Reverse Perspective

Introduction

As Florensky mentions in his first footnote, the essay on 'Reverse Perspective' derives from a lecture that he had intended to give to the Commission for the Preservation of Monuments and Antiquities of the Lavra in October 1919.1 However, invited by Pavel Muratov, director of MIKhIM, Florensky ended up delivering the lecture in 1920 to its Byzantine Section where he was already teaching the history of Byzantine art.[2] Florensky borrowed not only the title and the concept of reverse perspective, but also two key examples, Raphael's *Vision oJEzekiel* and Michelangelo's *Last Judgment* from Oskar Wulff's essay 'Die umgekehrte Perspektive und die Niedersicht'.[3]

Essentially, Florensky's lecture was related to the study of icons within the Russian Church and drew upon his practical experience as a member of the Commission. Starting with the issue of reverse perspective in general, Florensky developed his ideas on space and spatiality in the work of art - which were to become the main topic of his three years of classes at VKhUT'EMAS in 1921–24. That is why substantial parts of 'Reverse Perspective' are also to be found in his treatise 'Analysis of Spatiality and Time in works of Visual Art'.4 As a matter of fact, Mlechnyi put' [Milky Way], the Moscow publishing-house of the journal *Makovets,* announced the forthcoming publication of Florensky's VKhUTEMAS lectures on the analysis of perspective as a book - and as being the most comprehensive treatise on space and art to date.

Florensky held 'Reverse Perspective' in high regard and, not surprisingly, listed it as the primary essay on his cover design for the proposed first volume of his magum opus, At *the Watersheds oJThought,* in 1922.[5] Sad to say, this project was not implemented, Florensky was denied the publicity that he deserved, and the fruits of his brilliant research remained out of reach so that as late as 1971, for example, a contemporary Western study of reverse perspective still omitted reference to the essay.[6] 'Reverse Perspective' appeared in print in the Soviet Union only in 1967, and even then the official censure of Florensky's religious and philosophical legacy was still so strong that the publication did not enjoy wide circulation.

Full restitution and recognition of Florensky's lecture came with the

publication of Lev Zhegin's treatise, *Yazyk zhivopisnogo proizvedeniia* [The Language of the Work of Painting] in 1970. A close colleague of Florensky within Makovets, and much indebted to him, Zhegin developed his own ideas on perspective and spatial representation in art, specifically within the context of the Russian icon.[7] Subsequent discussion of Zhegin's *The Language of the Work of Painting* in Soviet intellectual circles also initiated a broader appreciation of Florensky's own ideas and his name now came to be mentioned publicly both by protagonists and antagonists, especially in the context of the essay on perspective.[8] Interestingly enough, the ideological arguments that were advanced for and against Florensky in the 1920s and 1930s continue to recur in Russian culturology, irrespective of the prevailing political regime, and can still be found in contemporary Russian studies on perspective in Byzantine and Western art, such as those of the mathematician Boris Raushenbakh.[9] Drawing a parallel between the concept of reverse perspective and that of 'perceptual perspective' (Byzantium and Medieval Russia), Raushenbakh asserts that this category (in contrast to linear perspective) is 'freer' from the inevitability of projective geometry, it is also more 'scientific', because it expresses, albeit unconsciously, the artist's conception of non-Euclidean space (especially as formulated by the celebrated mathematician, Nikolai Lobachevsky).[10]

REVERSE PERSPECTIVE"

I

Those who become acquainted with Russian icons of the fourteenth, fifteenth and part of the sixteenth centuries for the first time are usually astonished by the unexpected perspectival relationships, especially in the depiction of objects with flat sides and rectilinear edges, as for instance buildings, tables and chairs, and especially books, specifically the Gospels which the Saviour and the saints are usually shown holding. These particular relationships stand in glaring contradiction to the rules of linear perspective, from whose viewpoint they can only be considered examples of crudely illiterate drawing.

On a closer scrutiny of icons it is easy to note that bodies bounded by curved surfaces are also rendered with foreshortenings that are ruled out by the laws of perspectival representation. Whether the bodies depicted are curvilinear or faceted, the icon often shows parts and surfaces which cannot be seen simultaneously, as one can easily find out from any elementary manual on perspective. So, given a viewpoint perpendicular to the facade of the buildings depicted, both lateral facades are apt to be shown simultaneously. Three or even all four sides of the Gospel are shown at the same time. A face is depicted with the crown of the head, the temples and the ears turned forward and, as it were, spread out on the surface of the icon, while the planes of the nose and other facial features, which should not have been depicted, are turned towards the viewer, and, moreover, while planes that should have been turned forward are turned backward. Also characteristic are the hunched backs of the stooping figures in the *Deesis* row, the back and chest of Saint prochoros shown simultaneously, as he writes under the direction of Apostle John the Theologian, and other analogous instances where the surfaces of a profile and a face view, the back and frontal planes, are combined, and so on. In regard to these supplementary planes, lines that are parallel and do not lie on the plane of the icon, or lines that are parallel to it which should be shown converging on the horizon, are instead shown in an icon diverging from each

other. In a word, these and similar infringements of the perspectival unity of what is represented on the icon are so evident and explicit that even the most mediocre pupil with just a cursory, third-hand experience of perspective will immediately point them out.

But it is a strange thing that these 'illiteracies' of drawing, which apparently ought to throw any viewer who understands the 'obvious absurdity' of such a depiction into a rage, on the contrary arouse no such feelings of annoyance and are perceived as something fitting, even pleasing. Nor is that all: when the viewer has the chance to put two or three icons from about the same period and painted with approximately equal skill side by side, he perceives an enormous artistic superiority in that icon which demonstrates the greatest violation of the rules of perspective, whereas the icons which have been drawn more 'correctly' seem cold, lifeless and lacking the slightest connection with the reality depicted on it. It always transpires that the icons that are the most creative in terms of immediate artistic perception are perspectivally 'defective', whereas icons that better satisfy the perspective textbook are boring and soulless. If you allow yourself simply to forget the formal demands of perspectival rendering for a while, then direct artistic feeling will lead everyone to admit the superiority of icons that transgress the laws of perspective.

It may be suggested here that it is not actually the means of depiction as such that are found pleasing, but the naivety and primitive quality of the art, which is still childishly carefree in regard to artistic literacy. There are even connoisseurs inclined to proclaim that icons are charming childish babbling. But no: the fact that icons which violate the laws of perspective are actually the work of first rank artists, whereas a less extreme transgression of these same laws is primarily characteristic of second- and third-rate artists, prompts one to consider whether the opinion that icons are naive is not itself naive. On the other hand, these transgressions against the laws of perspective are so persistent and frequent, so systematic I would say, and so insistently systematic moreover, that the thought involuntarily arises that these transgressions are not fortuitous, that there is a special system for the representation and perception of reality as it is represented in icons.

No sooner has this thought arisen than the firm conviction is born and gradually strengthens in the minds of observers of icons that these transgressions of the rules of perspective constitute the application of a conscious method of icon painting, and that for better or worse they are entirely premeditated and conscious.

This impression that the aforementioned transgressions of perspective

are conscious is immeasurably strengthened by the <u>emphasis</u> placed on the particular foreshortenings under discussion - to which particular coloured glazes *(rastsvetki)* or, as the iconpainters say, *raskryshki,12* are applied. In this case the peculiarities of drawing, far from slipping <u>past</u> the consciousness through the application of neutral colours in corresponding places, or of colours muted by the overall colour scheme, on the contrary issue a challenge as it were, almost shouting against the general painted ground. So, for instance, the additional planes of the buildings, far from hiding in the shade, are on the contrary often painted in bright colours that, moreover, are quite different from the planes of the facades. The most insistent in declaring itself on such occasions is the Gospel- (illus. 49) the object which, even without this, pushes itself closest to the foreground by various devices and attempts to be the painterly center of the icon. The Gospel's edge, usually painted cinnabar, is the brightest spot on the icon and thereby emphasises its additional planes with exceptional sharpness.

Such are the methods used for emphasis. These methods are all the more conscious in that they are, as it were, at odds with the usual colouring of objects and, consequently, cannot be explained as the naturalistic imitation of things as they normally are. The Gospel did <u>not</u> usually have a cinnabar edge, while the side walls of a building were <u>not</u> painted in colours different from the front, so that it is impossible not to see in the diversity of their colouration on icons an aspiration to emphasise the fact that these planes are supplementary and that they do not submit to the foreshortenings of linear perspective as such.
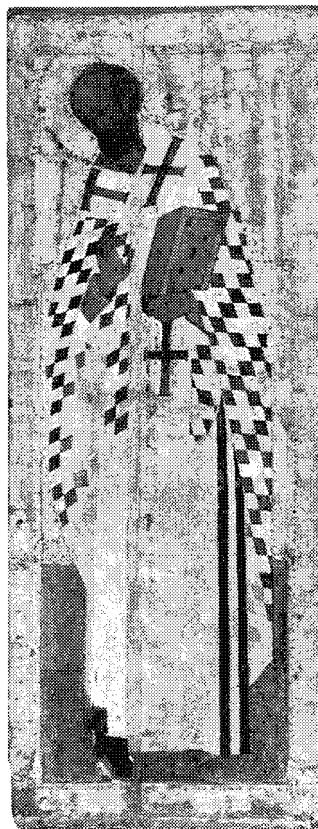

49 Anon., St *Nicholas the Miracle Worker, 1425-7,* tempera on board. *Deesis* of the Iconostasis of the Trinity Church, Lavra of Sergiev Posad

The methods mentioned above are generally termed *reverse* or *reversed perspective,* or sometimes also *distorted* or *false perspective.* But reverse perspective does not exhaust the varied peculiarities of an icon's drawing and also of its chiaroscuro. The closest dissemination of the methods of reverse perspective to be noted is the use of *polycentredness* in representations: the composition is constructed as if the eye were looking at different parts of it, while changing its position. So, for example, some parts of buildings are drawn more or less in line with the demands of ordinary linear perspective, but each one from its own particular point of view, with its own <u>particular</u> perspectival centre; and sometimes also with its own particular horizon, while the other parts are, in addition, shown using reverse perspective. This complex elaboration of perspectival foreshort-enings occurs not only in the depiction of buildings *(palatnoe pis'mo),* but also in countenances, although it is usually applied without any great insistence, with restraint and moderation, and can therefore be passed off as 'mistakes' in draw-ing. And yet in other cases all the schoolroom rules are overturned with such daring, their violation is so masterfully emphasised, and the resulting icon conveys so much about itself and its artistic achievements to a spontaneous artistic taste, that there can no longer be any doubt: the 'incorrect' and mutually contradictory details of drawing represent a complex artistic <u>calculation</u> which, if you wish, you may call daring, but by no means naive. What will we say, for instance, of the icon of Christ Pantocrator in the Lavra sacristy (illus. 50),[13] in which, although the head is turned slightly to the right, the right side has an additional plane, and the foreshortened left side of the nose is smaller than the right, and so on? The plane of the nose is so obviously turned to one side, and the surface of the crown and temples so opened out, that it would be easy to reject such an icon, if it were not for its astonishing expressiveness and completeness, in spite of its 'irregularities'. We become fully and definitively aware of this impression if we examine another icon of this appellation in this same sacristy,[14] similar in design, transcription, dimensions and colours, but painted much more correctly and pedantically, almost without the deviations from the rules of perspective noted above. Compared to the first, this second icon proves to have no content, to be expressionless, flat and lifeless, so that there can be no doubt that, for all their striking general similarity, the trans-gressions against perspectival rules are not a permissible weakness on the icon painter's part, but are his positive <u>strength</u>. They are precisely what makes the first of the icons examined immeasurably superior to the second, the incorrect superior to the correct.
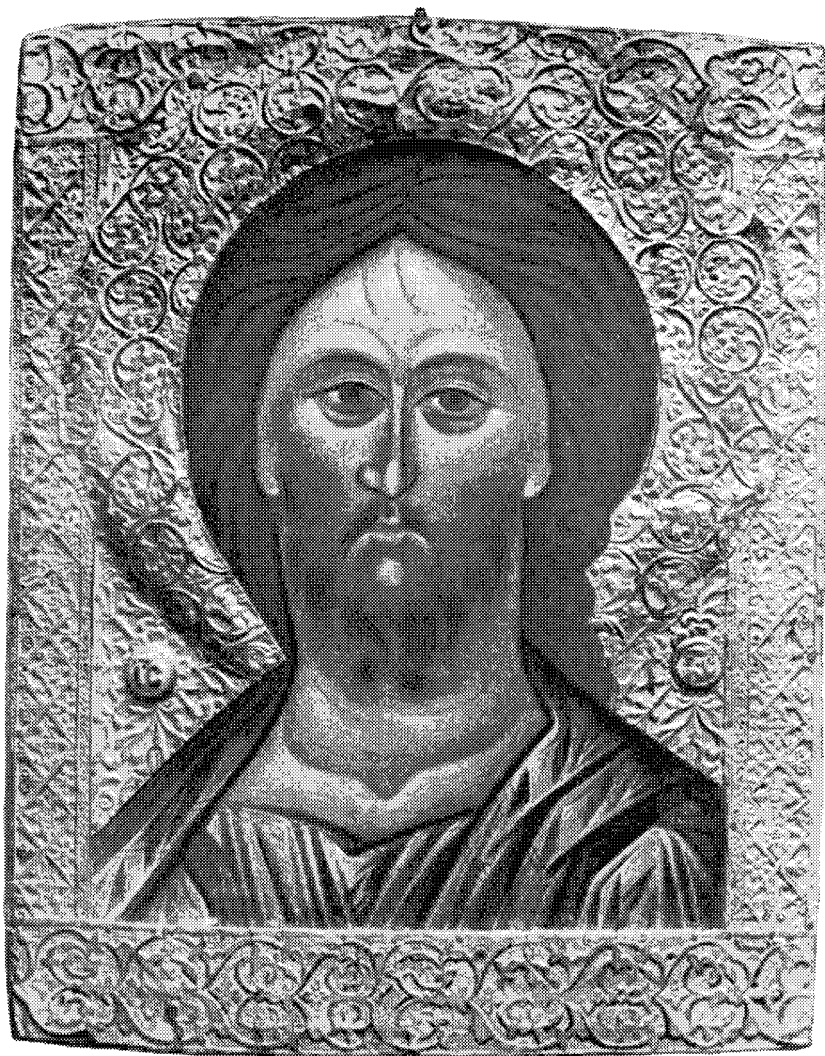
50 Christ Pantocrator, 16th century, tempera on board. State Museum of the Lavra of Sergiev Posad

Further, if we turn to chiaroscuro, here we also find in icons a distinctive distribution of shadows that emphasises and singles out the icon's lack of correspondence to a representation demanded by naturalistic painting. The absence of a definite focus of light, the contradictory illuminations in different parts of the icon, the tendency to project forward masses that should be in shadow - these factors are once again not accidental, not the blunders of a primitive painter, but artistic calculations which convey a maximum of artistic expressivity.

To the number of similar methods used in icon painting must also be added the lines of the so-called *razdelki,* which are painted in a colour <u>different</u> from that used to paint the corresponding place on the icon *(raskryshka),* most often using metallic paints - a gold or very rarely a silver *assist,* or slaked gold. By thus emphasising the <u>colour</u> of the lines of the *razdelka,* we wish to say that the icon painter pays conscious attention to it, although it does not correspond to anything physically seen, to any kind of analogous system of lines on clothing or a seat, for instance, but is only a system of potential lines, a given object's structural lines, similar, for instance, to the lines of force of an electric or magnetic field, or to systems of equipotential, isothermic or other such curves. The lines of the *razdelka* express a metaphysical schema of the given object, its dynamic, with greater force than its visible lines are capable of, although they are themselves quite invisible. Once outlined on the icon they represent in the icon painter's conception the sum total of the tasks presented to the contemplating eye, the lines that direct the movements of the eye as it contemplates the icon. These lines are a schema for reconstructing the perceived object in the consciousness, and if one were to look for the physical bases of these lines, they would be force lines, tension lines, in other words, not folds formed under tension, not <u>yet</u> folds, but potential folds, in potential only - those lines along which folds would lie, if they <u>were</u> to begin to fall into folds at all. The lines of the *razdelka* that are outlined on the additional plane reveal to the consciousness the structural character of these planes. Consequently, without limiting one to a passive contemplation of these planes, they help one to understand the functional relationship of such lines to the whole. This means that they provide the means for noticing with special acuteness that such foreshortenings are not subject to the demands of linear perspective.

We will not discuss other, secondary methods used in icon painting to emphasise its immunity from the laws of linear perspective and its consciousness of its perspectival transgressions. We will mention only the <u>contour</u> that outlines the design and thereby emphasises to an extreme degree its peculiar-

ities, the *ozhivki,* the *dvizhki* and *otmetiny,* and the *probely,* too, that reveal areas in relief and thus accentuate all the irregularities that should not have been visible, etc.

I have said enough, one may suppose, to remind all who look closely at icons, and who already possess a store of impressions, that these deviations from the rules of perspective are not <u>fortuitous</u> and, moreover, that such violations are aesthetically fruitful.

III

And now, after this reminder, we are confronted by the question of what these transgressions mean and whether they are legitimate; in other words we are confronted by the related question of the meaning of perspective and the limits of its application. Does perspective in actual fact express the nature of things, as its supporters maintain, and should it therefore be always and everywhere viewed as the unconditional prerequisite for artistic veracity? Or is it rather just a schema, and moreover one of several possible representational schemas, corresponding <u>not</u> to a perception of the world as a whole, but only to <u>one</u> of the possible interpretations of the world, connected to a specific feeling for, and understanding of, life? Or yet again, is perspective, the perspectival image of the world, the perspectival interpretation of the world, a natural image that flows from its essence, a true <u>word of the world,</u> or is it just a particular orthography, one of many constructions that is characteristic of those who created it, relative to the century and the life-concept of those who invented it, and expressive of <u>their</u> own style - but by no means excluding other orthographies, other systems of transcriptions, corresponding to the life-concept and style of other centuries? Transcriptions, furthermore, that are perhaps more connected to the essence of things by the vital truth of the experience they expound - in any case, such that a violation of this perspectival transcription interferes with the artistic truth of images to the same inconsequential degree that grammatical mistakes do in the letter of a holy man.

To answer our question, let us provide first of all some <u>historical</u> references; let us prove historically to what extent representation and perspective are in fact inseparable from each other.

