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Seeing as Sensing: The Structuring of Bodily Experience in Modern Pictorial Art

by

Laura Anne Hutchinson

A thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in the History of Art

University of Warwick, Department of the History of Art

October 2010

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Acknowledgements

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I am grateful to the staff at the Department of the History of Art at Warwick University and in particular to my supervisor, Paul Smith, whose advice has been invaluable over the duration of this thesis. Many friends have also contributed to this project, some much more than they know. Special thanks are due to Vivienne Edkins, Tristam Jones, Jay Butcher and Natalie Rankin. Finally, and above all, I am indebted to my family for their patience and understanding and to Edward Bergin for his constant encouragement, unfailing wisdom and continual support.

Author's Declaration

I declare that the work in this thesis was carried out in accordance with the Regulations of the University. The work is original except where indicated by specific reference in the text, and no part of the thesis has been submitted for any other degree.

Any views expressed in the dissertation are those of the author and in no way represent those of the University of Warwick.

The thesis has not been presented to any other university for examination either in the United Kingdom or overseas.

Abstract

Two main arguments are developed in this thesis: first is the claim that our ability to make and understand representational pictures has a natural basis in our capacity to see. In this respect, I have drawn on the ideas of the visual scientist, David Marr and on the theory of representation expounded by John Willats. Second, I argue that the view articulated by these theorists forms a theoretical backdrop for, but does not satisfactorily explain, how pictures may heighten our sense of bodily presence. A central aim of this thesis is therefore to show how this mode of expression is also non-arbitrarily linked to the process of seeing by virtue of its relationship with our visuomotor capacities. In order to give substance to these ideas, I have attempted to weave together knowledge of art history with neuropsychological evidence and phenomenological philosophy.

In applying this view to the work of particular artists, I have largely focussed on the oeuvre of Cézanne and the Cubists. However, the general form of this argument is intended to have wider implications, indicating the development of a stylistic tendency in modern art and showing how it differs from that of the Renaissance tradition. In conclusion, my thesis expresses the view that vision – and hence representation – can be divided along two separate lines: one related to a conceptual form of seeing and the other related to a bodily form of perception. The 'crisis of representation' in the late nineteenth century is therefore considered indicative of a rejection of the former mode of visuality. Instead, modern artists are said to re-structure the viewing experience so that it shows the reliance of sight on the body, thus permitting the beholder a more active and constitutive role in the perception of art.

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Vision, History and Style

Every artist finds certain visual possibilities before him, to which he is bound. Not everything is possible at all times. Vision itself has its history, and the revelation of these visual strata must be regarded as the primary task of art history.

– Heinrich Wölfflin[1]

i) WHAT IS SPECIFICALLY 'VISUAL' ABOUT PICTURES?

One of the most common assumptions we make about pictures is that they are 'visual' artefacts pure and simple. Or, to put this another way, we tend to think that their interest lies exclusively in an experience of seeing and that they have little truck with the other sensory modalities such as hearing, smell or touch. This does not mean, of course, that we do not speak of pictures as appealing to our other sensory faculties; we might say, for instance, that Kandinsky's works call to mind the harmonies and dissonances of music. But we tend to relate these non-visual experiences to a process of mental association – or as Nelson Goodman

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[1] Heinrich Wölfflin, *Principles of Art History*, trans. M. D. Hottinger (London: G. Bell & Sons, Ltd, 1932), p. 11.

has put it, to a process of metaphorical extension[2] – and not to a sensation that is directly produced by the work. Therefore, since we decipher pictures by employing our visual capacities, it seems profoundly intuitive to treat them as objects of sight.

But what should we say of pictorial art more specifically? Does this generate some particular visual interest? And if so, what should we understand the source of this to be? If we trace it to some objective aspect of the picture's appearance – to something about the way it looks *qua* itself – then how are we supposed to quantify this? Clearly we cannot pin our hopes on an impartial judgement for, as Hume was to point out, we each bring something different to the work of art (and of course, this includes myriad factors such as our competencies, prejudices, cultural background, race, class, gender and so on and so forth).[3] But equally, if we understand pictorial art as something which is distinctively visual, then we cannot say that this relates only to our own activity of seeing, for then we might as well look at anything else. Thus the 'visuality' of a picture must connect these two senses of looking – what a picture looks like (its objective appearance) and how we look at it (the visual capacities that we deploy). It might therefore be said that certain pictures are classified as art because they educe, and thus make us aware of, a particularly rich or distinctive experience of sight.

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[2] See Nelson Goodman, *Languages of Art*, (Indianapolis and Cambridge: Hackett Publishing Company, Inc: 1976), Part II 'The Sound of Pictures', pp. 45 – 98.
[3] David Hume, 'Of the Standard of Taste' (1757) reprinted in *Philosophy: Basic Readings*, ed. Nigel Warburton (London: Routledge, 1999), p. 493 – 507.

But can deepening our understanding of pictorial seeing extend our knowledge of the *history* of art? In our discipline we tend to assume that it is enough to say that pictures are visual without considering the particular nature of the relationships and perceptual processes this experience entails. And more explicitly, we tend not to consider how vision connects the way that a picture looks, the way that a spectator views it and the original way that the artist saw. Of course, this is not to say that we do not acknowledge different categories of visual interest; for instance, we might be concerned with how a picture by Courbet implies multiple viewing positions, or how one by Mark Rothko induces a sense of dread. But in general we explain these phenomena by referring to the formal qualities of the picture rather than considering the way that these express the artist's perception or modulates the spectator's experience of sight. If we wanted explanations at this level, we assume that science and psychology would fill in the gaps. But since we suppose that the processes revealed would only tell us about states of the brain, we fail to see how they could illuminate the connection between the look of a picture and the concerns of an age. In short, this approach is not seen as fitting for art history for it is considered to relate to the study of vision and not to the study of pictures per se.

In this thesis I wish to propose that this approach is wrongheaded and that, instead of being inconsequential to the project of art history, the study of perception can further its means. This is because any history of pictures which respects what they fundamentally are must begin by considering the way that they 'look'. Or to put this differently, since the primary condition of a picture is that it is made to be seen, the initial shape which this appearance takes will

condition any more complex experience that follows. Therefore, before we decipher a narrative, grasp a particular iconographical content, or understand a social or ideological message, we must first visually experience a work and treat its meaning as something visually conveyed. In the following sections let me further outline this approach to pictures by showing how it connects the triple concerns of vision, history and art.

ii) NATURE AND NURTURE

One well-known approach to the problem of how seeing, picturing and style interrelate is Wölfflin's notion that 'vision itself has a history'. Thus according to the theorist, the way that seeing changes over the course of history determines the direction of changes in style. [4] Now, what I believe needs to be made explicit in this connection is that the notion of 'vision itself' proposed by Wölfflin is nothing less than the idea that seeing has its own evolutionary history. Thus, while it might seem doubtful that this fluctuates around two poles of perception – the tendencies the author identifies with the Classic and the Baroque – we cannot quarrel with the notion that human sight is subject to certain evolutionary laws and that, at this naturally determined level, the specificities of culture have no particular effect. What is therefore valuable about Wölfflin's argument is its insight that there is a natural basis to vision and that to a certain extent our shared heredity will determine the way that we see.

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[4] This idea is outline in the introduction to the *Principles of Art History* and later expanded in its conclusion.

Where Wölfflin errs is not so much in his acknowledgement of this universal axis of vision, but in citing it as the causal mechanism for stylistic change. For clearly, the course of evolution – whatever its nature – is too slow and too undifferentiated to ever account sufficiently for the diversity of style. Accordingly, it seems that when he identifies the Classic and the Baroque with two discrete modes of perception, he attributes to nature what in reality is a product of culture. To be more specific, what the *Principles* fails to adequately account for is the whole range of human activities and forms of exchange which distinguish the practice of art making in the Renaissance from its later incarnation in the Baroque.[5] The lesson we therefore learn from the shortcomings of this explanation is that, if we are to speak of a 'history of vision' in relation to art, we must conceive of one that is socially constructed and not one that autonomously and instinctively unfolds.

Wölfflin nevertheless does make provisions for the material contexts in which seeing occurs. 'Not everything', he says, 'is possible at all times' and what makes these things possible and determines their development is 'external' factors or 'outward circumstances'.[6] In short, vision – whatever natural capacities it supplies – is always born into culture, and it is the admixture of these factors

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[5] Indeed, many contemporary theorists would claim that this period is too wide for the whole complex of social factors to ever be explored in an illuminating way. For this reason, recent studies of style – when this is even entertained as a meaningful concept – tend to be much more historically specific. Witness, for example, T. J. Clark's pioneering work *Image of the People: Gustave Courbet and the Revolution of 1848* which concentrates exclusively on a three year period as does *The Absolute Bourgeois: Artists and Politics in France, 1848 – 1851* (both London: Thames and Hudson, 1973).

[6] Wölfflin considers the relationship between the (supposedly) inexorable laws of art and the influence of contingent historical factors in his conclusion to the *Principles*, and particularly in the section entitled 'External and Internal History of Art'. He also frequently refers to the contrast between the 'inward' progress and the 'outward' circumstances of seeing, giving primacy to the former in the movement from Classic to Baroque and emphasising the latter when it comes to the recommencement of this cycle. See *ibid*, pp. 226 – 237.

which throws up certain possibilities for art. And so, even if we deny the plausibility of Wölfflin's 'history of seeing', can we at least agree with his conciliatory approach to nature and nurture?

If we survey the contemporary literature on art the answer would seem to be 'no'. And yet, interestingly, this is not so much owing to a resistance to this approach, but rather because the strategies our promiscuous discipline adopts have served to drive a wedge between each of these aspects. And so, what we now face is a growing divide between two incompatible positions: those, on the one hand, who overstate the providence of nature by describing pictorial meaning as if it were reducible to neural events and those, on the other hand, who amplify the effects of culture by treating pictures as if they communicated by way of purely arbitrary conventions.

In the first camp there are authors like Semir Zeki and Vilayanur Ramachandran – mainly neuroscientists by profession[7] – who seem to think that the formal language of pictures has been purposefully developed to stimulate certain groups of cells in the brain.[8] As Zeki and his colleagues therefore conceive it, the job of artists is like that of neurologists[9] – they probe the visual

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[7] One of the few art historians who has adopted this approach is John Onians. See his recent work *Neuroarthistory: From Aristotle and Pliny to Baxandall and Zeki* (New Haven and London: Yale University Press, 2007).

[8] A prime example of this is Ramachandran's 'Eight Laws of Artistic Experience' which claim to relate aesthetic responses to the evolutionary development of specific neural mechanisms in the brain. See Ramachandran and William Hirstein, 'The Science of Art: A Neurological Theory of Aesthetic Experience', *Journal of Consciousness Studies*, 6, nos. 6 – 7 (1999), pp. 15 – 51. See also Semir Zeki, *Inner Vision: An Exploration of Art and the Brain* (Oxford: Oxford University Press, 1999) and Margaret Livingstone, *Vision and Art: The Biology of Seeing* (New York: Harry N. Abrams Inc, 2002).

[9] This is Zeki's analogy which he uses throughout the course of his book *Inner Vision*. However, while other writers of this ilk do not explicitly make this connection, it seems unavoidable that their studies will demand the assumption that the artist is unwittingly exploring the neural

brain in specific ways with their styles in order to produce particular aesthetic effects. And yet – even though this discipline of 'neuroaesthetics' is still in its infancy – it is clear to those of us who wish to know this subject intimately that it can never do justice to the subtlety of art. While it may tell us something about the neural correlates of aesthetic experience, what can it tell us about the rest of art making? For instance, what can it say about the ways in which several kinds of content – say, visual, narrative and metaphorical – are put into complex and dense relationships and which sustain our interest through their very repleteness? And more particularly, what can it say about the specificity of an object which emerges from and is launched into a particular culture and which accrues its meanings as a result? The hardwired structures of vision are everything to these writers, but since they are also all that there is, their approach reveals more about physiology than it says (or ever will say) about the experience of art.

But while we may wish to make a much larger concession to culture, should we therefore subscribe to the alternative view and say that, whatever visual impact it has, representation itself is never drawn directly from perceptual material, but only from socially constructed conventions and arbitrary signs. In this camp we find writers such as Norman Bryson, Rosalind Krauss and Yve-Alain Bois, all of whom have appealed to the model of Saussurian linguistics in order to describe the formal organisation of art.[10]

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structures of sight. See Semir Zeki, *Inner Vision: An Exploration of Art and the Brain* (Oxford: Oxford University Press, 1999) and Margaret Livingstone, *Vision and Art: The Biology of Seeing* (New York: Harry N. Abrams Inc, 2002).

[10] See, for instance, Norman Bryson, *Vision and Painting: The Logic of the Gaze* (London: Macmillan, 1983), Rosalind Krauss, 'The Motivation of the Sign' in W. Rubin, K. Varnedoe and L. Zelevansky, *Picasso and Braque: A Symposium* (New York: Museum of Modern Art / Abrams, 1992), pp. 261 – 287 and Yve-Alain Bois, 'Kahnweiler's Lesson', *Representations*, no. 18 (Spring 1987), pp. 33 – 68.

According to Saussure's theory, language is conceived as a 'system of differences' in which verbal signification relies not on the signifier's phonetic substance – which is arbitrary – but on its difference from surrounding signs. For instance, there is no inherent reason why the word 'dog' refers to the concept it does; this is simply a convention of the English language. What actually gives the word meaning is its difference from 'cat' and 'Chihuahua' and all other terms in the system. Thus by applying semiological principles to pictures, theorists have argued that pictorial signs are aligned with the arbitrary nature of the signifier so that any inherent connection between depicta and referent is severed. On this analysis, then, representation does not function through resemblance but through the formal relations between the signs in a system and the viewer can 'read' these through his or her familiarity with a pictorial tradition. Accordingly, in the same way that the English word 'dove' and the French word 'colombe' bear no inherent relation to the species they signify and yet serve equally well in their own contexts of use, so too, on this understanding, does Picasso's *Colombe de la Paix* (fig. 1) signify this animal for anyone versed in the codes of Western art.

iii) REPRESENTATION AND RECOGNITION

In recent years, this semiological approach has had a decisive impact on art history, and in a later chapter I shall examine its claims in a more thoroughgoing way. For the moment, however, let us simply note that the staunch anti-realism of this view often seems counterintuitive and difficult to reconcile with our own

experience of pictures. Consider, for instance, the Palaeolithic cave paintings found at Lascaux (fig. 2). Now, even though these may be up to 17,000 years old, no Rosetta stone was needed to decipher their content – the fact that this was a bison or that was a horse, was simply recognised without further ado. How would this be explained by the semiological argument? If pictures are in any way like conventional languages, surely a period of 17,000 years would transform their depicta in unrecognisable ways? Confronted with such cases, commonsense therefore suggests an alternative view: namely, that representation depends not merely on cultural convention, but also on our ability to visually identify things in the world. And so, if we assume that we see in the same way as our ancestors, it becomes comprehensible why we are still able to recognise their pictures today.

Of course, this does not imply that the original audience of these paintings would not have conceptualised their meanings differently. Clearly sight is inextricably related to systems of knowledge and by way of these to the values and the beliefs of a particular society. Therefore, in looking at the paintings at Lascaux we may not be able to recover this kind of second-order seeing which Michael Baxandall has dubbed the 'period eye'.[11] Nevertheless, since we still see according to neural wiring that was established millions of years ago, the denotative content of a picture that was painted thousands of years ago may still be interpreted with relative ease.

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[11] Michael Baxandall, *Painting and Experience in Fifteenth-Century Italy* (Oxford University Press, 1988, 2nd Edition, first published 1972), esp. pp. 29 – 39.

Evidence to back up this idea seems to come from the way that children learn to make and interpret representational pictures. In particular, research on this subject suggest two principles of drawing development which ostensibly cut against the anti-realism of the semiologist's claims. First, it appears that this capacity is generative in the sense that it requires minimal instruction. In other words, once a child has understood the rules that govern representation in one particular instance, they are able to apply them to a much wider range of examples without having to start from scratch with each new picture they see. And while the child's capacity to produce representational pictures develops more slowly due to the mastery of the motor skills it requires, it seems that from a purely psychological viewpoint this skill is acquired in a similar, generative way.

The second piece of evidence comes from studies which track the particular path of this development. What these seem to show is that there is a sequential pattern to the representational systems which children deploy as they get older. This does not mean that children born into different cultures pass through each stage of drawing development until they reach an equivalent point. Rather, this pattern is sequential in the sense that when similar representational systems *are present* in different cultures, children will move from one stage to the next in a comparable way.[12]

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[12] John Willats, *Art and Representation: New Principles in the Analysis of Pictures* (New Jersey: Princeton University Press, 1997), pp. 317 – 319.

<center>**iv) THE PATTERN OF DRAWING DEVELOPMENT**</center>

In order to understand these changes and their ramifications in this thesis, I shall appeal to the theory of depiction set forth by John Willats in his pioneering 1997 work, *Art and Representation*. Therefore, to introduce these ideas, let me begin by discussing the path of drawing development Willats identifies and then briefly outline his explanation of this.

In *Art and Representation*, Willats proposes that there are five possible phases of drawing development and that to pass from one phase to the next the child must employ an increasingly complex set of rules. Consider, for example, this experiment devised by the author in which English children of different ages were asked to draw a view of a table (fig. A). [13] According to the author, these results show a significant correlation between the child's age and the projection system used.

In this proposed sequence of drawing development, the first stage in children's drawing is topological, which is to say that it maps only the most elementary spatial relations such as touching, separation, spatial order and enclosure (b). The second stage is marked by the use of orthogonal projection, in which the front face of an object is drawn as a true shape and the other sides are obscured (c). Next comes vertical oblique projection (d), here the top face of an object is added to the front face. Slightly older children use oblique projection (e) whereby the front face is drawn as a true shape and the orthogonals are

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[13] These results were originally published in 1977 in the *Quarterly Journal of Experimental Psychology* but are reproduced in *Art and Representation*, p. 11.This experiment tested 108 English children aged 5 to 17.

represented by oblique lines. At the end of this sequence are naïve and true perspective. In the former system (f) the orthogonals converge, but not in a regular way and in the latter system (g) they converge towards a central vanishing point.
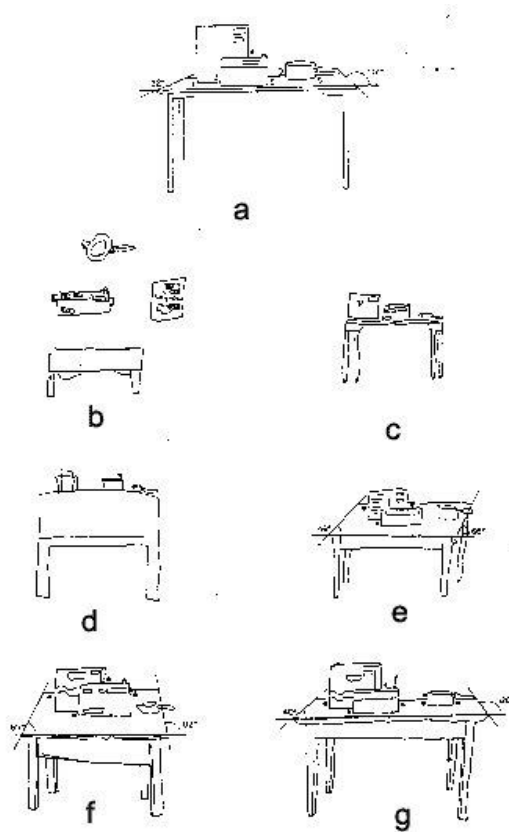
Figure A. Children's drawings of a table: typical drawings in each class. (a) The child's view of the table. (b) Class 1, no projection system, no overlap, mean age 7.4. (c) Class 2, orthogonal projection, overlap score 0, mean age 9.7. (d) Class 3, vertical oblique projection, overlap score 0, mean age 11.9. (e) Class 4, oblique projection, overlap score 3, mean age 13.6. (f) Class 5, naïve perspective, overlap score 4, mean age 14.3. (g) Class 6, perspective, overlap score 6, mean age 13.7. From Willats (1977a), reproduced in *Art and Representation* (1997).

According to Willats this experiment demonstrates two basic principles of drawing development. First, it indicates that children produce more effective

representations as they get older since they become more adept at depicting the properties of shape. And second, it suggests that this sequence depends on the complexity of the mapping rules which the child must use in order to represent spatial relations on the picture surface. Put plainly, younger children will espouse simpler rules and older children will employ more complex ones. Thus, taken together with studies which track the drawing development of children from non-Western societies, it would seem that up to and including the use of vertical oblique projection, the same pattern occurs regardless of where the child is from. So how are we to explain, on the one hand, the child's generative ability to produce pictures and, on the other hand, the universal sequence in which this pattern occurs? The explanation Willats offers in *Art and Representation* is both complex and far-reaching and I shall keep returning to it over the course of this thesis. For the moment, let me simply outline the basic tenets of this account.

According to Willats, pictures are 'parasitic' on visual experiences.[14] However, he does not take this to mean that they open out transparently onto an already constituted reality. Rather, by appealing to the pioneering work of the visual scientist David Marr, he understands seeing as a process which draws meaningful features from chaos of light. These 'meaningful features' on Marr's account are precisely those which help us to recognise objects according to their three-dimensional shapes. But as he points out, these cannot be perspectival profiles we see from a viewpoint, since it would put an intolerable strain on memory to have to record every slight change in the angle of sight. Accordingly, Marr proposes that the main task of the visual system is to extract a constant or

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[14] *Art and Representation*, p.23.

'object-centred description' of shape from the viewer-centred description of light on the retina. These representations are therefore said to be like rotatable, three-dimensional models: they are schemata which can manipulated and compared to the contents of memory until a match is found and the process of object recognition is rendered complete.

Willats draws two basic ideas from this theory. First, by referring to the computational stages identified by Marr, he suggests that distinct modes of representation can be produced in accordance with these different levels of sight. This therefore lays the foundation for his second basic claim: the idea that if a representational system is to be naturally generated, it must draw its structural components from object-centred descriptions and be mapped according to rules which relate to the two-dimensional geometry of the picture surface. On this understanding, then, the rules that determine the child's ability to generate drawing systems up to and including vertical oblique projection may all be based on transformations of this final, identificatory stage of vision. What fuels their progressive complexity, however, is the child's desire to produce more and more effective representations, that is, descriptions of form that preserve the non-accidental conjunctions of edges and surfaces in a scene. Eventually, however, this basic prerogative will lead to a dissatisfaction with object-centred transformations for, in not taking into account the viewer's position, they will often lead to ambiguous representations of space and shape.

