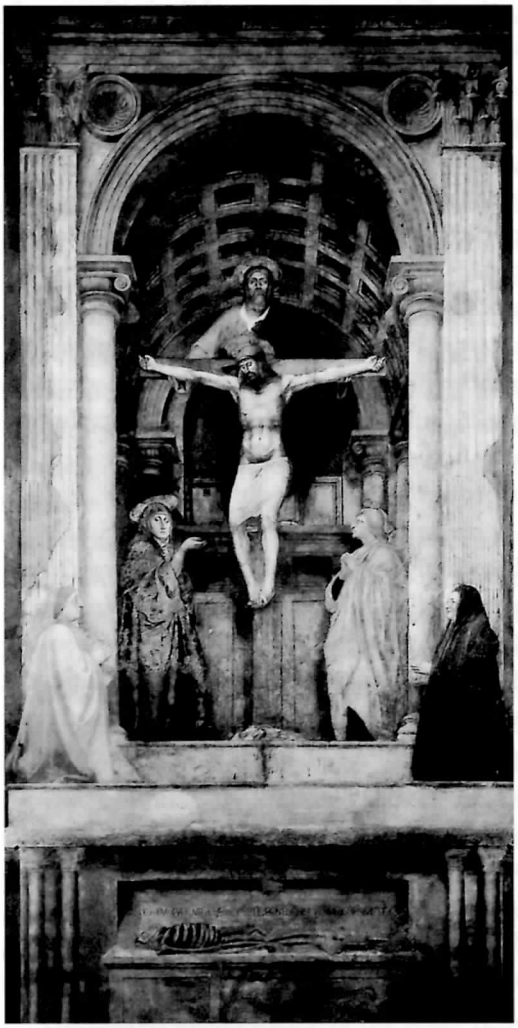

Fig. 8.3. Masaccio, *Trinity* (1427 or 1428), fresco. Florence, Santa Maria Novella.

> an epistemological emblem [...] to the extent that it reveals the limitations of the perspective code [...]. It reveals perspective as a structure of exclusion, the coherence of which is founded upon a series of rejections, and yet which has to make room for the very things that it excludes from its order.[83]

Even though Damisch has a keen understanding that linear perspective belongs in the urban space with its geometrically-controlled forms and thereby becomes diffident in relation to nature's amorphous chaos, it nonetheless seems to me that he exaggerates the degree of otherness of this chaos. That the hazy sky's reflection

Fig. 8.4. Dirk Bouts, *Last Supper* (1464-67), central panel from *Altarpiece of the Holy Sacrament*, tempera on wood. Louvain, St Peter's Church.

defies a linear effect of depth does not actually mean that it is beyond depth, let alone representativity as such, any more than linear perspective is beyond 'mirroring effect'. On the contrary, linear perspective and the reflection of clouds are inscribed in the same epistemic *field*, that of modernity, through the fact that they both signify an infinite remoteness through which the autonomous subject constitutes – reflects – itself; only the former, mathematic, remoteness applies to the rationality of this subject (objectivity), whereas the latter, chaotic, remoteness applies to its intuition (subjectivity).

So saying, it also becomes a less confusing fact that the systematic linear perspective was utilised earlier and more intensely in Italy than in the transalpine North. Whereas the Italians present a mathematical perspective construction in the 1420s, we would seem to have to wait until Dirk Bouts' *Last Supper* of 1464-67 (FIG. 8.4) before the Netherlands see an architectonic space assembled with a thoroughly unifying linear perspective.[84] The reason for this difference is decidedly not that the Netherlandish artists had less spatial sense than the Italians for, as will be detailed in chapter 9, their pictorial gaze often opened towards more radically vertiginous horizons than their colleagues to the south. It is rather a case of a Northern nominalist tradition versus a Southern construction-oriented one. The mathematical perspective construction depends upon a precise imagining of the way in which the scene to be painted is built up. If, however, a panorama is evoked

less from construction than from visual impression, the centre of gravity is moved inwards, from objective knowledge of the surrounding environment to subjective visual knowledge or, to put it another way: from rationalism to empiricism.

Despite the differences between South and North, and despite the fundamental divide between linear continuity and hazy discontinuity, there are nonetheless limits as to how far the Netherlanders diverge from linear perspective. Simply because the artificial construction is close to the transference of the visual impression onto the pictorial surface, then even an art that imitates this impression on a purely empirical, anti-constructivist basis will have a 'linear-perspectival' look.

Svetlana Alpers has most thought-provokingly but, as far as I can judge, with only partial success, attempted to separate out these two image regimes – the visually-oriented and the linear perspectival – on the basis of the terms "description" and "narration".[85] In her opinion, the Northern post-medieval pictorial space is fundamentally empirical, what she terms descriptive, whereas the systematic perspective construction is a congenial expression of Italian Renaissance painting, oriented as it is towards narration. Although it appears to be correct that the Italians found immediate comfort in a definable pictorial regime in order better to underpin the figure-based narrative, it seems doubtful that this regime can merely be described by the general term 'linear perspective'. As will be shown in the next chapter, this is most likely a case of *selective* linear perspective, which transforms the field of vision into a kind of theatre stage, on which the figures obviously belong.

Despite the basic soundness of the concept of North European description, Alpers gets into further difficulties when she links description with a kind of 'pure' vision without reference to the beholder, whereas it is conversely claimed that the Italians preferred a view in which the beholder's position is well-defined. It is more accurately a case of the Netherlandish vision-oriented art being inconceivable without the idea of the subjective beholder's position. In fact, Panofsky has established the likelihood of the subjective beholder being far more developed north of the Alps, whereas the Italians tend towards idealised frontal compositions in which the idea of the presence of a beholder is in practise blurred. Panofsky refers, as an example, to the otherwise very Netherlandish-influenced Antonello da Messina, who has to place his Saint Jerome (*c.* 1474; FIG. 8.5) in a study, which is shown closed, parallel with the image plane and with a vanishing point at the centre. In contrast, we could turn to, for example, Jan van Eyck's *Madonna in a Church* (*c.* 1432-34; FIG. 8.6), in which the Gothic church interior stretches diagonally into the depth. We are here, more explicitly, confronted with visual direction and point of view, and can sense that the pictorial field only comprises a section of a larger space.[86]

In keeping with our comments on the subtle boundary between linear and intuitive perspective, linear perspective seems otherwise to be thoroughly absorbed in