<u>Babylonian</u> and <u>Egyptian</u> low reliefs show no evidence of perspective or, incidentally, show what would be called reverse perspective. However, it is well known that the polycentrism of Egyptian representations is exceptionally great and is <u>canonical</u> in Egyptian art. Everyone remembers Egyptian reliefs and wall paintings where the face and feet are in profile, with the shoulders

and chest turned frontally. But in any event they contain no linear perspective. [15] However, the astonishing veracity of Egyptian portrait and genre sculpture demonstrates the Egyptian artists' enormous powers of observation, and if the laws of perspective do actually form part of the truth of the world, as its proponents claim, then it would be completely incomprehensible why the refined eye of the Egyptian master did not notice perspective. On the other hand, the celebrated mathematical historian Moritz Cantor points out that the Egyptians already possessed the basic geometric understanding necessary for perspectival representations. Specifically, they knew about geometric proportionality, and furthermore had advanced so far in this respect that they were able, where necessary, to apply a variable scale of magnitudes. 'One can scarcely fail to be amazed that the Egyptians did not take the next step and discover perspective. As is known, in Egyptian painting there is not a trace of it, and although religious or other reasons can be adduced for this, the geometric fact remains that the Egyptians did not make use of this method of conceiving of a painted screen as if it were placed between the observing eye and the object depicted, and of using lines to connect the intersecting points of this plane with the rays directed towards this object.'16

Cantor's passing remark about the religious bases for the lack of perspective in Egyptian depictions deserves our attention. In fact, Egyptian art, with a past that spans millennia, became strictly canonical and set in immutable theoretical formulae, not too far removed in their internal meaning, perhaps, from hieroglyphic inscriptions, just as the inscriptions were in turn not too far removed from metaphysical representational meaning. Of course, Egyptian art had no need of innovations and gradually became increasingly self absorbed. Even if they had been noticed, perspectival relationships could not have been permitted within the self-contained circle of canons that constituted Egyptian art. The absence of linear perspective among the Egyptians, as also in a different sense among the Chinese, demonstrates the maturity of their art, and even its senile overripeness, rather than its infantile lack of experience. It demonstrates the liberation from perspective, or a refusal from the very beginning to acknowledge its power - a power which, as we will see, is characteristic of subjectivism and illusionism - *for the sake of religious objectivity and suprapersonal metaphysics.* Conversely, when the religious stability of a Weltanschauung disintegrates and the sacred metaphysics of the general popular consciousness is eroded by the individual judgement of a single person with his single point of view, and moreover with a single point of view precisely at this specific moment - then there also appears a perspective,

which is characteristic of a fragmented consciousness. But besides, this initially happens not in pure art, which is essentially always more or less meta-physical, but in *applied* art, as an element of decoration, which has as its task *not the true essence of being, but verisimilitude* to *appearance.*

It is noteworthy that Vitruvius attributes the invention of perspective to Anaxagoras, the same Anaxagoras who tried to turn the living divinities, the Sun and Moon, into burning hot stones, and to substitute for the divine creation of the world a central whirlwind in which the heavenly bodies emerged; and that he locates its invention specifically in what the Ancients called scenography, Le., theatre decoration. According to Vitruvius,17 when Aeschylus staged his tragedies in Athens around 470 BC, and the famous Agatharcos provided him with sets and wrote a treatise about them, the *Commentarius,* it was this that prompted Anaxagoras and Democritus to explain the same subject - the painting of stage sets - scientifically. The question which they posed was how lines might be traced on a plane such that, given a centre in a definite place, the visual rays conducted towards them corresponded to the rays conducted from the eye [of someone standing] in the same place to the corresponding points of an actual building - so that the image of the original object on the retina, to put it in modern terms, would coincide completely with the same image representing this object on the decoration.[18]

IV

And so, it was not in pure art that perspective arose. According to its very first task, far from expressing a vital artistic perception of reality, it came out of the applied art sphere, or more precisely the field of technical theatre, which enlisted painting in its service and subordinated it to its own purposes. \Vhether these purposes correspond to the purposes of pure art is a question that need not be answered. For the task of painting is not to duplicate reality, but to give the most profound penetration of its architectonics, of its material, of its meaning. And the penetration of this meaning, of this stuff of reality, its architectonics, is offered to the artist's contemplative eye in *living contact* with reality, by growing accustomed to and empathising with reality, whereas theatre decoration wants as much as possible to replace reality with its outward appearance. The aesthetics of this outward appearance lie in the inner connectedness of its elements, but in no way is it the symbolic signifying of the prototype via the image, realised by means of artistic technique. Stage design is a *deception,* albeit a seductive one; while pure painting is, or at least

wants to be, above all *true* to life, not a substitute for life but merely the symbolic signifier of its deepest reality. Stage design is a screen that thickens the light of existence, while pure painting is a window opened wide on reality. For the rationalising mind of Anaxagoras or Democritus representational art as a symbol of reality could not exist and there was no demand for it. Which is what the 'Wanderers'19 thought, too, - if I may make an historical category out of this minor phenomenon of Russian life - for they demanded not the truth to life that provides penetration, but an external likeness, pragmatically useful for the most immediate functions of life; not life's creative foundations, but the imitation of life's surface. Before that, the Greek stage was simply sketched out by 'pictures and fabrics;'20 now people felt the need of illusion. And so, presupposing that the spectator or the stage deSigner was chained fast, like the prisoner of Plato's cave, to a theatre bench and neither could nor should have a direct vital relationship to reality, these first theoreticians of perspective provided rules for a deception that ensnared the theatre spectator as if he were separated from the stage by a glass barrier and there were just one immobile eye, observing without penetrating the very essence of life and, most important, with his will paralysed, for the very essence of a theatre that has become mundane demands a will-less looking at the stage, as at some 'untruth', something 'not really there: some empty deception. Anaxagoras and Democritus replace the living man with a spectator, paralysed by *curare,* and so they thereby make clear the rules for deceiving this spectator. Now there is no need for us to contend that, in order to create a visual illusion for this ailing spectator, almost totally deprived of the general human feeling common to all men, these methods for the perspectival truly have their own meaning.

Consequently, we should take it as given that, at least in fifth-century BC Greece, perspective was known, and if on this or that occasion it was still not applied, then obviously this was not at all because its principles were unknown, but because of some other, more profound convictions, arising from the *loftier demands of pure art.* And it would be highly unlikely and inconsistent with the state of the mathematical sciences and the advanced geometric powers of observation which the Ancients' refined eyes possessed, to suggest that they did not notice the perspectival image of the world that is supposedly an intrinsic part of normal vision, or were unable to deduce the corresponding simple applications from the elementary theorems of geometry. It would be very difficult to doubt that, when they did not apply the rules of perspective, it was because they simply did not want to apply them, considering them superfluous and anti-artistic.

Indeed, in his *Geography,*[21] written around the second century AD, Ptolomeus examines the cartographic theory of the projection of a sphere on a plane. In his *Planisphere* he discusses various ways of making projections, primarily the projection from a pole to the equatorial plane, the projection which in 1613 Aquilonius dubbed *stereographic,* and also solves other difficult projective problems.[22] Can it possibly be imagined that, given such a state of knowledge, the simple methods of linear perspective were unknown? And indeed, wherever we are dealing not with pure art but with theatrical illusions, applied deceptively to enlarge the space of the stage or to break up the flat surface of an interior wall, we are invariably confronted with the use of linear perspective as a response to the task in hand.

In particular this is observed in those instances when life, distancing itself from its deep-seated sources, flows through the shallow waters of frivolous Epicureanism, in the atmosphere of bourgeois frivolity that surrounded the Greek manikins - the *graeculori* as the contemporary Romans called them, diminished men lacking the noumenal depth of the Greek genius who failed to attain the majestic scale of the Roman people's moral and political thought with its universal scope. What I have in mind here are the elegantly vapid decorations in the houses of Pompeii, the architectural wall decorations of Pompeiian villas (illus. 51).[23] Transplanted to Rome primarily from Alexandria and other centres of Hellenistic culture in the first and second centuries, this *barocco* of the ancient world was preoccupied with purely illusionistic tasks and strove specifically to *deceive* the viewer, who as a consequence was assumed to be more or less immobile. This sort of architectural and landscape decoration is perhaps clumsy, in the sense that it cannot be realised in actuality,[24] but it nevertheless wishes to deceive, as if playing with and teasing the viewer. Other details are rendered with such naturalism that the viewer can only convince himself of the optical illusion by touch. This impression is aided by the masterly use of chiaroscuro, applied so as to coincide with whatever light source illuminates the room, whether a window, a hole in the ceiling, a door.[25] The notable fact that even from this illusionistic landscape there once again extend the threads connecting it to the architecture of the Graeco-Roman *stage* merits the closest attention.[26] Perspective is rooted in the theatre not simply because historically and technically perspective was first used in the theatre, but also by virtue of a deeper motivation: the theatricality of a perspectival depiction of the world. For in this consists that facile experience of the world, devoid of a feeling for reality and a sense of
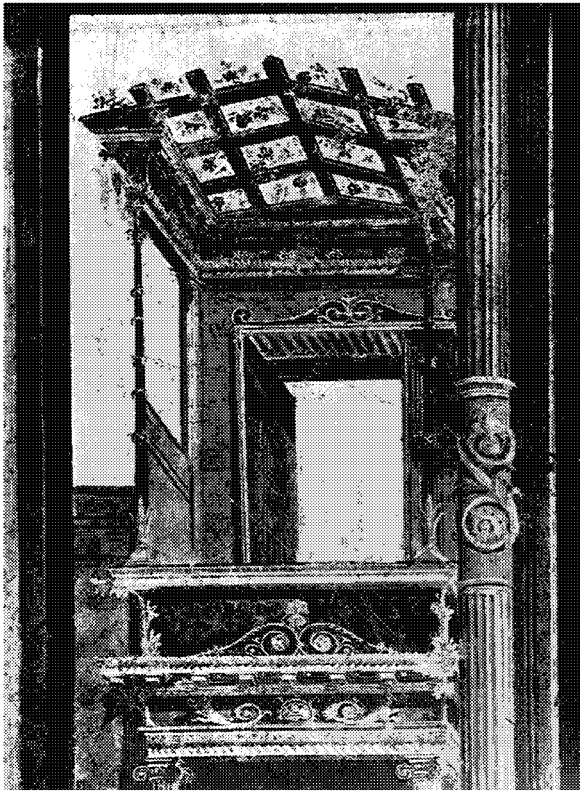
51 Architectural wall decoration in the Triclinium of the House of Vettii at Pompeii, IV Style, fresco

responsibility, that sees life as just a spectacle, and in no sense a challenge. And that is why, if we return to Pompeii, it is hard to discover in these decorations authentic works of pure art. Indeed, the technical glibness of these house decorations still cannot make art historians forget that what we are looking at is 'just the work of virtuoso craftsmen, not of true inspired artists'.[27] It is exactly the same with the landscape backgrounds in genre paintings, which are painted 'always very approximately', quickly and skilfully sketched out. 'Whether the backgrounds in the famous paintings of the masters were painted in this way remains open to question.'[28] These artifacts 'suffer from the artist's approximate way of solving perspectival goals, goals that he confronts as if in an exclusively empirical way,' writes Benois. Nevertheless, the question is an important one. 'Do these traits mean that the laws of perspective really were unknown to the Ancients? Do we not see at the

present time this same <u>forgetting</u> of perspective as a science? The time is fast approaching when we too will reach "Byzantine" absurdities in this area and will leave behind us the lack of skill and the approximations of late classical painting. Will it be possible on these grounds to deny that the preceding generation of artists knew the <u>laws</u> of perspective?'2[9]

Indeed, in this semi-accuracy of perspectival accomplishments one can make out the embryonic disintegration of perspective, which soon begins in the Eastern and Western Middle Ages. But it occurs to me that these inaccuracies in perspective are a compromise between essentially decorative goals - illusionistic painting - and synthetic goals - pure painting. For it must not be forgotten that a residence. no matter how frivolous its interiors, is still not a theatre, and that the inhabitant of a house is by no means as chained to his place and as confined in his life as is the spectator at the theatre. If the wall painting in some House of the Vettii complied with the rules of perspective accurately, it could claim successfully to be a deception or a playful joke <u>only</u> if the spectator did not move and. moreover, stood in a strictly defined place in the room. Conversely, any movement on his part or even more, a change in his position would produce the repulsive feeling of an unsuccessful deception or an unmasked stunt. It is specifically to avoid crude violations of the illusion that the decorator refuses to apply it with uncompromising obtrusiveness to each <u>separate</u> viewpoint and therefore provides a certain synthetic perspective. something <u>approximate.</u> for each separate point of view, a solution to the problem, yet one that expands out into the space of the *entire* room. Figuratively speaking, he resorts to the tempered order of a keyboard instrument that is sufficient within the limits of accuracy required. To put it another way. he partially rejects the art of simulacra and embarks. if only to an extremely small degree. on the path of a synthetic representation of the world. Le.. from being a decorator he becomes something of an artist. But, I repeat, the artist in him is recognisable not because he clings. and even clings in great measure, to the laws of perspective, but because and to the extent that he deviates from them.

VI

Beginning in the fourth century AD illusionism breaks down and perspectival space in painting disappears. Rejection of the rules of perspective becomes evident, and proportional relationships between individual objects, and sometimes even between their separate parts, are ignored. This break-down of the perspectival essence of late classical painting (which is essentially perspec-

tival) proceeds with extraordinary speed, and then with each century grows deeper, right up until the early Renaissance. Mediaeval artists

> have no conception of making lines converge towards a single point, or of the significance of the horizon. It is as if late Roman and Byzantine artists had never seen buildings in nature, but were acquainted only with flat, toy-like cut-outs. They were equally unconcerned with proportions and, with the passage of time, became even less so. No relationship existed between the height of the figures and the buildings intended for them. To this must also be added the fact that, with the centuries, a growing retreat from reality is noticeable even in details. Some few parallels between real architecture and painted architecture can still be discerned in works of the sixth, seventh and even the tenth and eleventh centuries, but beyond that date that strange type of 'building painting' *[palatnaia zhivopis]* where all is arbitrariness and convention asserts itself in Byzantine art.[30]

This characterisation of medieval painting was taken from Alexandre Benois' *History of Painting,* but only because I happened to have it to hand. It is not hard to catch the devaluation of medieval art in Benois' complaints, especially as regards its 'blindness' to perspective, that we have long since grown tired of. This view can be found in any book on the theory of art, with its usual references to the depiction of houses 'with three facades' in mediaeval art, as children draw them, to the conventionality of its colours, its parallel lines diverging towards the horizon, its lack of proportion, and in general to every perspectival and other spatial ignorance. To complete this characterisation of the Middle Ages we should add that, from this viewpoint, matters were no better in the West, and were even significantly worse: 'If we compare what was being created in the tenth century in Western Europe with what was taking place at the same time in Byzantium, the latter will seem the pinnacle of artistic refinement and technical magnificence.'[31] It goes without saying that this way of understanding Byzantium can be reduced to the following resumé: 'The history of Byzantine painting, for all of its fluctuations and temporary upsurges, is a history of decline, of regression to a state of savagery and numbness. The models of the Byzantines grow further and further removed from life, their technique becomes more and more slavishly traditional and craftsmanlike.'[32] It matters little whether this summing up is done by Benois or by a host of others. We're already thoroughly sick of its countless repetitions,

which go hand in hand with even more wearisome shouts from the cultural historians about the 'gloom' of the Middle Ages.

It is well known that, beginning with the Renaissance era and almost up until our own day, the schema of art history and of cultural history in general has remained invariably the same and, what's more, exceptionally simplistic. It is rooted in an unwavering belief that the bourgeois civilisation of the latter half of the nineteenth century (an orientation that is Kantian though not directly derived from Kant) has unconditional value and represents ultimate perfectibility, and could, so to speak, be canonised in a way that verges almost on the metaphysical. In truth, if it is possible to speak of the ideological super-structures on the economic forms of life it is surely here, with the cultural historians of the nineteenth century, who blindly believed in the petit bour-geoisie as an absolute value and reevaluated universal history according to how closely its phenomena paralleled those of the latter half of the nineteenth century. So it was in the history of art: everything that resembled the art of this period, or that moved towards it, was acknowledged as positive, while all the rest was decadence, ignorance, savagery. In the light of such an appraisal, the delighted praise frequently bestowed by respected historians becomes under-standable: 'utterly contemporary', 'they couldn't have done better even in such and such a time', said with reference to some year close to the historian's own time. Indeed, having come to believe in contemporaneity, for them complete faith in their contemporaries was inevitable, much as provincials in matters of science are convinced that this or that book is 'recognised' as the ultimate scientific truth (as if there were some ecumenical council for formulating dogmas in science.) And one can then understand why ancient art, in its tran-sition from the holy archaics via the beautiful to the sensual and, finally, to the illusionistic, appears to such historians to be developing. The Middle Ages, which made a decisive break with the goals of illusionism and took on the task of creating, not simulacra, but symbols of reality, seems a decline. And finally, even here the art of the New Age, that began with the Renaissance and straightway decided, by a silent wink and by some current of mutual agree-ment, to substitute the construction of simulacra for the creation of symbols, this art, having led by a broad avenue to the nineteenth century, seems to historians indisputably moving towards perfection. 'How could it possibly be bad if, by an immutable inner logic, it led to us, to me?' — this is the true think-ing of our historians, if they were to express it without coyness.

And they are profoundly right in recognising a direct, transcendental link between the premises of the Renaissance age and the life-understanding of the

most recent past, a link, moreover, that is not only externally historical, but also internally logical. In precisely the same way they are most profoundly right in their feeling that mediaeval premises are completely irreconcilable with the *Weltanschauung* I have just described. If one sums up every charge that is leveled against mediaeval art on formal grounds, it amounts to the criticism: 'There's no understanding of space,' and this criticism, if openly expressed, signifies that there is no spatial unity, no Euclidean-Kantian schema of space leading, within the limits of painting, to linear perspective and proportionality, or more precisely, to a single perspective, for proportionality is merely a corollary of it.

On this basis it is suggested (and what's most dangerous is suggested unconsciously) as quite self-evident or absolutely proven somewhere or by someone, that no forms exist in nature, in the sense of each form living in its own little world, for in general no reality exists that has a centre <u>within</u> <u>itself</u> and is therefore subject to <u>its</u> <u>own</u> laws. Therefore, it is suggested, everything visible and perceptible is only simple material for filling in some general regulatory schema imposed on it from without, a function fulfilled by Euclidean-Kantian space. Consequently, all forms in nature are essentially only apparent forms, imposed on an impersonal and indifferent material by a schema of scientific thought, Le., they are essentially like squares on the graph paper of life, nothing more. And finally, what is logically the first premise posits a space that is qualitatively homogeneous, infinite and boundless, a space that is, so to speak, formless and devoid of individuality. It is not hard to see that these premises reject both nature and man in one fell swoop, although by an irony of history they are grounded in the slogans called 'naturalism' and 'humanism' and crowned by the formal proclamation of 'the rights of man and nature'.

This is not the place to establish or even to clarify the connection between the sweet Renaissance roots and their bitter Kantian fruits. It is fairly well known that Kantianism, by virtue of its pathos, is actually a more profound form of the Renaissance's humanist and naturalistic life-understanding, and in its grasp and profundity represents the self-awareness of that historical background that calls itself 'the new European enlightenment', and that with some justification still quite recently preened itself on its virtual supremacy. But in recent years we are already beginning to understand the <u>imaginary</u> completeness of this enlightenment and we have discovered that, in science and philosophy, as well as in history and especially in art, all those mock horrors with which they scared us away from the Middle Ages were invented by the historians themselves. In the Middle Ages there flows a deep and

substantive river of genuine culture with its <u>own</u> science, its <u>own</u> art, its <u>own</u> system of governance, in general with everything pertaining to culture, but specifically its <u>own</u> kind, and one that, moreover, comes close to the genuine spirit of antiquity. And the premises that are considered indisputable in the life-understanding of the New Age, now, as in ancient times (yes, even as in ancient times!) are not only disputable, but are even rejected, not because of an insufficient awareness, but essentially by an effort of will. The pathos of modern man is to shake off all realities, so that 'I want' establishes the law of a newly constructed reality, phantasmagoric even though it is enclosed within ruled-out squares. Conversely, the pathos of ancient man, and of mediaeval man too, is the acceptance, the grateful acknowledgment, and the affirmation of all kinds of reality as a blessing, for being is blessing, and blessing is being. The pathos of medieval man is an affirmation of reality both in himself and outside himself, and is therefore objectivity. Illusionism is characteristic of the subjectivism of modern man, whereas nothing could be further from the intentions and thoughts of medieval man, with his roots in antiquity, than the creation of simulacra and a life spent among simulacra. For modern man – let's take his frank acknowledgment as expressed by the Marburg schooJ33 – reality exists only when and to the extent that science <u>deigns</u> to allow it to exist, giving its permission in the form of a fictitious schema. This schema is bound to advance special pleading to prove the totally admissible right of this or that phenomenon to existence according to an established graph of life. As for a patent on reality, it can be ratified only in the office of H. Cohen, and without his signature and seal it is invalid.

That which the Marburgians express openly constitutes the <u>spirit</u> of Renaissance thought, and the whole history of the enlightenment [spirit] is to a significant degree preoccupied with a struggle against life, its goal being to completely stifle it with a system of schemas. But it is worthy of note and of the most profound inner laughter that modern man forcibly palms off this distortion, this corruption of a natural human way of thinking and feeling, this re-education in the spirit of nihilism, as a return to naturalness and as the removal of some kind of fetters, supposedly imposed on him by someone or other, whereas in actual fact, in trying to scrape the characters of history off man's soul, he pierces the soul itself.