Accordingly, this is what distinguishes the earlier drawing systems from more complex systems such as oblique projection and linear perspective: these

last two systems make specific concessions to the viewer's position and in doing so they require more than what our naturally generative abilities supply. In other words, these are modes of mapping space that have to be learned through repeated exposure to examples and through a conscious attempt to seek out their rules. Indeed, if these models are not already present within a culture then people are unlikely to adopt these systems. And conversely, if these models do exist, then they will most likely be produced by way of the rules for mapping object-centred descriptions. This may then explain why perspective was not consistently adopted until the Renaissance – comparatively late in the history of art and in a culturally specific context – and why it forms the final stage of a child's drawing development (and then arguably only as the result of formal training.)[15]

v) WAYS OF PICTURING AND WAYS OF SEEING

The value of Willats's theory in light of the concerns introduced at the beginning of this chapter is that it manages to negotiate between determinist naturalism and conventionality while marrying the intuitive sense of both. On the one hand, this explanation allows the neuropsychological processes of vision to have a real and substantial bearing on picture perception. In other words, this is not simply a matter of reducing style to synaptic activity; rather, it is a plausible explanation of how the brain may coordinate recognition and representation by giving each a shared heritage in our capacity to see. And on the other hand, this theory allows

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[15] In an experiment carried out with schooled and unschooled adults in Ghana (Jahoda, 1981), it was shown that university students were much more likely to use oblique projection and perspective than other adults. Jahoda therefore concluded that "the boundary between [vertical oblique projection and oblique projection] represents a critical divide; in the absence of an environment rich in perspective drawings, it is not crossed." Cited in *Ibid*.

culture and convention to have their impact on art without surrendering to the relativism of the semiological view. Therefore it might suggest a method for discriminating aspects of a pictorial language that are symbolic and arbitrary from those that are iconic and motivated. Or to put this another way, it might help us to better understand and trace the influences of style.

For the purposes of my account, I shall therefore draw two lessons from Willats's theory with the intention of developing them in a new direction. The first of these is the notion that perception can be understood at a number of levels. What this means, in other words, is that visual experience is always *already differentiated*: it is constituted of processes that are both concurrent and distinct and which can differently inflect seeing at any one time. And so, contrary to what many contemporary theorists believe, the variance of appearance which is traceable in both seeing and picturing does not simply relate to the objects encountered or the cultural contexts in which they are seen. In addition, we might attribute this to the different ways that sight can structure the visible world. To therefore build on this idea, a central aim of my thesis is to introduce a new way of thinking about vision which I hope will illuminate a tendency in modern art.

The second aspect of Willats's theory which I wish to adopt is the idea that there is a deeply rooted pictorial grammar which underpins and unifies the various representational systems. However, in developing this argument I shall claim that when new non-naturally generated systems are brought into the world, if they are to have longevity and establish their own tradition, they must give public expression to a universally experienced but heretofore unarticulated mode

of perception. This might therefore be considered in light of what Ludwig Wittgenstein called a 'criterion', that is, an expression which describes what something is like and therefore makes it available for others to see.[16] Thus, while few individuals can develop these systems, they will be recognised as exemplary since they clarify the nature of, and receive their justification from, visual phenomena that can be experienced by all.

It therefore seems to me that the truth touched on by Wöllflin is not so much evinced by the dictum that 'vision itself has a history', but rather rests on the idea that 'not everything is possible at all times'. What I mean by this is that beneath the surface of the visible world lie certain deeply embedded structures and while these may remain unexpressed or unnoticed for many hundreds of years, certain pressures in the social world may cause artists to bring them to the fore. Thus, I hope to show that the history of pictorial art can be understood in relation to the dominance of distinct modes of vision since the artist's choice to thematise an aspect of sight is shaped in significant ways by the demands of an age. I shall begin this discussion by considering the relationship between nature and convention in Cézanne's practice for this shall help to shed light on many of these themes.

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[16] Wittgenstein uses this term in many different passages in his work. For a detailed discussion of its meaning see Carl Wellman, 'Wittgenstein's Conception of a Criterion', *The Philosophical Review*, 71, no. 4 (October 1962), pp. 433 – 447.

Cézanne, Poussin and the Dual Meaning of Classicism

One must become classical again by way of nature, that is, by way of sensation.

– Cézanne's words as reported by Émile Bernard, 1904[17]

The Louvre is the book in which we learn to read. We must not, however, be satisfied with memorising the attractive formulas of our predecessors. We must leave the museum to study nature in all its beauty. We must try to grasp its spirit; we must seek to express ourselves according to our personal temperament.

– Cézanne, Letter to Émile Bernard, 1905[18]

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[17] Émile Bernard, 'Paul Cézanne,' *L'Occident* 6 (July 1904), p. 24. This is Richard Shiff's translation in *Cézanne and the End of Impressionism* (Chicago, 1984), p. 124. The original quote is: 'Il faut redevenir classique par la nature, c'est-à-dire par la sensation'.

[18] Reprinted in *Conversations with Cézanne*, ed. Michael Doran, trans. Julie Lawrence Cochran (Berkeley and London: University of California Press, 2001), p. 47.

1.1 THE PARADOX OF CÉZANNE'S CLASSICISM

In an article published the year after Cézanne died, Émile Bernard recalled the artist telling him 'Imagine Poussin redone entirely after nature, there's the classical that I intend.' [19] Taken at face value, these words may strike the reader as paradoxical. To do something 'after' nature surely implies that it is done in a natural *manner* – that is, spontaneously rather than in, say, a stylised or derivative way. And, what is more, to strive to make paintings '*entirely* after nature' would appear to suggest – particularly in light of Cézanne's adherence to certain contemporary theories of perception[20] – that the artist was trying to circumvent the influences of culture in order to recover a childlike or uncorrupted view of the world. For instance, this latter interpretation might seem to accord with the artist's avowed aim to capture his immediate 'sensations'[21] or his advice to Jules Borély to 'See like a man who has just been born'.[22]

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[19] Bernard, 'Souvenirs sur Paul Cézanne et letters inédites', *Mercure de France*, n.s., 69 (1 October and 16 October 1907), p. 627. Shiff's translation in *Cézanne and the End of Impressionism*, p. 13. Original quote: 'Imaginez Poussin refait entièrement sur nature, voilà le classique que j'entends.'

[20] Particularly important in this respect are the ideas of Hippolyte Taine, especially those expressed in his 1870 work *De l'intelligence*. That Cézanne was sympathetic to Taine's views is suggested by his statement to Joachim Gasquet: 'I like muscles, beautiful colours, blood. I am like Taine and what's more I am a painter. I am a sensualist.' *Joachim Gasquet's Cézanne: A Memoir with Conversations*, trans. Christopher Pemberton (London: Thames and Hudson, 1991), p. 133.

[21] Like many of the Impressionists, Cézanne often claimed that the task of painting was to represent sensations, for example, he spoke of his 'opinion on painting as a means of expressing sensation' (Letter to Émile Zola, 20 November 1878. Cited in Paul Smith, *Interpreting Cézanne* (London: Tate, 1996), p. 49.) According to Taine and many other nineteenth century psychologists, sensations formed the raw material of perception – in the case of vision, variously coloured patches of light on the retina. Knowledge of spatial depth and volumetric shape were therefore considered external to vision, being attributed to tactile experience instead. As several authors have proposed, this atomistic view of perception is therefore a plausible source for the loose brushwork and unmixed colours that were typical of the Impressionist style. See for example Paul Smith, *Impressionism: Beneath the Surface* (London: Weidenfeld and Nicolson, 1995) pp. 19 – 31 and Charles F. Stuckey, 'Monet's art and the act of vision' in *Aspects of Monet: A Symposium on the Artist's Life and Times*, ed. John Rewald and Frances Weitzenhoffer (New York: Harry N. Abrams, 1984), pp. 106 – 121.

[22] Jules Borély, 'Cézanne à Aix', *L'art vivant*, 2, no. 37 (1st July 1926), p. 491. Cited in Smith, *Interpreting Cézanne*, p. 48. This fantasy of returning to a naïve form of vision seems to have

Now, what seems strange about Cézanne's formulation is not that he wished to capture an unmediated or 'primitive' vision[23] – an idea which has many precursors in the nineteenth century[24] – but that he relates this to the art of Poussin and thus simultaneously invokes the tradition associated with his name. Start by considering the opening clause: 'Imagine Poussin redone entirely after nature…' The verb that Bernard uses in French is 'refaire' and so the translation 'redone' or 'remade' would seem to be appropriate.[25] But then it sounds like Cézanne wished to adapt Poussin's art so that it looked like the world as 'naturally' perceived – a project which seems difficult to fathom due to the irreducibility of its individual components, namely, the conjunction of the painter's craft with a direct vision. Indeed, this statement would appear to compound *several* antipodal notions: cultural expression and individual experience, active design and passive perception, artifice and nature, tradition

been shared by other of the Impressionists. For example, Lilla Cabot Perry recalls Monet telling her that he 'wished he had been born blind and then suddenly gained his sight so that he could have begun to paint in this way without knowing what the objects were that he saw before him.' See 'Reminisces of Claude Monet from 1889 to 1909', *The American Magazine of Art*, March 1927; reprinted in *Monet: a retrospective*, ed. Charles Stuckey (New York, 1985), p. 183.

[23] For Cézanne's use of the term 'primitive' see Paul Smith, 'Cézanne's primitive self and related fictions' in C. Salas (ed) *The Life and the Work: Art and Biography* (Oxford University Press, 2007).

[24] Most notably, John Ruskin's concept of the 'innocent eye' advanced in the *Elements of Drawing* of 1857. See *The Works of John Ruskin*, ed. E. T. Cook and Alexander Wedderburn (London, 1904) XV, p. 27. Ruskin's advice to painters to recover the 'childish perception of these flat stains of colour, merely as such, without consciousness of what they signify' was widely discussed in the later nineteenth century and would almost certainly have been familiar to Cézanne and the Impressionists. It is known, for example, that Monet admired Ruskin and advised the painter Wynford Dewhurst to refer to his work. See Stuckey 'Monet's art and the act of vision', p. 108.

[25] While Bernard's reported statement by Cézanne is the one that is referred to most often, there is an earlier published source for this dictum in which the artist is said to desire to '*vivifier* Poussin sur nature'. This characterisation is made by Charles Camoin who visited the artist in 1901 and who later wrote this in response to a questionnaire about the painter's work in the *Mercure de France*. See Charles Morice, Enquête sur les tendances actuelles des arts plastiques', *Mercure de France*, n.s., 56 (1 August 1905), pp. 353 – 54. Cited in Shiff, *Cézanne and the End of Impressionism*, p. 181 and note 31, p. 288. I shall return to Camoin's statement and its slightly different inflection later.

and originality – or as Richard Shiff has aptly summarised it, *making* and *finding*.[26]

What further adds to the ambiguity of this statement is Cézanne's use of the word 'Poussin'. For notice he does not ask Bernard to imagine *a* Poussin redone 'entirely after nature'. Rather, he uses this word as if it were nominating a more general set of characteristics – presumably those interrelated features that we refer to as the artist's style. But this then poses a further problem for interpretation, for given the academic co-option of Poussin's classical manner, we might understand Cézanne's statement to mean one of two things. On the one hand, he might be speaking about the *individual style* of Poussin, that is, the unique manner of painting which the master brought into being and not the imitations it subsequently spawned. In this sense Cézanne might be saying that natural perception can somehow revise (and possibly extend or amplify) the classical values that his forebear originally brought to the landscape, that is, the exemplary compositional techniques that were born with his art and which were to be the source of a new tradition.

However, to turn this idea on its head, we might think that Cézanne's intention was to target the 'Poussinesque' tradition, [27] that is, the *general style* derived from – and particularly the Academic corrosion of – the master's

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[26] Shiff discusses 'finding' as an authentic but unreflective process of creation which expresses the artist's original contact with the world. Conversely, making is a more sophisticated or controlled process of design which is guided by knowledge of previous art. The former is therefore original but runs the risk of being overly subjective, while the latter is conventional but has the advantage of being readily understood. See Shiff, *Cézanne and the End of Impressionism*, esp. pp. 68 – 69 & pp. 223 – 230.
[27] I borrow the terms 'individual' and 'general style' from Richard Wollheim. See *Painting as an Art* (London: Thames and Hudson, 1987), pp. 26 – 36.

technique. [28] The implication might then be that Cézanne wished to restore the authenticity of Poussin's original vision by seeking its source in the world rather than by studying his art or its subsequent formalisation. Thus, by taking his cues directly from nature, Cézanne's concern might have been to remake Poussin's Classicism *from scratch*, that is, to discover his techniques anew without being taught these or absorbing them from 'the book' of the Louvre.

But what precisely is the role of nature in this connection? How would this guarantee an authentic revival of style? What this seems to imply is a view of Poussin's art as itself informed by the study of nature, a notion (or perhaps a myth) that was indeed prevalent in Cézanne's own day. [29] Cézanne may therefore have thought that his forebear's Classicism could be retrieved from his own vision providing that he was similarly attentive to the look of the world. In this sense, then, he would be *genuinely repeating* Poussin's project by avoiding the shortcuts that convention made possible and merely adopting the means available to the master himself. However, this might also hint at another interpretation, one

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[28] The absorption of Poussin into the Academic tradition was largely due to the influence of Charles Le Brun. Le Brun had been a student of the painter and later lectured on his artistic methods and theories while he was director of the Académie from 1663 – 1683. His widely read treatise, *Méthode pour apprendre à dessiner les passions* (1698) further disseminated and codified Poussin's techniques. However, Poussin's achievements as a landscape painter were not fully recognised until the mid-nineteenth century when the hierarchy of genres began to collapse. See Richard Verdi, 'The Reputation of Poussin's Landscape Paintings in France from Félibien to Cézanne' in *Cézanne and Poussin: A Symposium* (Sheffield: Sheffield Academic Press, 1993), pp. 13 – 29. And for an assessment of the critical reception of Poussin's work in the nineteenth century see Shiff, *Cézanne and the End of Impressionism*, pp. 175 – 184.

[29] It was not thought, of course, that Poussin art was wholly without stylistic precursors. Indeed, it was part of the appeal of his Classicism – and particularly important for its Academic endorsement – that it was modelled on Antique statuary and the art of Raphael. However, since these earlier Classicists had almost exclusively concerned themselves with the human form or figural compositions, it was in applying these values to the landscape that the artist's originality was said to emerge. His most elevated works in this vein were painted between 1648 and 1651 and, while these are evidently idealised views, they were purportedly based on a close study of nature. From today's perspective, however, there is little hard evidence to support this claim. See Verdi, 'The Reputation of Poussin's Landscape Paintings in France from Félibien to Cézanne', p. 24 and *Cézanne and Poussin: The Classical Vision of Landscape* (Edinburgh: National Galleries of Scotland in association with Lund Humphries Publishers Ltd, 1990), pp. 42 – 3.

in which a parallel procedure leads to a different result. On this view, Cézanne may have wished that his painting was founded on the same *general principles* and was thus possessed of the same merits as the work of his forebear. Accordingly, this would entail confronting nature with the stoicism of Poussin and thus developing a similarly original and influential style.[30]

Let us set this last suggestion aside for the moment, and simply note that the first two hypotheses seem problematic, for how are we to understand either as leading to an art that is at once reminiscent of Poussin whilst also being faithful to a spontaneous sight? On the former view, we might think of Poussin's landscapes as the artist's stylistic model and therefore view the observed world as offering a kind of corrective, an idea that recalls Gombrich's notion of 'schema and correction.'[31] But, of course, since this would imply the repetition of certain established formulae, to remake Poussin 'entirely after nature' would seem to involve a contradiction in terms. Put another way, if Poussin's style was reworked in light of sensory experience, this could only temper it and not render it 'entirely' natural. To take the other route, however, and posit nature as the *only* source (as the word 'entirely' implies) would not seem to improve the matter. If by this we are to envisage an artist attempting to realise his pure sensations, then culture – and particularly the sway of artistic tradition – is precisely what stands

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[30] Cézanne's identification with Poussin in light of his commitment to his own personal vision is noted by Paul Smith in 'Cézanne's primitive self and related fictions', p.8. Smith cites Cézanne's *Mont Sainte-Victoire with Large Pine* (c. 1885 – 87) as a painting in which the artist pays tribute to the stoicism of Poussin by echoing his *Landscape with the body of Phocion carried out of Athens* (1648). Since Phocion was regarded as a stoic, the iconography of this painting might serve as the middle term connecting the attitude of the two painters.

[31] On this view, tradition supplies the artists with a set of readymade templates for composing pictures; these are then adjusted to account for visual features that the artist actually observes but which fail to be comprehended by the existing schemata. For Gombrich's argument see *Art and Illusion* (London: Phaidon, 1977, orig. ed., 1960), esp. Ch. V 'Formula and Experience', pp. 126 – 152.

in the way. Since Cézanne would therefore have to forget all he knew about Poussin, why speak of his name in this connection at all?[32] Are we to assume that naive vision is the true source of Classicism? And if not, how can Cézanne wish to obtain the same results as his predecessor while simultaneously avoiding the influence of his work? Would this not then be the root of the dilemma that Bernard referred to as 'Cézanne's suicide' – 'aiming at reality while denying himself the means to obtain it'?[33] In sum, since art is *eo ipso* an institutional and cultural activity, it cannot acquire a purely natural form.

And indeed, we may think that the same thing can be said of vision itself. For, as ambiguous figures such as Jastrow's duck-rabbit make clear, we organise what we see by appealing to knowledge and previous experience, that is, by bringing concepts to bear on the sensory data (fig. C).[34] Thus, if I had never seen a duck before but was familiar with rabbits, Jastrow's figure would remain stubbornly orientated towards the right with ears pointing to the left. But given that I can bring either interpretation to bear on the image, it can be resolved in either direction. Since vision therefore interfaces with our conceptual abilities –

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[32] Indeed, in a letter to Bernard, Cézanne proposes that 'the principle to develop…is to give the image of what we see, forgetting everything that has appeared before us'. 23 October 1905, letter translated by John House and reproduced in The *Courtauld Cézannes*, ed. Stephanie Buck, John House, Ernst Vegelin Van Claerbergen & Barnaby Wright (London: Paul Holberton Publishing, 2008), p. 163.

[33] Maurice Merleau-Ponty attributes this comment to Bernard in 'Cézanne's Doubt'. See *The Maurice Merleau-Ponty Aesthetics Reader: Philosophy and Painting*, ed Galen A. Johnson (Illinois: Northwestern University Press, 1993), p. 63. However, since no published source can be found for this statement, it seems to be apocryphal.

[34] This image was first reproduced in Joseph Jastrow, 'The Mind's Eye' *Popular Science Monthly* 54, 299-312, 1899. For a further discussion which explores the difference between seeing and interpreting see Ludwig Wittgenstein, *Philosophical Investigations*, translated by G. E. M. Anscombe (Oxford: Blackwell, 1953), pp. 193 – 206e.Wittgenstein calls this type of seeing in which there exists an ambiguity between two (or more) readings 'seeing as'. He contends that the difference between seeing Jastrow's figure as a duck or a rabbit is not a matter of interpreting it differently, but rather is a difference in what we actually perceive. This is captured in the way we respond to the image, for example, in the distinct way we would describe it upon seeing a rabbit or seeing a duck.

with knowledge, memory and reasoning – it will also turn out to be inflected by the contingencies of culture and subject to the ideological pressures it exerts. In this respect, then, there can be no question of an 'innocent eye' or a wholly naturalised vision and it would seem that Cézanne's project to paint his pure 'sensations' was doomed (or at least, theoretically flawed) from the start.
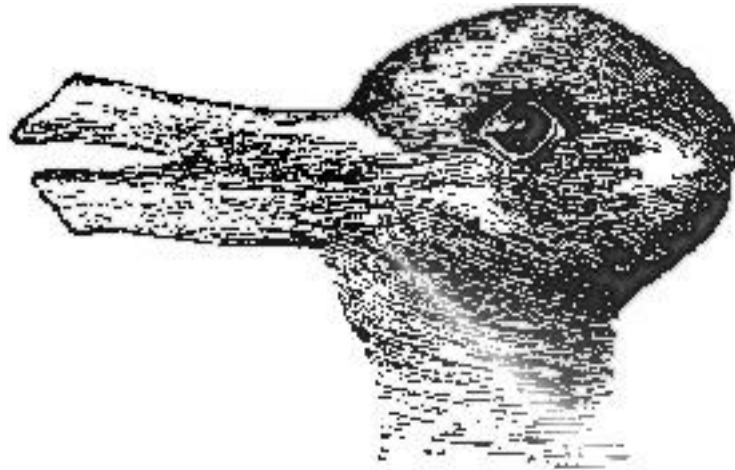
Figure C. Duck-Rabbit Illusion.

And yet, even if his statement seems incoherent, many have spoken of Cézanne's mature work as if it does in fact achieve such a reconciliation – that it at once nods at Poussin while also being true to a more naturalistic sight. For example, Maurice Denis dubbed him 'the Poussin of still life and green landscape', 'the Poussin of Impressionism' and described him as 'so spontaneously classical'[35]. While Bernard – despite the scepticism evidenced by his later remark – emphasised similar ideas when he reflected on his

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[35] All cited in Shiff, *Cézanne and the End of Impressionism*, p. 135, p. 166, p. 246 respectively. The first statement comes from Denis's review of the Salon d'Automne of 1905, the second and third are from 'Cézanne' first published in *l'Occident*, Sept. 1907, reprinted in Denis, *Theories, 1890 – 1910: Du symbolisme et de Gauguin vers un nouvel ordre classique* (Paris: 1920; orig. ed., 1912), p. 210.

conversations with the artist in 1907.[36] Thanks to the influence of these symbolist critics, it was therefore fairly commonplace by 1910 to hear Cézanne characterised as a 'modern day Poussin'[37] or – by way of this connection – as a modern Classicist. Indeed, it is testament to the force of this analogy that it still persists in art historical thought today.[38]

But while this idea is now comfortably ensconced in the discourse of art history, have we yet solved the paradox which Cézanne's words suggest? More specifically, do we think Cézanne developed his Classicism by using Poussin's work as a model? And do we therefore question his adherence to a primitive vision? Or do we think that he successfully avoided the lure of tradition and thus became 'classical by way of nature', that is, by 'learning' (somehow) to see in an unacculturalised way? In short, is his relation to Poussin a question of cultural mediation or of unmediated sight? Or indeed is this classical analogy itself fundamentally misleading?

If this has been a long preamble, I hope it will prove worthwhile in helping to establish the concerns of this chapter. The first thing I wish to do in this respect is to examine how authors in the twentieth century have understood

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[36] Bernard published two articles in this vein: 'Paul Cézanne', *L'Occident* 6 (July 1904) and 'Souvenirs sur Paul Cézanne et letters inédites', *Mercure de France*, n.s., 69 (1 October and 16 October 1907).

[37] Denis was the first to christen Cézanne a 'modern Poussin' in his article 'De Gauguin, de Whistler et de l'excès des théories' (1905) reprinted in *Theories*, pp. 204, 260.