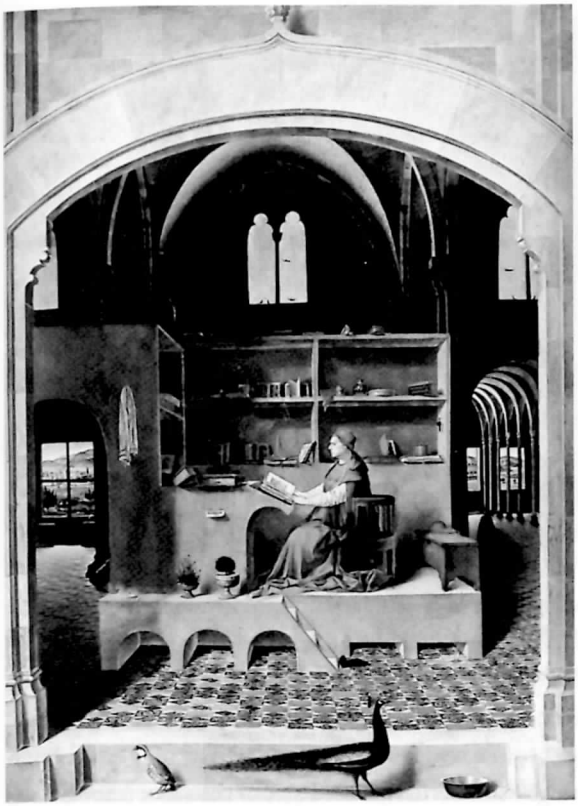

Fig. 8.5. Antonella da Messina, *Saint Jerome in his Study* (*c.* 1474), oil on wood. London, National Gallery.

Fig. 8.6. Jan van Eyck, *Madonna in a Church* (*c.* 1432-34), oil on wood. Berlin, Staatliche Museen.

the post-1500 North. And yet Alpers finds that even this systematised Northern form reflects principles other than those current in Italy. In reading the North's first treatise on perspective, Jean Pélerin Viator's *De Artificiali Perspectiva* (1505), she notes that sight itself, not a window in front of the eye, is the ideal for the image. The result of this vision – a heterogeneous, de-centralised space which pays regard to the movements of the eye – is identified by Alpers in, for example, a plate from Jan Vredeman de Vries' *Perspective*, published in Leiden 1604-05 (**FIG. 8.7**).[87] In this geometric construction of a room, the central vision is indeed challenged by a confusing number of open doors and shutters, and yet it is still a *perfectly homogenous space constructed in systematic linear perspective*. Even though Alpers is addressing a significant point when she identifies sight, rather than construction, as the ideal for Northern artists, this

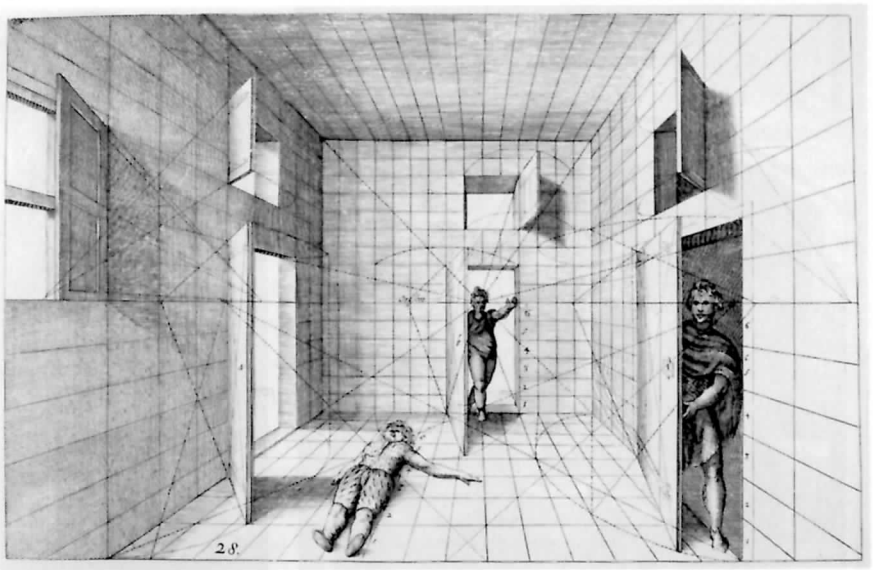


Fig. 8.7. Jan Vredeman de Vries, Plate 28 from *Perspective* (Leiden, 1604-05), engraving.

does not change the fact that sight still occurs on the basis of the same principles as those of the perspectival image in the widest sense. The world does not deposit differently located outlines when projected through a perspectograph than when cast onto the back wall in a *camera obscura*, the mechanical imitation of the eye.[88]

Provisionally, therefore, we could say of Alpers' theory that her key distinction, the difference between Northern description and Southern narration, appears to be extremely precise, but that she follows the wrong track by going on to link description with a subject-less eyesight, and narration with a linear perspective based on subject and window alike. The crucial distinction between the Italy-North correlation is not between window and eye or between linearity and empiricism – categories which will actually often be interwoven – rather it concerns a Southern ideal-oriented perspective versus a Northern subject-oriented perspective. In the ideal perspective, the image is centralised to a scene upon which plastic figures present themselves so self-evidently that consciousness of viewpoint disappears, or rather: is displaced; however, in its subject-oriented counterpart – of which ideal centralism actually constitutes a special case – the image points to itself as a seen fragment of the infinite environment, by means of which the figure's plasticity-based special status is dispelled in the non-hierarchical space.

## *The gaze from above: voyages of discovery, cartography, perspective*

The modern paradigm's invasion of the pictorial space not only occurs simultaneously with the development of the Copernican world picture, but also alongside the colonisation of another space: the world beyond the West.[89] At the same time as the space behind the image plane begins to expand, and the universe around the earth is extended, European culture is struck by similar growing pains in a horizontal direction. This expansion begins with crusades on land, is followed up with voyages of discovery by sea and culminates in the systematic colonisation of everything non-Western. None of the three movements can be cut down to single causes, but are controlled by an impenetrable complex of motivations: commerce, overpopulation, missionary zeal, aspiration to conquest, scientific inquisitiveness, love of adventure, restlessness; in brief, a wealth of factors better understood within the epistemic *field* – that of modernity – of which they are a part, rather than in isolation.