Ancient and medieval man, on the contrary, knows above all that, in order to want one must <u>be,</u> be in reality and moreover among realities in which one must be grounded. He is profoundly realistic and stands firmly on the earth, unlike modern man who considers only his own desires and, of necessity, the

most immediate means of realising and satisfying them. Hence it is understandable that the prerequisites for a realistic view of life are and always will be as follows: there are realities, i.e., there are centres of being, something in the nature of concentrates of more intense being, that submit to their <u>own</u> laws, and each of which therefore has its <u>own</u> form. Therefore, nothing that exists can be seen as indifferent and passive material for fulfilling whatsoever kind of schemas, still less taking into account the schema of Euclidean-Kantian space. And so forms should be apprehended according to <u>their own</u> life, they should be represented through <u>themselves,</u> according to the way they have been apprehended, and not in the foreshortenings of a perspective laid out beforehand. And, finally, space itself is not merely a uniform structureless place, not a simple graph, but is in itself a distinctive reality, organised throughout, everywhere differentiated, possessing an inner sense of order and structure.

VII

And so: the presence or absence of perspective in the painting of an entire historical period can in no sense be considered equivalent to the presence or absence of artistic skill, but rather lies far deeper, in the decisions made by a radical will possessing the creative impulse towards one or the other side. Our thesis, to which we will frequently return, maintains that, in those historical periods of artistic creativity when the utilisation of perspective is not apparent, it is not that visual artists 'don't know how' to use it, but that they '<u>don't</u> <u>want</u> <u>to'</u>. More accurately, they want to make use of a representational principle <u>other than</u> perspective, and they want this because the genius of the age understands and feels the world by a means that also includes, immanent within itself, <u>this method</u> of representation. Conversely, during other periods people absolutely forget the meaning and significance of non-perspectival representation and lose their feeling for it, because the life-understanding of the age, having become utterly different, leads to a perspectival picture of the world. In both instances there is an internal consistency, a compulsory logic that is essentially very elementary, and if it does not come to full strength with exceptional speed, it is <u>not</u> because this logic is complex, but because the spirit of the age fluctuates ambiguously between two mutually exclusive self-definitions.

For in the final analysis there are only <u>two</u> experiences of the world - a human experience in a large sense and a scientific, i.e., 'Kantian' experience, just as there are only <u>two</u> attitudes towards life - the internal and the external, and as there are two types of culture - one contemplative and creative, the other predatory and mechanical. All of which amounts to a choice between

one or the other path - between mediaeval night or the enlightened day of culture; and thenceforth everything proceeds as it has been written, according to a total sequentiality. But as they alternate in history, these polarities can in no sense be immediately distinguished from each other, because of the fluctuating condition of the spirit itself in the corresponding ages, having already grown tired of the one while not yet taking hold of the other.

Without dealing for the present with what the violation of perspective means - we will return to an assessment of this question later with greater psychological cogency-let us mention with regard to mediaeval painting that the violation of perspective by no means emerges at different periods, now this way, now that, but is subject to a defInite system. Receding parallel lines always diverge towards the horizon, and the more obviously they do so the more clearly the object they outline must be singled out. If we see in the peculiarities of Egyptian reliefs not the randomness of ignorance, but an artistic method, since these peculiarities occur not once or twice, but thousands, tens of thousands of times, and are consequently premeditated, then for similar reasons we must also admit precisely a method in the characteristic violation of a perspectival system in mediaeval art. It is psychologically inconceivable, moreover, that in the course of centuries strong and thoughtful people, the builders of a distinctive culture, would have been incapable of recognising such an elementary, indisputable, and one might say glaringly obvious fact as the converging of parallel lines toward the horizon.

But if this does not suffice, here is further evidence. The drawings of children, in their lack of perspective and especially their use of reverse perspective, vividly recall mediaeval drawings, despite the efforts of educators to instil in children the laws of linear perspective. It is only when they lose their spontaneous relationship to the world that children lose reverse perspective and submit to the schema with which they have been indoctrinated. This is how all children behave, independent of each other. This means that it is not mere chance, nor a wilful invention by one of them putting on Byzantine airs, but a representational method that derives from a characteristic perceptual synthesis of the world. Since the way children think is not weak thinking but a particular type of thinking[34] which, moreover, is capable of unlimited degrees of perfection, including genius, and indeed is primarily akin to genius, it must be admitted that the use of reverse perspective to depict the world is also far from being an unsuccessful, ill-understood, imperfectly learned linear perspective, and is rather a distinctive grasp of the world that should be reckoned with as a mature and independent representational method. One can perhaps hate it as

an alien method, but at all events it cannot be spoken of with patronising condescension or compassion.

VIII

Indeed, in the fourteenth century a new worldview was adumbrated in the West and with it a new attitude towards perspective.

As we know, the first faint whiffs of naturalism, humanism and the Reformation were emitted by that innocent 'lamb of God', St Francis of Assisi, who was canonised as a form of immunisation, for the simple reason that it didn't occur to them in time to burn him. But the first instance of Franciscanism in art was Giottism.

The art of <u>Giotto</u> is usually associated with the concept of the Middle Ages, but this is a mistake. Giotto looks in a different direction. His 'happy, even gay genius of the Italian order', fruitful and light, was inclined towards a superficial outlook on life in the spirit of the Renaissance. 'He was very ingenious: writes Vasari, 'very agreeable in his conversation and highly skilled in sayings of wit, the memory of which is still preserved in this city.'35 However, those of his witticisms that are repeated to this day are indecent and crude, and many are impious into the bargain. Under the cover of religious subjects can be discerned a secular spirit, satirical, sensual and even positivistic, hostile to asceticism. Nurtured by the mature past that preceded his era, he nevertheless breathes another air. 'Although born in a mystic century he was not himself a mystic, and if he was the friend of Dante he did not resemble him: writes Hippolyte Taine of Giotto)6 Whereas Dante smites with sacred anger, Giotto ridicules and censures, not the destruction of the ideal, but the ideal itself. The man who painted St *Francis' Betrothal* to *Poverty* in his poem ridicules the very ideal of poverty. It is hard to believe that a friend of Dante could openly prefer worldly power to self-discipline. But so it was, and in addition to Dante he also had friends who were Epicureans, who rejected God. Giotto created for himself an ideal of universal and humanitarian culture, and imagined life in the spirit of the free thinkers of the Renaissance, as earthly happiness and the progress of mankind, with the subordination of everything else to a dominant goal, the complete and total development of all natural forces. Pride of place goes here to those who invent what is useful and beautiful, and he too wishes to be one of them, a prototype for the most typical genius of the period, Leonardo. 'He was very studious', Vasari writes of Giotto, 'and always wandered about contemplating new objects and inquiring of nature, so that he merited to be called the disciple of nature and of no other. He painted

diverse landscapes full of trees and rocks, which was a novelty in his day.'37 Still full of the noble juices of the Middle Ages and not himself a naturalist, he already experienced the very first, dawning breeze of naturalism and became its herald.

The father of modern landscape, Giotto emerged with a method for drawing architecture that 'fools the eye' and solved bold perspectival problems by sight with a success that is astonishing for his time (illus. 52). Art historians have their doubts about Giotto's knowledge of the rules of perspective. If this is true, it proves that, when the eye began to be controlled by an inner search for perspective, it found it almost immediately, though not in a clearly elaborated form. Not only does Giotto not make crude perspectival errors, but on the contrary he seems to play with perspective, setting himself difficult perspectival problems and solving them shrewdly and completely, particularly the converging of parallel lines towards a single point on the horizon. On top of all this, in the frescoes of the upper church of San Francisco in Assisi Giotto begins with the assumption that his painting has 'the significance of something independent from, and even in competition with, the architecture'. Fresco is 'not wall decoration with a subject', but 'a view through the wall onto all manner of activities'.[38] It is noteworthy that in later life Giotto rarely resorted to this, for its time overly daring method, and the same is true of all his closest followers, whereas in the fifteenth century this kind of architecture became the rule, and in the sixteenth and seventeenth centuries endowed flat and simple apartments lacking any kind of real architectural fixtures with *trompe l'œil* architectural painting.[39] Consequently, if the father of modern painting did not subsequently resort to a similar method, it was not because he was ignorant of it, but because his artistic genius, fortified, made aware of itself in the realm of pure art, recoiled from illusory perspective, at least from its obtrusiveness, just as his rationalistic humanism subsequently was tempered.

IX

But what was Giotto's point of departure? Or in other words, where did his ability to use perspective come from? Historical analogies and the inner meaning of perspective in painting suggest an answer we already know. When the certainty of theocentrism becomes suspect, and along with the music of the spheres there sounds the music of the earth (I mean 'earth' in the sense of the affirmation of the human 'I'), then begins the attempt to replace realities that are growing muddied and obscured with simulacra and phantoms, to

52 Giotto di Bondone and studio, *Legend of St Francis, Confirmation of the Rule, 1297-9,* fresco. Upper church, San Francesco, Assisi

replace theurgy with illusionistic art, to replace divine actions with theatre.

It is natural to think that Giotto acquired his habit and taste for perspectival optical illusions by working on *theatre decoration.* We have already seen a precedent for this in Vitruvius' report about a staging of Aeschylus' tragedies in which Anaxagoras took part. The transition from theurgy, such as the Ancient Greek tragedies had, to a secular vision, progressively abandoned the

mystical, or more exactly the mysterial reality of the tragedy of Aeschylus, then 50phocles and, finally, Euripides. The mystery plays emerged in the evolution of the theatre of the New Age, and out of this thorough airing the new drama was produced. Art historians think it likely that Giotto's landscape did in fact develop from decorations for what were then called 'mysteries', and so could not but conform, I would add, to the principle of illusionistic decoration, perspective. 50 as not to make unfounded allegations, let us confirm our idea by citing the opinion of an art historian whose way of thinking is alien to ours. 'In what way was Giotto's landscape dependent on mystery play decorations?' Alexandre Benois wonders, and replies: 'In places this dependence is expressed to such a degree (in the form of tiny prop-like houses and pavilions, and cliffs like flat stage flaps neatly cut out of cardboard) that it is simply impossible to doubt that his painting was influenced by productions of religious spectacles. In some of his frescoes we are probably seeing scenes from these spectacles captured directly. It must be said, however, that in the paintings which undoubtedly belong to Giotto's hand, this dependence is less pronounced, and each time it appears in a radically reworked form, according to the conventions of monumental painting.'[40]

In other words, as he matures as a pure artist, Giotto gradually moves away from decorations which, being done by a *bottega,* could scarcely have been the work of a single hand. Giotto's innovation was, consequently, not in the use of perspective as such, but in the painterly application of this method, borrowed from the applied and vernacular branch of art, much as Petrarch and Dante introduced the vernacular into poetry. The conclusion can be drawn that the knowledge of, or at least the ability to use, perspectival methods, what Dürer called 'the secret science of perspective',[41] already existed, and perhaps <u>always</u> had existed among the painters of mystery play decorations, although painting strictly speaking shunned these methods. Or could it have not been aware of them? The contrary is hard to imagine, once Euclid's 'Elements of Geometry' were known. As early as his *Unterweisung der Messung,*[42] published in 1525 and containing a study of perspective, Dürer begins the first book of his treatise with a statement clearly showing that the theory of perspective is far from new compared to elementary geometry, and far from new in the consciousness of people at that time. 'The most sagacious thinker, Euclid, has assembled the foundation of geometry', Dürer writes. 'Those who understand him well can dispense with what follows here.'[43]

And so: elementary perspective had been long known of, although it had progressed no further than the entrance hall of high art.

But, as the religious *Weltanschauung* of the Middle Ages became more secular, pure religious ritual reinvented itself as the semi-theatrical mystery plays, while the icon became so-called religious painting, in which the religious subject increasingly became just an <u>excuse</u> for depicting the body and the landscape. From Florence there emanated a wave of worldliness, and it was in Florence, too, that the Giottoites found and later propagated the principles of naturalistic painting as artistic maxims.

Giotto himself, Giovanni da Milano after him, and especially Altichieri and Avanzo, created daring perspectival constructs. It is natural that these artistic experiments, just like the traditions borrowed in part from the works of Vitruvius and Euclid, should form the basis of the theoretical system in which the study of perspective has been required to be fully expounded and well grounded. Those scientific foundations which, after a century of elaboration, produced 'the art of Leonardo and Michelangelo' were discovered and elaborated in Florence. The works of two theoreticians from that time - Paolo dell'Abbaco (1366) and later Biagio da Parma - have not come down to us. But it is possible that it was they who in the main prepared the ground for the principal theoreticians working on the study of perspective from the early fifteenth century on:[44] Filippo Brunelleschi (1377-1446) and Paolo Uccello (1397-1475), then Leon Battista Alberti, Piero della Francesca (c. 1420-1492) and, finally, a number of sculptors, most notably Donatello (1386-1466). The influence and impact of these experimenters was determined by the fact that they not only developed the rules of perspective theoretically, but that they also applied their achievements practically, in illusionistic painting. Instances of this are the wall paintings in the form of monuments that were executed with an extensive knowledge of perspective on the walls of the Florence Duomo, painted in 1436 by Uccello[45] (illus. 53) and in 1435 by Castagno (illus. 54).[46] A further instance is the stage-like fresco by Andrea del Castagno (139047-1457) in Sant'Apollonia in Florence (illus. 55).[48] 'Its whole severe decor - the chequered floor, the coffered ceiling, the rosettes and panels on the walls - are depicted with an obsessive precision designed to convey a complete impression of depth (we would say, "stereoscopic vision"). And this impression is so successful that the entire scene looks, in its frozenness, like a group from a panopticon - a brilliant panopticon, it goes without saying',[49] as one supporter of perspective and the Renaissance ironically notes, with a slip of the tongue. Piero also left a manual on perspective, entitled *De perspectiva pingendi.*[50] In his three-volume treatise *De Pictura,* written in 1446 and published in Nuremberg in 1511,[51] Leon Battista Alberti (1404-1472) developed

the bases of the new science and illustrated them through their application in architectural painting. Masaccio (1401-1429)52 and his pupils Benozzo Gozzoli (1420-1498) and Fra' Fillippo Lippi (1406-1469) aspired to utilise the same science of perspective in their painting, until finally these same problems were taken up in both theory and practice by Leonardo da Vinci (1452-1519), and Raphael Sanzio (1483-1520) and Michelangelo Buonarotti (1475-1564) brought the development of perspective to its close.

<p style="text-align:center">X</p>

We will pursue no further the stages in the theoretical and practical development of perspective in the era immediately preceding our own, the more so since its study passed primarily into the hands of mathematicians and became far removed from the immediate interests of art. The few facts I have briefly sketched out here are intended <u>not</u> as generally known historical facts as such, but as something quite different. Specifically, their purpose was to recall how complex and long that development had been, brought to completion only in the seventeenth century by Lambert, and later as a branch of descriptive geometry in the works of Loria, Aschieri and Enriques in Italy; Chasles and Poncelet in France; Staudt, Fiedler, Wiener, Kupfer, Burmeister in Germany; Wilson in America; and others who formed part of the general current of that extremely important and widespread mathematical discipline, <u>projective geometry</u>.[53]

From this it follows that, however much we might appreciate perspective in essence we have no right to understand it as some simple, natural way of seeing the world that is directly related to the human eye as such. The fact that over several centuries many great minds and very experienced painters, with the participation of first-class mathematicians, found it essential to hammer out a study of perspective, even knowingly *after* the principal indications of a perspectival projection of the world had been noted, forces one *to* think that the historical elaboration of perspective was in no way the simple systematisation of something already pre-existing in human *psycho-physiology, but was the forcible re-education of this psycho-physiology in the sense of abstract demands made by a new worldview,* essentially anti-artistic, essentially outlawing art, especially the visual arts.

But the soul of the Renaissance, of the New Age in general, was fragmented and divided, dualistic in its thinking. In this respect art was at an advantage. Fortunately, vital creativity was still not subject to the demands of reason, and in actual fact art followed guite a different path from those

<p style="text-align:center">225</p>

53 Paolo Uccello, *Monument* to *Giovanni Acuto (John Hawkwood),* 1433, fresco transferred to canvas. Church of Santa Maria del Fiore, Florence

54 Andrea del Castagno, *Monument* to *Niccolo da Tolentino,* 1456, fresco transferred to canvas. Church of Santa Maria del Fiore, Florence
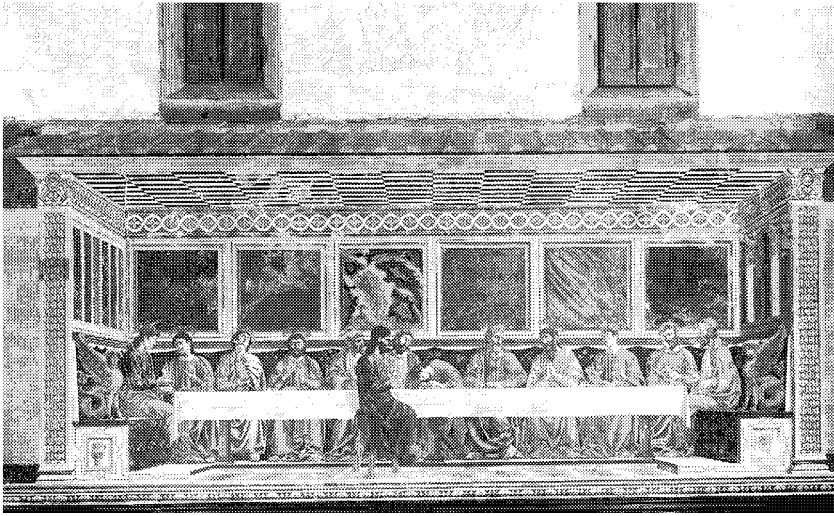
55 Andrea del Castagno, *The Last Supper,* 1455-6, fresco. Refectory of the Convent o[St Apollonia, Florence

proclaimed in abstract declarations. One circumstance deserves our attention and our laughter. Even those artists who were theoreticians of perspective, as soon as they stopped talking about the laws of perspective they had prescribed - even though they already knew its secrets and surrendered to a direct artistic feeling in their representation of the world - would make crude 'mistakes' and 'blunders' against its requirements, every single one of them! But a study of the corresponding paintings reveals that their power lies precisely in these 'mistakes' and 'blunders'. This is when, truly, 'und predigen offentlich Wasser'.[54]

There is no time here for a detailed analysis of works of art, and we must be content with just a few typical examples, pointing out the idea expressed and treating them superficially, without explaining the specific aesthetic meaning of their nonconformity to a perspectival schema. But, for the sake of complete clarity, let us recall (and in the words of another, moreover) what the purpose of perspective is - the much vaunted 'perspectival unity'.

In the 1870s, at the height of the faith in, and reverence for, perspective, Guido Schreiber compiled a primer on perspective, the second edition of which was edited by the architect A. F. Viehweger, a professor of perspective at the Leipzig Academy of Arts, and with a forward by the Academy's director,

Professor Ludwig Nieper.[55] Seemingly all very solid and authoritative! But this is what the primer contained in the chapter on 'perspectival unity':

> Any drawing that pretends to a perspectival effect should start with the specific <u>position</u> of the draftsman or the viewer. The drawing should therefore have only <u>one</u> viewpoint, only <u>one</u> horizon, only <u>one</u> scale. All receding perpendicular lines, moreover, that run into the depth of the representation, should also be directed towards this *single* viewpoint. Similarly, the vanishing points of all other perpendicular lines should also lie on this *single* horizon. The correct *proportion of magnitudes* should dominate the entire representation. This is what we should understand by *perspectival unity.* If a painting is done from nature, only a little attentiveness to these conditions is needed, and everything will follow more or less of its own accord.[56]

This means, then:

A violation of the single viewpoint, the single horizon, the single scale, is a violation of the perspectival unity of the representation.