[38] This is demonstrated by a relatively recent exhibition at the National Gallery of Scotland entitled *Cézanne and Poussin: The Classical Vision of Landscape*. This was held from the 9 August to 21 October 1990 and brought together 22 works by Poussin and 47 by Cézanne, comparing these according to the early, mature and late phases of their art. Three years later a book based on a two-day symposium held to coincide with the exhibition was published: *Cézanne and Poussin: A Symposium* ed. Richard Verdi (Sheffield: Sheffield Academic Press, 1993). Since their publication, the catalogue for the exhibition and the subsequent book have remained key points of reference in the literature on Cézanne.

Cézanne's dictum, or rather, how they have obscured it by allowing the interpretations suggested above to overlap. Their reason for doing so, perhaps, is that it is not necessary to match Cézanne's art against the logic (or the illogic) of his words. And yet, since these words *have* been considered vital to the explanation of his work, it is fair to say that we must either address their meaning or cast doubt on the stylistic assessments they have been used to support. It seems, however, that certain scholars have hit upon a way of understanding this dictum which alleviates its inconsistencies while also preserving some of its explanatory worth. This concerns the meaning of the word 'Classicism' and how – given the interval of history – its understanding by Cézanne may differ from our own. Thus, I shall suggest that it is the very mutation of this term over the twentieth century which actually *creates* the conflict we find in Cézanne's words when initially – in the nineteenth century – there was perceived to be none.

Yet, the main purpose of this chapter is not to make sense of Cézanne's phraseology or its subsequent obfuscation – a problem which others have already amply reviewed.[39] Rather, it is to use this retrieval of meaning to open up a new space of inquiry – one which concerns not only the intention of Cézanne's project but also (I shall claim) its actual realisation, that is, his achievement of an original style which is nevertheless grounded in nature and thereby linked to Poussin's art. More specifically, I want to offer an *explanation* for why his pictures can both be said to coincide with and depart from those of his forebear – not simply in terms of style but also in terms of the visual engagement that they

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[39] In particular, Shiff has illuminatingly discussed the interpretation of Cézanne's Classicism by Émile Bernard, Maurice Denis and Roger Fry and the way that this has contributed to a misunderstanding of the artist's theoretical commitments. See *Cézanne and the End of Impressionism.*

tend to inspire. What we witness here, I shall claim, is the birth of two novel modes of representation which are both parasitic on and productive of two fundamentally different ways of seeing. Consequently, my proposal is that each artist produces a 'criterion' in the Wittgensteinian sense of the term, thus returning us to the original meaning of Classical art.

1.2 WÖLLFLIN AND CLASSICAL ART

Although the meaning of the word 'classical' has changed over the course of the twentieth century, the two eras that it is most often used to refer to remain – as they would have been in Cézanne's own day – those of Ancient Greece and the High Renaissance.[40] But while in the nineteenth century these periods were commonly understood as marking the high points of Western civilization – and were thus connected in terms of the quality of their artistic production – we tend to be more cautious about making these assertions today. What has been vacated from our judgement is therefore its evaluative dimension, and what remains is its linkage to style. Consequently, an art which is classical in the contemporary sense is one which exhibits qualities such as harmony, order, clarity and balance and not one in which these qualities are further aligned to some moral, social or aesthetic ideal (although a tacit connection to these virtues may still remain).

While the symbolists prepared the ground for this new interpretation of Classicism by emphasising the autonomy of the formal qualities of art, the

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[40] To avoid confusion, I shall capitalise the words 'Classicism' and 'Classical' when they are being used as proper nouns.

theorist who perhaps did most to consolidate this shift was Heinrich Wölfflin when he analysed this notion in canonical texts such as *Classic Art* (1898) and *Principles of Art History* (1915).[41] Wölfflin's ruse in these works was to align the aesthetic qualities which had accompanied each independent manifestation of Classicism – although his examples are primarily taken from the Italian Renaissance[42] – with the actual formal organisation of artworks. In other words, what had previously been an evaluative term (albeit one that that often picked out the *effects* of harmony, balance and so forth) becomes in his hands a more tightly constrained description of style, that is, a description of the artist's compositional technique.

But having lost its evaluative sense, this classificatory term also becomes much looser since, instead of simply electing works of high quality, its features can now be seen to occur in historical constellations (or as Wölfflin would have had it, historical cycles). So, for example, while Botticelli or Raphael may have previously been designated 'classical' due to the exemplary poise of their art – and indeed while there may have been said to be an abundance of such individuals in the High Renaissance – on Wölfflin's account these features are spread across the era itself and can be seen in the work of lesser masters too. In

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[41] The German word Wölfflin uses in these works is 'klassisch'. But while this is translated in M. D. Hottinger's text as 'classic' I shall continue to use 'Classical' and 'Classicism' for these preserve the sense of this term's linkage to style.

[42] According to Wölfflin, the Italian art of the sixteenth and seventeenth centuries best illustrates the difference between Classical and Baroque styles since this provides a consistent backdrop of national temperament. He states '[The notion of a period style] is best to be obtained in Italy, because the development there fulfilled itself independently of outside influences and the general nature of the Italian character remains fully recognisable throughout.' *Principles of Art History*, trans. M. D. Hottinger (London: G. Bell & Sons, Ltd, 1932), p. 9.

short, the meaning of Classicism transfers from an individual sense to a period style.[43]

Furthermore, the Classical in Wölfflin's mature work is not a term that stands on its own. Instead, its identity is rendered explicit through *difference* – specifically by being set in opposition to the art of the Baroque. This idea is of course most famously expressed in the *Principles* by Wölfflin's five pairs of formal contrasts: linear versus painterly, plane versus recession, closed versus open form, multiplicity versus unity and finally absolute versus relative clarity.[44] The 'noble restraint and dignity' of a work such as Raphael's *Sistine Madonna* (fig. 4) might, for example, illustrate the first set of classical terms in this pairing, while the 'sweeping gestures' of Guido Reni's *Madonna Enthroned with the Holy City of Bologna* (fig. 5) might express their antithetical counterparts in the style of the Baroque.[45] But while sixteenth and seventeenth century Italian examples may show this stylistic division at its most conspicuous, the Classical and the Baroque are not understood to be confined to one single era in history. Instead, they are said to repeat in a cyclical fashion just as a pendulum swings from pole to pole.[46] Thus, for any period in art which is deemed as 'Classic' – be

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[43] This idea is exemplified in Wölfflin's introduction to the *Principles*. Here the theorist selects pairs of images to suggest how the analysis of style can operate at different levels of magnification, proceeding from a consideration of individual style (Boticelli and Lorenzo di Credi) to national style (Dutch art and Flemish art) to period style (the Renaissance and the Baroque in Italy). This then paves the way for his claim that the Classical and Baroque are 'modes of representation as such'. See *Ibid*, pp. 1 – 17.

[44] For a summary of these see *Ibid*, pp. 13 – 16.

[45] While Wölfflin does not suggest this particular paring, he uses the phrases cited here to refer to the general approach of these artists. *Ibid*, p. 9.

[46] At one point Wölfflin describes this as a 'spiral movement' because while the cycle repeats art does 'not return to the point at which it once stood' (*Ibid*, p. 234). He furthermore speaks of this cycle as if it were governed both by a principle of exhaustion and reaction and by the possibilities suggested by the prevailing style itself: 'What seems living today is not quite completely living tomorrow. This process is not only to be explained negatively by the theory of the palling of interest, but positively also by the fact that every form lives on, begetting, and every style calls to a new one' (*Ibid*, p. 230).

it the Golden Age in Greece, the High Renaissance in Europe, or the Neoclassical revival in revolutionary France – the pull of the Baroque is always impending, whatever its specific appellation turns out to be.[47]

1.3 CLASSICISM AS STYLE

Wölfflin's scholarship has fundamentally altered the practice of art history, but in doing so it would appear that it has also fundamentally altered its critical terms. If this is therefore not recognised – as seems to be frequently the case when it comes to discussions of Cézanne and Poussin's classical connection – then a distortion of meaning may sometimes occur. In particular, what we need to remember is that interpretations of Cézanne's work as Classical often take their point of departure from (or at least find themselves retrospectively justified by) the artist's use of the term. But since Cézanne was highly unlikely to have known Wölfflin's work (and indeed, could not have been familiar with his exposition in the *Principles*) it would be incoherent to think that his art was (or at least was intended to be) Classical in the theorist's sense – that is, in the sense of it being demonstrative of a Classical *style*. Let us therefore proceed by reviewing several interpretations which are based on this assumption and then consider how well they illuminate the look of Cézanne's art.

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[47] For example, Wölfflin identifies the styles of late Antique, the late Gothic and the Rococo with the Baroque. He also suggests a similar affiliation which he refers to 'the impressionist painterly conception' (p. 227). However, it is not clear whether he has in mind the French nineteenth century movement or whether he intends this word to signal any art which exhibits a loose handling of paint. See *Ibid*, esp. pp. 231 – 235.

One example of this approach is provided by Roger Fry in his analysis of *Still Life with a Cineraria* (fig. 6), a work discussed in his important 1927 study of Cézanne. According to Fry this painting 'indicates a return to Poussin, a renunciation of Delacroix and his Baroque antecedents', he then refers to its 'balance', its 'architectural rigour' and 'primitive simplicity'.[48] Now, while it is evident that Fry develops his own approach to Cézanne's work in this book, the description he gives nevertheless appears to owe a debt to Wölfflin (whose works he had undoubtedly read) in two distinct ways. First, there seems to be the implication that Cézanne is faced with the choice between two alternative and mutually exclusive courses: Poussin *or* Delacroix and his Baroque antecedents. Thus, opting for the former he *renounces* the latter, as if Wölfflin's two poles of style are exerting their force upon the individual trajectory of the artist's career. Indeed, this implication is later made explicit when Fry pronounces that:

> Cézanne counts pre-eminently as a great classic master. We may also sum him up as the leader of the modern return to the Mediterranean conception of art…Cézanne… was a Classic artist, but perhaps all great Classics are made by the repression of a Romantic.[49]

The idea that Cézanne repressed his early Romantic impulses (or more broadly, that he surmounted the pull of the Baroque[50]) is common enough in the literature and indeed would seem to be verified by the changing look of his art.[51]

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[48] Roger Fry, *Cézanne: A Study of his Development* (London: Macmillan, 1927) pp. 53 – 54.
[49] *Ibid*, p. 87.
[50] Since Fry's use of the word 'Romantic' seems to imply something broader than a period style, I shall take it to loosely overlap with Wölfflin's category of the Baroque.
[51] Cézanne's departure from the Romantic is often discussed in psychoanalytic terms. In this sense it is regarded as a process of sublimation whereby the artist displaces his sexual anxieties

To illustrate this point we might compare, for example, the agitated technique and horizontal thrust of a work such as *The Abduction* of 1867 (fig. 7) with the centrally weighted composition of the *Lac D'Annecy* of 1896 (fig. 8). But what is at issue here is not whether his mature style departed from the dynamic and violently expressive idiom of his youth – which evidently it does – but whether in doing so it becomes Classical in a way that stylistically aligns it with the art of Poussin.[52]

Furthermore, insofar as he applies the terms 'architectural rigour' 'primitive simplicity' Fry's method of pinpointing a formal source for Cézanne's classicism seems to be unmistakably Wölfflinian by birth. In other words, it is the very fact that *Still Life with a Cineraria* exhibits balance, rigour and simplicity that render it classical and nothing further to do with the aesthetic value or the originality of the work.[53] And equally, when it comes to explaining how such effects are produced, Wölfflin's formal categories inevitably come into play. For example, when Fry claims that the composition is arranged around a central axis, that it possesses 'strongly accented verticals' and that objects are aligned 'parallel…to the picture plane' we are reminded of the 'tectonic strength'

and inhibitions by giving them an outlet and hence transforming them through the activity of painting. For two such reading see Theodore Reff, 'Cézanne's "Dream of Hannibal"', Art Bulletin, 45, no. 2 (June, 1963), pp. 148 – 152 and Meyer Schapiro 'The Apples of Cézanne: An Essay in the Meaning of Still Life' in *Modern Art: 19th & 20th Centuries* (New York : Braziller, 1979).

[52] This Wölfflinian conception of the relation between Cézanne and Poussin seems to have continued well into the twentieth century. For example, in his catalogue essay for the 1990 *Cézanne and Poussin* exhibition, Richard Verdi predominantly addresses their similarities in terms of their style and the parallelism of their phases of artistic development – from Romantic, to Classical and finally (back) to Baroque. Indeed, Verdi seems to want it both ways since while he at one point admits that theirs was more truly a 'spiritual affinity' (p. 58), when considering the overlap between their 'classical' periods he discusses this as a matter of formal design (see esp. pp. 48 – 51).

[53] Fry does not explicitly call this work 'classic' but this is what he is evidently implying when he speaks of it as being 'in direct opposition to all Baroque ideas' and compares it to the art of Poussin. See Fry, *Cézanne*, pp. 53 – 54.

of closed form, the *coulisses* of 'plane style' and the articulation of parts which constitute the multiplicity of classical form.[54]

While contemporary assessments of Cézanne's and Poussin's classical affiliation rarely proceed along such narrowly formalistic lines, there still seems to be a tendency to understand their connection (or as some profess, their lack of one) as based upon a fundamentally Wölfflinian conception of style. This point can be drawn out negatively by considering the way that certain recent authors have cited Cézanne's copying practices as a reason for dismissing his link to Poussin and thus for doubting his Classicism *tout court*. This is an argument advanced, for example, by Katia Tsiakma and more recently by David Carrier. Here is how Tsiakma makes her point:

> Although criticism emphasises the restrained classical aspects of Cézanne's art, his studies after the old masters betray predominantly baroque and romantic tastes. There is an overwhelming number of drawings after Veronese, Rubens and Delacroix, but only a handful after Raphael. At present only four figures from Poussin, and all extracted from their contexts, have been identified. Furthermore, no drawing after a Poussin landscape has been discovered. It thus becomes difficult to accept the prevalent notion the Cézanne attempted consciously to revive the structural methods and the architectonic compositions of Poussin's landscapes.[55]

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[54] For Fry's full description see Ibid, pp. 53 – 54; compare to Wölfflin's summary of the formal oppositions in *Principles of Art History*, pp. 14 – 15.

[55] Katia Tsiakma, 'Cézanne and Poussin's Nudes', *Art Journal*, 37, no. 2 (Winter, 1977 – 1978), p. 120. David Carrier similarly claims that 'The idea that Cézanne had some special link with

Logically speaking, this argument is not sufficient to rule out a connection between Cézanne and Poussin in terms of their style. First, it is not apparent why copying has to be a prerequisite for absorbing another artist's approach to form (for example, the act of looking might be considered enough). And second, even if Cézanne was drawn to Baroque or Romantic examples in the early stages of his career, this does not mean that he would remain bound to them for the rest of his life. In acknowledgement of this, authors have tended to identify Cézanne's classical phase with his later, more restrained and rigorously structured compositions which coincide with the introduction of his so-called 'constructive brushstroke' – works which roughly span the period from 1878 - 1890.[56] This phase would therefore seem to coincide with the time when Cézanne made his few, fragmented studies after Poussin. For example, of the four copies Tsiakma cites three were produced in the late 1880s, two of them after *The Arcadian Shepherds* (fig. 9), a work which clearly fascinated Cézanne for he hung a reproduction of it in his studio at a similar time and had once copied it in the Louvre during his youth.[57]

But whether or not we think that Cézanne's art was stylistically indebted to the work of Poussin (and this is surely a matter of degree rather than a straight

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Poussin has not stood the test of time' referring to the following statement from Theodore Reff's study of the artist's sketchbooks: 'The old masters Cézanne admired and copied most frequently were those of the Baroque period or the Baroque phase of an earlier period.' Carrier, *Poussin's Paintings*, p. 50; Reff, 'Introduction,' *Paul Cézanne: Two Sketchbooks* (Philadelphia, 1989), p. 11.

[56] For instance, an early, pronounced example of the 'constructive stoke' can be seen in *Le Château de Medan* of c. 1880. Cézanne's classical period supposedly terminates with the more dramatic landscapes he produced in the final years of his life such as his pictures of the Mont Sainte Victoire seen from Les Lauves (roughly late 1870s – 1890). For Reff's discussion see 'Cézanne's Constructive Stroke*', The Art Quarterly* 25, no. 3 (Autumn 1962), pp. 214-227 and for a consideration of Cézanne's stylistic development see Verdi, *Cézanne and Poussin*, esp. pp. 35 – 55.

[57] Cézanne made this early copy in 1864. See Theodore Reff, 'Copyists in the Louvre, 1850 – 1870', *Art Bulletin*, 46, no. 4 (Dec., 1964), p. 555 and Verdi, *Cézanne and Poussin*, pp. 44 – 47.

choice between one option or the other), the fate of their classical relation would still seem to be decided on the same basic principles, thus leading us back to the paradox we discussed earlier. On the one hand, if Cézanne was said to develop his Classicism by consulting the compositional techniques of his predecessor, the idea of his making art 'entirely after nature' could not be sustained. But, on the other hand, if he was thought to be stylistically independent of Poussin (and the tradition he established), then he could not have produced an art which was similar to his forebear's and their classical relation would have to be dismissed.

What of course ultimately seals the fate of this question is the degree to which their pictures actually look the same, or rather, whether they are sufficiently similar to support a comparison based on the Wölfflinian conception of form. So let us finally attempt to settle this matter by juxtaposing two works from the supposedly 'classical' phase of each artist's oeuvre: Poussin's *Landscape with the body of Phoicon carried out of Athens* of 1648 (fig. 10) and Cézanne's *Mont Sainte-Victoire with Large Pine* of c. 1885 – 87 (fig. 11).[58]

Now, it might be said that there is a sense in which these two works are similar if we make them stand out against a background of difference. If, for example, we were to oppose the quiet harmony of Poussin to the sublime drama of Claude Joseph Vernet (fig. 12) or the taut structure of Cézanne to the shimmering surfaces of Monet (fig. 13), something of their alleged Classicism

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[58] This pairing is suggested by Verdi in the catalogue to *Cézanne and Poussin*. However, Verdi only considers the basic parallelism of their formal design. He notes, for example, that the tree in each 'crown[s] the contour of the distant mountain' (p.49 – 50). While it is true that Cézanne's work echoes Poussin's in its basic ordering of the constituents of the scene, it is at a finer level of detail – and particularly in the modes of viewing experience that they structure – that the differences between these works become abundantly apparent.

would come to the fore. We might say, for example, that while in the latter two compositions in each pairing there is a resistance to gravity, *Landscape with the body of Phoicon* and *Mont Sainte-Victoire* seem stable and balanced. Instead of being slippery and mutable, their forms seem solid and substantial: they coexist in relation to one another and in concordance with the frame. 'Balance', 'architectural rigour' and 'primitive simplicity' – these do not seem inappropriate terms to describe either of these works.

But any more rigorous analysis of the paintings with respect to Wölfflin's categories of classical form would seem to betray notable differences. On the one hand, Poussin's painting could serve as an exemplary model for each of the qualities the theorist divines: hard-edged contours (linearity), clear divisions of space from foreground to background (planar), a compositional structure which reiterates the framing edge and which implies a centrally positioned point of view (closed form), discrete, separated forms (multiplicity) and a light that renders every detail optically precise (absolute clarity).

But what are we to say, on the other hand, of Cézanne's *Mont Sainte-Victoire*? True, his work has a definite sense on structure and exhibits none of the sweeping diagonals or plunging spaces so typical of the Baroque, but neither is there a hierarchy of clearly defined parts or a space that recedes evenly in a succession of planes. Instead, his *coulisses* – while they do exist – seem to push themselves forward and develop and disperse in front of our eyes. And what indeed are we to make of his so-called 'architectural rigour'? It seems to be there, but not divulged transparently: there is a sense that we are always catching

things 'on the wing', as if form is still germinating and has not yet been rendered distinct. So, neither is this work of the order of Monet's unanchored and impalpable Impressionism, but nor does it manifest the degree of articulation of Poussin's archetypically classical work. Is it therefore in striking a balance between these two modes of representation that we grasp the sense of Cézanne's statement to Denis that he 'wanted was to make of Impressionism something solid and durable, like the art of the museums'?[59] There is more than of a grain of truth here, but to identify this we need to embrace a radically different set of terms.

1.4 THE DUAL MEANING OF CLASSICISM

In order to understand how the classical linkage between Cézanne and Poussin obtained a footing in the first place, we cannot arrive at our conclusions *ex post facto* by appealing either directly or tacitly to Wölfflin. Instead, we need to trace this idea back to its original context and in particular, we must consider what Classicism would have meant in the late nineteenth century. In this sense, it is instructive to begin by reflecting on our own use of the word 'classic' for this still possesses a residue of its earlier meaning and will thus help us to understand the significance of Cézanne's enigmatic phrase.[60]

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[59] Maurice Denis, 'Cézanne', trans. Roger Fry, *Burlington Magazine*, XVI, London, Jan – Feb 1910; reprinted in *Art in Theory 1900 – 2000*, ed. Charles Harrison and Paul Wood (Oxford: Blackwell, 2003), p. 42. Denis's article was originally published in *L'Occident* in September 1907.
[60] The ideas in this section are largely indebted to Richard Shiff's discussion of Cézanne's Classicism in *Cézanne and the End of Impressionism*.

Let us start with two examples – as culturally distinct as they may be – and analyse what unites them in terms of our use of this word: the first 'Pac-man is a classic computer game' and the second '*Ulysses* is a classic work of modern literature'. Now, we might initially think that this simply means that Pac-Man and *Ulysses* are both representative of a much wider genre. However, the very fact that they can function as bywords for a whole category implies that they possess some extra quality that makes them not just related to, but also distinct from, the other members of their class. What makes them able to carry this burden of meaning is the idea that they did not simply perpetuate a way of doing things that already existed. Rather, they are also the progenitors of a new method – Pac-man was the first example of a particular format of computer gaming, while Joyce's experimental use of language sets *Ulysses* apart from previous works of fiction. Consequently, they are 'classics' in the sense that they are at once the originators and the paradigmatic examples of a new style.[61]

Bearing this in mind, it is now possible to understand why nineteenth-century designations of the Renaissance and Antiquity as classical had an evaluative dimension. What writers at this time would have meant is not that artists of these periods had adopted a particular mode of expression (although Classicism undoubtedly acquired this extra sense from a consensus about the nature of the style deemed exemplary). Rather, they would have conceived their works – and more particularly, the works of specific individuals – as standing as *paragons*. Lesser artists would therefore be bound to fall under the influence of

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[61] For example, Maurice Beebe refers to *Ulysses* as 'a demonstration and summation of [an] entire movement' in '*Ulysses* and the Age of Modernism', *James Joyce Quarterly* (University of Tulsa) 10, no. 2 (Fall 1972), p. 176. While, according to the Wikipedia entry on Pac-Man, it is 'universally considered as one of the classics of the medium, virtually synonymous with video games…' See http://en.wikipedia.org/wiki/Pac-Man, accessed 8 July 2010.

such potent examples (and accordingly their style would be derivative) while ones of greater distinction would seek to recreate these conditions again (meaning that their style would be original and yet equally valid). In short, there was no requirement for two Classical styles to *look* the same.