The crusades between the 11th and 13th centuries can thus be said to actualise that link to the Orient which at the same time finds intellectual expression in the import of Islamic natural philosophy. As a consequence of this opening, the Venetian Polo family is able to travel to China and Indonesia in the second half of the 13th century and the similarly Venetian Niccolò Conti to journey to Java by land in 1419. In the 14th century, Europeans also begin to extend their sea routes southward and westward, pursuing the incentive of commercial imperialism. The Madeira Islands and the Azores, a third of the way across the Atlantic, already featured on a map in 1351, the Canary Islands were added in 1389. And, in the 15th century, African gold and sea routes to India are prized: in 1433 Gil Eannes, one of Henry the Seafarer's captains, crosses Cape Bojador; Cape Verde is reached by Dinis Dias in 1444; and in 1488 Bartholomeo Dias rounds the Cape of Good Hope, the southern tip of Africa.[90]

These voyages and their climax in Columbus's expedition westward to America in 1492 and Vasco da Gama's eastward to India in 1497-98, were again not experiments in the dark. They took place completely synchronously with and dependent on the change in the *mental* image of the world which affected the birth of the modernity *field*. In J.R. Hale's words, they occurred "in the service of an organized vision of what might be found and an eagerness to relate to it what is known."[91] This organised vision of the world was particularly evident in *cartography*. As we saw in chapter 4, the antique world map only covered Eurasia and North Africa and, what is more, it had been out of proportion. Land surveying did indeed use proportioning grids for the measurement of fields on the local level, just as Ptolemy in his *Geography* had introduced co-ordinates as specification of location, but it would seem that a

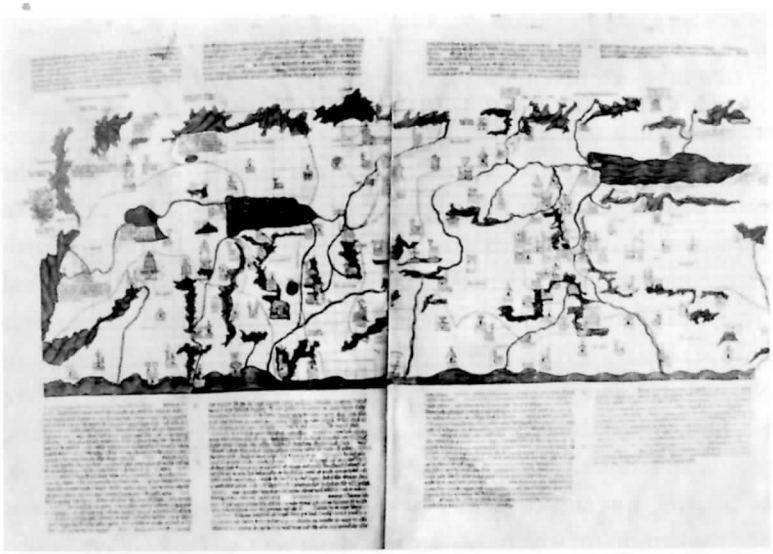

Fig. 8.8. Pietro Vesconte, map of the Holy Land (*c.* 1320), miniature from Marino Sanudo's *Liber secretorum fidelium crucis*. Paris, Bibliothèque Nationale, ms lat. 4939, ff. 10v-11.

fusion of the two systems – a grid covering the entire world – eluded antiquity, as did a perspectival unification of the visible space in the image.[92]

As with practically everything else in Western culture, the situation changes after year 1000. At this point, what are perhaps the first *regional* maps begin to be drawn, these being the mediating link between the local and the global. If they have precursors, they would seem to be from the 'little modernity' of the 4th-5th century. The 12th century produced maps of Europe and Asia, the end of the 13th century saw harbour maps of the Mediterranean and the Black Sea which, in details and accuracy, surpass all previous maps.[93] And around 1320, Pietro Vesconte, a Genoan living in Venice, draws a map of the Holy Land to be used in Marino Sanudo's *Liber secretorum fidelium crucis* (*Book of Secrets for the Faithful of the Cross*), a work calling for a new crusade (FIG. 8.8).[94] This map is remarkable because of its overlaid gridwork specifying, with startling clarity, the position of cities, rivers and mountains. The gridwork is this time possibly imported from China, where it had been used in maps ever since the work of the 3rd-century cartographer Phei Hsiu. Another possible – and possibly mediating – influence is Byzantium as, from the 13th century, several Greek editions of Ptolemy's *Geography* were equipped with grid-covered maps, both regional maps and world maps.[95]

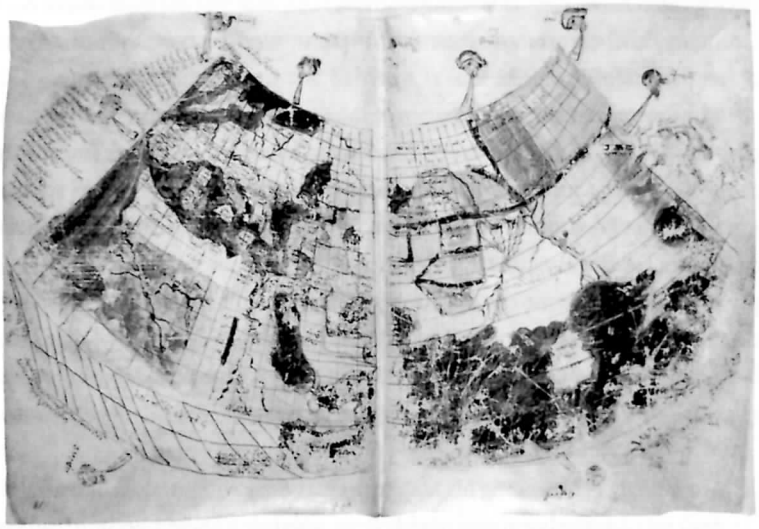

Fig. 8.9. World map (15th century), miniature from Byzantine manuscript of Claudius Ptolemy's *Geography*. London, British Library, Add. ms 19391, ff. 17v-18.

For the first time in Western culture, therefore, mapping now transgresses the *agrimensores'* local grid limited by mountains and rivers, and moves on to a fundamentally infinite system of co-ordinates, disengaged from the directives of the terrain. Quite logical, then, that a few decades after Pietro Vesconte produced his map (and evidently more as a result of the epistemic *field* than a direct influence), Nicole Oresme works out *his* system of co-ordinates, but now just, as we have seen, to be used for the calculation of the change of intensity over time.