Now:

If anyone was a practitioner of perspective it was <u>Leonardo.</u> His *Last Supper* (illus. 56) an artistic ferment from the latest theological *Lives of Christ,* aims to remove the spatial demarcation between <u>that other,</u> Gospel world, and <u>this</u> secular one, to show Christ as having only a specific *value,* but not a specific *reality.* What we see in the fresco is a stage set, not a particular space that cannot be compared to our own. And this stage is nothing more than an extension of the room's space; our gaze, and with it our entire being, is drawn by this receding perspective that moves towards the right eye of the principal Persona. We are not seeing reality, but we are experiencing a visual phenomenon; and we spy on it as if through a chink, with cold curiosity, with neither reverence nor pity, even less with the pathos that distance lends. The laws of Kantian space and Newtonian mechanics reign on this stage. Yes. But if it were <u>only</u> that, then finally there would be no *Supper.* And <u>Leonardo</u> indicates the special <u>value</u> of the unfolding event by violating the unity of <u>scale.</u> A simple measurement is enough to show that the chamber is barely the height of two men and the width of three man-lengths, so that the space cannot possibly accommodate the number of people in it or the grandeur of the occasion. However, the ceiling does not seem oppressive and the cramped space of the room gives the painting a dramatic saturation and fullness. Imperceptibly yet accurately, the master
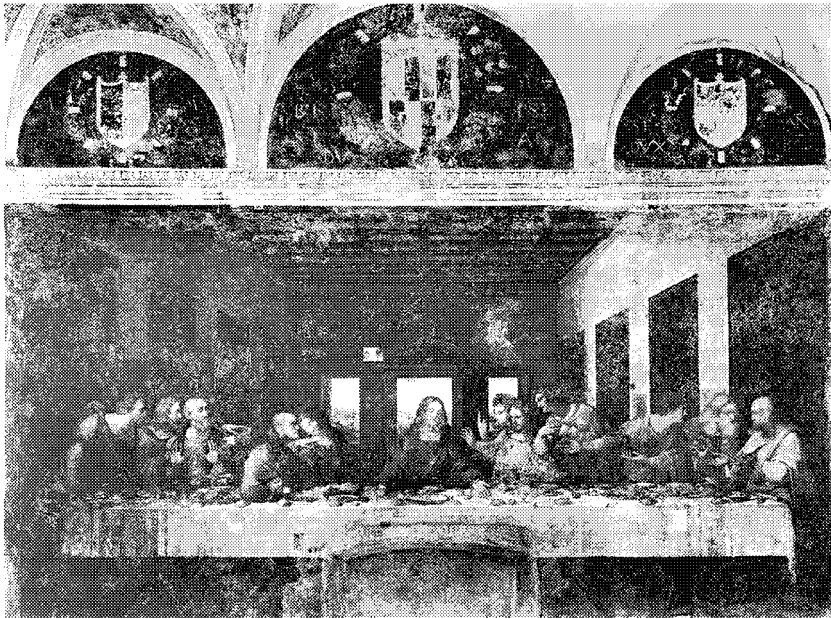
56 Leonardo da Vinci, *Last Supper,* 1495-7, tempera on plaster. Refectory of the Convent of Santa Maria delle Grazie, Milan

resorts to the violation of perspective,5? well known since Egyptian times. He applies differing units of measurement to the inscriptions and to the setting and, by reducing the proportions of the latter differently in different directions, he thereby magnifies the people and imparts to a simple farewell meal the significance of an historic, universal event, and the centre of history to boot. Perspectival unity is violated, the dualism of the Renaissance soul revealed, and yet the painting acquires an aesthetic persuasiveness.

We know what a magnificent impression is produced by the architecture in Raphael's *School of Athens* (illus. 57).5[8] If we were to pinpoint from memory the impression made by these vaults, we would want to compare them, for example, with the Moscow Cathedral of Christ the Saviour. The vaults appear to be equal in height to those of the church. But measurement shows that the pillars are only a little more than two man-lengths, so that the whole building, which appears to be so splendid, would be quite insignificant and negligible if it were actually built. The artist's device in this case is also quite straightforward:

He selected two viewpoints placed on two horizon lines. The floor and the entire group of people are painted from the upper viewpoint, the vaults and the whole upper portion of the painting from the lower one. If the figures of the people shared the same vanishing point as the lines of the ceiling, then the heads of those positioned further back would be lower down and would be covered by the people standing in the foreground, to the painting's detriment. The vanishing point of the ceiling lines is centered in the right hand of the central figure (Aristotle), who holds a book in his left hand and with his right seems to be pointing to the ground. If we trace a line to this point from the head of Alexander, the first figure to the right of Plato (with the raised hand), it would not be hard to notice how much the last figure of this group must have been reduced. The same goes for the groups to the viewer's right. To conceal this perspectival
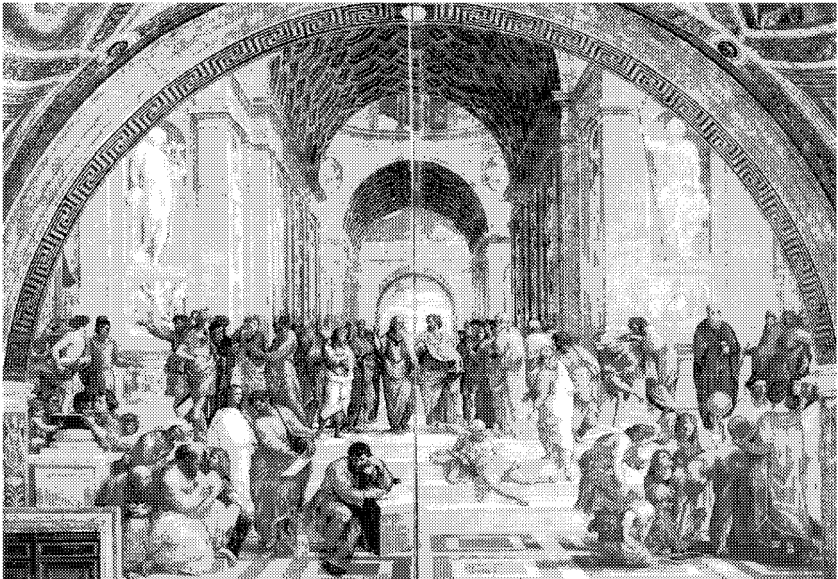
57 Raffaello Sanzio, *School of Athens,* 1509-10, fresco. Stanza della Segnatura, Vatican, Rome

58 Raffaello Sanzio, *The Vision of Ezekiel,* 1518, oil on panel. Galleria Palatina, Palazzo Pitti, Florence

inaccuracy, Raphael also placed characters at the back of the painting, thereby masking the lines of the floor that converge on the horizon.59

Of Raphael's other paintings we might recan *The Vision ofEzekiel* (inus. 58). Here there are several viewpoints and several horizon lines. The space of the vision does not coincide with the space of the earthly world. It was absolutely essential to do this, for otherwise He who is seated among the cherubim would seem a mere mortal who, despite the laws of mechanics, does not fall from the heights. (In this, as in other paintings by Raphael the balance of two principles, the perspectival and non-perspectival, corresponds to the calm co-existence of two worlds, two spaces.) This soothes rather than stuns us, just as if a curtain had noiselessly opened on another world to reveal not a stage, an illusion in this world, but a genuine other *reality,* though one which does not encroach on *our own.* Raphael alludes to this aspect of his treatment of space with the parted curtains in his *Sistine Madonna* (illus. 59).60

As an instance of the complete opposite to *The Vision of Ezekiel* one might cite, for example, Tintoretto's painting in the Accademia in Venice, *The Apostle Mark Uberating a Slave from a Martyr's Death* (illus. 60).61 St Mark's apparition is presented in the same space as all the participants, and the heavenly vision seems to be a bodily mass that might fall at any minute onto the heads of those witnessing the miracle. Here one cannot help but recall Tintoretto's naturalistic working methods, hanging wax figurines near the ceiling, so as to convey a naturalistically accurate foreshortening. And the heavenly vision did in fact turn out to be nothing more than a wax cast on a hanger, like a Christmas-tree cherubim. This is the kind of artistic failure that occurs when heterogeneous spaces are merged together.

But the simultaneous use of two spaces, perspectival and non-perspectival, is also encountered, and by no means infrequently, especially in the representation of visions and miraculous occurrences. Such is the case in several works by Rembrandt, although we can only speak of perspectival systems and their components with many reservations. This device was a hallmark of Domeniko Theotokopolus, called El Greco. *The Dream ofPhilip If* (illus. 61), *The Burial of the Count of Orgaz* (illus. 62), *The Descent of the Holy Ghost* (illus. 63), A *View ofToledo* (illus. 64) and other works by him are each manifestly broken up into at least two spaces, such that the space of spiritual reality is definitely kept apart from the space of sensory reality. It is this that imparts to El Greco's paintings their particular persuasiveness.

59 Raffaello Sanzio, *Sistine Madonna,* 1512-13, oil on canvas. Gemaldegalerie, Dresden

60 Jacopo Robusti (Tintoretto), *The Miracle of* St *Mark (The Apostle Mark Liberating a Slave from a Martyr's Death,* 1547-8, oil on canvas. Galleria of the Accademia, Venice

61 Domeniko Theotokopolus (El Greco), *Adoration of the Holy Name of Jesus (Allegory of the Holy League; The Dream* of Philip II), 1577-80, oil on canvas. San Lorenzo Monastery, Escorial Museum, Madrid
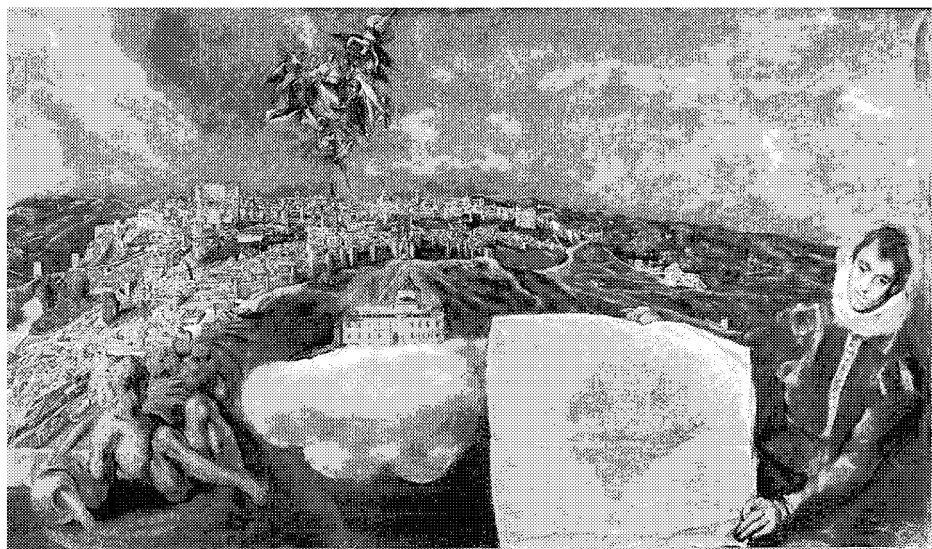
62 Domeniko Theotokopolus (El Greco), *The Burial of the Count of Orgaz,* 1586-8, oil on canvas. Church of San Tomé, Toledo

63 Domeniko Theotokopolus (El Greco), *The Descent ofthe Holy Ghost
(Pentecost),* c.1600, oil on canvas. Prado Museum, Madrid

64 Domeniko Theotokopolus (El Greco), A *View and Map oJToledo,* 1610-14, oil on canvas. El Greco Museum, Toledo

However, it would be wrong to think that only mystical subjects require the rejection of perspective. Let us take, for example, Rubens' *Flemish Landscape* (illus. 65) in the Uffizi Gallery.62 The central section is approximately perspectival and its space draws one in, while the sides are in reverse perspective, their spaces pushing away the perceiving eye. As a result, two powerful visual vortices are created that marvellously fill the prosaic subject.

There is the same balance between two spatial principles in Michelangelo's *Conversion of the Apostle Paul* (illus. 66). But this same artist gives an entirely different spatial treatment in his *Last Judgment* (illus. 67). The fresco represents a slight slope: the higher up on the picture a particular point is, the further away the image depicted in it is from the viewer. Consequently, the higher the eye travels, the smaller the figures it encounters become, in accordance with the law of perspectival shortening. Incidentally, this can be seen by the fact that the lower figures obstruct those higher up. But as for their proportions, the magnitude of the figures *increases* as they appear further up the fresco, Le., the further away they are from the viewer. This is a characteristic of that <u>other,</u> spiritual space: the further away something is, the bigger it is; the closer it is, the smaller. This is <u>reverse</u> <u>perspective.</u> Examining it, especially

239

65 Peter Paul Rubens, *Landscape. Returning from the Fields,* 1632-4, oil on canvas. GaHeria Palatina, Palazzo Piui, Florence
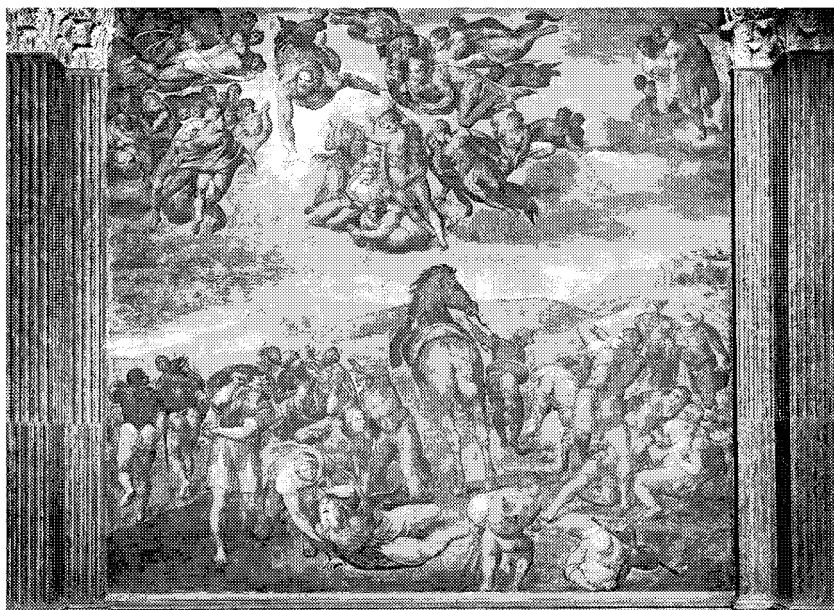
66 Michelangelo, *Conversion of the Apostle Paul,* 1542-5, fresco. CappeHa Pao!ina, Vatican, Rome

67 Michelangelo, *Last Judgment,* 1536-41, *fresco.* Sistine Chapel, Vatican, Rome

when so consistently applied, we begin to experience its complete incommen-surabilitywith the space ofthe fresco. We are not drawn into this space; on the contrary, it repels us, as a mercury sea would repel our bodies. Though visible, it is transcendental to us, who think according to Kant and Euclid. Although he lived in the Baroque era, Michelangelo belonged to a Middle Ages that was neither entirely of the past nor of the future; he was contemporary with, yet certainly not a contemporary of, Leonardo.

XI

When people first come across deviations from the rules of perspective, they regard this absence of perspectival unity as a chance slip-up on the artist's part, a kind of <u>sickness</u> in his working. But even the most cursory attention quickly reveals a similar transgression in almost <u>every</u> work, and absence of perspective now begins to be valued not as the pathology, but as the physiol-ogy of visual art.

Inevitably, the question arises: can art actually dispense with the trans-formation of perspective? After all, its purpose is to convey a kind of spatial wholeness, a specific, self-contained world that is not mechanical, but is contained within the confines of the frame by internal forces. Whereas a photograph, being a sliver of natural space, a piece of space, cannot in essence avoid leading us beyond its borders, the limits ofits frame, because it is a <u>part</u> mechanically separated from something larger. Consequently, the first demand made of the artist is to reorganise the sliver of space he has selected for his material into a self-contained whole, to abrogate perspectival relationships, whose primary function is the Kantian unity ofexperience as a totality, manifested in the necessity for each single experience to turn into others, and in the impossibility of encountering a self-sufficient realm. Whether perspective exists in actual experience is another question, and one that cannot be debated here. But whether it exists or not, it has a definite purpose that essentially contradicts the practice ofpainting, so long as paint-ing does not sell itself to other activities that require an 'art ofsimulacra', that require illusions ofthe imaginary prolonging ofsensory experience, when in truth it does not exist.

\Vith these points in mind, we will now no longer be surprised when we see two points of view and two horizon lines in Paolo Veronese's *Feast in the House ofSimon* (illus. 68), at least two horizons in his *Battle ofLepanto* (illus. 69), several viewpoints placed along a single horizon line in Horace Vernet's paint-ing *The Capture of the Smala of Abd-El-Kader,* numerous perspectival inconsis-
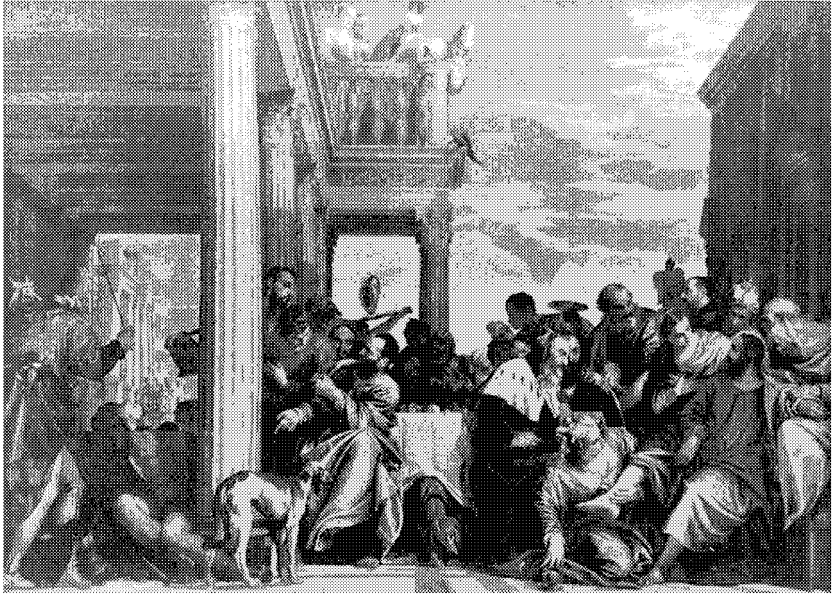
68 Paolo Veronese, *Feast in the House of Simon,* 1560, oil on canvas. Galleria Sabauda, Turin

tencies in a landscape by Swanevelt, as well as by Rubens, and in many other paintings. And we will understand why clever primers on perspective even give advice on how to destroy perspectival unity without making it too obvious (evidently for its more enthusiastic supporters?), and in what instances it is essential to resort to such 'lawlessness'.63 In particular, it is recommended to place the vanishing points of lines perpendicular to the picture plane on a slight curve, for instance, along the line of a normal surface to a certain ellipse.[64] And artists, even those who are far removed from the goals which intrinsically authentic art sets itself, have long applied similar deviations from perspectival unity.

An example of this is the celebrated *Marriage at Cana* by <u>Paolo</u> <u>Veronese</u> (1528-1588) in the Louvre (illus. 70). According to specialists, this painting has <u>seven</u> viewpoints and <u>five</u> horizon lines.[65] <u>Fr.</u> <u>Bossuet</u> has attempted to give a sketch of the architecture in this painting from a 'correct', i.e., a strictly perspectival representation, to find that it retained 'essentially the same order and the same beauty'.66 What a fine concept of first class works of art, that can be so easily 'corrected'! Would it not be more correct to check and adjust <u>one's</u>

69 Paolo Veronese, *The Battle of Lepanto,* 1573, oil on canvas. Gallerie dell' Accademia, Venice
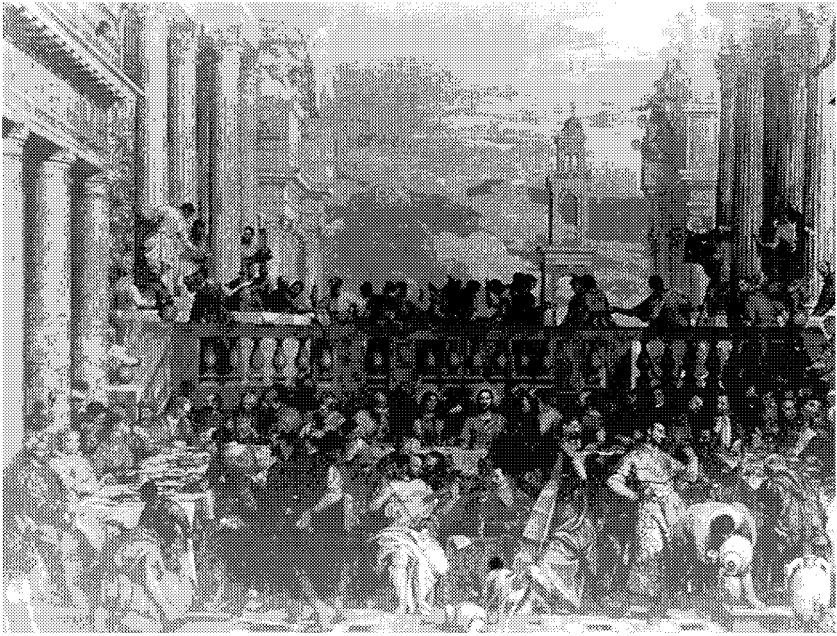
70 Paolo Veronese, Marriage *at Cana,* 1563, oil on canvas. Musée du Louvre, Paris

own aesthetic views in accordance with historically existing works of art? But if in actual fact the strict submission to perspective of a non-perspectival painting does not in itself destroy its beauty, does this not mean that both perspective and its absence are, in aesthetic terms at least, by no means as important as the supporters of perspective presume it to be?