Nevertheless, there is – as Kant reminds us – such a thing as 'original nonsense'[62] and therefore not everything is destined to be emulated just because it is new. A classical style must consequently have a quality that makes it worthy of imitation – it must speak in voice that others will heed. Accordingly, the two ideas that are yoked by this earlier understanding of Classicism are *originality* and *universal expression*, that is, something that is at once new and capable of being grasped by all.[63]

This takes us part of the way to understanding the nature of Cézanne's and Poussin's classical affiliation, for what can be seen now is that there is no demand for a linkage that devolves on a particular style. [64] Cézanne could be classical without imitating Poussin, although he may have looked to his art when he was struggling to express the originality of his 'sensations'.[65] This would therefore account for the fragmentary nature of his later copies after Poussin, since these seem to demonstrate that he was seeking to identify the formal struts that gave his predecessor's art its coherence rather than attempting to emulate its

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[62] Immanuel Kant, *The Critique of Judgement*, trans. James Creed Meredith (Oxford: Clarendon Press, 1952) p. 168.

[63] See Shiff, *Cézanne and the End of Impressionism*, p, 125. The author refers to the combination of these two qualities as a 'reasoned originality'.

[64] Shiff notes that 'the analogy drawn between Cézanne and Poussin…was never to any great extent a matter of imitable visual qualities'. See *Ibid*, p. 184.

[65] There would be no paradox here, as Classicism exists in the end result and not in the means by which it is obtained, although slavish copying is obviously not going to be conductive to originality. See the second quote of my epigraph and also Shiff, *Cézanne and the End of Impressionism*, pp. 183 – 84.

general appearance.[66] Nevertheless, since Cézanne did not devote much time to copying the work of Poussin this would still not seem sufficient justification for conjoining their names. If there is accordingly an overlap in terms of their art – as there would have to be for this analogy to take off – where are we to find it? Is it in their procedures, their independently gained styles, or is it somehow engendered by both?

As Richard Shiff's work has astutely shown, this conjunction was largely based on the idea of an intersection between Cézanne's and Poussin's *practice* and the 'general principles' that I mentioned earlier – those of originality, stoicism and the direct confrontation of nature. In short, it depended on the notion that they avoided convention and put themselves in direct contact with an original source in the world. The integrity of this source was therefore understood to be the guarantor of an art that was at once innovative and universally expressive, which is to say that it guaranteed the idea of Cézanne's and Poussin's mutual Classicism. In this respect, our opening quotation would have been understood to shed light on the difference between the sources of their art and the verities that this supposedly led them to uncover. For while Poussin was said to rediscover the truth of the Ancients by studying their art *in conjunction with* nature, Cézanne was said to 'redo' – in the sense of repeating

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[66] I owe this observation to Richard Verdi who claims that 'Cézanne explores the formal principles which unite the figures with their surroundings…as though seeking to lay bare the underlying order and armature of Poussin's monumental design.' See *Cézanne and Poussin*, p. 45. Cézanne himself wrote to Bernard that 'I believe in the logical development of what we see through the study of nature, even if this means concerning myself with technical questions afterwards; for us, technical questions are merely the means of making the public experience what we ourselves experience.' Letter to Bernard, 21 September 1906, reprinted in The *Courtauld Cézannes*, p. 165. What this therefore suggests is that Cézanne consulted the work of others when his own means were not adequate to the novelty of the experience he wanted to express. He would consequently be seeking devices that were congenial to his own idea of originality – that perhaps plugged a gap in his art – rather than deriving his style wholesale from others.

and maybe even amplifying – the Classicism of Poussin by drawing the tenets of his art almost *exclusively* from his personal communion with nature.[67]

However, there is one further point to be made here which Shiff does not acknowledge. This is that while the word 'Classicism' may not necessarily have implied a connection based on visual similarities, some of Cézanne's critics nevertheless did seem to suggest that his style was in some way comparable to that of his forebear or, more broadly, to that of other illustrious artists from the past. And what is interesting about the formula of this style is that it is thought to be obtained precisely through Cézanne's strategy of returning to origins – of finding his means of expression in the privacy of a gaze directed out towards the world, or of remaining true to 'nature and self' as Shiff himself puts it.[68] Denis states, for example, that:

What others have sought and sometimes found in imitating the ancients, the discipline that [Cézanne] himself in his first works asked of the great artists of his time or of the past, he discovers finally in himself…He is so naturally a painter and so spontaneously classical![69]

If we assume, therefore, that the discipline Cézanne 'asked of the great artists' was related to their method of pictorial construction – in short, that it was a

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[67] See *Ibid*, esp. pp. 180 – 84.
[68] See note 26.
[69] Denis, 'Cézanne', *L'Occident* 12 (Sept. 1907), p. 123. Cited in Shiff, *Cézanne and the End of Impressionism*, p. 136. This echoes Cézanne's own remark to Bernard that, 'Your need to find a moral and intellectual reference point in works of art which will surely never be surpassed…will surely lead you to experience your means of expression in front of nature; and rest assured that, the day that you find them, you will effortlessly rediscover in front of nature the methods that were used by the four or five great artists of Venice.' Letter, 23 December 1904, reprinted in *The Courtauld Cézannes*, p. 159.

matter of technique rather than a matter of procedure – then shouldn't we suppose what 'he finally discovers in himself' is precisely a non-derivative source for their *style*? Or if this seems tenuous, let us consider the expanded statement in which our dictum is originally found. Bernard's pronunciation that:

> Classical means here: that which is in agreement with tradition. Thus Cézanne used to say: "Imagine Poussin redone entirely after nature, there's the classical that I intend." It is not a matter, in effect, of casting out the romantics, but of rediscovering what the romantics themselves had: the solid rules of the great masters. Still the contribution to make is a more ample observation of nature and *in some way to draw one's classicism from it* more than from studio recipes. Because if the laws of art are fecund, the recipes of the studio are deadly, and it is only in contact with nature, and with its constant observation, that the artist is a creator.[70]

Unlike Denis, Bernard does not say the Cézanne discover a Classicism in himself; instead he claims that he finds it outwardly in the world. But nevertheless, this source also seems to guarantee his art's stylistic relation to 'the solid rules of the great masters'. Indeed, if – as Bernard implies – Classicism can be drawn authentically from nature or learned second hand in the studio, then the very fact that both routes can ensure its production must mean that it entails a set of visually identifiable features. What this therefore suggests is that Classicism is not only being understood as a procedure, but also as a procedure that yields

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[70] Bernard, 'Souvenirs,' *Mercure de France*, p. 627; cited in *Ibid*, p. 13. Emphasis added.

particular results – a style perhaps, or maybe something more basic (the romantics, Bernard says, possessed these laws too). But either way, this must exhibit some consistent quality which, for some to copy, others must first have wrested directly from the world.

Therefore, to be 'in agreement with tradition' one may either look back upon the history of art, or one may look outwards towards nature herself. And yet, it is only by doing the latter that the 'artist is a creator'. Or, to put it another way, while Classic*ism* may have a typical, imitable appearance, a *true* Classic*ist* reveals this in a new but objectively verifiable form. Indeed, this interpretation would seem to fit better with a slightly earlier characterisation of Cézanne's dictum as '*vivifier* Poussin sur nature'.[71] For, insofar as the word 'vivifier' implies a 'quickening' or 'enlivening', this seems to suggest that Cézanne animated qualities that were *already present* in his forebear's art but which were only disclosed through his close attention to the natural world.

So it seems that although we have seen a way around the reductive interpretations of twentieth-century critics, there is still something faintly paradoxical about this use of the word 'Classical'. For how can Cézanne draw his classicism from nature in a way that ensures the continuity of tradition (the passing down of a style from one generation to the next) whist also guarding against 'the recipes of the studio' (the transmission of a style through cultural institutions)? Can a direct communion between self and nature actually leak the secrets of a Classical art and does this thereby connect the work of Cézanne and

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[71] See note 25.

Poussin *stylistically*? And finally, would this not suggest that the 'universal expressiveness' of Classicism somehow consists in an Ur-language of representation? In the following section I shall investigate this idea by referring to Cézanne's own understanding of sight.

1.5 NATURE AND SELF IN 'PRIMORDIAL' VISION

Let me begin this discussion by drawing attention to one of the basic implications of the foregoing account: the idea that pictorial art can have a universal communicative power and that it obtains this by drawing its language from the material of vision. Of course, this is not made explicit in the statements by Denis and Bernard: here the Classicism of Poussin and Cézanne is supposedly a dividend of their devotion to nature (or perhaps of their fidelity to both nature and self). But let us nevertheless be more particular about what this actually means: since our awareness of the world is always mediated through the senses, these artists could not have wrested their means of expression directly from nature. Rather, they would have to derive them from the experience of sight. Consequently, if there is something about Cézanne's or Poussin's style which makes it non-arbitrary and thus universally legible then this would relate, not to nature itself, but to the aspects it revealed to the gaze of each painter.

But if Bernard and Denis skirted around these issues, Cézanne and his Impressionist colleagues certainly did not. For them, instead, it was precisely a question of how to be true to their own unique 'sensations' or how to capture in

paint their 'impression' of a scene: ideas that evidently acknowledge the role of perception in their art.[72] Therefore, it is useful to begin with a consideration of these terms in order to grasp how Cézanne would have conceptualised sight and how he would therefore have understood it as informing his practice.

Let us start with the concept of the 'impression' – an idea that became central to Cézanne's thinking in the 1870s due to his association with artists such as Monet, Renoir and Pissarro.[73] First of all, it ought to be noted that this word had a double significance in the nineteenth century. On the one hand, it was used (as it still is today) to refer to an immediate form of sensory awareness, and in this respect it was taken to designate the initial visual impact of a scene. And on the other hand, it was used to denote a preliminary sketch for a composition, and in this sense it was compared to the finished work or *tableau* which was deemed suitable for exhibition. In this last respect, then, to call a group of artists 'Impressionists' struck a derisory note for it suggested that they had not brought their work to an adequate state of completion.[74] However, for those who were sympathetic to the movement it could also imply that the artists had captured an unmediated form of vision and had therefore expressed themselves in a non-

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[72] As Shiff points out, insofar as Cézanne claimed that his project was to paint his sensations, he remained committed to a theory of Impressionism until the end of his life. See *Cézanne and the End of Impressionism*, esp. pp. 187 – 196; for Bernard and Denis's disavowal of this aspect of his practice see pp. 125 – 140.

[73] In the 1870s Cézanne regarded Pissarro as his mentor and worked side by side with him on several occasions. For a consideration of this relationship see *Cézanne and Pissarro: Pioneering Modern Painting* (exh. cat. MoMA, 26 June – 12 September 1995) ed. Joachim Pissarro (New York: Museum of Modern Art, 2005) Cézanne also contributed to the first and third Impressionist group exhibitions in 1874 and 1877.

[74] For instance, this would seem to be the implication of Louis Leroy's sarcastic quip (spoken by his fictional character, the academic painter, M. Vincent) that 'Wallpaper in its embryonic state is more finished than a seascape.' 'Exhibition of the Impressionists', *Le Charivari*, 25 April 1874; quoted in *Impressionism and Post Impressionism 1874 – 1904*, ed. Linda Nochlin (Englewood Cliffs, New Jersey: Prentice Hall, 1966), p. 13.

derivative way. Accordingly, this would be seen as a virtue given that mindless imitation was so often blamed for the stultification of French art.

To further understand this last, positive connotation of the term 'impression' it is useful to relate it to contemporary theories of perception. The general consensus at this time was that visual processing consisted of two separate stages. At the first stage, raw sensations of light were said to be impressed on the retina, thus forming a shifting mosaic of patches of colour. And at the second stage it was claimed that knowledge and experience were brought to bear on this data so that meaningful objects were seen as occupying a three-dimensional space. But what this further implied was that normal, adult vision could become laden with prejudices and prior assumptions, thus distancing the perceiver from the original look of the world. Accordingly, it would seem that the Impressionist project was to recover this primary form of vision, or as Cézanne had put it to 'See like a man who has just been born'. Thus in communing with nature directly they might hope to 'forget' all they knew and return to the immediacy of spontaneous sight.[75]

However, this should not be taken to mean that the artists wished to passively record visual appearances or that their aim was to produce a 'retinal' art. Instead, it would seem that their use of the word 'impression' implied something more complex for they often spoke of it as relating to subjective emotion as well as unmediated sight. As Richard Shiff has noted, this idea finds a source in the contemporary literature and in particular, it seems likely to have

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[75] For a more in depth account of this aspect of Impressionist practice see Joel Isaacson, 'Constable, Duranty, Mallarmé, Impressionism, Plein Air, and Forgetting', *The Art Bulletin* 76, no. 3 (September, 1994), pp. 427 – 450. For Cézanne's comments on 'forgetting' see note 32.

been derived from the philosophical works of Emile Littré and Hippolyte Taine.[76] According to Littré, for instance:

> Yes, there is something that is primordial, but it is neither the subject nor the object, neither the self not the nonself [*non-moi*]: it is the impression perceived [*l'impression perçue*]. A perceived impression does not in any sense constitute the idea of the subject or of the object, it is only the element of these ideas [which develop] only when the external impression and the internal impression are repeated a certain number of times.[77]

According to this interpretation, the 'perceived impression' is the product of the immediate interaction between *subject and object*, which only comes to constitute knowledge through repetition and association. This understanding therefore suggests how Cézanne could think it possible to produce an art that was both original and universal at one and the same time. For, insofar as he purported to paint his impressions, his art could claim 'a double origin in both nature and self'[78] so that nature would guarantee a link with a publicly accessible realm of reality and the aspect of subjectivity would guarantee a link to his own individual experience of the world. Furthermore, this implies that if the artist entered a meditative state in front of nature by forgetting what he knew through experience and exposure to culture, then he might be able recover a form of vision in which

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[76] Paul Smith and Charles Stuckey also stress the importance of Littré and Taine. See, for example, Smith *Impressionism: Beneath the Surface* (London: Weidenfeld and Nicolson, 1995) pp. 19 – 31 and Stuckey, 'Monet's art and the act of vision' in *Aspects of Monet: A Symposium on the Artist's Life and Times*, ed. John Rewald and Frances Weitzenhoffer (New York: Harry N. Abrams, 1984), pp. 106 – 121. I will discuss Taine's connection to Cézanne in a later chapter.

[77] Émile Littré, 'De quelques points de physiologie psychique' (1860), *La Science du point de vue philosophique* (Paris, 1876), p. 315; cited in Richard Shiff, *Cézanne and the End of Impressionism* (Chicago and London: The University of Chicago Press, 1984), p. 19.

[78] This is a phrase that Shiff uses several times over the course of his study. See, for instance, *Ibid*, pp. 108, 130, 166 & 192.

his personality was immediately intertwined with the world. In other words, he would become 'one' with his motif or paint like a 'primitive'[79]. This therefore seems to be what Gasquet had in mind when he spoke of the artist's desire to 'germinate' with nature.[80]

The word 'sensation' might be said to have similar connotations and indeed Cézanne and his contemporaries often used it interchangeably with the term 'impression'. However, there seems to have been a slight difference for while this latter expression was more often used to refer to the overall visual effect of a scene, the former seems to have been identified with the irreducible matter of perception itself, that is, with the patches of colour on the retinal tissue. Thus Cézanne's purported comment to Gasquet that 'I see. In stains'[81] would seem to imply that he thought he had accessed this primary stratum of perception. And furthermore, as the dual meaning of the verb 'sentir' makes apparent, the word sensation could equally suggest a personal feeling or a perceptual experience formed in contact with the world.

What could Cézanne be said to draw out of this 'primordial' vision and how would this relate his art to Poussin's? Did his procedure of meditating on nature (and by implication, on seeing) somehow link his art substantively to that of his forebear while also ensuring that it was original and different at the same time? In the following sections I wish to propose that there is a grain of truth in

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[79] According to Rivière and Schnerb, Cézanne pointed out a distortion in one of his paintings and claimed 'I am a primitive, I have a lazy eye.' Cited in Smith, 'Cézanne's primitive self and related fictions', p. 1.
[80] Joachim Gasquet, *Cézanne*, II Partie, *Le Motif*, pp. 81 – 3. Cited in Maurice Merleau-Ponty, *Phenomenology of Perception*, translated by Colin Smith (London: Routledge, 1962), p. 152.
[81] Cited in Smith, *Interpreting Cézanne*, p. 48

this and that we might understand this better by turning to the work of John Willats.

1.6 THE GRAMMAR OF REPRESENTATION

Is there a sense in which the distal stimuli of vision are perceived in the same way by all human beings? And, if so, can a picture reproduce these cues so that they can be deciphered without reference to cultural convention? I would like to suggest that there is and I would further claim that this enables us to understand the denotative content of Cézanne's and Poussin's art, or indeed that of any picture considered effective as a representation. In short, I am proposing that representation is to be defined as the communicative language of pictures and that this language may be understood to convey meaning universally when it derives from generically human ways of seeing the world.

Let us consider this in terms of the theory of picture perception proposed by John Willats which I earlier outlined in the introduction to this thesis. Now, as will be remembered the basic point of departure for Willats's account is the observation that children seem to possess a generative ability to perceive representational pictures. In other words, once they have grasped the basic conjunction between an image and what it signifies in the world, they can seemingly recognise any number of other examples without having to learn by rote and repetition. Of course, this does not mean that specific parts of the human brain have evolved for the purpose of picture perception. However, our ability to

recognise shapes – and thereby to recognise objects – does seem to be part of an innate endowment. Hence, if picture perception is partly parasitic on scene perception, our generative ability to produce and perceive representational pictures can be conceived as a by-product of our visual ability to recognise objects.

To therefore put this in terms of Marr's theory, if the visual brain is hardwired to extract object-centred descriptions from the retinal image, and representational pictures are derived from, and therefore retain basic structural features of these percepts, then in theory people should be equipped with the same basic tools to decipher such images. Crudely put, the difference may be that in everyday perception the visual system detects the abrupt changes in luminosity which coincide with the occluding contours and edges of real objects, while in picture perception such discontinuities in luminosity are detected on the basis of lines or sharp changes in tone or hue. Of course, the information available in pictures is by definition much sparser: it cannot be confirmed, or reinforced by movement, or supplemented by depth clues from stereopsis. Nevertheless, it is arguably rich enough for the brain to extract a three-dimensional model of shape which, by being matched to a representation in memory, would theoretically enable the viewer to recognise the denotata of a picture.

The question would therefore seem to be whether the modes of expression deployed by Cézanne and Poussin adequately contain the relevant cues, and whether in this sense they can be deemed 'universally' communicative. We therefore need to know three basic things: first, what the structural

constituents of pictures actually are; second, what their relation to visual experience is; and third, how they are to be combined so that object perception can effectively take place.

To answer these questions, it is useful to begin by appealing to the distinction Willats draws between the function of a 'denotation system' and a 'drawing system' in a picture. The former, he claims, maps 'scene primitives…into corresponding picture primitives'[82]. The term 'primitive' here refers to the most elementary units of shape available in a real scene or a picture. In a scene these can be defined in terms of three-dimensional volumes, two-dimensional faces, one-dimensional edges or zero-dimensional points and in a picture as two-dimensional regions, one-dimensional lines and zero-dimensional points. Accordingly, Willats identifies three types of denotation system which employ regions, lines and points as picture primitives respectively. For instance, silhouettes in pictures are constituted by regions, line drawings by lines and photographs by points. In this respect, the distinction between the marks of a picture and its primitives is important: marks in themselves are not basic units of shape and although they may mould a primitive they can also serve other pictorial functions.

In addition, Willats suggests a correspondence between the different denotation systems and Marr's stages of vision (fig. D).[83] On this understanding, optical denotation systems such as Divisionist pictures and photographs which employ points as picture primitives are associated with the primal sketch since

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[82] John Willats, *Art and Representation: New Principles in the Analysis of Pictures* (New Jersey: Princeton University Press, 1997), p. 4.
[83] See especially *Art and Representation*, chapter 7: 'Separate Systems?', pp. 149 – 167.

these primitives supposedly stand for the intercepts of small bundles of light rays reaching the retina (fig. 14). On the other hand, line drawings using 1-dimensional primitives (lines) and 0-dimensional line junctions are related to the 2 ½-D sketch since the former are conjectured to denote edges and contours in the scene while the latter denote corners and points of occlusion (fig. 15). Finally systems which employ regions or lines to denote three-dimensional volumes – which is what Willats thinks is intended in children's early drawings and certain Cubist pictures – are assumed to correspond to object-centred descriptions (fig.16).
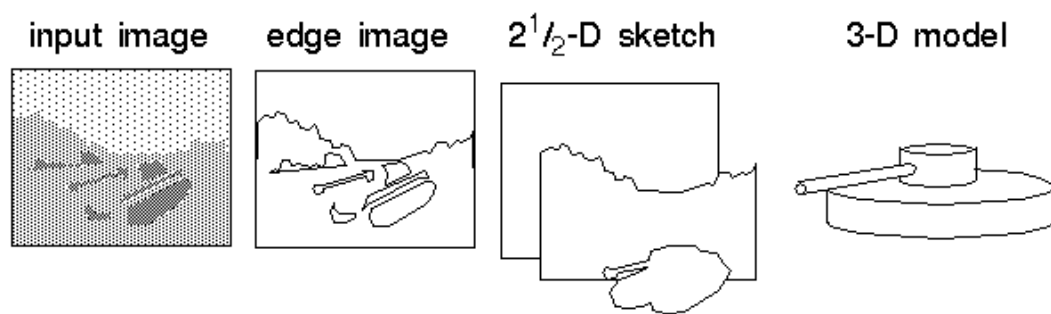
Figure D. The shape information represented at each stage of visual processing

Adapted from Marr (1982). 'Computing and the Arts',

http://www.doc.gold.ac.uk/~mas02fl/MSC101/Vision/Marr.html.

The drawing system, on the other hand, 'map[s] spatial relations in a scene into corresponding relations in the picture'.[84] Common types of drawing systems include perspective, oblique projection and orthogonal projection and these can either be described in terms of primary or secondary geometry. Primary geometry is based on the Renaissance theory of perspective in which light rays

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[84] Willats, *Art and Representation*, p. 2.

projected from a scene intersect a picture plane at a point on the line of sight. Since in orthogonal projection and oblique projection the rays are parallel, both require a notional viewer situated at infinity. This in itself is dubious, but in addition primary geometry fails to explain drawing systems such as inverted perspective and systems based on topological geometry. In light of these anomalies Willats chooses instead to describe pictures in terms of secondary geometry, that is, in terms of the relationships between marks on the picture surface itself. Furthermore, this strategy seems better equipped to describe the psychology of depiction since the sequence of children's drawing development is correlated to the complexity of mapping rules in secondary geometry, while such a sequence cannot be explained by way of primary geometry.