The idea of overlaying the entire world mass with a grid reaches the West from Byzantium at the beginning of the 15th century, when Ptolemy's *Geography* is translated into Latin for the first time (FIG. 8.9).[96] Although the illustrated Ptolemy still only depicts a limited part of the globe – the section from Gibraltar to the Far East – it moves the West to the upper left corner of the map and in so doing signals a new approach to the world – an approach aiming to survey the globe in its totality. This overall inspection is only possible because the map is disengaged from the earth, becomes an independent system with its own points of reference. We will recall that Nicholas of Cusa, the philosopher who stresses the difference between the infinite presence of the world and the limited otherness of consciousness, also envisages how the earth will look if it is viewed from a point outside the

fiery sphere. Moreover, this same Nicholas of Cusa lifts his gaze above his homeland, Germany, and commits its terrain to paper, using cartographic co-ordinates that correct those of Ptolemy.[97]

The voyages of discovery not only take place simultaneously with this approach, they implement it, for, as Hale points out, 15th-century studies in geometry are just as significant for navigation as for cartography.[98] This is proven in spectacular fashion when the Portuguese Crown asks Nicholas of Cusa's friend, the aforementioned candidate for the invention of linear perspective Paolo dal Pozzo Toscanelli, to supply information about the sea routes to the Orient. As Edgerton notes, the Florentine mathematician's reply to the Canon in Lisbon, a letter dated 25 June 1474, can be seen as "one of the decisive letters of history", given that, probably in direct motivation for Columbus's expedition 18 years later, Toscanelli writes, *inter alia*:

> Accordingly I am sending his Majesty a chart done with my own hands in which are designated your shores and islands from which you should begin to sail ever westward, and the lands you should touch at and how much you should deviate from the pole or from the equator and after what distance, that is, after how many miles, you should reach the most fertile lands of all spices and gems [...]. So there is not a great space to be traversed over unknown waters.[99]

That this combined love of adventure, commercial imperialism and hard-headed calculation really does signify a giant leap in cultural evolution – a leap that takes Western culture definitively from the closedness of the Golden Age *field* to the openness of the Iron Age *field* – is apparent if we recall antiquity's terror-stricken remarks on sea voyages beyond the Pillars of Heracles at the Strait of Gibraltar (cf. chapter 1): "All beyond that bourne cannot be approached either by the wise or by the unwise." Since the far more carefree modernity not merely approaches, but definitively transgresses this marker for the closed world, the post-Golden Age horizons are at long last saturated, so that Toscanelli's no longer "unknown waters" realise Ovid's "unknown waves" and winds of which the sailor has scant knowledge, just as the voyage to "fertile lands of all spices and gems" recalls, for example, Tibullus's search for "riches on unknown shores" and ship cargoes with "foreign merchandise" (cf. chapter 4).[100]

Bearing in mind Toscanelli's interest in perspective and optics, indeed, that he was possibly the catalyst who, half a century earlier, had guided Brunelleschi to his famous perspectival view of the Florentine Baptistery, we also clearly sense how inviolable a thread goes from mapping and colonisation of the macroscopic world to the perspectival visualisation of the near and distant surroundings. As Edgerton has vividly shown, the horizontal grid, which in cartography sees the continents

from above, is crystallised synchronously with the vertical grid, which in linear perspective sees the surrounding environment captured from an individual point of view.[101] The conquering journey to the furthest reaches of the globe is thereby inseparable from the journey simultaneously undertaken by the pictorial view across the visualised earth to distant misty-blue mountains. W.J.T. Mitchell's idea of landscape as a kind of 'dreamwork' for imperialist movements can accordingly be corroborated.[102] The conquest potential of the eye in all its facets – cosmological, colonial, scientific, artistic – shines out of this citation from Leonardo:

> Now, do you not see that the eye embraces the beauties of all the world? It is the master of astronomy, it makes cosmography, it advises and corrects all human arts, it carries men to different parts of the world; it is the prince of mathematics, its sciences are most certain; [...] it has created architecture, and perspective, and divine painting.[103]

That cartography and perspective develop so synchronously is because the former is contained in the latter. In my examination of pre-modern space representation, I found that *mapping gaze* and *panoramic gaze* were separated when the depth of field had expanded to such an extent that land formations could create depth of image. With the *agrimensores'* mapping gaze and grid it was possible to survey a larger territory, but not to direct the gaze toward the horizon. With the semi-subjective panoramic gaze it was possible to direct the gaze into the depth, but not to survey the terrain divided by the grid. In order to create a modern landscape portrait, then, the two ways of seeing have to be amalgamated. Without forgoing the overview and precision of location provided by the mapping gaze, there is, as it were, a zoom-in to selected map details, which are then isolated in spatial images. At that instant – the instant when the overview reaches from mapping gaze and into that oblique gaze which creates the modern image – at that moment the horizon and infinity are exposed.

The mechanism applies regardless of whether the landscape being depicted is fictive or topographically accurate. If the latter is the case, we remain in the descriptive sphere of the map. The last quarter of the 15th century sees the first topographical portraits to include the map's overview as well as the new paradigm's perspective. One example is the woodcut view of Florence, called "with chain" (*c.* 1470-85), attributed to Cosimo Roselli's workshop (FIG. 8.10). The artist, as if not wanting to leave the beholder alone with the floating view, intervenes as agent for our gaze. On a level with the padlock, which secures the chain framing the image, he stays fixed to the ground of the hilltop while his gaze flies from the river boats in the close foreground across the city wall and all the townhouses and on to the fields, hedges and distant mountains.