It will be recalled that, towards the end of 1506, Albrecht Dürer rushed from Florence to Bologna to find out about the 'mysterious art of perspective'.67 But the secrets of perspective were jealously guarded and, after complaining about the reticence of the Bolognese, Dürer was obliged to leave, having found out precious little, thereafter to busy himself at home with the independent discovery of those same methods and to write a treatise on them (which did not, however, prevent him from falling into perspectival 'blunders').

Without embarking on an evaluation of Durer's oeuvre in general, let us recall his most accomplished work, of which F. Kugler writes[68] (in an essay described by a Dürer scholar as 'the most complete and successful descrip-

tion'[69]Of the work) that 'an artist who had completed such a work might take his leave of the world, having attained his goal in art. This work indisputably places him in the ranks of the greatest masters the history of art justly prides itself on.' The work in question is, of course, the diptych known as *The Four Apostles,* painted in 1526 (illus. 71), after the publication of his *Underweisung der Messung* and two years before his death in 1528. And so, in this diptych the heads of the two figures in the background are bigger than those of the foreground figures, as a result of which the basic ground of the Greek relief is preserved, although the figures are not detached from this ground. As one art historian has correctly pointed out, 'Clearly, we are dealing here with so called 'reverse perspective: according to which objects further back are shown as bigger than those in front.'[70]

Of course, this application of reverse perspective in the *Apostles* is not an oversight, but the courage of a genius who intuitively overturns the most rational theories, even his own, inasmuch as they demand a completely conscious illusionism. In actual fact, what could be more definite than his instructions on chiaroscuro, which begin, 'If you wish to paint paintings in such relief that vision itself might be deceived .. .'[71] Such is his illusionistic theory, but his art is not illusionistic. This contradiction in Dürer (a characteristic one for people living in a transitional age!) between theory and artistic practice prefigured his general inclination for the mediaeval style and mediaeval turn of spirit, for all the new structure of thinking.

XH

All this notwithstanding, even the theoreticians of perspective did not observe, or consider **it** necessary to observe, a 'perspectival unity of representation'. How then after this can one speak of a perspectival image of the world as natural? What kind of naturalness is **it** that must be obeyed, to then avoid-despite the most extraordinary efforts and constant alert vigilance - [making mistakes against] the rules that have been unlearned? Are these rules not rather reminiscent of a convention-bound conspiracy against a natural perception of the world, undertaken in the name of theoretical concepts, a fictional picture of the world which, according to a humanistic Weltanschauung, one is required to see, but which, in spite of all its training, the human eye doesn't see at all, while the artist blurts out his ignorance as soon as he moves from geometric constructs to that which he actually perceives.

The extent to which a perspectival drawing is not something directly understood, but is on the contrary the product of many complex artificial

71 Albrecht Dürer, *The Four Apostles,* 1526, oil on paneL Alte Pinakothek, Munich
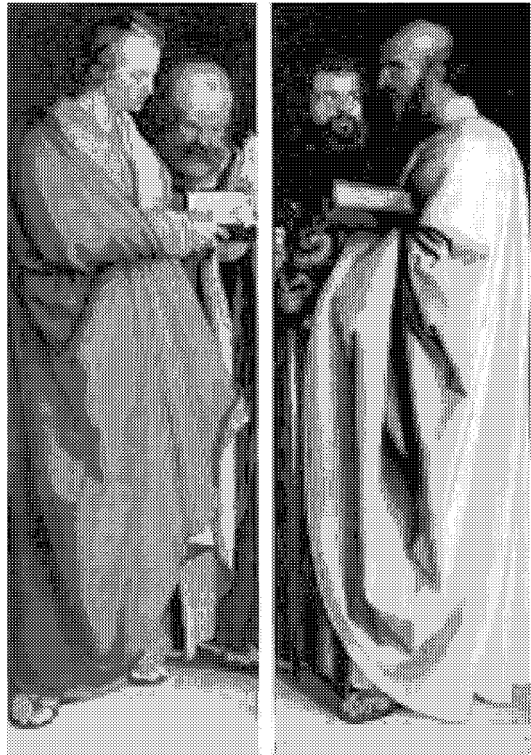
conditions, can be seen with particular persuasiveness in the devices of that same Albrecht Diirer, as he marvellously depicted them in the woodcuts to his *Underweisung der Messung.* But, as good as the actual engravings are, with their confined, constricted space, the meaning of the instructions they provide is anti-artistic in equal measure.

The purpose of the devices is to make it possible for the most unskilled draughtsman to reproduce any object in a purely mechanical fashion, <u>without</u> an act of visual synthesis and, in one case, <u>without</u> <u>using</u> <u>the</u> <u>eye</u> <u>at</u> <u>all.</u> Without ambiguity the candid Diirer demonstrates with his devices that perspective concerns everything but vision.

One of these devices is as follows (illus. 72). 7[2] At the end of an elongated rectangular table a quadrangular frame with a pane of glass is attached perpendicular to the surface. On the opposite, narrow end of the table, parallel to the frame, a wooden bar is attached to the table, the middle of which is hollowed

72 Albrecht Dürer, *Man Drawing a Seated Figure,* reproduced from *Underweisung der Messung,* Nuremberg, 1525

out and contains a long screw, With the aid of this screw a perpendicular bar can be moved and into it is inserted a wooden rod with ratchets that allow one to adjust it at various heights. and with a small board in which a small hole [has been drilled, attached] on the upper end. It is quite clear that such a contraption provides to a certain extent a <u>model</u> of perspectival projection from the hole in the board onto the surface of the glass pane, and that by looking at an object through the aforesaid hole one can trace its projection on the glass.

In another device (inus. 73)[73] a fixed point of view is established, also by using a special pointer, where the plane of the projection is realised by a [frame with a] grid of threads that intersect at right angles, and the drawing is transferred to a squared-off sheet of paper that lies between the pointer and the vertical grid on the table. By using the squares to measure the coordinates
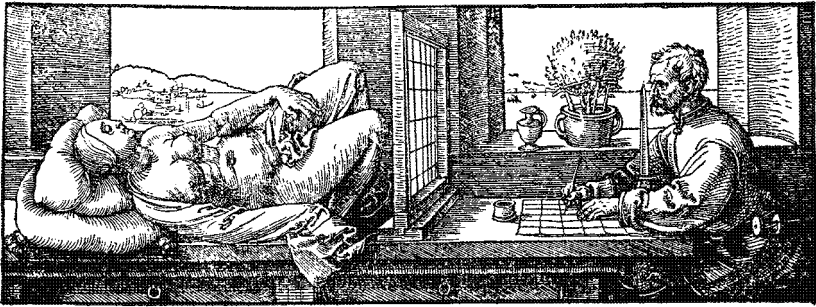
73 Albrecht Dürer, *Man Drawing a Reclining Woman,* reproduced from *Underweisung der Messung,* Nuremberg, 1538

of the projection points, the corresponding points can also be found on the squared paper.

A third Dürer device (illus. 74)74 no longer has any relationship to sight. The centre of projection is now established not by the eye, however artificially reduced to a motionless state, but by a certain point on a wall in which a ring with a long string tied to it has been attached. The string almost reaches the frame containing the pane of glass that is fixed vertically on the table. The string is stretched tight and a scanner attached to it, directing the 'visual ray' to that point of the object that is projected from the spot where the thread is anchored. Then it is not hard to mark on the glass with a pen or brush the corresponding point of projection. By successively viewing various points of the objects, the draughtsman will project them on the glass, not however 'from the point of vision' but from 'the point on the wall'. Vision, then, plays an auxiliary function.

Finally, with the fourth drawing device (illus. 75)[75] there is no need for vision at all, because touch is sufficient. It is constructed as follows. A large needle with a wide eye is hammered into the wall of the room in which a given object is to be traced. A long, stout thread is threaded through the eye and a plumb bob attached. A table with a quadrangular frame installed vertically on its surface is placed against the wall. To one side of the frame is hinged a small door that can be opened and shut, and [two] intersecting threads that can be tightened in the frame opening. The object to be depicted is placed on the table in front of the frame. The first thread is passed through the frame and a nail attached to the end of it. That is the device. The apparatus is used as follows. An assistant holds the nail, and stretches the long thread, with instructions to
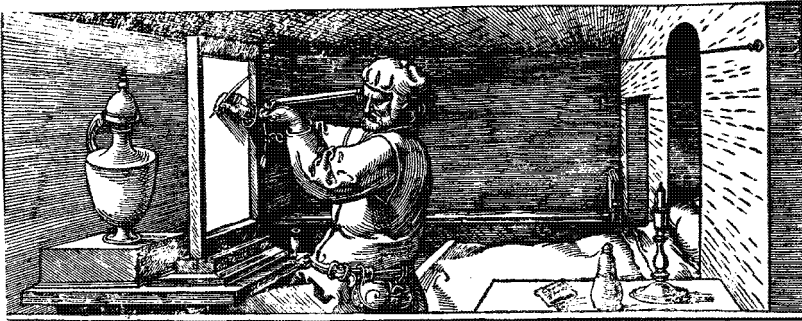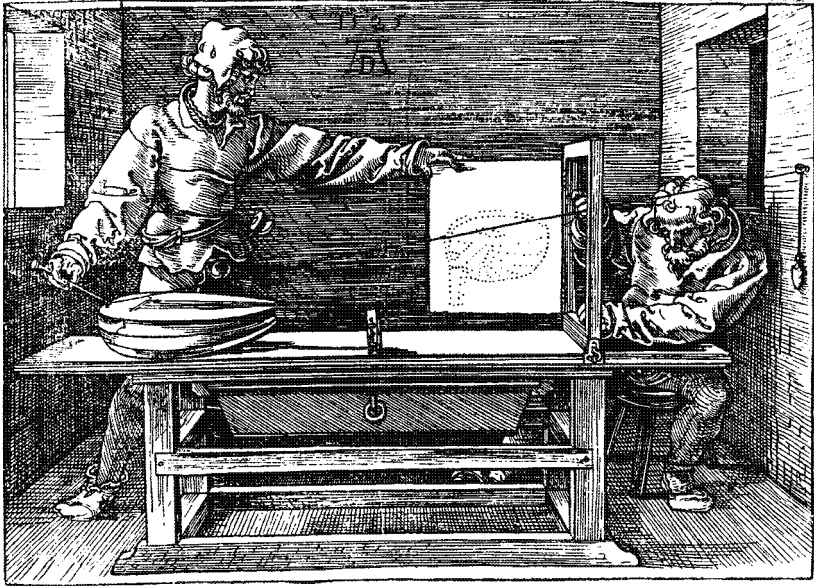
74 Albrecht Dürer, *Man Drawing a Jug,* reproduced from *Undenveisung der Messung,* Nuremberg, 1538

touch with the point of the nail all the prominent spots on the object to be depicted one after the other. Then the 'artist' moves the [two] crosswise threads in the frame until they coincide with the long thread and he marks with wax the point where they intersect. Then the assistant relaxes the tension of the long thread while the 'artist' closes the door of the frame and marks on it the spot where the threads intersect. By repeating this action many times the principal points of the required projection can be marked on the door.

After examining these devices, need we offer any further proof that a perspectival view of the world is not in the least a natural method of observation? It has taken more than <u>five hundred years</u> of social training to accustom the eye and the hand to perspective. But without deliberate schooling neither the eye nor the hand of a child, or of an adult for that matter, will submit to this training and reckon with the laws of perspectival unity. Even those with a specialised education make stupid mistakes as soon as they are deprived of their auxiliary geometric schema and trust their own vision, the conscience of their own eyes. And finally, entire artistic movements consciously express their protest against submitting to perspective.

After this unsuccessful experiment over five hundred years of history, it remains only to be admitted that <u>a perspectival picture of the world is not a fact of perception, but merely a demand made in the name of certain considerations which, while they may be very powerful, are absolutely abstract.</u>

And if we turn to psycho-physiological data, then it is essential to acknowledge that artists not only have no basis for depicting the world according to a perspectival schema, but that they dare not do so, once they admit that their aim is truth to perception.

75 Albrecht DÜrer, *Man Drawing a Lute,* reproduced from *Underweisung der Messung,*
Nuremberg, 1525

2 Theoretical Premises

<div align="center">XIII</div>

In the preceding sections I compared a number of historical interpretations. It
is time now to sum up and speak more to the point, although I will leave for
another book the elaboration of related questions concerning the analysis of
space in visual art.

So then, both historians of painting and theoreticians of the visual arts
aspire, or at least did so until recently, to convince their audience that a perspec-
tival depiction of the world is the <u>only</u> correct one, since it is the <u>only</u> <u>one</u> that
corresponds to actual perception, because natural perception is presumed to be
perspectivaL According to such a premise, deviation from perspectival unity is
thereupon regarded as a betrayal of the law of perception, a perversion of reality
itself, whether because the artist lacks training in drawing, or because drawing
has been consciously subordinated to decorative, ornamental aims or, in the
best case scenario, compositional aims. Either way, according to this estimation,
deviation from the norms of perspectival unity appears as unrealism.

However, both the word and the concept <u>reality</u> are too weighty for proponents of this or that world view to be indifferent to, whether [reality] remains theirs or passes to the adversary. A good deal of thought is required before making such a concession, should it prove inevitable. The same applies to the word *natural*. who does not find it flattering to consider his <u>own</u> self real and natural, i.e., resulting from reality itself, without deliberate intervention? Proponents of the Renaissance view of life seized on these cherished words, stolen from Platonism and its mediaeval heirs, and bandied them about. But this does not give us grounds for leaving the precious values of language in mouths that misuse them. One must demonstrate reality and naturalness by actions, not declare one's naked pretensions to them. Our goal is to restore them to the grandchildren of their rightful owners.

As I explained above, in order to draw and paint 'naturally', i.e., perspectivally, it is essential that one <u>learn</u> to do so. This applies both to entire peoples and cultures, and to individuals. A child does not draw in perspective, nor does the adult who picks up a pencil for the first time, without being trained on specific models. But even a person who has studied a great deal can easily fall into error, or to put it more accurately, the prim proprieties of perspectival unity are overcome by the sincerity of spontaneity. In particular, hardly anyone will depict a sphere as an elliptical outline or a receding colonnade that runs parallel to the picture plane as progressively widening pillars, although this is precisely what perspectival projection demands.[76] Do we so seldom hear even great artists criticised for making mistakes in perspective? Such errors are always possible, especially where the composition is complicated, and they can really only be avoided when drawing is replaced by technical drawing done with the aid of auxiliary lines, or in other words when the artist depicts not what he sees outside or inside himself - images that while they may be imaginary are nevertheless visible, rather than abstractly conceived images - but what in his opinion, supported by an inadequate knowledge of geometry, is demanded by the *calculation* of geometric constructions - the natural, and therefore the <u>only</u> permissible calculation. Can we really call natural those methods of representation that even those who have spent many years stringently training their eye and world view with, cannot master without the crutches of geometrical drawing? And do not such mistakes in perspective show at times not the weakness of the artist, but on the contrary his strength, the strength of his authentic perception, breaking the fetters of social pressure?

The study of perspective is precisely that, training. Even when the beginner voluntarily endeavors to submit his drawing to its rules, this in no way always indicates that he has understood the <u>meaning,</u> the artistic, inventive meaning, of perspectival requirements. Looking back to their childhood, will not many people recall that they perceived perspective in drawing as something incomprehensible, though also for some reason as a generally accepted convention, an *usus tyrannus* to which they submitted not at all on the strength of its truthfulness, but because <u>everyone</u> does it that way?

An incomprehensible, frequently ridiculous convention - that is how perspective appears to a child's understanding. 'You think it's child's play looking at a painting and detecting its perspective', writes Ernst Mach. And yet it took thousands of years before mankind learned this trifle, not to mention that many of us arrived at this point only under the influence of education. 'I remember clearly,' Mach continues, 'that at the age of about three all perspectival drawings appeared to me as distortions of objects. 1could not understand why the painter depicted a table so wide at one end and so narrow at the other. A real table seemed to me just as wide at the far end as it did closest to me, since my eye made its calculations without my help. The fact that the representation of a table on a plane surface was not to be looked at as a surface covered with colours, but <u>signified</u> a table and should be presented as receding - this was a trifle 1did not understand. 1comfort myself with the knowledge that entire peoples haven't understood it either.'77

Such is the testimony of the most positivist of positivists, one it would seem who could never be suspected of a weakness for'mysticism'.

Thus, the whole matter comes down to the fact that the representation of an object is not the same object in its representational capacity, it is not a copy of a thing, it does not duplicate a little corner of the world, but <u>points</u> <u>to</u> its original as its <u>symbol.</u> Naturalism, in the sense of <u>external</u> truthfulness, as the imitation of reality, as the manufacture of doubles of things, as an apparition, is not only not necessary for life, to quote Goethe's phrase about the beloved dog and its representation, but is also simply impossible. Perspectival <u>truthfulness.</u> if it exists, if it even is truthfulness, is so not on the strength of its external resemblance, but by virtue of its deviation from resemblance, Le., its inner meaning - in so far as it is <u>symbolic.</u> And what resemblance can there be between, for example, a table and its perspectival depiction, if outlines which we know to be parallel are depicted by converging lines, right angles by angles that are acute and wide, if the segments and angles which are equal are represented by unequal sizes, and unequal sizes by equal ones? A representation is

a symbol, always, every representation, whether perspectival or non-perspectival, no matter what it is, and works of art differ from each other not because some are symbolic and others are ostensibly naturalistic, but because, since all are equally non-naturalistic, they are symbols of various aspects of an object, of various world perceptions, various levels of synthesis. Different methods of representation differ from each other, not as the object differs from its representation, but on the symbolic plane. Some are more crude, some less so; some are more or less complete; some are common to all mankind, some are less so. But all are symbolic by nature.

Moreover, the perspective of representations is not by any means a property of things, as vulgar naturalism might make us think. It is just a method of symbolic expression, one of the possible symbolic styles, whose artistic value is subject to a specific judgement, but specifically as such, outside of terrifying words about its truthfulness and claims to a patented 'realism'. Consequently, in discussing the question of perspective, whether linear or reverse, with one or many centres, from the outset one must absolutely proceed from the symbolic tasks of painting and the other visual arts, in order to understand the place which perspective occupies alongside other symbolic methods, what exactly it signifies, and to what spiritual feats it leads. The task of perspective, as with other artistic methods, can only be a certain spiritual excitement, a jolt that rouses ones attention to reality itself. In other words, perspective too, if it is worth anything, should be a language, a witness to reality.

What then is the relationship between the symbolic tasks of painting and the geometric premises of its possibilities? Painting and the other visual arts must submit to geometry, to the degree that they deal with extended images and extended symbols. So here, too, the question is not whether linear perspective is a priori acceptable by means of a simple deduction -

If geometry is true, then perspective is indisputable.

Geometry is true -

It follows that perspective is indisputable - in which both premises raise millions of objections. Rather, the question is: what sort of demarcations in its applicability and interpretations of its activity are essential to precisely establish the geometric premises of painting, if we want lawfulness, inner meaning and a limit to the application of one or another method and representational means to find grounds for their foundation?