So, according to Willats, the denotation system says *what* the picture primitives stand for and the drawing system says *where* they go.[85] But what we now need to know is how these elements are to be combined so that they yield a sufficiently coherent representation of shape: one, in other words, that is adequate for the purposes of object recognition. According to the author, a picture that is maximally efficient in this respect will fulfil two basic conditions. First, it will provide a *possible view*, meaning that it will employ a drawing system which preserves the geometry of light rays projected from a possible scene to the eye. In addition, however, its constituents should be organised so that they map a *general view*. A picture of this type avoids ambiguous conjunctions of edges, corners or contours – what are known as 'accidental alignments' in scenes and 'false attachments' in pictures. These criteria would

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[85] *Ibid*, pp. 15 – 16.

therefore exclude systems such as vertical and horizontal oblique projection, since in the first case they do not provide a possible view and in the second they are likely to yield false attachments.

What this implies, therefore, is that there are certain non-arbitrary, rule-governed ways in which the components of a picture can be meaningfully concatenated. In order to justify this thesis, Willats further appeals to the work performed by the scientists Clowes and Huffman in the field of Artificial Intelligence.[86] In particular, he refers to their research in the 1970s which showed that the all combinations of edges in rectilinear objects can be classified according to four basic categories: V-, W-, Y- and T-junctions. The further corollary to this is that these junctions have to be combined in ways that respected basic certain rules, the most important of which is the stipulation that 'lines must have the same meaning along their whole length'.[87]

Having outlined this schema for understanding the representational language of pictures, what we now need to consider is the extent to which Cézanne's and Poussin's pictures abide by these rules. For the purposes of exposition, let us therefore compare two paintings which lend themselves easily to this kind of analysis[88]: on the one hand, Poussin's *Landscape with the*

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[86] See M. B Clowes, 'On seeing things', *Artificial Intelligence*, 2, no. 1, pp. 76 – 116 and D. A. Huffman, 'Impossible objects as nonsense sentences' in B. Metzler and D. Mitchie (ed.), *Machine Intelligence*, vol. 6 (Edinburgh University Press, 1971), pp. 295 – 323.
[87] *Ibid*, p. 117.
[88] I have chosen these works because they contain depictions of objects with plane faces and thus permit a relatively straightforward description of the artists' mapping space and shape.

Gathering of the Ashes of Phocion of 1648 (fig. 17)[89] and on the other hand, Cézanne's *The Gulf of Marseilles, seen from L'Estaque* of c. 1886 – 90 (fig. 18).

What first stands out about these two pictures is the distinct nature of the drawing systems which they employ. On the one hand, it seems that Poussin adopts a system based on linear perspective which ensures that his picture approximates to a possible view. While it is not clear that the orthogonals converge to meet at a single, central vanishing point, the thrust of the road into the distance and the regular diminishment of elements – and particularly the figures – yield the impression of an isotropic, recessional space. What is more, the main architectural elements in the picture – the temple and the houses and fortifications that surround them – assertively face the viewer in a frontal position, therefore allowing their shapes to be easily read. The picture also fulfils Willats's criterion of a general view, for the edges of depicted objects do not align in ambiguous ways. And more precisely, there are plenty of examples of law-abiding line junctions to provide the picture with a basic structural cohesion. Indeed, it might be said that the optically precise denotation system that Poussin espouses renders the contours of surfaces with such clarity that they seem to announce their independence in an almost forcible way.

Cézanne's picture, on the other hand, appears to be composed of two different systems: oblique and horizontal oblique projection. The former system is evident, for example, in the parallel, horizontal slant of the eaves and the peak of the roof in the centrally positioned house in the foreground. However, the

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[89] This is the pendant to the *Landscape with the Body of Phocion carried out of Athens* earlier discussed.

houses that bracket it on either side appear to be rendered in horizontal oblique projection since their right sides align with the front view of their faces. But while we may suspect that this spatial incongruence exists, it is hard to be sure since Cézanne has obscured the crucial line junctions that would make it conspicuous – particularly the angle of the orthogonals at the bottom edge of these faces. There are also several instances of false attachment in this picture, most notably the alignment of the roof of the house in the left foreground with that of the factory which sits directly behind it. This therefore collapses the space in such a way as to bring it forward towards the viewer and creates a horizontal bar across the picture plane due to the parallel position of the roof on the right. And yet, even if Cézanne's painting possesses pockets of spatial inconsistency, the shapes of distinct elements in the picture are coherently preserved due to the way that they are (largely) built up out of salient conjunctions of lines which allow us to decipher the points at which edges meet and surfaces occlude one another.

It seems therefore that both pictures adopt a grammar that makes their subject-matter legible by mapping space and shape in a way that sufficiently respects the rules of representation. Thus, if their adherence to these principles means that their formal language is derived non-arbitrarily from the material of vision – that is, from the way that we come to recognise objects in real scenes – we might say that each painting can be decoded by virtue of the visual capacities we innately possess. Perhaps then we might say that each artist fulfils the first criterion of Classicism: he produces an art which can communicate its meaning to one and to all.

Nevertheless, there is something fundamentally different about the representational styles of these artists which consists not only in their formal language but also in the kinds of viewing experience this seems to produce. On the one hand, the crystal-clear space of Poussin's work seems to induce a sense of stasis and contemplation and is accompanied by the feeling that objects have already yielded themselves wholly to our eyes. Therefore due to the ease with which we scan the scene, we feel hardly aware of the activity of looking. Rather, we invest our energies in reflecting on the poetry of the world behind the picture plane. Thus, to characterise this experience we might say that is one of *meditation*.

Cézanne's *Gulf of Marseilles*, on the other hand, seems to be caught in the very 'process of becoming'.[90] Due to the elisions of space, our ability to recognise objects is not denied but nevertheless seems to have been *slowed down*. And indeed, as our gaze encircles the scene in an attempt to assimilate its total appearance, we find ourselves engaged in a more physical manner as if our whole bodies are attuned to the movements of our eyes. However, while the space is slippery, there is an also a sense that the houses in the foreground are solid and weighty in an almost tangible way. They act as anchors to our sight, as if we can grip them with our eyes. Therefore, unlike the still and contemplative mood of the Poussin, we might characterise Cézanne's work as heightening our sense of *bodily presence*.

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[90] This is a phrase I borrow from George Heard Hamilton. See 'Cézanne, Bergson and the Image of Time', *College Art Journal*, 16, no. 1 (Autumn 1956), pp.2 – 12.

I would claim that these are the original aspects that Cézanne and Poussin brought to the representation of the landscape and which finally secured their nomination as Classicists. On the one hand, Poussin adopted the figural style which was developed and perfected in the High Renaissance and transposed its harmony and balance onto an image of nature. However, the sense this brought to the panorama of this field was somehow an amplification of the effect it had previously had: it seemed to charge the scene with a stillness and a meditative quality. And on the other hand, I would suggest that Cézanne's pictorial style was almost opposite to this: it somehow implicated the body of the viewer and recruited it to be a partner in the constitution of meaning. My suggestion, then, is that Cézanne produced an altogether new 'criterion' of sight and, as I hope to show in the remainder of this project, this may have been his most ample contribution to the history of art.

CHAPTER 2

Perceptual Regimes in Trompe l' œil and Cubism: Deception and Evocation

The artist, of necessity, will have the task of carefully avoiding this antinomy of all art: the concrete truth, the illusionism of trompe l'œil, so that his picture will not give the false impression of nature which would act upon the spectator like nature herself, that is to say, without the possibility of suggestion.

– Albert Aurier[91]

2.1 FOOLING THE EYE OR FOOLING THE BODY?

I wish to introduce this chapter by recounting one of the oldest and best-known stories from the history of art. In this tale, recorded in the *Naturalis Historia*, Pliny the Elder tells of a contest between two rival artists, Parrhasios and Zeuxis. In order to decide whose talent is greater, they agree to each paint a picture and compare the results. Zeuxis is first to unveil his canvas: a depiction of grapes so lifelike that birds descend from the sky to peck at their flesh. He then turns to Parrhasios's work and attempts to draw back the curtain. But since the curtain

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[91] 'Le Symbolisme en peinture', p. 162. Translation by Christine Poggi, *In Defiance of Painting: Cubism, Futurism, and the Invention of Collage* (New Haven and London: Yale University Press, 1992), p. 96.

has been painted, Zeuxis must concede defeat, for while his own picture has merely succeeded in fooling the birds, Parrhasios's picture has deceived Zeuxis himself.[92]

This story is usually used to illustrate the concept of trompe l'œil, that is, the illustionistic capacity of pictures to 'trick the eye'. But perhaps this turn of phrase is slightly misleading, for notice that the pivotal moment in this story is when Zeuxis extends his arm to draw back the curtain. His error is not therefore a simple error of vision, since this ruse also implicates touch and indeed may be thought to involve the whole of the body in its capacity for movement and action. To put it another way, as soon as Zeuxis sees the painted surface *as a curtain* (rather than simply as a representation of one), his other senses are primed to accord with this reading. The object that is discriminated by the faculty of sight therefore acts as the catalyst for a particular bodily response: Zeuxis's movements prepare and anticipate his hand's contact with the fabric. So while we might say that his error is based on what his eye deciphers, his whole body resonates with this false visual judgement. Is this therefore a question of fooling the eye, or rather a question of fooling the body? Should we call it trompe l'œil or 'trompe le corps'?

In this chapter I shall suggest that this latter description is more accurate, or at least that this is the condition to which trompe l'œil painting aspires. The reason for this is that the aim (or perhaps the game) of such vivid illusions is to coax the viewer into thinking that he or she confronts a real three-dimensional

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[92] Pliny the Elder, *Naturalis Historia*, Book 35, Chapter 65, c. 77 - 79 AD. This story is recounted by Gombrich in *Art and Illusion* (London: Phaidon, 1977, orig. ed., 1960), p. 173.

space. Therefore, if touching and moving form a latent substratum of real scene perception – as many philosophers and visual scientists have argued[93] – a successful trompe l'œil will trigger and perhaps even heighten these kinds of perceptual effect. The main purpose of this chapter is therefore to examine this claim about the multisensory nature of vision[94] and to relate it to the types of encounter structured by trompe l'œil art.

But if trompe l'œil functions by fooling the eye (and perhaps, by implication, by fooling the body), what then is the *modus operandi* of Cubism? Clearly, a picture in this style bears a different relation to perceptual reality, especially if we limit our considerations to the more daring innovations of Picasso and Braque (which in this project I intend to do).[95] For one thing, an object under the auspices of Cubism does not look much like its real life counterpart, while a successful trompe l'œil should blur the distinction between artifice and life. And yet, it has often been remarked that certain Cubist works

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[93] In the twentieth century this view was most notably articulated by Maurice Merleau-Ponty, whose work I shall consider later in this chapter. The problem concerning the interrelation between touch and vision has a long history, stretching back at least as far as Molyneaux's question about whether a man born blind who had regained his sight could distinguish a cube and a sphere on the basis of vision alone (See John Locke, *An Essay Concerning Human Understanding* (1694), Book II, Chapter IX). However, the idea that touch and movement contribute directly to vision (that is, instead of informing it mediately by way of associative processes) only began to be seriously considered in the twentieth century, and in this regard it can be traced to the work of thinkers such as Henri Poincaré and Edmund Husserl. In visual science, this notion was first theorised by J.J. Gibson and is neatly summarised by his notion of 'affordances' – the idea that objects are perceived in terms of the actions which they invite the subject to perform. For instance, to a human a newspaper affords reading while to a dog it affords chewing. See *The Ecological Approach to Visual Perception* (New Jersey: Lawrence Erlbaum Associates, Inc., 1986, orig. ed., 1979), esp. Chap. 8 'The Theory of Affordances'.

[94] By 'multisensory' I mean that vision entails inputs from different sensory modalities rather than being exclusively related to the eye and its capacity to the encode properties of light. For a discussion of this idea see Susanna Millar, *Space and Sense* (New York and East Sussex: Psychology Press, 2008), pp. 18 – 19. I shall also refer to this as 'intersensory' perception, a term which I borrow from the work of Merleau-Ponty.

[95] In this respect, my claim is not so much that Picasso and Braque were alone in developing Cubism, for it is evident that this movement has many different strands. However, I think that their work is unique insofar as it manifests the concerns and phenomenological qualities that this chapter details. Of course, this is not to say that their individual styles are equivalent. I shall consider these differences in Chapter 5.

can give us a sense of the real physicality of objects through the way that they evoke sensations of movement and touch.[96] Therefore, it would seem that, despite a difference in visual appearance, a comparison can be drawn between this style and Parrhasios's illusion insofar as each mode of painting elicits a motor response. Thus, in devoting this chapter to an assessment of trompe l'œil, I wish to use it to shed light on this perceptual phenomenon and to indicate how Cubism achieves this effect by very different means. However, since only a foray into the philosophy and psychology of representation will give us the wherewithal to adequately address this question, it shall be a while before the riddle of the Cubist aesthetic is finally solved. This chapter shall serve as a preparatory step.

2.2 THE DECEPTIVE DEVICES OF TROMPE L' ŒIL ART

First then, let us consider how trompe l'œil 'works'. In this respect, it is important to note that we never *normally* confuse a picture with a real three-dimensional scene, even if, as Willats argues, we draw on our perception of the latter to make sense of the former. For the theorist, representational pictures instead constitute a 'third domain', which means that they are neither perceived as fully flat nor as possessing the substantive spatial dimensionality seen in the

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[96]The claim that Cubism inspires a sense of movement has often been justified by referring to the artist's synthesis of multiple viewpoints. This interpretation was first advanced by Gleizes and Metzinger in their 1912 book *Du Cubisme* and has been common in the literature ever since. The theme of touch has also been invoked to support the claim that the Cubists picture the 'idea' or the perceptual synthesis of the object instead of its partial visual appearance. For instance, Daniel-Henry Kahnweiler makes this suggestion in his 1920 book *The Rise of Cubism* (*Der Weg zum Kubismus*). For two accounts which are closer in spirit to the argument I develop see Edwin Mullins, *Braque* (London: Thames and Hudson, 1968), esp. Chapter Four 'Analytic Cubism', pp. 52 – 71 and Paul Smith, 'How a Cubist Picture Hangs Together' in *Art of the Twentieth Century*, ed Jason Gaiger and Paul Wood (London: Yale University Press/Open University, 2003), pp. 62 – 89.

world. [97] The reason for this, or so he claims, is that the coherence of representation depends on a limited range of drawing and denotation systems which can only be combined in certain 'grammatical' ways.[98] Therefore, counter to the claim about 'twofoldness' made by Richard Wollheim,[99] Willats insists that we experience the third domain as a space that is *sui generis* since pictures are granted their own phenomenology by virtue of the artist's particular arrangement of marks. Or to put this another way, while a two-dimensional image may look to have depth, this differs from the experience of depth that we have in real life.

This third domain conspicuously announces its presence for several reasons. For one thing, the material qualities of the medium and the support are often visible – the texture of oil, for example, or the weave of the canvas – not to

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[97] Willats refers to trompe l'œil as an 'exceptional case' and excludes it from consideration in his paper (p. 5). For full discussion see 'The Third Domain: The Role of Pictorial Images in Picture Perception and Production', *Axiomathes*, 13 (2002), p. 1 – 15. To describe the third domain – which Willats refers to as the 'pictorial image' – the author cites an earlier publication in which he and Fred Dubery claim that 'pictures can be regarded as special cases of relief sculpture, compressed until they lie wholly within two-dimensional space', p. 5. See also Dubery and Willats, *Perspective and Other Drawing Systems* (London: The Herbert Press; New York: Van Nostrand Reinold,.1983), p. 19.

[98] While Willats does refer to a pictorial 'grammar' several times in *Art and Representation* and also hints that this may be comparable to the universal grammar proposed by Chomsky, he is nevertheless cautious about expressing this analogy in unequivocal terms. In a forthcoming paper, 'Pictorial Grammar: Chomsky, John Willats, and the rules of representation' to be published in *Art History* in 2011, Paul Smith considers this association in a more explicit way. For Willats's discussion of the common pairings of drawing and denotation systems see *Art and Representation*, pp. 149 – 167.

[99] For Wollheim, 'twofoldness' characterises the phenomenology of 'seeing in' which representational pictures evoke and which is sometimes also produced by accidental configurations in nature. This experience is marked by a dualism since we can either attend to the marks on a surface or we can concentrate on the illusory forms to which they give rise. Accordingly, this is similar to Gombrich's concept of 'projection'. But while Gombrich claims that that we cannot see the picture surface and the depictive content at one and the same time, Wollheim claims that we see the depictive content *in* – and therefore, at the same time as – the marks. For Gombrich's account of projection see *Art and Illusion*, 5th ed. (London: Phaidon, 1977), especially part three 'The Beholder's Share', pp. 154 – 246. For Wollheim's account of seeing-in see 'What the Spectator Sees' in *Visual Theory: Painting and Interpretation*, ed. Norman Bryson, Michael Ann Holly and Keith Moxley (Cambridge: Polity, 1991), pp. 101 – 150 and *Art and its objects*, 2nd ed. (Cambridge University Press, 1980), Essay V 'Seeing-as, seeing-in, and pictorial representation', pp. 205 – 226.

mention the way that the individual marks are applied – as strokes or blobs of paint, for instance. Of course, there are many cases when the artist effectively conceals his or her labour, as the immaculate finish of many Dutch still lifes like Jan de Heem's *Still Life with Parrots* exquisitely show (fig. 19). But nonetheless, the frame that brackets the pictorial space from the surrounding environment usually advertises itself in obvious ways.[100]

Subtract this frame and we would still be left with a space that was phenomenologically disjunctive from the space experienced in life, since the fact that we move about and possess two eyes will normally inform us when two-dimensions are contrived to masquerade as three. If an artist represents volumetric objects close at hand, for example, a shift in position will not reveal a new perspective as it does in real life. And since there will be no difference between the views afforded by our left and right eyes – the cue known as binocular parallax – the depicted items will give away their flatness by yielding a single, monocular view. On the other hand, if a deeper space like a landscape is represented, unless all the items are sufficiently distant, the absence of motion parallax will instruct us as to the artificial nature of the scene.[101] In sum, it seems

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[100] For a discussion of the function of the frame in pictorial art see Meyer Schapiro, 'On Some Problems in the Semiotics of Visual Art: Field and Vehicle in Image-Signs', *Simiolus: Netherlands Quarterly for the History of Art*, 6, No. 1 (1972 - 1973), pp. 9-19. However, Schapiro's argument that the facility of artists in using linear perspective made the frame necessary to clarify the distinction between art and reality seems untenable due to the (normal) availability of perceptual cues.

[101] As we change position, motion parallax operates as a powerful depth cue by revealing that further away objects move more slowly across our visual field than ones which are closer. Other cues that could be cited in this connection include accommodation and convergence. The constraints of factors such as motion and binocular parallax on picture perception were first theorised by Hermann von Helmhotz in an essay entitled 'On the relation of optics to painting' of 1876. See *Popular Lectures on Scientific Subjects*, trans. E. Atkinson (London: Longmans, Green and Co., 1891), pp. 73 – 138.

that the act of becoming immersed in a picture requires at least a partial suspension of disbelief.[102]

But let us suppose for one moment that the story about Parrhasios and Zeuxis is true. What makes Parrhasios's picture the more successful illusion and what does this indicate about the nature of trompe l'œil? Now, while we are only told that Zeuxis painted grapes, we may assume that but for their highly mimetic quality, in all other respects his picture was fairly conventional. That is, while the colours, shapes and play of light over the grapes were represented as faithfully as they could be and while Zeuxis suppressed all the evidence of his own craftsmanship, his work still contained all the other telltale signs that announced its separation from the space of the real. In other words, as a flat, delimited surface bounded by a frame or a noticeable edge, his picture – to paraphrase the words of Nelson Goodman – resembled other pictures to a much greater degree than it resembled real grapes. [103]

In comparison, Parrhasios wins, not as a consequence of his technical skill – although this must also come into play – but as a consequence of his strategic manoeuvring: through the fact that he tailors his picture so that it is maximally obscures the difference between the illusory and the real. Let us imagine that his picture is something akin to this trompe l'œil by Adrian van der Spelt and Frans van Mieris (fig. 20). From this we may suppose that his decision

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[102] By this I mean that we must ignore the cues which signal the picture's artefactual nature in order to fully engage with its referential content. This is different from – but is not incompatible with – Kendell Walton's claim that picture perception entails an act of make believe. See *Mimesis as make-believe: on the foundations of the representational arts* (Cambridge, Mass., & London: Harvard University Press, 1990).

[103] Nelson Goodman, *Languages of Art: An Approach to a Theory of Symbols* (Indianapolis and Cambridge: Hackett Publishing Company, Inc., 1976), p. 5.

to represent curtains serves several roles at once. First, they toy with our expectations,[104] for, on the one hand we would not expect them to be the exclusive subject of a painting and, on the other hand, we would not find it amiss to see them covering one – that is, they do not look out of place under the 'reality guise' of protective or revelatory accoutrements.

Second, the nature of the subject will act to selectively flout and exploit the perceptual laws governing the 'third domain'. In one respect, the chiaroscuro afforded by the folds in the curtains and the specular highlights evoked through the rendering of silk will be perceived as evidence of three-dimensional form.[105] While in another respect, since the shallow dips into depth of real curtains and their smooth curvature does not present much in the way of binocular or motion parallax, the fact that the picture does not yield these cues does not significantly alert Zeuxis to its virtual space. Indeed, if the strength of the first cue is played off against the unnoticed absence of the latter ones, it may appear that the curtains actually occupy a space *in front of* the picture plane.

From the (presumed) character of Parrhasios's picture, we might therefore deduce a set of general criteria for producing a trompe l'œil painting. First, the differences between the look of the picture and the look of a real scene must be kept to a minimum. So, for instance, the material qualities of the marks, the medium and the support must not be visible and depicted items must be

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[104] Gombrich also makes this point in *Art and Illusion* when he claims that trompe l'oeil painters rely 'on the mutual reinforcement of illusion and expectation', p. 173.