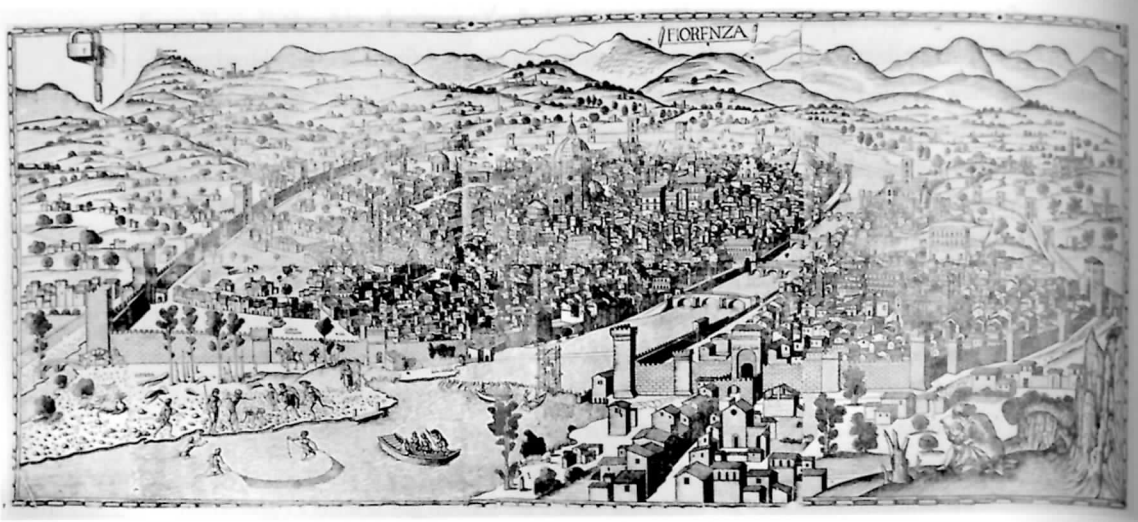


Fig. 8.10. Cosimo Roselli's workshop, *Panorama of Florence* (*"with Chain"*) (*c.* 1470-85), woodcut.

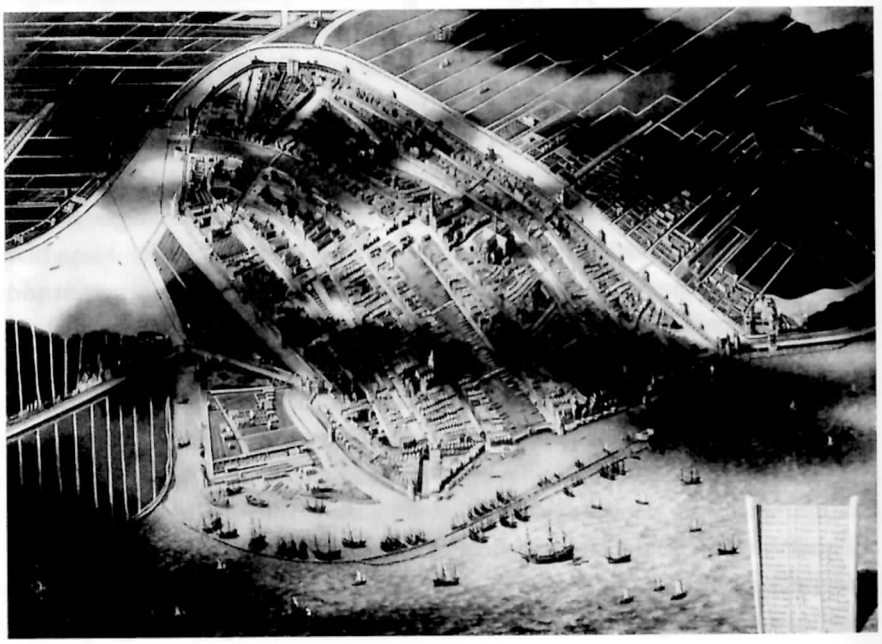

Fig. 8.11. Jan Christaensz. Micker, *View of Amsterdam* (*c.* 1650). Amsterdam, Amsterdam Historical Museum.

But in Jan Christiaensz. Micker's *View of Amsterdam*, painted two centuries later, this connection with the earth has long since been cut (FIG. 8.11). Here the gaze is so high up in the air above the busy merchant city that the flat Netherlandish topography is covered with fuzzy shadows made by the clouds. Bearing images such as these in mind, it becomes strangely tangible that Leonardo should refer to the eye as a means of carrying people to the different parts of the world – and even toyed with the idea of aircraft, which could take the beholder physically up to this viewing altitude.

## *The triumph of sight and colonisation*

As mentioned, the culturally-produced symbiosis between an independent subject and its infinite environment first reaches an ultimate maturation in the 19th century. At the same time as Western landscape painting is emancipated, the subjective gaze could be said to culminate in the photograph – where it also begins its phasing out. This line of thought is summarised in Peter Galassi's excellent essay for the exhibition *Before Photography* held at the Museum of Modern Art, New York, in 1981.[104] The camera can capture the world from odd, random angles, making the images almost absurd fragments of the infinite surroundings. Here, in the actual freezing of the momentary sight, the classical illusion of a closedness in front of the pictorial window ultimately fails.

Galassi cautiously suggests that this gaze is not determined by the photograph, but that, on the contrary, the photograph is triggered by the gaze. As the pre-photographic paintings in the exhibition show, an increasingly 'photographic' pictorial view develops as we move from the invention of perspective in the 15th century and on to the beginning of the 19th century. In Ruisdael's deserted *Bentheim Castle* (*c.* 1670; FIG. 8.12) the rocks are already given a conspicuously prominent place in the foreground around the rushing river, while the castle itself has to draw insignificantly back on the hill below the broad cloud cover. And yet this spatial displacement is nothing compared with the 'non-motif' that appears in Friedrich Loos' *View towards Salzburg from Mönchsberg* (*c.* 1829-30; FIG. 8.13). Here, an oblique shadowy mass of rocks and trees hits us straight in the eye before we spot the diminutive, carelessly revealed town in the background.[105] It is not until the exact instant in which the momentary sight is fully realised, as here, that the combination of optics and chemistry able to fasten this sight come together.

The period that initiates light-chemistry's freezing of the momentary sight is also the period that canonises the infinite universe and allows for the culmination of Western imperialism. At the same time as the last white spots on the world map disappear, the 'new' world becomes the last domain of Western longing for freedom,

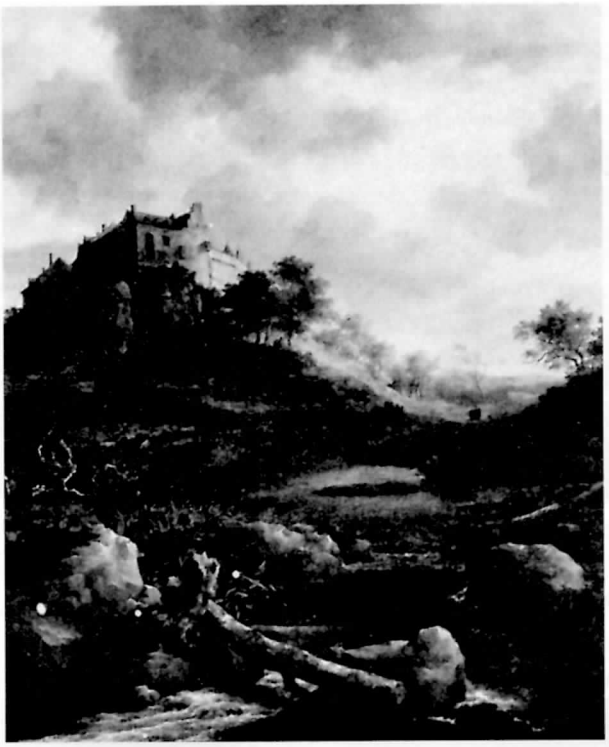

Fig. 8.12. Jacob van Ruisdael, *Bentheim Castle* (*c.* 1670), oil on canvas. Amsterdam, Rijksmuseum.