Putting aside a more in-depth examination for treatment in a specialised book, for the moment let us merely note the following about painting's geometric premises. Painting has at its command a certain slice of a plane

(canvas, panel, wall, paper, etc.) and paints, i.e., the possibility of endowing various points on the surface with various colourations. On a scale of <u>signifi-cance,</u> [colouration] may not have a perceptible meaning and should be understood abstractly. In an engraving, for example, the blackness of the printer's inks is not read as black, but is just a <u>sign</u> of the engraver's energy or, conversely, his lack of energy. But in psycho-physiological terms, i.e., on the basis of aesthetic perception, it is colour. For the sake of simplicity of argument we can imagine that there is only <u>one</u> pigment - black - or pencil. The painter's task, then, is to depict on a given surface with given colours the reality that he perceives or that he imagines he perceives.

Just what does it mean in geometrical terms to <u>depict</u> <u>a</u> <u>certain</u> <u>reality?</u>

It means drawing points of a perceived space to correspond with the points of some other space, in this instance a plane. But reality is at least three dimensional, even **if** we forget about the fourth dimension, time, without which there is no art. But a plane is only bi-dimensional.Is such a correspondence possible? Is it possible to make a four-dimensional or, let's say for the sake of simplicity, a three-dimensional image on a bi-dimensional surface? Does the latter have enough points to correspond to the points of the former or, in mathematical terms, can the power of a three-dimensional image and that of a bi-dimensional image be comparable? The answer that immediately comes to mind is 'Of course not.'

'Of course not, because in a three-dimensional image there is an infinite number of two-dimensional sections and consequently its power is infinitely greater than that of each individual section.' But a close investigation of the question as presented in point set theory shows that it is not as simple as it seems at first glance and that, moreover, the apparently natural answer proffered above cannot be considered correct. To be more precise, the power of any three- and even multi-dimensional image is exactly the same as the power of any two- and even one-dimensional image. It is possible to depict a four- or three-dimensional reality on a plane, and not even just on a plane but on any segment of a straight or curved line. Moreover, the resulting map can be established by an infinite number of correspondences, arithmetical or analytical, as well as geometrical. Georg Cantor's method may serve as an example of the arithmetical/analytical correspondence, Peano's curve or Hilbert's curve as an example of the geometrical.[78]

To explain the essence of these investigations and their unexpected results as simply as pOSSible, we will confine ourselves to the case of depicting a square using one of its sides as a unit of length, on a rectilinear segment, equal

to the side of the above-mentioned square, i.e., depicting the entire square on its own side. All other cases can easily be examined on the basis of this model. This is just how Georg Cantor demonstrated the analytical method by means of which the correspondence between each point of the square and each point of its side is established. This means that, if we designate the position of any point on the square by the two coordinates x, y, then, using an analogous method we will find the coordinate z defining a certain point on the side of the square, i.e., the depiction of the aforementioned point on the square itself. And conversely, if an arbitrary point is marked on the segment - the depiction of the square - then we will also find the point on the square itself that is represented by this point. Consequently, not a single point on the square remains unmapped and not a single point of the depiction will be void and corresponding to nothing. The square will be projected on its own side. In a similar manner a cube, hypercube and in general a quadrangular geometric figure (polyhedron, prism) of any number of dimensions, even an infinitely great number, can be represented on the side of a square or on a square itself. Generally speaking. any continuous figure of any number of dimensions and with any perimeter, can be mapped on any other figure also with any number of dimensions and with any perimeter: anything you like in geometry can be depicted on anything you like.

On the other hand, to return to our initial case, different geometric curves can be constructed in such a way that the curve passes through any randomly selected point of the square, and the correspondence between the points of the square and the points of the curve are thereby geometrically established. It will now be quite easy to bring the points of the latter into correspondence with the points of the square as one-dimensional spaces, so as to project these points of the square on its side. Peano's curve and Hilbert's curve have one essential advantage over the innumerable number of other curves with similar properties (for example. the trajectory of a billiard ball launched from the corner to the edge which is incommensurable with a straight line; open epicycloids, where the radii of both circumferences are incommensurable; Lissajous' curves; matrixes, etc., etc.) They bring about a correspondence of points between a two-dimensional and one-dimensional image on a practical level, such that the corresponding points can be easily located, whereas the other curves establish a correspondence in principle only, and it would be difficult to actually find just which point corresponds to which. Without going into the technical particulars of the curves of Peano, Hilbert and others, let us merely note that such a curve fills in the entire surface of the square, with

its meander-like bends, and that any point of the square, given this or that finite number of meanders for this curve, systematically accumulated, Le., in accordance with a specific method, will unfailingly be touched by the bends of the curve. Analagous processes can be applied to projection, as explained above, using whatever you like on whatever you like.

Thus, continuous sets are equipollent. But while they possess an identical power, they do not have the same 'mentally attainable' or 'ideal' numbers in Cantor's sense, they are not 'similar' to each other. In other words, one cannot be used to map the other without affecting its structure. In establishing a correspondence, either the continuity of the image represented is broken (as when there is a wish to maintain a one-to-one correspondence between the thing represented and the representation) or the one-to-one correspondence of both (as when the continuity of the thing represented is maintained).

With Cantor's method the image is conveyed point for point, such that any point of the image corresponds to only one point of the representation and, conversely, each point of the representation corresponds to only one point of what is represented. In this sense the Cantorian correspondence satisfies the accepted conception of representation. But another of its properties places it very far from this latter concept. Like all other one-to-one mappings in the area under discussion, it does not preserve relationships of contiguity between the points, it does not spare their order and connections, i.e., it cannot be continuous. If we move even a little inside the square, then the representation of the path we have travelled can no longer in itself be continuous, and the representing point will jump around the whole area of the representation. The impossibility of providing a one-to-one yet continuous mapping between the points of a square and its side[79] was proved by Thomé, Netto and G. Cantor, and as a result of several objections by Lüroth in 1878, it was demonstrated anew by E. Iurgens.[80]

Jurgens relies on the postulate on intermediate value: 'Let points P of a square and P of a rectilinear segment correspond to each other. Then the whole connected segment on the linear segment that contains the point P' should correspond to a certain line AB on the square that contains the point P. Therefore, on the strength of the supposed one-to-one correspondence between the remaining points of the square, in the vicinity of the point P, no point on the line bordering the point P' can correspond to it any longer. From this it obviously follows that a one-to-one and continuous mapping between the points of the line and the square is impossible.' Such was Jurgens' proof.

On the other hand, as Luroth, Jurgens, and others showed,sI the correspondences of Peano, Hilbert and others cannot be that of one-to-one mapping, so that a point on a line is not always represented by a single point on the square and, moreover, this correspondence is not entirely continuous.

In other words, the representation of a square on a line, or of a volume on a plane or a line, really does communicate an points, but it is incapable of communicating the form of the thing represented as a whole, as an object whose structure is internally defined. The content of space is transmitted. but not its organisation. In order to represent a given space with all of the points that comprise its content, figuratively speaking one must either grind it into the finest of powders and then, having carefully stirred it, sprinkle it over the depicted surface so that no trace of its initial organisation remains. Or else one must cut it up into many layers, so that something of its form remains, but position these layers with repetitions of those same elements of form, while at the same time mutually interpenetrating these elements among each other, causing several elements of the form to become embodied in the same points of the representation. It is not difficult to discern behind the mathematical conceptions outlined above, quite independent of mathematics, the 'principles' of divisionism, complementarism etc. discovered by leftist art. With their help leftist art has destroyed the forms and organisation of space, sacrificing them to volume and thingness.

To sum up. It is pOSSible to represent space on a surface. but only by destroying the form of the thing represented. Yet it is form, and only form, that visual art is concerned with. Consequently, the final verdict is proclaimed for painting, as for the visual arts in general, to the degree that it claims to provide a likeness of reality: naturalism is once and for all an impossibility.

Then we immediately embark on the path of symbolism and renounce the whole content of points extending in three directions, the stuffing, so to speak, of the forms of reality. In a single blow we renounce the actual spatial essence of things and concentrate - inasmuch as we are discussing the rendition of space through points - only on their skin. Henceforth, by things we mean not the things themselves, but only the surfaces that demarcate regions of space. In the naturalistic order of things this is, of course, a decisive betrayal of veracity's motto. We have substituted for reality its rind, which has only a symbolic significance, one that only alludes to space without in any way presenting it directly, point for point. Is it now possible to represent such 'things', or rather the skin of things, on a plane?

Whether we answer yes or no depends on what we mean by the words *to*

represent. It is possible to establish a one-to-one correspondence between the points of the form and the points of the representation, so that the continuity of both will by and large be maintained. But only 'by and large: i.e., for the 'majority of points' - it would hardly be appropriate here to discuss the precise meaning of each expression in detail. But given this correspondence, regardless of how it has been devised, certain <u>ruptures</u> and certain <u>infringements</u> of the one-to-one correspondence of the connection are inevitable in points that stand in isolation, or that form certain continuous configurations. In other words, the sequence and relation of the majority of points on the image will be maintained in the representation. But this is still very far from indicating the permanence of all properties belonging to the object represented, even simply its geometric properties, when the object is transferred by correspondence to a plane. It is true that both spaces, both the represented and the representing space, are two dimensional, and in this respect resemble each other. But their curvature is different, and even in the represented space it is impermanent, changing from point to point. It is impossible to place one over the other, even by bending one of them, and any attempt to bend them will inevitably result in rupturing and creasing the surface of one of them. There is simply no way that an eggshell, or even a fragment of it, can be laid over the surface of a marble table. To do so we would need to obliterate its form by grinding it into the finest powder. For the same reason it is impossible to <u>represent</u> an egg, in any exact sense of the word, on paper or canvas.

The correspondence of points on spaces of different curvature certainly presupposes that <u>some</u> of the represented object's properties - of course we are speaking here only of its geometric properties - are sacrificed for the sake of communicating <u>certain</u> <u>others</u> on the representation. There is <u>no way</u> that the sum total of the represented object's geometric attributes can be available in the representation, and while it may in certain respects resemble its original, the representation inevitably differs from it in a great many other ways. The representation is always more unlike the original than like it. Even the simplest case, the depiction of a sphere on a plane, which is the geometric schema of cartography, proves to be extremely complex and has provided grounds for inventing many dozens of the most varied methods, both projective, using rectilinear rays proceeding from a certain point, and non-projectional, implemented by means of more complex constructions or based on numerical computations. And yet, each of these methods, intended to communicate on a map some property of a territory to be reproduced, with its description of geographical objects, neglects and

distorts a great many others that are in no way less important. Each method is good as applied to a strictly defined problem and inappropriate as soon as other problems arise. In other words, a geographical map both is and is not [a representation]. It does not replace the original image of the Earth, not even as a geometrical abstraction, but only serves to indicate a certain token of it. The map represents to the extent that through it and by means of it we turn in spirit to the actual thing depicted, and does not represent if it does not carry us beyond its own confines, but instead detains us in itself as in some pseudo-reality, in a likeness of reality, if the map lays claim to a self-sufficient significance.

The case mentioned here was a very simple one. But the forms of reality are infinitely more varied and complex than a sphere, and the methods for representing each of these forms are correspondingly infinitely more diverse. If we take into account the organisational complexity and diversity of this or that spatial realm in the real world, the mind becomes lost in the innumerable possibilities for communicating this realm through representation. It becomes lost in the abyss of its own freedom. To normalise the methods for representing the world mathematically is a task of insane presumptuousness. And when such a normalisation, which also adduces a mathematical proof, and even worse the only, the exclusive proof, is adapted without any further examination to a single case of correspondence, the most particular of the particular, then it seems that perhaps it is done for a joke. A perspectival image of the world is nothing more than one of the methods of technical drawing. If it pleases someone to defend it in the interests of composition or some other purely aesthetic meaning, then the discussion will be a particular one. I might note in passing, however, that it is precisely in this arena that not a single voice has been raised in defense of perspective.

But there is no point citing either geometry or psychophysiology in its defense. There is nothing to be found here but the refutation of perspective.

XIV

And so, regardless of the principle by which a correspondence is established between the points of the thing represented and the points of the representation, inevitably the representation only signifies, indicates, alludes, leads to an idea of the original. But in no way does it present this image as a sort of copy or model. There can be no passage from reality to a picture, in the sense of resemblances. There is a yawning gulf here that is bridged in the first instance

by the creative intellect of the artist and then by the intellect that co-creatively reproduces the picture in itself.

I repeat, not only is this picture not a duplication of reality in its entirety, but it is incapable even of providing a geometrical likeness of the skin of things. It is necessarily the symbol of a symbol, insofar as skin itself is only the symbol of a thing. From the picture the beholder moves on to the skin of a thing, and from thence to the thing itself.

For all that, an unlimited field of possibilities opens up to painting, in principle. This breadth of scope depends on the freedom to set up, on extremely varied grounds, a correspondence between the points on the surfaces of things and the points on the canvas. There is not a single principle of correspondence that produces a representation, even geometrically adequate to the thing represented. Consequently, a variety of principles, not one of which possesses the single possible advantage of being a principle of adequacy, is each applied in its own way, with its own benefits and its own shortcomings. Depending on the inner need of the soul, however, a certain principle of correspondence is selected by an epoch, or even by an individual creator, no longer under forced external pressure, but in correspondence with the problems of a specific work, and then all of its peculiarities, positive and negative, will automatically follow. The totality of these peculiarities forms the first layer of what we call in art <u>style</u> and <u>manner.</u> The primary character that defines the creating artist's attitude to the world, and thus the innermost depth of his philosophy and perception of life, are expressed in his choice of the principles of correspondence.

A perspectival representation of the world is <u>one</u> of the countless methods possible for establishing the aforesaid correspondence, but it is a method that is extremely narrow, extremely limited, hampered by a host of supplementary conditions that define its potential for application and the limits to which it can be applied.

To understand that orientation in life from which the perspectival treatment of the visual arts must necessarily derive, requires an itemization of the perspectival artist's premises that are silently implied in each movement of his pencil. This is the essence of them:

First: a belief that the space of the real world is Euclidean space, i.e., isotropic, homogeneous, infinite and boundless (in the sense of Riemann's differentiation),82 with zero curvature, three-dimensional, affording the pOSSibility of tracing one and only one parallel to any straight line through any of its points. The perspectival artist is convinced that all the geometrical

constructions he learned as a child (and has since happily forgotten) are in essence not simply abstract schemas (moreover, some of many possible, but essentially realisable, constructions of the physical world), but on the contrary exist as such and are also observable. An artist of this mindset believes that the rays which travel in a bundle from the eye to the outline of an object are straight - a notion that derives, incidentally, from a very ancient view that light travels not from the object to the eye, but from the eye to the object. He also believes in the immutability of a measuring rod when transported in space from place to place and when turned from one direction to another, ete., ete. In short, he believes in the construction of the world according to Euclid and in its perception according to Kant. That's the first premise.

Second: this time, out of Euclid's absolutely equal points in an infinite space, the artist conceives of a single, <u>exclusive,</u> so to speak, monarchical point of particular value, its only defining feature being that this point is occupied by the artist himself, or more precisely by his right eye - the optical centre of his right eye. What is even worse is that the artist attains this in the spirit of a Kantian worldview with its transcendental subject reigning over the illusory world of subjectivity - in spite of Euclidean logie. According to this conception, all positions in space are essentially lacking in quality and are equally devoid of colour, with the single exception of this absolutely dominant one, because in it resides the optical centre of the artist's right eye. This position is declared to be the centre of the world; it claims to reflect spatially the Kantian absolute, gnoseological significance of the artist. Truly, he looks at life 'from a point of view', but without any further definition, for this point, elevated into an absolute, is definitely no different from all the other points of space, and its elevation over the rest is not only unjustified, it is unjustifiable, given the entire world view under discussion.

Third: this 'from his own point of view', this tsar and lawgiver of nature, is imagined as being monocular like the Cyclops, for the second eye, competing with the first, destroys the oneness, and consequently the absoluteness, of the point of view and thereby exposes the fraudulent nature of a perspectival picture. Essentially, the whole world is related not even to the observing artist, but only to his right eye, conceived, what's more, as a single point, its optical centre. **It** is this centre that legislates the universe.

Fourth: the above-mentioned lawgiver is thought of as for ever inseparably <u>chained</u> to his throne. If he quits this absolutised place or even stirs slightly on it, then the whole unity of the perspectival construction is immediately shattered and the whole perspectival system falls apart. **In** other words, in this

conception the viewing eye is not the organ of a living creature, who lives and labours in the world, but the glass lens of the camera obscura.

Fifth: the entire world is thought to be completely <u>static</u> and wholly <u>immutable.</u> In a world subject to a perspectival depiction there can be neither history, nor growth, nor dimensions, nor movements, nor biography, nor development of dramatic actions, nor the play of emotions - nor should there be. Otherwise the perspectival oneness of the picture disintegrates yet again. It is a world that is dead, or gripped in eternal sleep, invariably one and the same, a picture frozen in its ice-bound immobility.

Sixth: all psycho-physiological processes in the act of vision are excluded. The eye looks motionlessly and dispassionately, the equivalent of an optical lens. It does not stir itself, it cannot, it has no right to stir, in spite of the funda-mental condition of vision, its activeness, the active reconstructing of reality in vision as the activity of a living creature. Moreover, this <u>looking</u> is accom-panied by neither memories, nor spiritual exertions, nor recognition. It is an external-mechanical process, at the most a physio-chemical one, but in no way is it that which is called vision. The whole psychic element of vision, and even the physiological one, are decisively absent.

And thus, <u>if the six aforesaid conditions are observed,</u> then and only then does that correspondence which a <u>perspectival picture</u> wants to convey between the points on the skin of the world and the points of a representation <u>become possible.</u> But if even one of the aforementioned six conditions is not observed in its entirety, then <u>this</u> aspect of the correspondence becomes impossible and the perspective will then inevitably be destroyed to a greater or lesser extent. A picture approaches perspectival correctness inasmuch as, and to the degree that, the aforesaid conditions are observed. And if they are not observed even partially, if the legitimacy of even their local violation is admit-ted' as a result the perspective too ceases to be an unconditional demand hanging over the artist and becomes just an <u>approximate</u> method of convey-ing reality, one among many others. Moreover, the degree of its application and the place of that application in a given work are defined by the special aims of the <u>given</u> work and its <u>given</u> place, but by no means generally for any work as such and under all circumstances.

But let us suppose for a moment that the conditions of perspective are satisfied completely, and, consequently, that an exact perspectival unity is also achieved in the work [of art]. The image of the world conveyed under such conditions would resemble a photograph, momentarily imprinting a given correlation between the photosensitised plate and reality. Digressing from the

question of the properties of space itself and of the psycho-physical processes of vision, we can say that, in relation to the actual observation of real life, this instantaneous photo is a differential, and a differential of a higher and, to a lesser extent, a second order. To receive a genuine picture of the world there-from, it is essential to integrate it several times, using the variable of time, on which both changes in reality itself and the processes of observation also depend, and also using other variables like the changeable mass of appercep-tions, etc. However, even if all this were done, the resulting integral of the image would still not coincide with a truly artistic image, as a consequence of the disparity between the concept of space that it implies and the space of the work of art, which is organised as a self-contained, complete unit.

It is not hard to recognise in such a perspectival artist the embodiment of a thought that is *passive* and doomed to every kind of passivity, that for an instant, as if by stealth, furtively spies on the world through a chink between subjective facets, that is lifeless and motionless, incapable of grasping move-ment and laying claim to a divine certainty, specifically about its <u>own</u> place and its <u>own</u> instant of peeking out. He is an observer who brings nothing of his own to the world, who cannot even synthesise his own fragmentary impressions; who, since he does not enter into a living interaction with the world and does not live in it, is not aware of his own reality either, although in his proud seclusion from the world he imagines himself to be the last instance. Yet on the basis of his own furtive experience he constructs all of reality, all of it, on the pretext of objectivity, squeezing it into what he has observed of real-ity's own differential. This is precisely how the world view of Leonardo, Descartes, and Kant grows out of the soil of the Renaissance; this is also how the visual art equivalent to this world view - perspective - arises.