[105] For an analysis of how the human visual system recovers shape from shading and surface reflectance see David Marr, *Vision* (New York: W. H. Freeman and Co., 1982) pp. 239 – 250. And for a discussion of how these factors relate to tonal modelling in pictures see Willats, *Art and Representation*, pp. 133 – 135 and Patrick Maynard, *Drawing distinctions: the varieties of graphic expression* (Ithaca and London: Cornell University Press, 2005), pp. 160 – 170.

rendered as naturalistically as possible.[106] Second, the artists must choose to represent a scene which in reality would be lacking in cues that signal volume and which indicate the relative position of objects in depth – a distant view, for example, or something that is more or less flat. And finally, the pictorial space must seem coextensive with that of our own. This means two things. First, the projected sizes and shapes of depicted objects must be seen as in accordance with visual perspective, either seeming to recede behind or protrude in front of the plane of the picture.[107] And second, the space that they occupy must be perceived as continuous with the surrounding environment; no borders or frames must mark it off, or if they do they must somehow ease rather than emphasise the transition between zones. Indeed, this latter strategy is perhaps more common since frames and architectural surroundings are highly amenable to illusionistic rendering and their materials tend to be less responsive to the contingencies of light and other environmental factors. For this reason, many (particularly Baroque) trompe l'œils are site specific, drawing on the architectural vocabulary of the space. To cite a particularly spectacular example, consider Baldassare Peruzzi's *Sala delle Prospettive* in the Villa Farnesina in Rome (fig. 21).

Consequently, we might end this section by saying that trompe l'œil is like a sleight of hand or a conjuror's trick: it obscures, suppresses or diverts attention away from anything that speaks of the actual flatness of the picture

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[106] However, this does not mean that represented objects have to have a real world counterpart – for example, it does not excluded the possibility of representing fictional entities such as cherubs – so long as their appearance conforms with the *look* of the real.

[107] In this respect, there would be no need for the artist to take into account the effects of perceptual constancy since if the projective geometry of the picture was sufficiently alike the projective geometry of a scene, then the viewer's visual system would compensate in the same way.

plane. For this reason, therefore, its representational strategy might be summarised as one that deceives.

2.3 THE SPACES OF TROMPE L'ŒIL AND THEIR RELATION TO CUBISM

These stipulations suggest that two types of space are likely to be typical of trompe l'œil paintings. On the one hand, the viewing distance will be proximal, the pictorial space will be shallow and depicted items will be relatively flat or in some other way eclipse the cues of parallax that signal depth and volume. The best examples of this kind are to be found in the seventeenth-century Northern tradition, as this *quodlibet* by Cornelis Gijbrechts shows (fig. 22).[108] In this vivid illusion we see notelets and various other items such as a quill and an hourglass fastened to a canvas with a network of ribbons. Either aligned with the support or at right angles to it (thus with their edges parallel to our line of sight), the paper scraps give us little reason to believe that a shift in position would substantially alter their appearance if this were an arrangement seen in real life. But this is not to say that they look completely flat to the surface; instead, their folds and the shadows they cast seem to project them forward into our space, and the same can be said of the curtain which pays tribute to the story of Parrhasios and Zeuxis. However, it is at the site where we normally suspend our judgement in order to enter the space of the artwork that the trompe l'œil artist plays some of his most

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[108] The term 'quodlibet' (literally translating from Latin as 'whatever pleases') is defined in James Stevens Curl's *Dictionary of Architecture and Landscape Architecture* as a 'Fanciful type of trompe l'œil of oddments, often showing letters, paper-knives, playing-cards, ribbons, and scissors, in apparently accidental array, painted on walls, etc.' 2nd ed (Oxford University Press), p. 880.

powerful cards. For while he does in fact renounce the frame, he does not make us think that he does by substituting it for one that is illusionistically painted. In this way, the powerful depth cue of occlusion is brought into play,[109] making it look as if the objects pinned to the board and the curtains overlap with – and are thus situated in front of – the frame.

In the second type of trompe l'œil space, the image will be at a far remove from the viewer and on a monumental scale or the scene itself will be represented as distant so that in neither case will the cues of parallax be conspicuously absent. This allows devices such as vanishing point perspective and foreshortening to give the semblance of depth without shifts in position giving the game away. These latter strategies are used to greatest effect in the illusionistic ceilings and wall paintings of the Italian Baroque, such as Andrea Pozzo's monumental ceiling fresco in the church of Sant'Ignazio in Rome (fig. 23). Pozzo's work depicts Christ flanked by a swirl of celestial bodies beckoning to the figure of Saint Ignatius as he ascends on a cloud. Viewed from the correct position (which is indicted by a mark on the floor) the depicted architecture appears to mesh with the church's real structure, thrusting it upwards by a further two elevations. Coupled with the centrifugal movement of the bodies, this vertical propulsion creates a kind of 'plughole perspective' which has no point of stability or definite closure. No vanishing point is indicated since the vertiginous plunge of the architecture opens directly out onto the sky, while this is blocked at its very nodal point – the implied point of convergence – by the figure of Christ. Since the space therefore remains forever unsealed, the viewer is

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[109] Occlusion is the cue whereby a nearer object overlaps and thus partially hides one that is behind it.

made to feel weightless and disembodied as if gravity were counteracted by the lift of ascension, sucking us out of our physical flesh.

Each mode of trompe l'œil therefore seems to structure a distinct experience of space. On the one hand, the former might be said to evoke a proximal space suited to manual activity by appearing to place objects within reach of our hands. Conversely, the illusion of confronting infinite space can only serve to disembody the viewer for it dislocates – that is, it literally interferes with the ability to locate – objects with respect to the body. The perceptual effect of this is therefore one of disorientation and decentring – and perhaps, by implication, of oceanic feeling or dedifferentiation – which thus lends it well to religious or spiritual themes.[110]

Therefore, in light of the sensations which Cubism is said to evoke, it seems to be most closely related to the mode of trompe l'œil which aims at the proximal encounter – the effect of the quodlibet, or (presumably) of Parrhasios's picture. In this respect, it is no coincidence that both of these styles tend to favour still life, for this genre treats objects that are eminently familiar and manipulable and thus can be easily related to our experience of touch. If we set aside the later concerns of collage, this overlap in subject matter is most apparent in Analytic Cubism. For this is not only the moment when Picasso and Braque turn their attention to still life, but also the time when the typical objects of the quodlibet – such as nails, curtains, picture frames and playing cards – enter their work. To illustrate this point we might usefully compare Gijbrechts's trompe

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[110] I shall return to these ideas in the conclusion. The term 'oceanic feeling' was popularised by Freud in his 1930 work *Civilisation and its Discontents*, however, my use of this word is not intended to have any psychoanalytic connotations.

l'œil with Braque's *Violin and Palette* of 1909 (fig. 24). In Braque's picture, for example, a curtain similarly sweeps across to the right, pages of sheet music echo the flat frontality of the notelets and an illusionistic nail suspends a palette from the wall, just as scissors pin back the curtain in Gijbrechts's work. What is more, since the front face of the violin is aligned to the same plane as the palette and the score, it seems that Braque articulates a similarly shallow, 'notice board' like space. And indeed, contemporary photographs indicate that the artists was seeking this kind of effect since he often arranged objects in this fashion on his studio walls (fig. 25).

But if our response to such pictures is to imagine them as zones of potential activity, surely this loose correlation of space and subject is not sufficient to justify such a close similarity in their phenomenological mode. Many pictures depict objects that we might want to touch or have touched many times over and indeed, many present them as close at hand, but this does not mean that they evoke tactility in the same direct way. For example, while Gris's *Fruit Dish and Glass (Still Life with Lemons)* of 1923 (fig. 26) checks the appropriate boxes – plump grapes and waxy lemons might be thought of as eminently palpable, a glass might be considered eminently graspable and all are presented within a shallow, tilted up space – this work does not seem to possess the same magnetic draw for our hands. But neither can the similar effect of Gijbrechts's and Braque's compositions be attributed to a more specific overlap of spatial organisation or style. Braque's Cubist space – despite its loose correspondence – is fractured and ambiguous in ways that make it a far cry from the vivid illusionism of Gijbrechts's trompe l'œil.

2.4 THE PHENOMENOLOGY OF PERCEPTION

The question that we therefore need to ask is how the divergent styles of trompe l'œil and Cubism are able to produce a similar effect. But in order to do this, I think it is necessary to separate out the issue of style from that of our visual experience, for even though a Cubist picture and a trompe l'œil painting may have a very different compositional structure, this is not to say that their tactile effect does not arise from one and the same source. And more specifically, if we say that these styles are comparable in a phenomenological sense, this may be because – while they look very different – they nevertheless invite a similar type of visual engagement which is more deeply rooted in our capacity to see. This claim, insofar as it implies that our aesthetic responses derive their content from our broader perceptual abilities, is reminiscent of Willats' assertion that 'picture perception [is] parasitic on real scene perception'[111]. But it also suggests more. In other words, I am not simply arguing that our ability to understand pictures depends on our hard-wired capacity to interpret real views (as Willats is claiming). In addition I am proposing that the types of *experience* structured by representation can be continuous with – because they are arrived at in the same way as – the kinds of experience that we have when confronting real scenes.

But this inevitably leads us to ask what our visual experiences are 'normally' like and how, more specifically, they are able to evoke the sensation of movement and touch. One thing that philosophers have made apparent about seeing is that it has intentional content: we do not organise our sensations first

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[111] John Willats, *Art and Representation* (New Jersey: Princeton University Press, 1997) p. 23.

and then interpret their meaning second (or if we do, this does not become a conscious feature of perception). Rather, our visual experiences are always *about* something – they always hone in on meanings, objects and events – whether or not these are real or imaginary, lucid or confused. Thus, the visual field is always 'pregnant with meaning,'[112] that is, we always anticipate a world full of significance because perception is primed to deliver salient configurations or 'gestalt'. And so, another way of expressing our earlier formulation is to say that the intentionality of pictures – what they are understood to be about and how they are experienced – is derived from the intentionality of real scene perception.[113]

But in order to say *how* perception is intentional (and therefore how the experience of pictures may be too), it is useful to distinguish between two different interpretations of this notion by two important twentieth-century philosophers: Edmund Husserl and Maurice Merleau-Ponty. I wish to focus more fully on the views of the latter, but it is instructive to preface this discussion by considering the ideas of Husserl, for it is to the gaps in his philosophy which Merleau-Ponty's theory responds.

Husserl's major contribution to twentieth century thought was to develop the method of phenomenological reflection, a process whereby the philosopher

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[112] I borrow this phrase from Maurice Merleau-Ponty, who uses it many times over in his works. For example, in the *Phenomenology of Perception* he states that, 'When we come back to phenomena we find, as a basic layer of experience, a whole already pregnant with an irreducible meaning: not sensations with gaps between them…but the layout of a landscape or a word, in spontaneous accord with the intentions of the moment…' *Phenomenology of Perception* translated by Colin Smith (London: Routledge, 2002), p. 25. This concept is undoubtedly derived from the philosopher's study of Gestalt psychology, an approach which he praised but felt had not adequately grasped its own results.
[113] This point is made, albeit in a somewhat different way, by Marc Jacob and Pierre Jeannerod in *Ways of Seeing: The scope and limits of visual cognition* (Oxford University Press, 2003), p. 4.

brackets out prior assumptions and attempts to describe the nature of appearances as such. Thus, by adopting this procedure he drew attention to the intentional structure of perception and argued for its integration into the wider intentional network of all conscious experience.[114] To use Sartre's phrase, his achievement was therefore to show that 'all consciousness is consciousness of something'.[115] Nevertheless, many of his followers found fault with this logic, and in particular, they saw in his philosophy a residual commitment to Kantian idealism[116] which led him to erroneously equate perception with thought.[117] Essentially, therefore, his system was condemned for subjugating the concrete world to the activities of the mind, confusing percepts with theoretical constructs and positing perception as a purely mental feat.

For Merleau-Ponty, on the other hand, perception is pre-eminently a bodily phenomenon and accordingly this forms the premise of his most famous

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[114] However, the notion of intentionality was first revived from scholastic philosophy and reintroduced into modern thought by Franz Brentano, who discussed this concept in works such as *Psychologie vom Empirischen Standpunkte* (*Psychology from an Empirical Standpoint*) of 1874.

[115] Jean-Paul Sartre, 'Intentionality: A Fundamental Idea of Husserl's Phenomenology' (1939) reprinted in *The Phenomenology Reader*, ed. Dermot Moran and Timothy Mooney (London: Routledge, 2002), p. 389.

[116] Put crudely, this is the view that the mind actively constitutes the perceptual world rather than the external world simply supplying the contents of perception. This idea was expounded in the *Critique of Pure Reason* (1781) and is often referred to as 'transcendental idealism'. The first sustained critique of this notion – and by implication of Husserl's thought – from within the phenomenological tradition was advanced by Martin Heidegger in his 1927 lecture course, *Basic Problems of Phenomenology*. Heidegger's rejection of this facet of Husserl's thought is later echoed and expanded by important twentieth century thinkers such as Emmanuel Levinas, Jean-Paul Sartre, Merleau-Ponty and Jacques Derrida. For a summary of the views of these various philosophers see Dermot Moran, *Introduction to Phenomenology* (London: Routledge, 2000).

[117] This more accurately describes the view developed in Husserl's early works such as *Logical Investigations* (1900 – 1901) and *Ideas: General Introduction to Pure Phenomenology* (1913). In his later works (and in particular his unpublished manuscripts which were a major source of inspiration to Merleau-Ponty) he began to reject this classical metaphysics of subjectivity. However, the extent to which he actually freed himself from the legacy of Kant is a point of contention in philosophical discourse. In *Husserl's Phenomenology*, for example, Dan Zahavi argues against this 'reductive' view of his work (California: Stanford University Press, 2003), while in his essay 'The Flesh of Perception' A. D. Smith claims that Merleau-Ponty develops the implications of Husserl's thought rather than radically reworks its premises (as is commonly assumed), see *Reading Merleau-Ponty*, ed. Thomas Baldwin (London and New York: Routledge, 2007), pp. 1 –22.

work, the *Phenomenology of Perception* (1945). The starting point of the *Phenomenology* is the contention that the mind/body problem generated by Cartesian thought creates two equally untenable philosophical positions. On the one hand, 'Intellectualism' posits the subject as an absolute consciousness with the world as a merely contingent construct of mind; on the other hand, Empiricism posits a world of independent objects, accessible to the subject through the senses and imparted meaning by judgement and association. So, for the Intellectualist, a pure consciousness creates its own reality and presides over it like God; for the Empiricist the body is but one object among others and consciousness becomes an enigma buried under a causal chain of stimulus and reflex.

Rallying against the reductions implicit in both positions, Merleau-Ponty attempts to return focus to the mutual dependencies of body and world – or of subject and object – which he claims are apparent in the pre-objective experience of phenomena, that is, before appearances are ascribed a determinate, conceptual meaning. To this end, his phenomenological project involves demonstrating the primacy of perception as opposed to the primacy of thought and describing its relation to a deeper, more primitive stratum of human experience. Therefore, pace Husserl, the guiding principle of the *Phenomenology* is that 'all consciousness is perceptual'[118]; in other words, perception precedes and underpins the organisation of experience into fixed categories and concepts. Thus the crucial corollary of this is that one's own body (*le corps propre*), insofar as it

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[118] Maurice Merleau-Ponty, 'The Primacy of Perception and Its Philosophical Consequences', in *The Primacy of Perception and Other Essays on Phenomenological Psychology, the Philosophy of Art, History and Politics*, ed James M. Edie (Illinois: Northwestern University Press, 1964), p. 13.

is the subject of perception, is posited as the *a priori* ground of all conscious experience.[119] Or, to put this more simply, every thought we think is made possible by our bodily insertion into, and sensory engagement with, the perceptual world. In short, consciousness is founded upon *embodied perception*.

But what, then, is this 'lived', or 'phenomenal body'? According to Merleau-Ponty, it cannot be the transcendental subject of Intellectualism as it only affords a 'point of view upon the world'[120] and hence it cannot be that which fully constitutes the appearance of objects. But neither can it be the 'collection of adjacent organs'[121] studied by science and posited by Empiricism for it is 'that by which there are objects'[122] and must therefore be more than a sum of physical parts. Instead, the philosopher claims that the pre-objective body is essentially a 'motor power' or 'a 'motor intentionality'[123] which carves out the phenomenal field in terms of its plans and activities. And furthermore, since the boundaries between body and world are blurred at this pre-objective level, familiar objects can become internally related to our bodies through the 'intentional threads' woven around us by our habitual movements and gestures. Consequently, Merleau-Ponty claims that visual objects speak to us as 'poles of action'[124] rather than merely as bits of visibilia or as abstract entities of conceptual thought. And so, to summarise these ideas with a phrase from the

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[119] The body as an *a priori* principle of consciousness was replaced in later works such as *The Visible and the Invisible* with the notion of 'Flesh'. Merleau-Ponty performed this volte-face because he felt that the idea of the body formulated in his earlier work remained too closely tied to the consciousness / object distinction. Merleau-Ponty says of Flesh that it 'is not matter, is not mind, is not substance…[it is] a sort of incarnate principle that brings style of being wherever there is a fragment of being' (*The Visible and the Invisible*, ed Claude Lefort (Illinois: Northwestern University Press, 1968), p. 139.)
[120] Merleau-Ponty, *Phenomenology of Perception*, p. 70.
[121] Ibid, p. 272.
[122] *Ibid*, p. 92.
[123] *Ibid.* p. 127.
[124] *Ibid*, p. 122.

Phenomenology, 'Consciousness is being-towards-the-thing through the intermediary of the body…and to move one's body is to aim at things through it'.[125]

2.5 THE PHENOMENOLOGY OF TOUCH AND THE AESTHETICS OF TROMPE L'ŒIL

If we therefore adopt the tenets of Merleau-Ponty's thought it may seem that we have a basis for explaining why a trompe l'œil like Gijbrechts's appeals to our sense of touch. Let us start by considering the subject matter of the picture. As we noted earlier, Gijbrechts presents us with familiar objects which are close at hand. But while we might not think of these objects as especially pleasant to the touch, their everyday banality (to a seventeenth-century observer, at least) may be precisely what invests them with a tactile magnetism. More specifically, by being things which are handled regularly in life, the very perception of these objects might be said to mobilise our hands into action.[126] Their proximity to the viewer thus adds to this feeling by making them seem as if readily available. Furthermore, since they are depicted as loosely attached to the surface we are invited to see them as easily removable and hence as eminently usable too.

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[125] *Ibid*, pp. 159 –161.

[126] This point may be illuminated by Merleau-Ponty's description of a workaday task: 'the subject, when put in front of his scissors, needle and familiar tasks, does not need to look for his hands and fingers, because they are […] potentialities already mobilised by the perception of scissors or needle, the central end of those 'intentional threads' which link him to the objects given.' *Ibid*, p. 121.

But of course, we need to understand how this effect is transported from real life into the realm of representation and why, in particular, it is engendered so effectively by Gijbrechts's style. In this case, the answer appears to be that it is not so much translated into a language of pictures that is *sui generis* for, as we have seen, the artist deliberately conceals the artifice of his work. [127] Rather, the motor response elicited by this painting seems due to the way that it behaves like a chameleon against the backdrop of reality, merging with its surroundings in an inconspicuous way. Accordingly, if seeing and acting are indissolubly related in *normal* perception and if this style allows a flat plane to masquerade (however briefly) as a real three-dimensional scene, then the phenomenology of the former will be transferred to the latter. Thus, for as long as the illusion lasts (or perhaps, for as long as it is entertained) the quodlibet will be invested with the 'thickness' of the real. [128]

This points to a further reason why the spaces and subjects of still life are favoured in the trompe l'œil tradition. For not only do they bolster the illusion of the picture, but they also invest it with a particular tactility which is borrowed from – but can nevertheless thematise – the physicality of sight. I say 'thematise' because this is not something that we necessarily attend to in real scene perception since, according to Merleau-Ponty, the intentionality of thought

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[127] Of course, I am not denying that this effect is translated into the terms of the medium, as it obviously must be. And neither am I saying that Gijbrechts's picture lacks a representational system which operates according to the principles that Willats describes. My point is rather that the formal syntax employed by the artist avoids the kind of detectable structure that would serve to differentiate it from the look of real space. It might therefore be said that in terms of his use of the medium, Gijbrechts's work exhibits no visible *style*.

[128] The word 'thickness' is one I borrow from Merleau-Ponty. This word refers to the substantive nature of perceiving in the world and the way that objects encountered through one sense seem to speak to all the senses at once. See, for example, *Ibid*, p. 237.

obscures the motor intentionality of vision.[129] Thus, we are not normally aware

of the physical magnetism which gives the visual field its meaning, even though

it instructs and depends upon our movements and actions.[130] Nevertheless, an

artist may draw attention to this pre-objective realm by representing a scene

which – through the selection of objects or their deliberate arrangement – is

abundant in the qualities which invite a manual response. Thus while it may be

the ready availability of the objects in Gijbrechts's work which invites us to

manipulate and use them, it may be the exquisitely rendered silk in van der

Spelt's painting which make his curtains solicit a more caressing kind of touch.

But whatever the specifics, these 'proximal' trompe l'œils do not simply produce

visual illusions. Rather they recruit from perceptual reality the appearances

which most forcefully engender a sense of movement and touch.

One thing that therefore distinguishes an effective trompe l'œil from most

other pictures is the peculiar physicality of its aesthetic effect: an effect that one

might characterise as exhilarating for it makes us feel ourselves in the process of

perceiving and therefore affirms our sense of being alive. However, because this

is purely a function of the verisimilitude of the spaces and subjects represented,

this condition only obtains to the extent that we entertain the illusion, that is, to

the extent that we treat the contents of the picture as if they are real. When we

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[129] For example, Merleau-Ponty claims that: '…the positing of one single object…exceeds perceptual experience…I detach myself from experience and pass to the idea…I am no longer concerned with my body, nor with time, nor with the world, as I experience them in antepredicative knowledge, in the inner communion that I have with them. I now refer to my body as only an idea, to the universe as idea, to the idea of space and the idea of time. Thus 'objective thought'…is formed – being that of common sense and of science – which finally causes us to lose contact with perceptual experience, of which it is nevertheless the outcome and the natural sequel.' *Ibid*, p. 82. I shall go on to say more about this in the following chapter.
[130] This seems to be what Merleau-Ponty means when he describes the spatiality of the body as 'not…a *spatiality of position*, but a *spatiality of situation*'. Ibid, pp. 114 – 115 (original emphasis).

discern or pay attention to the artifice of picture – when we consider it as a painted surface – this sense of tangibility will inevitably fade. But equally, it is only with this latter mode of seeing that the style of the artist – or of trompe l'œil more broadly – becomes apparent, for if we are to see the manipulations of the medium we must suspend the 'reality effect'[131] (and vice versa). In other words, we can either be deceived by the illusion or we can admire the artistry that creates the illusion, but since the one is the obverse of the other, we cannot experience these things at the same time. Trompe l'œil does not therefore accede to the logic of the 'third domain', for it either deceives as an illusion or is appreciated as paint on a surface, but because this phenomenology is disjunctive it does not constitute its own representational space.