Fig. 8.13. Friedrich Loos, *View towards Salzburg from Mönchsberg* (*c.* 1829-30), oil on canvas. Vienna, Österreichische Galerie Belvedere.

adventure and possession. In Franzsepp Würtenberger's pioneering essay *Weltbild und Bilderwelt von der Spätantike bis zur Moderne* (1958), we not only read about this connection between expansion of the pictorial space and actual knowledge of the world's continents, but also about the dependence of these spheres on the *concept of time*.[106] Even though Würtenberger does not go into detail, he suggests that 19th-century artists are the first who are able to place their pictorial space in a definable time, because control has been gained of the earth's total surface and it is therefore possible to co-ordinate the sun's changeable positions in a universal time (FIG. 8.14).

Nor is this aspect of Würtenberger's ideas difficult to corroborate. Although 15th-century painters might introduce indications of time such as day, dusk, night and seasons, there is still a long way to go before the exact indications of time we encounter in 19th-century images. In 1856, the Pre-Raphaelite John Everett Millais paints *Autumn Leaves* in so temporally precise a fashion that the setting sun burnishes the girls' hair while their faces are indirectly lit up against the blue-black horizon (FIG. 8.15). As John Ruskin notes: "It is [...] as far as I know, the first instance of perfectly painted twilight."[107] It is also this visualization of time that we see captured in the photograph, the momentary freezing of a space influenced by time.

Again, we can make a link to the epistemic *field* because, just as the 19th century constitutes the zenith of the colonial period, it is also the period in which global time is co-ordinated and chronometers regulated. Even though, as we will see, mechanical clocks had been in widespread use since the Late Middle Ages, for a long time temporal measurement was purely a local phenomenon. In *Voyage en Italie*, for example, Montaigne writes about the chaos he experienced en route because cities in the 1500s still followed their own time.[108] Thus, it is only after the artist is situated on a globe with a common, homogenised time, that he or she is able to paint a dusk experienced at a specific moment.

This observation is also corroborated by an isolated consideration of light in painting. As Wolfgang Schöne commented, the movement from the painting of the Middle Ages to that of modernity signifies a movement from *self-light* to *illuminating-light*. Whereas light in the Middle Ages is conceived of as metaphysical and transmitted internally from body to body through the world hierarchy, in modernity it becomes an outer entity cast from well-defined light sources and spread in the void between the bodies. Schöne distinguishes between four types of light cast in the images: natural light (from sun or moon); artificial light (from fire or lamps); sacred light (from celestial revelations); and, finally, what he calls *indifferent* light. This last category is a light which can be seen cast onto objects, but which cannot be traced to any specific source. Schöne notes that images between the 14th and 18th centuries always have a portion of this kind of light, and that it first disappears around 1800 in favour of explicit light sources.[109] On the basis of my earlier

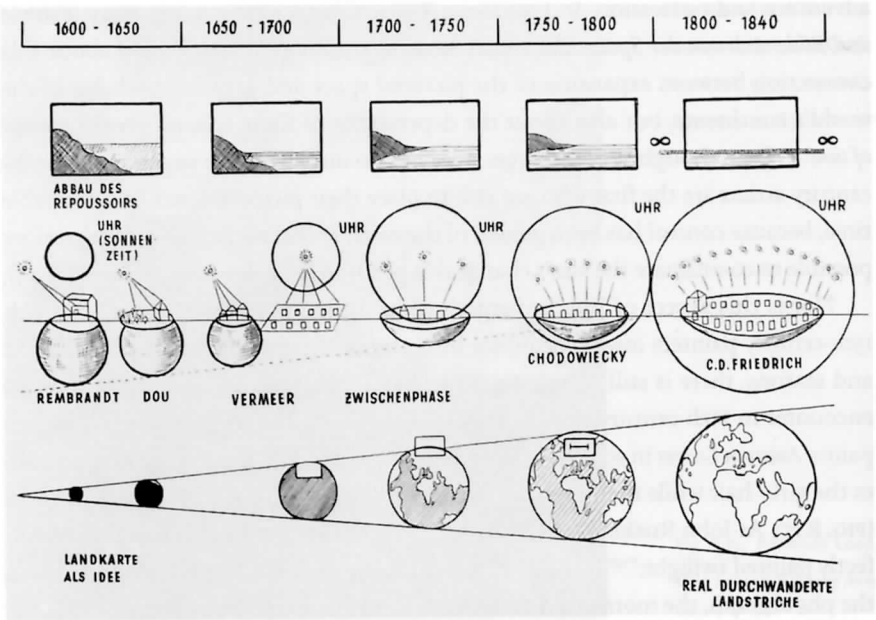


Fig. 8.14. Diagram showing the connection between pictorial landscape, sundial time and knowledge of the earth's surface, 1600 to 1840. From Franzsepp Würtenberger, *Weltbild und Bilderwelt von der Spätantike bis zur Moderne* (1958).

Fig. 8.15. John Everett Millais, *Autumn Leaves* (1856), oil on canvas. Manchester, City Art Gallery.

considerations of the maturation of modernity, I will therefore interpret the indifferent light as a leftover from the pre-modern period – cast light, indeed, but as of yet homeless. The elimination of homelessness requires a fully-developed subjectivity and a homogenised time fixing the sun at a precise point in the sky.

## *Petrarch on the Windy Mountain*

The overview implicit in both the cartography and perspective of modernity can only be achieved by, in an utmost concrete sense, exploding the geocentric world picture. With the heights filled with fire, ethereal bodies and various hierarchies of angels, it is difficult to imagine them being replaced by a human observer. When Nicholas of Cusa considers how the earth might look to an observer beyond the fiery sphere, he is therefore already in the process of dispersing the geocentrism.