Artistic symbols should be perspectival here, because perspective is a method for uniting all notions about the world, such that the world is under-stood as a single, indissoluble and impenetrable net of Kantian and Euclidean relationships, having their focus in the I of the observer of the world, but in such a way that this I is itself inactive and mirror-like, a certain imaginary focus on the world. In other words, *perspective is a method that of necessity results from a Weltanschauung in which the real basis for half-real, things-notions is admitted* to *be a certain kind of subjectivity,* <u>which</u> <u>is</u> <u>itself</u> <u>devoid</u> <u>of</u> <u>reality.</u> Perspective is an expression of meonism[83] and impersonalism. And this trend of thought is usually called 'naturalism' and 'humanism' - the trend that emerged with the end of mediaeval realism and co-centrism.

But, one asks, in what measure is it <u>possible</u> to doubt the soundness of the six premises of perspective listed above? I.e., while a perspectival representation is one of <u>many</u> methods for representing the world that are possible in the abstract - this is irrefutable! - is it in actual fact the only one, given the viable presence of the demonstrated conditions which make it possible? In other words, is the Kantian, Renaissance world view vital? If it transpired that the conditions of perspective were violated in actual experience, then the vital significance of this concept would be refuted along with it.

And so, let us examine step by step the conditions we have laid out.

First: on the issue of the space of the world it should be said that, in the actual concept of space, we can distinguish three layers that are quite distinct from each other. They are: abstract or <u>geometric</u> space, physical and <u>physiological</u> space, which can in turn be subdivided into the space of vision, the space of touch, the space of hearing, the space of smell, the space of taste, the space of a sense generally organic, etc., each with their own more subtle subdivisions. In abstract terms one can think in a totally different way about each of these designated divisions of space, the large and the minuscule. To imagine that an entire series of extremely complex questions can be deflected simply by referring to a geometric doctrine about the similarity of figures in three-dimensional Euclidean space would mean not even touching on the difficulties of the issue here. First and foremost, it should be noted that the answers given to <u>various</u> aspects of the posed question of space turn out, quite naturally, to be <u>extremely</u> <u>diverse.</u> In abstract geometric terms, Euclidean space is just a particular instance of diverse, utterly heterogeneous spaces, with the most unexpected characteristics vis-a-vis the elementary teaching of geometry, characteristics that are highly revealing for a direct relation to the world. Euclid's geometry is one of countless geometries, and we have no <u>foundation</u> for saying that physical space, the space of physical processes, is specifically Euclidean space. It is just a postulate, a demand that we think of the world <u>thus</u> and adapt all other notions to this demand. The <u>actual</u> demand itself arises from an *a priori* belief in physico-mathematical science of a specific stamp, involving the principle of continuity, absolute time, absolute solid bodies and so on.

But let us suppose for a moment that physical space does in fact satisfy the geometry of Euclid. It still does not follow from this that the direct observer of the world perceives it to be just like that. No matter how he would like to think of the physical space he inhabits, no matter how essential he thinks it is that

the construction of all his other notions should fit the main one - the Euclidean composition of external space, subsuming physiological space within a Euclidean schema - nevertheless physiological space cannot be made to fit within it. Leaving aside the olfactory, gustatory, thermal, aural and tactile spaces that have *nothing in common* with Euclidean space, so that they're not even subject to discussion in this sense, we cannot overlook the fact that even visual space, the least removed from Euclidean space, turns out on closer inspection to be profoundly different from it. And it is in fact [visual space] that lies at the core of painting and the graphic arts, although in various instances it can be subject to other aspects of physiological space too, in which case a picture will be a visual transposition of non-visual perceptions.

'If we now ask just exactly what physiological space has in common with geometric space, we will find only a very few points in common,' says Mach. 'Both spaces represent a three-dimensional manifold. For every point A, B, C, D of geometric space there is a corresponding A', B', C', D' of physiological space. If C lies between B and D, then C also lies between B' and D'. We can also say that, for a continuous motion of some point in geometric space, there is a corresponding continuous moment of a corresponding point in physiological space. That this continuity, chosen for convenience sake, should in no way be obligatorily real and unalterable for the one or the other we have already demonstrated elsewhere: 'And if we accept that physiological space is innate to us, it displays too few resemblances to geometric space to allow us to see in it sufficient basis for a developed *a priori* geometry (in the Kantian sense). On this foundation we can at the very most construct a topology:[84] 'If this dissimilarity between physiological and geometric space doesn't seem obvious to people who do not specialise in such investigations, if geometric space doesn't seem to them somehow monstrous, a kind of falsification of innate space, then this can be explained by an intimate examination of the conditions under which man lives and develops:[85] But, 'even given its greatest approximation to Euclidean space, physiological space still differs from it substantially. A naive person easily overcomes the difference between right and left, before and behind, but it is not so easy for him to overcome the difference between above and below, on account of the resistance shown by geotropism in this regard:[86]

In another work the same thinker outlines some of the characteristics of this difference. 'We have already repeatedly had occasion to notice how very different the system of our space-sensations - our physiological space, if we may use the expression - is from geometrical (by which is here meant

Euclidean).... Geometrical space is of the same nature everywhere and in all directions; it is boundless and (in Riemann's sense) infinite. Visual space is bounded and finite, and what is more, its extension is different in different directions, as a glance at the flattened "vault of heaven" teaches us. Bodies shrink when they are removed to a distance, when they are brought near they are enlarged and in these features visual space resembles the many constructions of the metageometricians rather than Euclidean space. The difference between "above" and "below", between "before" and "behind", and also, strictly speaking, between "left" and "right", is common to tactile space and visual space, but in geometrical space there are no such differences.'87 Physiological space is neither homogeneous, nor isotropic, and this is expressed in the varying estimation of angular distances at varying distances from the horizon, in the varying estimation of lengths, subdivided and not subdivided, in the varying sensitivity of perception on varying parts of the retina, and so on.[88]

And so, we can and should have doubts that our world exists in Euclidean space. But even if we were to dismiss this doubt, nevertheless we probably do not see, and in general do not apprehend, the Euclidean-Kantian world; we only talk about it as a theoretical requirement, as if it were something visible. Whereas the artist's task is to paint pictures, not abstract treatises, to depict what he really sees. What he sees, given the structure of the seeing organ, is not at all a Kantian world, and consequently he must depict something that in no way obeys the laws of Euclidean geometry.

Second: there is not a single person in his right mind who thinks that his point of view is the only one and who does not accept every place, every point of view as something of value, as giving a special aspect of the world that doesn't exclude other aspects, but affirms them. Some points of view are more full of content and characteristic, others less so, each in its own respect, but there is no absolute point of view. Consequently, the artist attempts to examine the object he depicts from various points of view, enriching his observation with new aspects of reality, and acknowledging them as more or less of equal meaning.

Third: since he has two eyes, Le., since he has at one and the same time at least two different points of view, the artist possesses a constant corrective to illusionism, for his second eye is always suggesting that perspectival vision is a deception, and what's more an unsuccessful illusion. In addition, the artist sees more with two eyes than he could with one, and with each eye he sees in a particular way, so that the visual image takes shape in his consciousness synthetically, like a binocular image. In any event it is a psychological synthesis, but it can in no way be

likened to a monocular, single-lens photograph on the retina. Nor is it for the defenders of perspective and the supporters of Helmholtz's theory of vision to cite the negligible difference between two pictures produced by the left and right eye. This difference, according to their own theory, happens to be sufficient [to create] a sensation of depth, and without it this sensation would not be registered. Consequently, by pointing out the difference between representations made with the right and the left eyes, they destroy the reason that would explain why space is perceived as three dimensional.

However, this difference is by no means as small as it might seem at first glance. Let's take as an example a calculation I made. A sphere 20 cm in diameter is viewed from a distance of half a metre, with the distance between the pupils of the eyes being 6 cm. Assuming that the centre of the sphere is at eye level, then the addition of the sphere's equatorial arc that is perceived by the left eye not by the right, is equal to approximately <u>one</u> <u>third</u> of that same arc's equator, seen by the right eye. On a closer examination of the sphere, the proportion of what is seen by the left eye, when added to what is seen by the right eye, will be even greater than one third. These are quantities we must deal with under the usual conditions of vision, for example, when looking at a human face, and even at the smallest degrees of accuracy they cannot be evaluated as quantities that we can afford to disregard.

So in general, if s is the main distance, r is the radius of the sphere under examination, and *l* is the distance of the sphere's centre from the midpoint of the interocular distance, then the relationship x of the additional equatorial arc, added by the left eye to the same arc of the right eye, to the arc seen by the right eye, is expressed with sufficient accuracy in the equation:

$$X = \frac{s}{2\,l\,arc\,\cos\,r/l} -$$

Fourth: Even when he sits in one spot an artist is always moving. He moves with his eyes, his head, his torso, and his point of view is ceaselessly changing. This is the visual artistic image as it should be called. That is, the psychic synthesis of infinitely many visual perceptions from <u>various</u> points of view, and <u>double</u> <u>ones</u> at that, is an integral of such two-in-one images. To think of it as a purely physical phenomenon is to have no conception of the processes of vision and to confuse *quadrata rotundis* - the mechanical and the spirituaL He who has not assimilated the spiritual-synthetic nature of visual images as axioms, has not yet even embarked on a theory of vision, still less of artistic vision.[89]

On the other hand, and *fifth,* objects change, *move,* turn their various sides towards the viewer, grow and shrink. The world is life, not frozen stasis. And consequently, here again the creative spirit of the artist should synthesise, forming integrals of the partial aspects of reality, of its instantaneous cross-sections along the coordinate of time. The artist depicts not an object, but the life of the object, according to the impression he receives of it. And thereby, in general terms, it is a great prejudice to think that one should contemplate, in a state of immobility and while the object being contemplated is motionless. For the issue is, just what perception of an object needs to be depicted in a given situation - that from a chink in the prison wall or from [the window] of an automobile. In itself, not a single means of relating to reality can be rejected in advance. Perception is defined by a vital relation to reality, and if the artist wishes to depict the perception he receives when both he and the object are mutually moving, then he must summarise his impressions while in motion. Moreover, this is actually the most common and most true-to-life perception of reality - as one goes along. It is this perception that gives the most profound cognition of reality. The painterly expression of such cognition is the artist's natural goal. Is it a feasible one?

We know that movement [can be] conveyed, if only that of a galloping horse, the play of feelings across a face, the developing action of events. Consequently, there is no basis for acknowledging that the vital perception of reality cannot be depicted. This differs from the more usual situation, in that the artist is moving relatively slowly and objects are more often depicted in motion, whereas here the movement of the artist, too, is also considered significant, then reality itself can be almost or entirely motionless. As a result, we have depictions of houses with three and four facades, heads with extra surfaces, and suchlike phenomena familiar to us from ancient art. This kind of depiction of reality will correspond to the unmoving monumentality and ontological massiveness of the world, activated by the cognising spirit that lives and labours in these strongholds of ontology.

Children do not synthesise even the instantaneous image of a person, placing the eyes, nose, mouth and so on separately and uncoordinated on the paper. The perspectival artist is unable to synthesise a series of instantaneous impressions and places them in an uncoordinated way on the various pages of his sketchbook. But in both cases this demonstrates only the passivity of a thought that comes unravelled into elementary impressions, is incapable of grasping in a single whole act of contemplation - and consequently in a corre-sponding <u>single</u> <u>form</u> - any kind of complex perception, and of cinemato-

graphically distributing it into instants and moments. However, there are instances when such a synthesis cannot but be produced, and then the most zealous perspectivist rejects his own positions. There's not a single naturalist artist who can stop a spinning top, the wheel of a speeding train or a skidding bicyclist, a waterfall or a fountain in his representation, but he can convey in summary form a perception of the play of impressions fading into and criss-crossing each other. However, an instantaneous photograph or the sight of these processes illuminated by an electric flash reveals something quite differ-ent from what the artist depicted. Now it becomes evident that a single impression halts the process, provides its differential, while a general impres-sion integrates these differentials. But if anyone would agree with the legiti-macy of such an integration, then what is there to stop us applying something equivalent in other situations too, when the speed of the processes is some-what less relevant?

And finally, *sixth:* The defenders of perspective forget that artistic vision is an extremely complex psychic process of merging psychic elements, accom-panied by psychic resonances. In the image reconstructed in the spirit there accumulate memories, emotional echoes of inner movements, and around the dust motes of all the above the effective psychic content of the artist's personality is perceptibly crystallised. This clot grows and acquires its own rhythm, and it is this rhythm that expresses the artist's response to the reality he depicts.

In order to see and examine an object, and not only to look at it, it is essential progressively to <u>translate</u> its depiction on the retina in separate sections to the retina's sensible macula. This means that the visual image is not presented to the consciousness as something simple, without work and effort, but is constructed, pieced together from fragments successively sewn one to the other, such that each of them is perceived more or less from its <u>own</u> point of view. Furthermore, facet is synthetically added to facet by a particular act of the psyche, and in general the visual image <u>is</u> <u>shaped</u> in succession, not produced ready-made. In perception the visual image is not viewed from a <u>single</u> viewpoint but, in accordance with the very essence of vision, it is an image of polycentric perspective. In uniting together here the additional surfaces as well, combining the image from the left eye with the one from the right, we should acknowledge the resemblance of any visual image to the buildings in icons. Henceforth we can debate the degree and desired extent of this polycentric perspective, but no longer that it should be allowed **in** principle. Thereafter begins either the demand for an even

greater degree of mobility in the eye, for the sake of an increasingly intense synthetic vision, or the demand for anchoring the eye, to the degree possible, when a 'scattered' vision is sought. In this case, perspective stands on the path of this visual analysis. But man, as long as he's alive, cannot be completely accommodated within a perspectival system, and the very act of seeing with a motionless, fixed eye (ignoring the left eye) is psychologically impossible.

People will say, 'But all the same now, you can't see three walls of a house at once!' If this objection were correct, one would have to continue it and be consistent. It's impossible to see not just three, but two walls, and even one wall of a house all at once. All at once we see only a minutely small fragment of the wall, and even that we don't see all at once. All at once we see literally nothing. But not all at once we definitely receive an image of a house with three and four walls, as we conceive the house to be. A continuous pouring, overflowing, changing, struggle takes place in the living conception. It is continuously playing, sparkling, pulsating, but never does it founder in the inner contemplation of a thing like a dead schema. And it is just with such an inner pulsing, sparkling and play that a house lives in our imagination. The artist should and can depict his idea of a house, but he absolutely cannot transfer the house itself to canvas. He grasps this life of his idea, whether it be a house or a human face, by taking from the various parts of the idea the brightest, the most expressive of its elements, and instead of a momentary psychic fireworks it provides a motionless mosaic of its single, most expressive moments. During contemplation of the picture, the viewer's eye, passing step by step across these characteristic features, reproduces in the spirit what is now an image extended in time and duration of a scintillating, pulsating idea, but now more intense and more cohesive than an image deriving from the thing itself, for now the vivid moments observed at different times are presented in their pure state, already condensed, and don't require an expenditure of psychic effort in smelting the clinkers out of it. As on the incised cylinder of a phonograph, the sharp point of the clearest vision slips along the picture's lines and surfaces with their notches, and in each spot arouses in the viewer corresponding vibrations. And these vibrations constitute the purpose of the work of art.

That is the approximate path of thought that travels from the premises of naturalism to the perspectival peculiarities of icon painting. It may be a quite

different understanding of art from that which applies in naturalism, one that derives from the fundamental precept of spiritual independence. For the author personally this latter is closer. But on the basis of this understanding the question of perspective doesn't come up at all, and remains just as remote from creative consciousness as do the rest of the forms and methods of technical drawing. In this present analysis the limited nature of naturalism had to be overcome from within, showing how *fata volentem ducunt, nolentem trahunt*-to liberation and spirituality.

Reverse Perspective

The translation is based on the latest version of Florensky's 'Obratnaia perspektiva', in *Sochineniia,* m/I, pp. 46-101, published on the basis of the typewritten and handwritten variants preserved in the Florensky Foundation. Delivered as a lecture, 'Reverse Perspective' was not published at the time, even though Florensky himself prepared the text, dictating it, in part, to Aleksandra Rozanova, daughter of his friend, the writer Vasilii Rozanov. The printed proofs are preserved in Manuscript Section, RGL, f. 218, op. 1304, d.12. The first Russian publication was 'Obratnaia perspektiva', in *Trudy po znakovym sistemam,* m/198 (1967), pp. 381-416; Struve then published it in *Stat'i po iskusstvu,* pp. 117-87; an abridged version, edited, annotated and introduced by Nikolai Gavriushin, appeared in his *Filosofiia russkogo religioznogo iskusstva. Sokrovishchnitsa russkoi religiozno-filosofskoi mysli* (Moscow: Progress-Kul'tura, 1993), pp. 247-464; also in Naslednikov (1993), pp. 175-281; a new version, revised and annotated by Andronik, appeared in Andronik (1996), pp. 9-72. For an Italian translation see 'La prospettiva rovesciata', in Misler (1983), pp. 73-135. For a French translation see 'La perspective inversee', in Lhoest (1992), pp. 67-120. There are three German translations, 'Die umgekehrte Perspektive', in Sikojev (1989), pp. 7-79, in abridged form in Bubnoff (1991), pp. 124-128; and extracts in Mierau (1996), pp. 126-36. For a Japanese translation see 'Gyakuenkinh', in Kuwano (1998), pp. 11-111.

2   I would like to thank Igumen Andronik (Aleksandr Trubachev) for this information. Also see Anon., 'Moskovskii Institut Istoriko-khudozhestvennykh izyskanii i muzeevedenia', in *Khudozhestvennaia zhizn'. Biulleten' Khudozhestvennoi sektsii NARKOMPROSA,* 2 (1920), pp. 11-12.

Oskar Wulff, 'Die umgekehrte Perspektive und die Niedersicht'. See note 176 of Misler, 'Pavel Florensky as Art Historian', in this volume. The term 'reverse' rather than 'reversed' or 'inverted' is being used here to translate *'obratnaia',* although the latter two renderings are permissible. A key argument for preferring 'reverse' is that of Christopher S. Wood, in his masterful translation of Panofsky's essays on perspective, who makes a very convincing case for rendering 'umgekehrte' as 'reverse' (see Wood, *Perspective as Symbolic Form).*

4   Florensky, *Analiz prostranstvennosti,* and Misler (1995).

5   On the philosophical structure of Florensky's anthropodicy and on how he wished to organise and elaborate his own collected works (never published as such) see Igumen Andronik, 'Istoriia sozdaniia tsikla "U vodarazdelov mysly"', in *Sochineniia,* m/I, pp. 5-24.

6   Anders Almgren, Die *umgekehrte Perspektive und die Fluchtachsen-Perspektive* (Uppsala, 1971).

7   Boris Uspensky, ed., L.E *Zhegin. Yazyzkhivopisnogo proizvedeniia* (Moscow, 1970).

8   Aleksandr Zaitsev mantains that Uspensky, in his appreciation of reverse perspective, juxtaposes the two perspectives incorrectly and prejudicially. Lev D'iakonitsyn, in turn, welcomes Zhegin's book, although he, too, is critical of

Uspensky's commentary on Florensky. See Zaitsev, 'Chto takoe obratnaia perspektiva?': and Lev D'iakonitsyn, 'Krupnoe otkrytie v drevnerusskom iskusstve', in *Iskusstvo,* 3 (1972), pp. 67-70 and pp. 70-71. The same issue contains other, less ideological reviews, e.g.lrina Glinskaia, 'Ob izuchenii yazyka zhivopisi', pp. 60-63: and Gerol'd Vagner, 'Khudozhestvennyi yazyk drevnerusskoi zhivopisi', pp. 63-8.

9   See, for example, Lev Mochalov, 'Obratnaia perspektiva. Mifi versiia real'nosti', in V. Polevoi et aI., *Sovetskoe iskusstvoznanie '75* (1976), pp. 255-73: and Baris Raushenbakh, *Prostranstvennye postroeniia* v *drevnerusskoi* zhivopisi (Moscow, 1975): *Prostranstvennye postroeniia* v *zhivopisi. Ocherk osnovnykh metodov* (Moscow, 1980). Two short essays in English provide a summary of Raushenbakh's complex elaboration: Baris Raushenbakh, 'Perceptual Perspective and Cezanne's Landscape', in *Leonardo* XV!1 (1982), pp. 28-33, and 'On My Concept of Perceptual Perspective that Accounts for Parallel and Inverted Perspective in Pictorial Art', *ibid.,* XVI!1 (1983), pp. 28-30.