In summary, therefore, it is by simulating the perceived world in its most physically evocative aspects that a trompe l'œil becomes invested with the 'thickness' of the real. In other words, it is by tricking the eye that these artworks fool the body: they produce a contagion that spreads from vision to touch. In comparison, I wish to argue that the strategies of Cubism are manifestly different: Picasso and Braque do not structure an experience which is physically invested by deceiving the senses and which loses its tactility as soon as the illusion recedes. Rather feelings of touch are directly engendered through the

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[131] My use of this term does not correspond to the definition given by Roland Barthes. According to Barthes the 'reality effect' is occasioned by as 'the direct collusion of a referent and a signifier,' such that 'the signified is expelled from the sign' and the latter purports 'to denote the real directly' (p. 147; p.148). The descriptive detail included in a trompe l'œil is clearly not designed to serve this purpose, for it is not incidental or superfluous, but rather conforms to the iconography of a particular genre (be this a *quodlibet*, a curtain painting or an illusionistic ceiling). Thus while a photograph might be included under Barthes's description, a trompe l'œil is closer to the figure of *hypotyposis* which he claims is intended to '"put things before the hearer's eyes," not in a neutral, constative manner, but by imparting to representation all the lustre of desire…' (pp. 145 – 46). See Barthes, 'The Reality Effect' in *The Rustle of Language*, trans. Richard Howard (Berkeley and Los Angeles: University of California Press, 1986), pp. 141 – 148, first published in *Communications* (1968).

actual nature of their style. So one thing is not gained or lost at the expense of the other – while artifice is announced, motor intentionality is retained. [132] This is therefore my interpretation of the 'realism' of Cubism[133] – it does not produce its effect by masking its own pictorial nature, that is, by letting the fact that it is a representation slide out of view. Instead, it creates this experience on its own terms. Thus, in place of deceiving, it might be said to *evoke*.[134]

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[132] Jaakko Hintikka has also noted the accord between Cubism and phenomenology. However, his interpretation is very different from mine since he argues that the Cubists attempt to represent the intentionality of *thought* (in the sense proposed by Husserl) instead of the perspectival appearance of objects. See *The Intentions of Intentionality and Other New Models for Modalities* (Dordrecht and Boston: Reidel Publishing Co., 1975), Chap. 11, 'Concept as Vision: On the Problem of Representation in Modern Art and in Modern Philosophy'.

[133] Cubism has frequently been discussed as a style of realism, although this term has been defined in many different ways. In the early critical literature, Courbet is often cited as the father of the movement due to his emphasis on the substantiality of form rather than on shifting visual appearances. This is in accordance with an understanding of realism as a form intellection whereby the Cubists are said to represent the world as it is known instead of as it is seen. Writers who espouse this view include André Salmon, Guillaume Apollinaire, Albert Gleizes and Jean Metzinger and Fernand Léger. More specifically, Apollinaire and Gleizes and Metzinger characterise realism as an act of creation which, by expressing new ideas, the artist actively constitutes the world. Alternatively, Jaakko Hintikka has claimed that the realism of Cubism is to be associated with the essential character of experience that phenomenological reflection reveals. For an analysis of this concept in the early critical literature see Christopher Gray, *Cubist Aesthetic Theories* (Baltimore: John Hopkins Press, 1953). For extracts from some of the key texts see Charles Harrison and Paul Wood (ed), *Art in Theory: 1900 – 2000* (Oxford: Blackwell, 2003), pp. 184 – 217.

[134] To be explicit, then, my concept of Cubist realism can be said to have two distinct components: first, it alerts us to a latent substrate of perceptual reality by serving as a pictorial 'criterion' of it (in the Wittgensteinian sense) and second, it does not deny (and in many cases, it emphasises) the ontological status of the representation itself.

CHAPTER 3

Seeing as Thinking and Seeing as Sensing

…Vision doubles. There is the vision upon which I reflect; I cannot think of it except *as* thought, the mind's inspection, judgement, the reading of signs. And then there is the vision which actually occurs, an honorary or established thought, collapsed into a body – its own body, of which we have no idea except in the exercise of it, and which introduces, between space and thought, the autonomous order of the composite of soul and body. The enigma of vision is not done away with; it is shifted from the "thought of seeing" to vision in act.

– Maurice Merleau-Ponty[135]

3.1 INTRODUCTION

Essentially, then, my claim is that there is not one, but two ways of seeing: one coupled with feeling and one coupled with thought. However, the former variety – that which is more fully invested with bodily sensations – tends also to be that which escapes our notice in everyday life. Accordingly, its arrival into art had to be contingent on a tireless observation of the phenomenal world and the means to

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[135] 'Eye and Mind' in *The Maurice Merleau-Ponty Aesthetics Reader: Philosophy and Painting*, ed. Galen A. Johnson (Illinois: Northwestern University Press, 1993), p. 136.

express it would necessarily depend on a gradual process of trial and error, successes often being counterbalanced by frustrations and dead ends. Thus, if we are to nominate Cézanne as the father of this tradition, following Merleau-Ponty, it also seems appropriate to speak of his 'doubt'.[136] But while artists may have developed this 'physicalised' style in an intuitive fashion, this is not to say that it (or indeed its counterpart) cannot be described in a more empirical manner, especially given the evidence that is available to us through contemporary science. Therefore, by showing how these distinct conceptions of seeing may be linked to distinct modes of visual processing – how, in short they have a psychological reality – I intend to pave the way for an analysis that will connect them precisely and substantially to the formal structures of pictorial art.

3.2. CUBIST PAINTING AND 'SEEING HOW'

To begin this argument, let me first recount my own experience of the peculiar physicality of Cubism, for hopefully this should give us an idea of the work that is yet to be done. The painting that initially sparked my interest and led me to believe that there was something incongruous about this style which required further explanation was Picasso's *House in a Garden*, *La Rue-de-Bois* (fig. 27). What struck me about this picture was that, although I recognised the house as a house and the wall as a wall, at a more intuitive level these elements seemed like building blocks – that is, they reminded me of the kinds of objects we are given

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[136] 'Cézanne's Doubt' is the name of Merleau-Ponty's famous 1945 essay, wherein Cézanne's approach to painting is described as a form of phenomenological reflection. See *The Maurice Merleau-Ponty Aesthetics Reader: Philosophy and Painting*, ed Galen A. Johnson (Illinois: Northwestern University Press, 1993), pp. 59 – 75.

as children in order to develop manual dexterity and hand-eye coordination (compare figure 27 and figure 28). However, it was not so much that the forms *looked* like toy building blocks. Of course, in view of their geometrical shapes, they do. But this interpretation did not seem to issue from a visual comparison. Instead, it was as if it arose from a physical experience: from the sense I had that there were real objects within my body's vicinity and that it would be possible to and stack or slot them together.[137]

Two things therefore became clear to me as a result of this encounter: first that the tactile appeal of the early landscapes is dissociable from their referential content, and second that it is a function of feeling and not a fact of identity. In short, it seemed that the objects I recognised were not the same as the ones that I perceived within the orbit of my body. Of course, we often speak of pictures as possessing sensuous qualities, but when this is a consequence of the things they depict it is usually born of an association with previous experience and therefore content is supplied to the picture through the faculty of memory. And so, the palpability of a still life by Chardin – his *Carafe, Silver Goblet and Fruit*, for example (fig. 29) – may be explained through the fact that he renders objects and textures that are eminently familiar and agreeable to touch: the coldness of silver, the roughness of peel, the curvature of glass and so on and so forth. In contrast, the tactile appeal of a Cubist landscape cannot be understood as a product of memory since distant objects cannot be touched in reality.

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[137] I am not the first person to note the peculiar physicality of the early landscapes. See, for instance, Rosalind Krauss's discussion of Picasso's *Houses on the Hill, Horta de Ebro* in 'The Motivation of the Sign' in W. Rubin, K. Varnedoe and L. Zelevansky, *Picasso and Braque: A Symposium* (New York: Museum of Modern Art / Abrams, 1992), pp. 261 – 287. This is also suggested by John Golding when he speaks of the 'sculptural feeling' of Picasso's early Cubism. See *Cubism: A History and an Analysis* (London: Faber and Faber Ltd, 1959), pp. 81 – 82. This view has also been corroborated by Paul Smith through personal correspondence.

Trompe l'œil paintings, as I have already indicated, are somewhat exceptional in this regard. For, in these instances, it is not so much a matter of remembering the tactile qualities of objects but of thinking that they are actually present in front of our eyes. In other words, they recruit their phenomenology from reality rather than deriving it from memory in an indirect way. This therefore raises an interesting issue, for we might wonder why non-trompe l'œil representations, insofar as they are still considered parasitic on real scene perception, should require this associative link to memory in order to evoke tactility. Why not say that they derive it – in a *weaker but still direct way* – from the imbrication of vision and touch that (allegedly) characterises the experience of seeing in real life? In truth, I think the matter is more complex than this: the greater the naturalism of the representation, the easier it will be to treat it as a slice of reality and thus the more directly it will seem to reproduce this perceptual effect. The more it abstracts from (or symbolically figures) the look of the world, the more we will rely on thought and memory to fill in the gaps. Therefore, belonging to the former category, the tactility of Chardin's picture is perhaps more directly perceived.

Be that as it may, the *modus operandi* of Cubism must be altogether different. What I am suggesting, in other words, is that when we look at a Cubist landscape, if we do experience forms as palpable entities it cannot be that we first identify depicted objects and then relate these to past tactual encounters. No doubt, perception does possess this associative dimension, but it does not help to explain the phenomenology of this experience since we have never held a

building or a wall in our hands. Instead, what I think that these landscapes reveal – indeed what they require for their particular effect – is the hidden layer of motor intentionality in vision that Merleau-Ponty describes. My claim, accordingly, is that there is something peculiar about the *style* of these pictures which conflicts with their manifest content and, in doing so, reshapes the pictorial field into a zone of potential activity. In this case it would not be an epistemic act of vision[138] – a kind of 'seeing that' – which gave rise to the building block analogy, but rather a kind of seeing that indicated *how* to engage with an object of such graspable dimensions when it is located within our peripersonal space.[139]

3.3 VISUALISED THINKING AND THE RENAISSANCE TRADITION

Let me be more explicit: 'seeing that' essentially refers to an experience whereby what we see is subsumed under a concept. In other words, we do not simply detect something visually, but we understand it as being about some object or event, whether real or illusory, actual or imagined. And to avoid further confusion, this should also be distinguished from Wittgenstein's concept of 'seeing as'.[140] He invokes this term to draw attention to the difference between having a visual experience with some determinate content (for example, seeing a rabbit) and responding to our experience in a particular way (for example, *seeing*

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[138] I borrow the idea of 'epistemic seeing' from Marc Jacob and Pierre Jeannerod, who compare it with 'non-epistemic seeing' – having a visual experience without identifying what it is of. *Ways of Seeing*, p. xvii.
[139] 'Peripersonal space' refers to the space that is within reach of our limbs. This is usually compared with the physically inaccessible zone of 'extrapersonal space'.
[140] Ludwig Wittgenstein, *Philosophical Investigations*, trans. G. E. M. Anscombe (Oxford: Blackwell, 1953), Part II, section xi.

Jatrow's ambiguous figure *as* a rabbit rather than *seeing* it *as* a duck (fig C)). However, the experience I had of Picasso's picture did not seem to belong to either of these categories. Instead, it was associated with my body more directly and did not lead to the idea of any particular thing.

On first consideration, this notion may seem strange since we tend to treat sight as a means to acquire knowledge and thus ascribe it a role as the handmaiden of thought. For instance, when I say 'I see a table in front of me' I treat the verb 'to see' as if the sole purpose of vision were to deliver up nameable entities. But seeing is not always an act of classification and is not necessarily guided by concepts. I do not, for example, form a *concept* of the pen's position in relation to my body and then consciously map out the movements of my hand as I reach out to grasp it. However, for the normally sighted this action must depend heavily on vision, for otherwise we would not be able to locate the pen without feeling around for it first. Equally, I do not need to look at my feet when I walk up the stairs. And yet since this task is markedly more difficult when I do it with my eyes closed, I must be relying on sight in some way, even if seems that this information is not being consciously represented or actively sought.

We have already gone some way to understanding this tendency to equate perception with thought in light of Merleau-Ponty's argument in the *Phenomenology*. According to the philosopher, we are inclined to consider the world as a self-sufficient space filled with objects that are distinct from our bodies because the synthesising activity of perception obscures its own

operations and 'escape[s] from itself into the thing seen'[141]. Consequently, it appears that we encounter a 'sphere of immanence' in which the items we see have determinate qualities and exist independently of our contact with them. Or, to put this another way, a separation is effected between the world and ourselves such that we are no longer aware of our 'pre-objective' dialogue with the things we perceive.[142] In summary, therefore:

> […] when I move towards a world I bury my perceptual and practical intentions in objects which ultimately appear prior to and external to those intentions, and which nevertheless exist for me only in so far as they arouse in me thoughts or volitions.[143]

We might therefore conjecture that this drive of consciousness towards meaning will act to erode the distinction between seeing as a constitutive process and recognition as a reified act. And so, if it appears that we immediately see things as having definite identities, and indeed if this activity of labelling is what allows us to conceptualise them further, then we will be led to treat vision as an accessory to thought.[144]

On the face of it, this idea seems to be reinforced by our normal experience of seeing, especially in light of the way that the visual field appears to

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[141] Merleau-Ponty, *Phenomenology of Perception*, p. 438. He also claims that, 'Our perception ends in objects, and the object once constituted, appears as the reason for all the experiences of it which we have had or could have had' (p. 77).

[142]Merleau-Ponty states that: 'The natural world presents itself as existing in itself over and above its existence for me; the act of transcendence whereby the subject is thrown open to the world runs away with itself and we find ourselves in the presence of a nature which has no need to be perceived in order to exist.' *Ibid*, p. 178.

[143] *Ibid*, p. 95.

[144] For a discussion of how visual percepts may be mapped onto thoughts by way of object recognition see Jacob and Jeannerod, *Ways of Seeing*, pp. 30 – 32 and pp. 140 - 143

detach itself from, and spread itself beyond, the site of the body. As Husserl notes, for instance, visual sensations are not like tactile ones for they are not experienced as physically 'localised' (that is, while they may seem concentrated at the point of the eye they are not felt to press against its skin). Touch therefore plays a special role in his philosophy (as it does in Merleau-Ponty's) since it affords a 'double sensation' which reveals the chiasmic relation between subject and object. In touching one hand with the other, for example, we can either experience ourselves as the perceiving subject or as the object perceived. However since vision lacks this intimate connection with the body – since we cannot literally *see ourselves seeing* – Husserl claims that it is not adequate to disclose this 'lived' relation to things.[145]

But equally, it is precisely this dephysicalised aspect of seeing which earns it a privileged position in the hierarchy of the senses and leads it to be understood as an adjunct to thought. For through the eye's ability to range over distances, to fixate and resolve the areas in its foveal centre and to weave them together into a simultaneous whole, it appears to afford us an immediate and panoramic experience of the world. And furthermore, since this operation is

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[145] Edmund Husserl, *Ideas II* § 36 – 37. For a discussion see Françoise Dastur, 'World, Flesh, Vision' in *Chiasms: Merleau-Ponty's Notion of Flesh*, ed. Fred Evans and Leonard Lawlor (New York: State University of New York Press, 2000), pp. 23 – 49. The idea that vision divorces us from the phenomenal body and that this relationship is only recuperated through the intermediary of touch is of course something that Merleau-Ponty refutes by considering sight as a power of motor intentionality. However, in his early works such as the *Phenomenology of Perception*, this idea still arguably depends on an analogy with touch. By instituting the principle of 'flesh' in later essays such as 'Eye and Mind' and in his last incomplete work, *The Visible and the Invisible* he develops an account of vision as the sense that pre-eminently reveals our chiasmic relationship with the world. On this view, vision is 'a sort of straits between exterior horizons and interior horizons ever gaping open' and 'every visible is cut out in the tangible, every tactile being in some manner promised to visibility, and that there is encroachment, infringement, not only between the touched and the touching, but also between the tangible and the visible, which is incrusted in it, as conversely, the tangible itself is not a nothingness of visibility, is not without visual existence.' *The Visible and the Invisible*, ed. Claude Lefort (Illinois: Northwestern University Press, 1968), p. 132; p.134.

usually performed with such rapidity and ease, and since it so rarely fails to disambiguate meanings, we tend not to reflect on the actual *process* of seeing – that is, on the indeterminacy which precedes, and the work that is involved in, the recognitional act.[146] Therefore, in theorising sight we tend to consider it as a *fait accompli* or, in Merleau-Ponty's terms, we think that it opens out onto a 'readymade' world. And so, to explain how coherent perceptions are made out of the inchoate data of light we refer to cognitive acts such as memory and reasoning. Thus the body is viewed as the passive receiver of sensations and sight is recast as a power of the disembodied mind.[147]

I suggested earlier that this conception of sight may have a correlate in art insofar as it is expressed through pictorial conventions which were developed in the Renaissance and which thereafter became dominant until the nineteenth century. As many authors have noted, the most obvious of these is linear perspective, particularly in light of viewing experience which it structures through its ordering of space.[148] Consider, for example, Claude's *Seaport with the Embarkation of the Queen of Sheba* (fig. 30). At first glance, what is striking about this composition is its balance and symmetry: the sea and the sky neatly divide the picture horizontally, while the three dominant architectural elements –

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[146] For this reason, some philosophers have claimed that visual experiences are 'transparent' or 'diaphanous'. See, for example, Gilbert Harman, 'The intrinsic quality of experience', in *The nature of consciousness*, eds N. Block, O. Flanagan and G. Güzeldere (Cambridge, Mass.: MIT Press), pp. 663 – 75.

[147] This is a criticism that Merleau-Ponty levels at both the empiricist and the 'Intellectualist' approaches to perception. See particularly the introduction to the *Phenomenology of Perception*, pp. 3 – 74. In more contemporary terms, we might relate these positions to the bottom up and top down approaches to vision insofar as they make no reference to the synthesising power of the body.

[148] Leonardo was the first to raise this issue, noting that the space structured by linear perspective is not the same as that afforded by natural (i.e., embodied) vision, since it presumes a single or monocular point of view. Leonardo da Vinci, *Treatise on Painting*, trans. John Francis Rigaud (London: J. B. Nichols and Son, 1835), Chap. CXXVI, pp. 57 – 58.

the column, the palace and the watchtower – create a *repoussoir* that leads our gaze inexorably towards the vanishing point, a location which is both reinforced by and dissolved through the glow of the sun. However, this culminating point is not merely the climax of a pleasant vista; it also tacitly mirrors and stipulates the viewer's own position in space through the imaginary vector of the centric ray which glues our eye to this luminous spot. Therefore, since the location we are assigned is essentially a point on a line, no allowance is made for the presence of our body (or indeed, for depth-giving power of binocular vision). Instead, the viewpoint we are offered is one of a dephysicalised being whose sole purchase on the scene is as a power of sight.[149]

This impression of pure visuality is further abetted by the imperceptibility of Claude's brushwork which, save for a concession to aerial perspective, meticulously describes every form in the scene. Therefore, as Norman Bryson argues with respect to Western representational painting more generally, such highly polished surfaces cause the 'work of production' and the work of vision to be equally suppressed.[150] On the one hand, we are left with no evidence of the traces of the brush or of the 'body of labour' which wields it. Thus, the duration of painting as a physical *process* is hidden from view. And, on the other hand, there is no hint of the temporality of seeing itself. That is, we are not made aware

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[149] In this respect, the sun is not only our spatial equivalent but may also act as a metaphor for our gaze. It could be said, for example, that both our sight and the sun 'illuminate' the scene and accordingly, that each bathes the world in the 'light of reason'. But equally, since looking at the sun – as the composition entreats us to do – causes blindness, it could also stand as a metaphor for the blindspot of the eye. Perhaps, then, it also hints at the enigma of sight: how it seemingly constitutes an experience of plenitude out of nothing. In any case, this 'God's-eye view' might be taken to have a religious significance in light of the theme of the picture. In the Bible, the queen's arduous journey to visit King Solomon to test his wisdom is equated with the true path to knowledge which comes from following the teachings of Christ. See *The New Testament*, Matthew 12:42 and Luke 11:31.
[150] Norman Bryson, *Vision and Painting: The Logic of the Gaze* (London: Macmillan, 1983). See particularly Chapter 5, 'The Gaze and the Glance', pp. 87 – 131.

of how – instead of rendering everything immediately lucid – the eye jumps from place to place, only resulting in a stable perception through scanning and saccadic movements that happen *in time*.

Therefore, in Bryson's terms the constitutive work of the 'glance' is disavowed in favour of the 'panoptic, split-second clarity' of a decarnalised 'gaze'.[151] Or, to put it more plainly, in a picture such as this – that is, one combining self-effacive brushwork with central perspective (or perhaps, more broadly, one belonging to the *Renaissance tradition*) – we find painting bracketing out the *bodily* process of vision and instead giving itself over to the *thought* of sight.[152] Hence, to make further use of Merleau-Ponty's vocabulary, we might say that the lived 'settings' of time and space are ushered out of depiction, only to be replaced with something more congealed and abstract: a space where it is fairly easy to recognise objects, but not one in which they are sensed in a physical way. [153]

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[151] *Ibid*, p. 95.

[152] Hubert Damisch has also noted how perspective introduces an element of thought into painting, claiming that it is the 'paradigm of representation…through which [it] reflects on itself and reveals its operation' (p. 269). However, being primarily concerned with perspective as a form of visual signification which disposes symbols of the gaze throughout the field of representation, his approach differs markedly from my own. See Damisch, *The Origin of Perspective*, trans. John Goodman (Massachusetts and London: The MIT Press, 1995. First published 1987 by Flammarion, Paris). My argument is also informed by Merleau-Ponty's critique of perspective in his 1960 essay 'Eye and Mind'. Comparing this mode of representation to Cartesian philosophy, he claims that each conceives of space as something that is *thought* and which presupposes the vantage point of 'absolute' Being as opposed to one that is 'lived' and is constituted through the activities of the embodied perceiver. See 'Eye and Mind', pp. 133 – 136.

[153] Merleau-Ponty uses the word 'setting' to refer to the perceptual background which is structured by motor intentionality and which allows meaningful thoughts and activities to take shape. Time, for instance, is durational and fluid, or as Merleau-Ponty puts it: 'in our primordial experience, it is not for us a system of objective positions, through which we pass, but a mobile setting which moves away from us, like the landscape seen through a railway carriage.' *Phenomenology of Perception*, p. 437.

3.4 THE DUAL VISUAL SYSTEM HYPOTHESIS

But what else can the 'vocabulary' of representational pictures consist of if this is not drawn from the contents of epistemic seeing, or from the visual percepts that allow recognition to take place? At this point, it might seem like I have backed myself into a corner due to the conflicting nature of my theoretical commitments. On the one hand, I have argued along with Merleau-Ponty that perception 'doubles', either tending towards thought or catering to action (and thus establishing a more 'primordial' and bodily relationship with the world). But, on the other hand, I have endorsed Willats's theory of pictures. And since Willats advances a perceptualist account of representation[154] and describes perception as a process which enables us to *recognise* objects, then he must also understand the process of depiction as being contingent on this same mode of sight.[155] Therefore, if recognition is a top down activity whereby we subsume what we see under concepts – if it is ultimately a mode of *reflexive perception* – then depiction will never directly induce the carnal phenomenology that Merleau-Ponty describes. Or to put this in the slightly different terms of Husserl, if representation only extracts the 'reference' or *Bedeutung* from seeing and not its

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[154] I do not mean that Willats's account is 'perceptualist' in the sense that Norman Bryson applies it to theories of representation (like Gombrich's) which suppose that pictures produce copies of the things that we see. I mean that he views depiction as something that has a natural basis in our visual capacities. For Bryson's critique see *Vision and Painting*, pp. 37 – 66.