This tension between overview and geocentrism is also evident in Petrarch's famous epistle about his mountain ascent on 26 April 1336, addressed to the Augustinian monk Dionigi da San Sepolcro.[110] The humanist, who had already expressed his pleasure over his *vita solitaria* in the Provençal nature, had long aspired to climb Mont Ventoux, the highest peak in the area. The desire was provoked – and legitimised – by an antique precedent, Philip of Macedonia's ascent of Mount Hemus in Thessaly. Could it really be true, as claimed by Livy, that Philip had been able to see both the Adriatic Sea and the Black Sea from the peak of the mountain?[111] For want of a better method, the statement could be tested on the Windy Mountain, which Petrarch now – accompanied by his younger brother – decides to climb.

Before Petrarch reaches the mountain's panoramic platform, however, he has to go through a veritable purgatory of ordeals, mental and physical alike. The daring character of the project is obvious even before he sets off, when he excuses the venture on the grounds that "an ordinary young man" could "do something considered appropriate for an old king." Along the way, he and his brother meet an old shepherd who had indeed made the ascent when a young man, but who warns them against subjecting themselves to its infernal hardships. The warning merely fires Petrarch up, and he even chooses to follow a more complicated route than his brother. When he realizes that the ascent really is incredibly exhausting, he likens it to the journey undertaken by the soul en route to the spiritual sphere. For also "[t]he life we call blessed is certainly located on high, and [...] a very narrow road leads to it."[112]

The view by which Petrarch is overwhelmed on the cloud-encircled peak, however, disperses the geocentric tension. The panorama across the Alps, the Mediterranean and the Rhône is so grandiose that the spatial perspective is coupled with a temporal one. Above the Alps, thoughts fly back a decade, to his young days at the university in Bologna. But Petrarch is also seized by melancholy and doubt

about his ability to love God, and he therefore looks in Augustine's *Confessions*. The passage he chances upon states: "And men go abroad to wonder at the heights of mountains, the lofty billows of the sea, the long courses of rivers, the vast compass of the ocean, and the circular motions of the stars, and yet pass themselves by."[113] Petrarch now frets about having ever admired anything earthly when it is obvious that nothing is greater than the soul, just as inner cannot be found in outer. Our need is "not to achieve a more lofty place on earth, but to trample underfoot our appetites which are exalted by earthly impulses."[114]

Petrarch's letter thus tells us that he has reached the point of isolating the soul from the simple geocentric hierarchy. And yet the soul is still too frail an entity for him to dare mirror it in a view of the outer, expansive world. Nonetheless, the very desire for this view – the aesthetic – shows that Petrarch has become irredeemably modern.

## *The searching gaze: cross section*

And yet: because the modern gaze hovers uncertainly between the large and the small infinity, the distance that inserts itself between the viewer and the object can just as well be diminutive as immense. In the most extreme case, the plane that cuts off the visual pyramid may slice through the very inside of objects. In the sciences of modernity – anatomy, geology, biology, archaeology, architecture, and so forth – this surgical *section* is an important means by which to understand the objects, and its exposure is also traceable in the space in front of the pictorial window. Section understood as a level slice of a mass is, as Maria Fabricius Hansen has pointed out, an unknown phenomenon before modernity. When architects were to set out the plan of a building, they drew the walls as body-less lines – for example, in the ideal *Plan of St Gall* (*c.* 820; FIG. 8.16). But, in the 15th century, the section is fully-honed as part of the new pictorial paradigm. While Alberti still advises against the use of perspectivistic methods in architectural drawings, Filarete and Francesco di Giorgio present a number of their draft designs as sections, in profile as well as level (FIG. 8.17).[115]

This way of viewing can be traced back to 14th-century images, in which we often look into the architectural interiors as if they were a kind of dolls' house with the facades sliced away.[116] In this extremely non-antique way of viewing, the section appears in its dual role as surgical uncovering and window for the gaze. From the 14th century onward, the buildings were also sliced through as the result of another modern image phenomenon, which I shall examine in more detail in chapter 12: *the ruin*. In the *Miracle of the Cross* in the Upper Church of San Francesco in Assisi (*c.* 1300), the moral decay has ensured that the walls, tiles and rafters of the church are exposed,

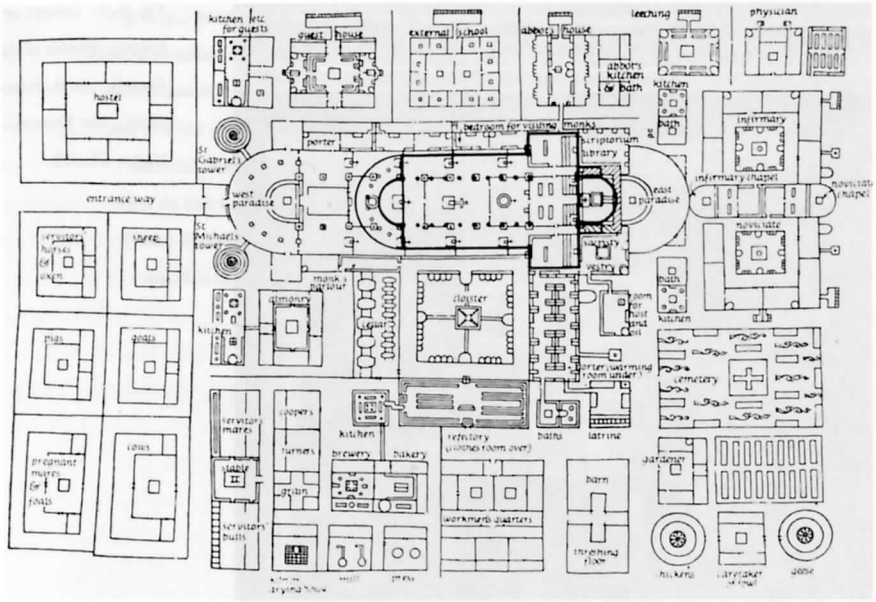


Fig. 8.16. *Plan of St Gall* (*c.* 820), red ink on parchment. St Gall, Stiftsbibliothek.