10   Abe Shenitzer, trans., *Bods Rosenfdd:* 'A *History ofNon-Eudidean Geometry. Evolution ofthe Concept ofa Geometric Space'* (New York, 1988).

ESSAY

Numerals with *asterisks added indicate Florensky's original notes to* this *essay; the remainder are mine.* N. M.

11*   This article was written in October 1919, in the form of a lecture for the Commission for the Preservation of Monuments and Antiquities ofthe Lavra of the Trinity and St Sergius. However, for various reasons it was delivered not to the Commission, but to a session ofthe Byzantine Section ofMIKhlM on 29 October 1920. The debate that followed the lecture was long and intense. As I recall, those who took part were Pavel Muratov, B. Kuftin, N. Romanov, A. Sidorov, N. Afrikanov, N. Shchekotov, M. Fabrikant and N. Lange. Once again the liveliness ofthe discussions brought home to me that the question ofspace was one ofthe fundamental ones in art and, I would go even further, in the understanding ofthe world in general. But this question ofspace in visual art is not discussed in the present article and is the subject ofmy lectures on the analysis ofperspective, which I delivered to the Printing and Graphics Department at the Moscow Higher Art Workshops, the so-called KhUDEMAST [=VKhUTEMASj in 1921-3 and which are being prepared for publication. This article merely presents a sort of concrete historical approach to understanding an organic idea ofthe world. The author in no way intends to construct a theory ofreverse perspective and wants only to point out with sufficient energy the*fact* of an organic idea - in one particular sphere. To conclude this introduction I want to gratefully acknowledge the late Aleksandra Mikhailovna Butiagina, who transcribed the first half ofthis article from my dictation.

12   *Rastsvetka* or *raskryshka, razdelka, asist* or *assist, ozhivka, dvizhka, otmetina, probel (probelka).* Apart from *razdelki* (folds or creases in vestments) Florensky defined

these terms as follows (parentheses, underlinings, bold script, quotation marks and italics are Florensky's; words in square brackets are the translator's) copying freely from Sergei Prokhorov, 'Ob ikonopisi i ee tekhnike', in *Svetil'nik,* 1 (1914), pp. 33-48 and other sources (Florensky, '[Podgotovitel'nye materialy po ikonopisi]', in Florensky, *Ikonostas* (1995), pp. 213-29):

V. lkonopisets raskryvaet [The icon painter exposes]

19) The icon-painter 'exposes', Le. paints over the background of the dress and accessories with *uninterrupted spots* of paint (the *raskryshka)* [exposure], but without any shadows or half-tones. He may not use *lessirovka* or *mazok* [light brushstroke], so he replaces the *lessirovka* with *pripleska* [sprinkling], Le. covers a given place with a very thin tone (in the case of an old icon where a lot of 'fill-ings' are being made as it is being restored resulting in a kind of multicoloured variegation, the painter destroys it by *sprinkling* all the vestments or background with a thin tone which produces the 'filling in' of the spots). After this, but still during the restoration process, he paints over the old folds and inserts *probely* [highlightings] …

VI. Rospis' [Painting]

20) When the *raskryshka* has dried, the outlines of the folds that had been made earlier with *thegrafia* [point] can be seen… Painting for the all over paint-ing of the folds is done in the same color, but in a darker tone…

Vll. Probelka [Highlighting]

22) Highlightings are applied whereever there has to be light (- on the shoul-der or the chest, from the shoulder to the end of the sleeve, on the stomach, the thigh and lower down -) which is done with tempered gold or paint. The high-Iightings are applied in three *postily* [spreads] - the first, second, and then the third which is the *otzhivka* [left-over] … the thinnest and lightest …

VllI.

25) [Asist] … 'I know nothing' about the derivation of the word *asist*. The substance of *asist* is a thick and compact mass prepared from the juice of a head of onion or sometimes from black and thickened beer. Either is then diluted with water in a spoon so as to 'dissolve' and is used to cover the places on the dress or background where gold is going to be applied …

Razdelka [Fold]

… 'Folds on dress' (early Novgorod icons) 'consisting of straight lines or markings *prepared* with ink and eggwhite' …

Dvizhki [Lines]

Dvizhki are the thin, short lines or *otmetiny* [markings] which are traced with eggwhite in the upper sections of the icon: beneath the eyes, beneath the lips, on the forehead, and on the joints of the hands and feet …

13[*] The fifteenth -or sixteenth-century icon No. 23/328 (32 x 25.5 cm), for example, donated by Nikita Dmitrievich Vel'iaminov in honor of Tsarevna and nun Ol'ga Borisovna in 1625, was cleaned in 1919 and published by the Lavra Preservation Commission (see Opis' *ikon v Troitse-Sergievoi Lavre* [Sergiev Posad, 1920] pp. 89-90). [The icon is now in the Historical-Artistic Museum of Sergiev Posad, inventory no. 375. See: Tat'iana Nikolaeva, *Drevnerusskaia zhivopis' Zagorskogo*

Muzeia (Moscow, 1977) p. 130.]

14* The eighteenth-century icon no. 58/160 (31.5 x 25.5 cm) had been donated by Ivan Grigor'evich Nagov in 1601 *(Opis'ikon,* pp. 102-3). [Present whereabouts unknown.]

15* One opinion sees the depiction of warriors or horses emerging one from behind the other and following a single line perpendicular to the direction of their movement as being an embryonic form of perspective. Of course, this is a certain projection of a military, axionometric, or similar type of perspective, i.e. the projection from an infinitely distanced centre, and it has significance as such, in and of itself. To see it as the embryo of something else, as an imperfectly comprehended perspective, means not taking into consideration the fact that any representation is a correspondence and that many representations are in essence projections, without being perspectival. Essentially, they are no more the embryos of perspective than reverse perspective or many others are. In turn, [linear] perspective is an embryo of reverse perspective and so on. Evidently, in such cases researchers are simply not paying proper attention to the mathematical aspect of the matter and that is why they divide up all the countless methods of representation into correct, perspectival ones and incorrect, non-perspectival ones. However, non-perspectival [representation] in no way signifies incorrectness. With respect to Egyptian representations specifically, particular attention is required, for here tactile sensations predominated over visual ones. What kind of correspondence between the points of the thing represented and the representation was being used by the Egyptians is a difficult question, one that has yet to receive a satisfactory answer.

16* Moritz Cantor, *Vorlesungen iiber Geschichte der Mathematik,* vol. 1, 3rd edn (Leipzig, 1907), p. 108.

17* Vitruvius Pollio, *De architeetura* libri *decem,* VII, praefatio, 11. We read the same in the life of Aeschylus. However, from what Aristotle indicates in his *Poetica,* 4, the first to provide a reasonable explanation for scenography was Sophocles.

18 This is a free paraphrasis of the original Vitruvius text, 'Namque primum Agatharcus Aeschylo docente tragoediam scaena fecit et de ea commentarium reliquit. Ex eo moniti Democritus et Anaxagoras de eadem re scripserunt, quemadmodum oporteat ad aciem oculorum rariorumque extentionem certo loco centro constituto linea ratione naturali respondere, uti de incerta re certae imagines aedificiorum in scenarium picturis rendere speciem, et quae in directis planisque frontibus sint figurata, alia abscendentia alia prominentia esse videantur.' (Vitruvius, *De architectura libri decem).* See Herbert Langford Warren, ed., *Vitruvius: The Ten Books on Architecture* (New York, 1960), p. 198.

19 See note 74 of Misler, 'Pavel Florensky as Art Historian', in this volume.

20* Ivan Semenov, trans., G. *Emikhen: 'Grecheskii i rirnskii teatr'* (Moscow, 1894), pp. 160-61.

21* Claudius Ptolomaeus, Γεογραφικὴ υφήγησις. See Cantor, *Vorlesungen,* p. 423.

22* Rynin, *Melody izobrazheniia.*

23* Numerous reproductions, both photographs and line drawings, of the Greco-Roman architectural landscape and the archaeological study of this landscape

can be found in the detailed investigation by Mikhail Rostovtsev, 'Ellinistichesko-rimskii arkhitekturnyi peizazh', in Zapiski *klassicheskogo Otdeleniia Imperatorskogo Russkogo Arkheologicheskogo Obshchestva,* VI (Segiev Posad, 1908). Unfortunately, Rostovtsev's work completely ignores the art historical and theoretical aspect of the matter and in particular contains absolutely no discussion of spatiality in the Hellenistic-Roman landscape. We might point out, incidentally, that the landscapes Rostovtsev reproduces are partially presented in linear perspective-though not a completely rigorous one - and partially using other methods of projection related to perspective, like axionometry - a projection from an infinitely distanced point. In any event, the general nature of the representations is fairly close to a system of perspective.

24* 'However, the question of the Greco-Roman architectural landscape, its origins and history, its realness or its fantasticness, has not been broached in scholarship to this day. From the first days of my acquaintance with Pompeii I have personally long been involved with it. I saw immediately that the limits of real fantasising in Pompeiian landscape are extremely restricted and are encompassed entirely within the framework of the *illusionistic* transmission in part of motifs from surrounding nature, in part of landscape and architectural originals coming from outside. In general, I find the term fantastic architecture difficult to understand. Details of an ornamental kind can be permeated with fantasy, the combination of motifs can be capricious and unusual, but the motifs themselves and their general character will without fail be real, if not with the relief of a portrait (we are not confronted with architectural projects and photographs), then real in a typical way. Investigation from this viewpoint of utterly fantastic-seeming architectural motifs in the so-called architectural style of wall decoration has already succeeded in providing a number of unexpected and extremely important results. The connection between *this fantastic' architecture and the architecture of the Greco-Roman stage* has been, or is being proven, and, of course, further research will provide even more, especially now, when in Asia Minor monuments of genuine Hellenistic architecture are being discovered one after another. I arrived at the same results after many years of research on the architecture of Pompeiian landscapes. Here everything seems real, to an even greater degree than in architectural decoration, and conveys the *types* of real Hellenistic architecture. There is even less room here for pure fantasy, than in the architecture of Pompeiian walls.' (Rostovtsev, 'Posleslovie', *Ellinistichesko-rimskii arkhitekturnyi peizazh,* pp. IX-X.). The author connects this landscape with views of Roman villas, Egyptian landscapes, etc.

25* A1eksandr Benua, *Istoriia zhivopisi* (St Petersburg: Shipovnik, 1912), vol. I, part], pp. 41 et seq.

26* See Rostovtsev, *Ellinistichesko-rimskii arkhitekturnyi peizazh.*

27* Benua, *Istoriia zhivopisi,* p. 45.

28* *Ibid.,* pp. 45, 46.

29* *Ibid.,* p. 43, note 24.

30* ibid., p. 70.

31* *Ibid.,* p. 75.

32* *Ibid.,* p. 75.

33 The Neo-Kantian school at Marburg University, directed by Hermann Cohen (1842-1918) and represented also by Paul Natorp and Ernst Cassirer, was especially popular among Russian philosophers and intellectuals in the early twentieth century.

34* D. M. Bolduin, *Dukhovnoe razvitie detskogo individuuma* i *chelovecheskogo roda.* Translated from the 3rd US edn (Moscow: Moskovskoe knigoizdatel'stvo, 19U). [See James Mark Baldwin, *Mental Development* in *the child and the Race. Methods and Processes* (New York and London, 1895)].

35 Vasari's original text is 'Fu, come si è detto, Giotto ingegnoso e piacevole molto e ne' motti argutissimo, de' quali n'è anco viva memoria in questa città.' See Gaetano Milanesi, ed., *Le opere* di *Giorgio Vasari* (Florence, 1973), p. 406.

36* Petr Pertsov, trans., *I. Ten [Hyppolite Taine]: 'Puteshestvie po ItaliC* vo!. 2 (Moscow: Nauka, 1913-16), н, pp. 87-8.

37 Vasari's original text is 'E perche, oltre quello che aveva Giotto da natura, fu studiosissimo, ed andò sempre nuove cose pensando e dalla natura cavando, merito d'essere chiamato discepolo della natura e non d'altri … Perche oltre a certi paesi pieni di alberi e di scogli che fu cosa nuova in quei tempi.' See Milanesi, *Le opere* di Giorgio *Vasari,* pp. 378-80

38* Benua, *Tstoriia* zhivopisi, p. 100.

39* *Ibid.*

40* *Ibid.,* pp. 107-8.

41* Cf. Aleksei Mironov, 'AI'brekht Diurer, ego zhizn' i khudozhestvennaia deiatel'nost. K kharakteristike epokhi v nemetskom iskusstve', in *Uchenye Zapiski Imperatorskogo Moskovskogo Universiteta. Otdel istoriko-filologicheskii,* 31 (1901), p. 375.

42* Albrecht *Dürer,Underweysung der Messung* mit *dem Zirkelund Richtscheyt* in Linien, *Ebenen und gantzen Corporen durch Albrecht Durer zusammen getzogen und zu Nutz aller Kunstliebhabenden* mit *zugehorigen Figuren in Truckgebracht* im *Jahr* MDXXV (Nuremberg, 1525). There are no fewer than five later editions.

43* Mironov, *Al'brekht* Diurer, p. 380, note 1.

44* Excerpts from several of these tracts have been published by Gustav Johannes von Allesch in his *Renaissance* in *Italy* (translated into Russian by Evgenii Grigorovich as *Allesh.'Renessans* v *Italii'* (Moscow: Sabashnikov, 1916).

45 Paolo Uccello painted his *Monument* to *Giovanni Acuto* (John Hawkwood) in 1433.

46 Andrea del Castagno painted his *Monument to Niccolo da Tolentino* in 1456.

47 Andrea del Castagno was born in 1421.

48 Andrea del Castagno painted his *Supper* in 1445-50 in the Church of S Apollonia in Florence.

49* Benua, *lstoriia* zhivopisi, p. 381.

50 The correct title is De *prospeetiva pingendi*.

51 Today it is generally accepted that the Latin version of De *Pictura* was written in 1435 and the one in vernacular Italian in 1436. The original Latin edition was published in Basle in 1540.

52 Masaccio died in 1428.

53* An extensive bibliography on these issues can be found in Rynin, *Metody*

izobrazheniia, pp. 245-64.

54 'I know they tippled wine on the quiet/while *publicly preaching water'* (T. J. Reed, trans. and intro., Heinrich *Heine: 'Deutschland.* A *Winter's Tale'* (London, 1986), p. 57.

55* Guido Schreiber, *Lehrbuch der Perspective* mit *einem Anfang uber den Gebrauch geometrischer Grundrisse,* 2nd edn, ed. A. Viehweger, intro. Ludwig Nieper (Leipzig, 1874).

56* *Ibid.,* § 32, p. 5l.

57* *Tbid.,* § 34, p. 56.

58* *Ibid.,* § 34, p. 57.

59* Rynin, *Perspektiva,* § 8, pp. 72-3.

60 Raphael's *Sistine Madonna* (]512-13, Gemaldegalerie, Dresden) was and is one of the most revered paintings in Russian culture, particularly in the philosophical and religious circles that Florensky frequented.

6] Tintoretto (]518-94) made his reputation with this work in 1548.

62 The Uffizi Gallery does not possess a *Flemish Landscape* by Rubens. Presumably Florensky is referring to Rubens' *Landscape. Returningfrom the Fields* (1632-4) in the Galleria of the Palazzo Pitti in Florence.

63* Rynin, *Perspektiva,* §. 8, pp. 70-82, 89: Schreiber, *Lehrbuch der Perspective.*

64* Rynin, *Perspektiva,* §. 8, p. 75, fig. 144.

65* Friedrich Schilling, *Über die Anwendungen der darstellenden GeometTie insbesondere uber* die *Photogrammetrie* (Leipzig and Berlin, 1904), pp. 152-3: Rynin, *Perspektiva,* p. 74. Rynin, *Metody izobrazheniia,* p. 111.

66* Schilling, *Über die Anwedungen,* p. 153, note 1.

67 The only journey that Albrecht Diirer undertook in 1506 was from Venice (not Florence) to Bologna.

68* Frants Kugler [Franz Theodor Kugler], *Rukovodstvo k istorii zhivopisi so vremeni Konstantina Velikogo,* 3rd edn (Moscow, 1874), p. 584.

69* Mironov, *AI'brekht Diurer,* p. 347.

70* Aleksei Sidorov, *'Chetyre Apostola' Al'brekhta* Diurera i *sviazannye* s nimi *spomye voprosy.* Offprint of *Zapiski Klassicheskogo Otdeleniia Imperatorskogo Russkogo Arkheologicheskogo Obshchestva,* IX (1917), p. 15.

71* From one of Diirer's manuscripts now in the British Museum, London, and comprising the artist's working sketches for projected future printed works. Published by A. von Zahn in 1868 and William M. COl1way in 1889 [William Conway, *Literary Remains of Albrecht Durer* (Cambridge,]889)J reprinted in Konrad Lange and Franz Louis Fuhse, *Dürers schriftlicher Nachlass auf Grund der Original-Handschriften und theilweise neu entdeckter alter Abschriften* (Halle, 1893), p. 326.

72 The woodcut for the First Perspective apparatus or *Man drawing a seated figure* was published in the first edition of the *Underweisung der Messung* (Nuremberg, 1925).

73 The woodcut of a Perspective apparatus called *Man drawing a reclining woman* was included only in the second edition of the *Underweisung der Messung* (Nuremberg, 1938).

74 The woodcut of a Perspective apparatus called *Man drawing a jug* was also included in the second edition of the *Underweisung der Messung.*

75 The woodcut for the Second Perspective apparatus or *Man drawing a Lute* was

published in the first edition of the *Underweisung der Messung.*

76* Rynin, *Perspektiva,* § 8, pp. 75-8; *Metody izobrazheniia,* § 15, pp. 113-17.

77* Ernst Makh, *Dlia chego cheloveku dva glaza. PopulianlO-nauchnye* ocherki, trans. Gedel' Kotliar (Moscow: 'Obrazovanie', 1909), p. 64. [For the English see Ernst Mach, 'Why Has Man Two Eyes?', in *Popular Scientific Lectures,* 3rd edn, trans. Thomas McCormack, pp. 66-88 (Chicago, 1898); this citation on pp. 76-7. N.M.]

78* An elementary explanation of the terms of 'study on sets' used here - set, correspondence, power, equivalent relation, similarity or conformity, etc. - can be found in Pavel Florensky, 'O simvolakh beskonechnosti', in *Novyi put',* 9 (September 1904), pp. 173-235.

79* On how the correspondence of the points of the square and its sides has been established see Georg Cantor's own proof. [Original source and quotation missing in the manuscript. N.M.]

80 Original source lost.

81* See Rynin, *Metody izobrazheniia.*

82 Georg Friedrich Bernhard Riemann (1826-66), German mathematician. In *Analiz prostranstvennosti* Florensky further developed the ideas that Riemann had put forward in his fundamental text, *Ueber* die *Hypothesen, we/che der Geometrie zu Grunde liegen,* Habilitationsschrifi: vonlO Juni 1854, Gottingen, Abhandlungen der Wissenschaften, 13, 1866, pp. 133-52.

83 The term Meonism derives from the Greek (μὴ ὄν, unbeing) and lies at the basis of the philosophical theory of the poet and philosopher Nikolai Minsky (1885-1937). According to him every human effort towards the ideal is destined to fail, such as the knowledge of God which, paradoxically, is unattainable - for God is dispersed within Eternity. Minsky was also one of the organisers of the Religious-Philosophic Gatherings that Florensky frequented.

84 Original source lost.

85* Ernst Makh [Mach], *Poznanie i zabluzhdenie. Ocherki* po *psikhologii issledovaniia* (Moscow: Skirmunt, 1909), p. 346.

86* *Ibid.,* p. 349.

87* Ernst Makh ([Mach], *Analiz* oshchushchenii (Moscow: Skirmunt, 1908), p. 354 [For the English original see Ernst Mach, *The Analysis of Sensations And the Relation of the Physical to the Psychical,* trans. C. M. Williams (New York, 1959), pp. 181-2. N.M.]

88* *Ibid.,* pp. 157-8.

89* *Ibid.,* p. 146.

Pavel Florensky

Beyond Vision
Essays on the Perception of Art

CONTENTS