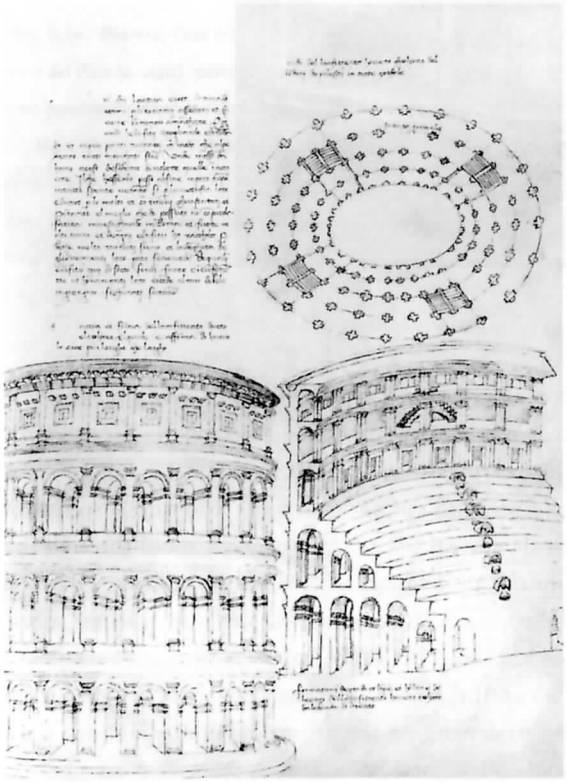

Fig. 8.17. Francesco di Giorgio, *Elevation, Plan and Section of the Colosseum* (*c.* 1486-92), pen and ink on parchment. Turin, Biblioteca Reale, Codice Saluzziano 148, f. 71.

Fig. 8.18. School of Giotto, *Miracle of the Cross* (*c.* 1300), fresco. Assisi, San Francesco, Upper Church.

revealing a perfect model of its structure (FIG. 8.18). The subversion of time thus exposes the inner structures just as comprehensively as any architectural section. An illustrative example of this is the drawing of the Colosseum ruin around 1490, in the anonymous Italian sketchbook *Codex Escurialensis* (FIG. 8.19). The ruin is seen here for the first time from its difficult, surreal side where decay has sliced through the circular walkways around the inner wall. The gaze is remarkably similar to Filarete's drawing of *Casa della Virtù e del Vizio*, in which a comparable structure features, albeit now the result of a cool mathematical section (FIG. 8.20).[117]

Pointing out a difference between these two methods of exposure – ruination and section – would again have to depend on the degree of definition. Both ways of viewing belong to modernity's infinite and homogenous space, but whereas the

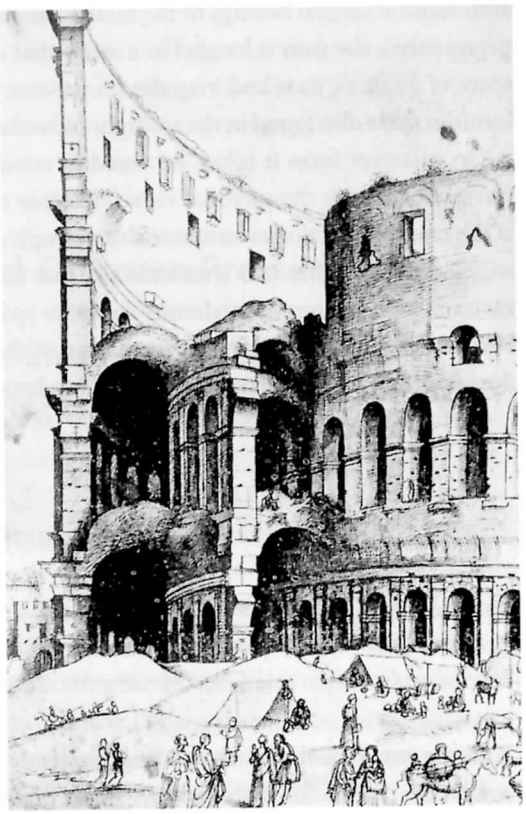

Fig. 8.19. Anonymous Florentine artist, *Ruins of the Colosseum* (*c.* 1490), pen and ink on paper. Escorial, Biblioteca Real de San Lorenzo, Codex Escurialensis, ms 28-II-12, f. 24v.

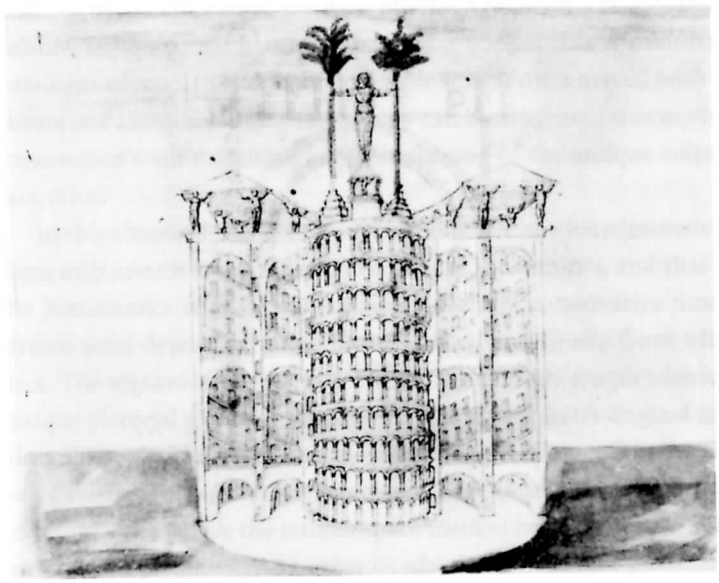

Fig. 8.20. Filarete, *Casa della Virtù e del Vizio* (*c.* 1450), pen and ink on parchment. Venice, Biblioteca Marciana, ms lat. VIII, 2, f. 139.

architectural section belongs to the mathematically definable reality – that of linear perspective – the ruin is located in a space that defies mathematical description, a space of nuances, haze and irregular transitions. This, then, is the unregulated and intuitive space also found in the amorphous landscape phenomena, especially clouds.

In whatever form it takes, we could in conclusion be tempted to believe that the section brings the pictorial view into close contact with matter. The opposite is the case. The section constitutes the triumph of immateriality. The space is now so self-sufficient that it is irrelevant whether its points of reference are placed in vacuum or in matter. In modernity's relative space, the gaze is not to be darkened beyond the eclipse built into the mediation of the viewing process itself, and which does not make any fundamental distinction between dark and translucent matter.

Jacob Wamberg

# Landscape as World Picture

## *Tracing Cultural Evolution in Images*

VOLUME II

## *Early Modernity*

Translated by Gaye Kynoch

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# Contents

## VOLUME II

### Early Modernity

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