[155] Willats claims that 'providing a representation in which something specific can be recognised can be seen as the most basic function of pictures'. However, nowhere does he say that this is the *definition* of representation. *Art and Representation*, p. 22. According to Merleau-Ponty, 'The recognition of phenomena…implies a theory of reflection' and reflection 'detaches subject and object from each other'. *Phenomenology of Perception*, p. 58; p. 231. This might also be linked to his idea of second-order expression where, in denominating (and hence, recognising) an object, we are no longer aware of investing it with meaning. Instead, we think that this meaning belongs to the object itself. *Ibid*, pp. 202 – 32.

intentional, bodily 'sense' or *Sinn*, then pictures will always cloak perception in the mantle of thought.[156]

But it is not necessary to follow Willats all the way through to this conclusion. We may still adopt the basic premise of his account – the idea that pictures encode and are perceived by grace of the visual cues we are predisposed to detect in real scenes – without thinking of these cues as priming only for recognition. For, while Willats's allegiance to Marr commits him to this view, there is growing evidence to suggest that his theory of sight is too narrowly conceived. Instead, the idea that has succeeded it – the 'dual visual system hypothesis' – proposes that vision serves not one but *two* discrete functions: on the one hand it allows us to identify objects (as Marr's theory proposes) and on the other hand it allows us to perform actions upon them and use them as markers of bodily space (as Merleau-Ponty's philosophy suggests).[157] Let us therefore investigate this view further, since it would seem to promise a more concrete way of describing the peculiar phenomenology of Cubism while still allowing us to draw on Willats's account.

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[156] In the philosophy of language, the terms *Sinn* and *Bedeutung* were first used by Gottlob Frege to emphasise the difference between sense and reference. Later Husserl used this distinction to characterise sense-giving acts more broadly, where *Sinn* refers to the meaning that gives content to the intentional act (or the noema) and *Bedeutung* refers to the intended object. Frege's terms are also occasionally used by Merleau-Ponty.

[157] According to Marr, 'the main job of vision [is] to derive a representation of shape' (*Vision*, p. 36). Therefore, since he claims that computing three-dimensional shape is what allows us to recognise objects (and indeed, since describing this process is the goal and the end point of his theory), he would seem to be implying that the primary function of vision is perceptual identification. That he did not consider it necessary to treat visually guided actions may be due to the fact that he performed his research before the dual visual system hypothesis had become current. And while Gibson's work had already hinted at this line of inquiry, for Marr this approach was too speculative to provide an explanation of sight. For his critique of Gibson see *Vision*, pp. 29 – 31.

The first version of the dual visual system hypothesis was developed by Leslie Ungerleider and Mortimer Mishkin in the early 1980s.[158] Their research showed that, after a juncture at the primary visual cortex, the visual pathway bifurcated into a 'dorsal' stream and a 'ventral' stream. Anatomically mapped, the dorsal stream passes through the middle temporal area (MT) and projects to the inferior parietal lobule while the ventral stream passes though V4 and projects to the inferior temporal cortex (fig. C). Having observed that lesions to each pathway resulted in distinct visual impairments, they claimed that the dorsal pathway – or the 'where' system – was responsible for processing information about space, while the ventral stream – or the 'what' system – processed information about objects.

But while Ungerleider and Mishkin made little of the fact that the parietal areas in which the dorsal stream terminates are substantially linked to the motor centres of the brain – particularly the premotor cortex and the frontal lobe – later theorists came to regard this information as vital. As Melvyn Milner and David Goodale first pointed out in the 1990s, these anatomical connections suggest that the dorsal stream feeds visual information forward for movement, and hence for action. [159] Drawing particularly on case studies of brain damaged patients, they therefore claimed that the difference between the ventral and dorsal stream processing was not so much a matter of 'what' versus 'where' but rather of

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[158] L. G. Ungerleider and M. Mishkin, 'Two visual systems' in *Analysis of Visual Behaviour*, ed D. J. Ingle, M. A. Goodale and R. J. W. Mansfield (Cambridge, MA: MIT Press, 1982), pp. 549 – 586.
[159] Melvyn A. Goodale and A. David Milner, 'Separate visual pathways for perception and action', *Trends in Neuroscience*, 15, no. 1 (1992) pp. 20 – 25.

'vision for perception' versus 'vision for action' or put in its simplest form, of 'what' versus 'how'. [160]

More recently, Pierre Jacob and Marc Jeannerod have elaborated this thesis, integrating it into a more philosophically grounded theory of vision. [161] Characterising the dorsal stream as dedicated to 'pragmatic processing' and the ventral stream as dedicated to 'semantic processing', they claim that each mode of vision extracts different information from the retinal image and encodes it in form that is uniquely tailored to suit the demands of its task. Like Marr, they therefore assert that visual processing produces internal visual descriptions, [162] but unlike him they argue that these belong to two distinct categories.

In essence, what distinguishes these descriptions is that they encode different information and meet different needs (fig. D). On the one hand, the job of semantic processing is to produce *visual percepts*. These store information about object identity (and thus are comparable to Marr's 3D model representations insofar as they encode viewpoint invariant features of shape). [163] This information is then fed into the 'belief box' where it can be stored in memory and made available for the purpose of thought. The job of pragmatic

[160] In particular, Milner and Goodale consider the case of patient DF who, having suffered ventral stream damage, was no longer able to recognise objects but was still able to reach out and grasp them. See especially Goodale, 'The Cortical Organisation of Visual Perception and Visuomotor Control' in *An Invitation to Cognitive Science*, eds Stephen M. Kosslyn and Daniel N. Osherson, vol. II, Visual Cognition (Cambridge, Massachusetts: MIT Press, 1995, 2nd edition), pp. 167 – 209.

[161] Jacob and Jeannerod, *Ways of Seeing* (Oxford University Press, 2003).

[162] Jacob and Jeannerod actually refer to these as internal visual *representations*. However, I have chosen to use the word 'description' instead as it avoids the suggestion that these are to be conceptualised as pictures in our head. While it is not yet known with any certainty how this information is encapsulated (if indeed, this theory is right), the prevalent view in science today is that it is a pattern of activity across a specific neural network.

[163] This is not to say, however, that the two are identical. As I shall argue later, Marr's theory of vision can be related to both types of processing even though it is largely considered from a semantic point of view.

processing, on the other hand, is to generate *visuomotor representations* (these have no explicit correlate on Marr's account, but they may nevertheless depend on the computational processing that his theory describes). The purpose of these is to encode information which allows us to act upon objects, specifically those which are located within our peripersonal space. This information can then be used in one of two ways: either it can engender motor imagery or reflex reactions by being directly converted into motor commands. Or it can be fed into the 'intention box' where, by being coupled with 'causally indexical concepts', it can allow us to formulate more mediate plans to act.[164]

Figure. C. **Dual Visual System Hypothesis**

Afferents from the retina via the lateral geniculate nucleus (LGN) project to V1 and V2 and bifurcate into two pathways:

Ventral pathway: receives afferents from V3 and V4 and reaches the inferior temporal cortex
Dorsal pathway: receives afferents from MT, MST, FST and V6 and reaches the parietal cortex

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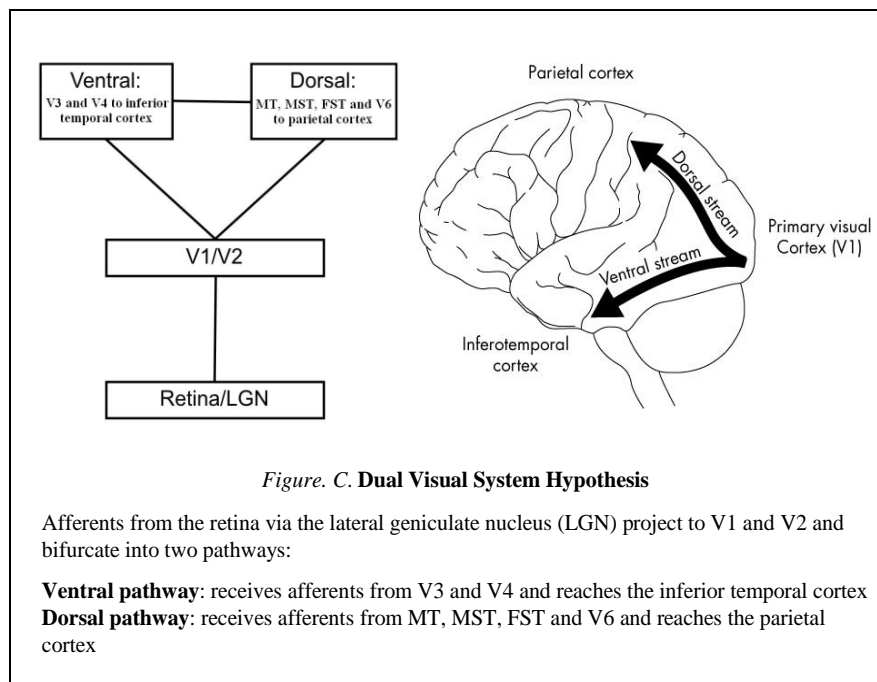
[164] Jacob and Jeannerod associate motor imagery with what Brian O'Shaughnessy calls 'sub-intentional acts'. These are non-deliberate movements such as tapping one's foot or mirroring another person's body language which differ from reflex reactions in that 'one can come to notice, and thus discover [their] existence…' (see pp. 34 – 38) Insofar as these movements may be *imaginary* as well as real, they may be suitable for characterising the kinds of motor response that pictures elicit. 'Causally indexical concepts' are defined as 'shallow but indispensable concepts, whose references change as the perceptual context changes'. They may, for instance, pass judgements on objects such as 'within my reach' or 'too large' (see pp. 205 – 208).

Figure. D. **Jacob and Jeannerod's theory of semantic and pragmatic processing**
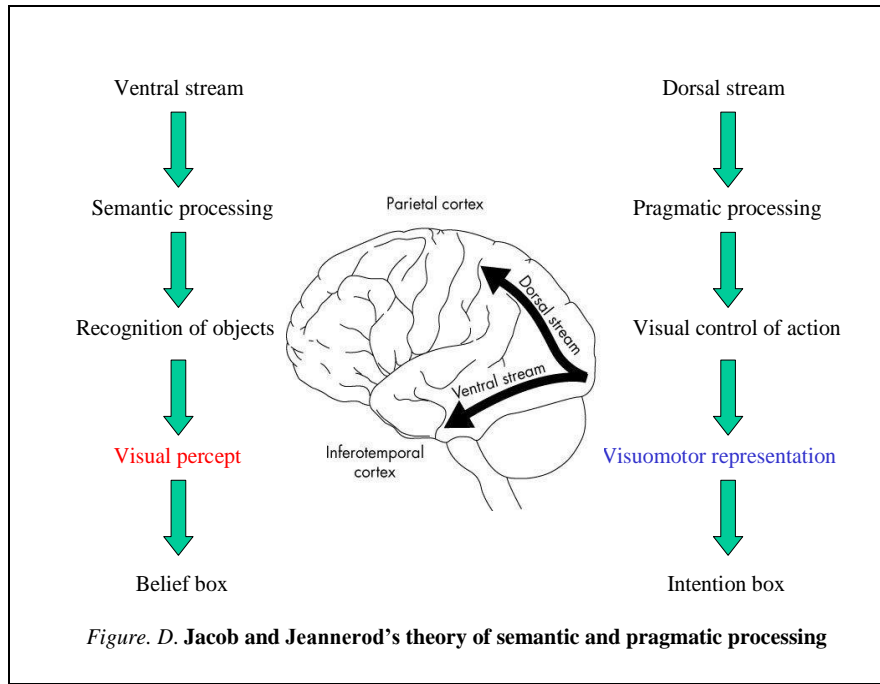
3.5 THE INTERRELATION BETWEEN PHILOSOPHY AND SCIENCE

In light of growing evidence in support of the dual visual system hypothesis –
gathered not only from anatomical studies, but from electrophysical testing and
psychological research too – it is clearly no longer adequate to think of vision as
singularly tailored to the demands of perception, as Marr's theory (and by
implication Willats's) would seem to suggest. The idea may owe its
pervasiveness to the fact that conscious awareness is largely ventral (or
perceptual) and so we tend to see the world as a collection of definite identities,
or as Merleau-Ponty might have put it, we think of it as a realm of 'determinate
being'. However, it seems that the philosopher may have been right in
juxtaposing this form of seeing with a more primary and embodied stratum of

perception. [165] For, insofar as the dorsal stream evokes motor imagery and guides our actions, it might be said to induce the carnal phenomenology that he attributes to sight.

However, it is necessary to exercise caution in making this claim for, as Taylor Carman points out, 'motor intentionality is not a neurological datum, not is it simply Merleau-Ponty's name for…dorsal stream processing'. Rather it is the essential intermediary which connects our bodies to the world and which, by establishing their unity, allows our conscious activities and thoughts to gain their significance against a background of perceptual experience. [166] Accordingly, it is not my intention to suggest that psychology supplies an explanation for – or indeed, explains away – Merleau-Ponty's metaphysical assertions. My claim is simply that science and philosophy point in the same direction by positing the existence of a more embodied form of sight. Thus, while the dorsal stream might tentatively be understood as the physiological correlate of motor intentionality, its identification does not detract from the philosophical implications of Merleau-Ponty's account. And in particular, it does not imply that the body is reducible to an object or that it is ultimately a complex of physio-chemical processes. In short, while knowledge of these operations may illuminate aspects of our perceptual or our aesthetic experience, their *human* significance may lie somewhere beyond.

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[165] Goodale argues that the evolutionary development of the dorsal stream predates that of the ventral stream since the brain 'did no evolve to enable us to think, it evolved to enable us to act.' 'Action Insight: The Role of the Dorsal Stream in the Perception of Grasping', *Neuron*, 47, no. 3 (August 2005), pp. 329. If this is correct then the dorsal stream can be characterised as 'primary' in a phylogenetic sense. Bur of course, this has no relation to Merleau-Ponty's claim that embodied perception is the ground of consciousness.
[166] Taylor Carman, *Merleau-Ponty* (Oxon: Routledge, 2008), pp. 116 – 17.

Nevertheless, taken together these two modes of description supply us with a powerful tool for reassessing the validity of our commonsense assumptions. And more importantly for my argument, this scientific research lends support to Merleau-Ponty's criticism of the view that visual information is only made available to our motor capacities by way of an associative process.[167] What classical psychology suggests, for instance, is that when I see a pen I relate this to my previous experience by way of memory and judgement. Thus, I *infer* how to coordinate my movements towards it rather than having this information directly available. But the existence of parallel pathways in the brain suggests the opposite: that an integral part of seeing the pen is understanding it as a target for action, or, more generally, that perceiving motor affordances is a direct consequence of vision. This is not to say, of course, that I do not need to recognise the pen in order to select it for use. What it suggests, however, is that when I do form this plan I already possess the requisite knowledge to reach out and grasp it. Since visuomotor processing is faster than perception, actions can often pre-empt judgements of identity. For instance, when a projectile is flying towards me, I may duck before I know what it is.[168]

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[167] While this view has been held by various philosophers and scientists for many hundreds of years, it reached a peak in the twentieth century with Ivan Pavlov's studies of classical conditioning. Pavlov showed that the repeated pairing of two stimuli led them to be associated, thereby producing a behavioural response. This idea proved to be influential in the formation of behaviourist psychology, an approach which Merleau-Ponty constantly challenged in his work. For Merleau-Ponty's criticism of this view see *Phenomenology of Perception*, pp. 15 – 29.

[168] This is to be predicted from the fact that, in order to be effective, our capacities to move and to act – and particularly to perform such defensive responses as flinching and ducking – need to be continually updated with information about the location and movement of objects in our immediate environment. Therefore, in contrast to visual percepts which need to be taken 'offline' in order to supply content to memory, visuomotor representations must always be 'online' in order to keep track of real time changes (although, psychophysical studies suggest that they can be briefly encoded in short-term memory). Evidence for these different modes of processing is provided by the anatomical organisation of each visual pathway. While the ventral stream passes through several intermediary areas before reaching the inferotemporal cortex, the dorsal stream includes projections from the magnocellular area of the lateral geniculate nucleus which link to areas MT and V6 directly. Thus, according to Jacob and Jeannerod, 'visual latencies in the dorsal stream (40 – 80 ms) are faster than in the ventral stream (100 –150 ms). *Ways of Seeing*, p. 55.

And so, hypothetically speaking, this duality of sight might also have a bearing on the way that we perceive representational pictures. That is, any image which refers to some content iconically (which is to say, by resembling it visually) may not only present us with something we recognise, but even before this, with something we know how to orientate our bodies towards. Thus, while it might seem natural to classify pictures as visual objects pure and simple, we might here have been led astray by the ostensible phenomenology of seeing – a phenomenology which pictures generally heighten by reducing the information available about depth and which the Western tradition has emphasised even further by celebrating the conjunction of the eye with the mind. But while the motor intentionality of sight may lie hidden – and indeed, while in some cases it may have been wilfully disavowed – its growing acknowledgement in the twentieth century shows that it is not beyond the scope of our conscious awareness, even if it is not transparently available to thought.

If 'vision for perception' and 'vision for action' are therefore so separated in normal seeing but if, however, the latter lies hidden and either takes the insight of a philosopher or the expertise of a scientist to be drawn out, can an artist also be said to perform this revelatory function? This, I want to suggest, was precisely the advance of Cézanne's classicism – that is, the power of his style in producing a *criterion* of a visual experience that the post-Renaissance tradition had systematically disavowed. And equally, I wish to propose that it was the lesson that Picasso and Braque took from his art and further developed through their invention of Cubism. What this means, therefore, is that they did not simply

consult his style in order to learn from its technical innovations (the use of *passage* and the integration of foreground and background being the most often cited). Rather, what makes their Cubism truly 'Cézannian' – and not only in 1908 - 9, but later on too – is their desire to build on his art's peculiar aesthetic: that is, the way it replaced visualised thinking with physicalised sight.

Nonetheless, we still do not have an adequate explanation for how this elusive dimension of motor intentionality can be transfigured into a language of form, or why its counterpart, the conceptualising tendency of vision for perception, should give rise to the particular representational conventions it does. As I intend to show in the following chapter, this will require something of a detour: an attempt, no less, to trace representation back to its very roots. In short, we shall have to consider the fundamental – and crucially, the *non-arbitrary* – relationship between the structure of pictures and the structure of sight.

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The Varieties of Visual and Pictorial Space

The space into which I was advancing remained enigmatic, and would have

remained so, had I not by chance ... remembered modem painting.

– Jean Paulhan[169]

4.1 INTRODUCTION

Having discussed the distinction between 'vision for perception' and 'vision for

action', I shall now consider how these different ways of seeing 'get into'

pictures, that is, how they are lifted out of the arena of real life perception and are

translated into the terms of a two-dimensional medium. My proposal is that

Willats's account offers us a template for how this transformation takes place and

how, moreover, it determines the sequence of children's drawing development.

However, as his argument stands, it only relates to the kinds of internal

description which are considered by Marr. And since these ultimately serve the

purpose of shape, and hence object, recognition – that is, since Marr's theory is

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[169] 'Petite aventure en pleine nuit' (1959) in *Oeuvres complètes* V. (Paris: Le Cercle du Livre
Précieux, 1970), pp. 80 – 81. Translation by Dominique Fisher, 'Jean Paulhan: Towards a Poetic
/ Pictural Space', *The French Review*, 61, no. 6 (May 1988), p. 879.

essentially one of *semantic processing* – Willats's theory, being founded on these principles, will inevitably harbour this prejudice too. As I hope to make apparent, this limits his account in two separate but overlapping ways: first, he has nothing to say about the ties between representation and vision for action, and second – and perhaps far more damagingly – he collapses the distinction between discrepant varieties of pictorial space.

4.2 THE CUES OF DORSAL AND VENTRAL STREAM PROCESSING

Let us start by making some basic assumptions about how it is possible to extend this account while still keeping its basic premises intact. To begin this process, what we first need to do is preserve Willats's understanding of the transformational process – that is, the idea that the denotation system translates scene primitives into picture primitives while the drawing system stipulates how these are to be arranged on a two-dimensional surface. But instead of considering these rules as being exclusively parasitic on visual percepts, we now need to consider how they might also be related to visuomotor representations as well. Therefore, on such an account it will not only be the information which is relevant to shape recognition which resurfaces in pictures, but also – or at least in some cases – the dorsally processed cues which enlist us to act.

The next step is therefore to identify these cues more precisely. First, let us begin by considering vision for perception: what information should this process extract from the retinal image and how will it allow us to recognise

objects? The general task in this respect is to encode constant properties so that we can commit this information to memory and retrieve it over changes in viewpoint. And so, as Marr makes clear, the most important information would seem to be shape since it is possible to strip away other visual attributes such as colour and size and still be able to judge the identity of an object. As we have seen, therefore, the visual system must derive an object-centred description of shape – that is, an algorithm which schematically describes an individuated volume – since our memory capacities are not large enough to store the infinite number of views that would be required to decipher an object from every new angle of sight. Marr's theory of this process is summarised below (fig. E):

	Viewer centred		Object centred
Input Image	**Primal Sketch**	**2 1/2-D Sketch**	**3-D Model Representation**
Perceived intensities	Zero crossings, blobs, edges, bars, ends, virtual lines, groups, curves boundaries.	Local surface orientation and discontinuities in depth and in surface orientation	3-D models hierarchically organised in terms of surface and volumetric primitives

Figure E. The four main stages of vision and the primitives associated with each.

Adapted from Marr (1982). 'Computing and the Arts',

http://www.doc.gold.ac.uk/~mas02fl/MSC101/Vision/Marr.html.

On this view, the function of early vision is to extract shape-related features from the retinal image and to represent them as primitives specifying information about the orientation, depth and discontinuity of surfaces. [170] This process is said to involve two discrete steps. First, dips in light, or 'luminance

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[170] For a fuller account of these processes, see *Vision*, chapters 2 – 4.

valleys' are detected, using an algorithm like that which has been applied to the image below (fig. F). This results in what Marr calls the full primal sketch, a description which essentially picks out the edges of objects. Next, a more sophisticated description called the 2½D sketch is formed. This specifies the orientation of surfaces and their position in depth, thus allowing discrete objects to be parsed from the visual array. Figure G suggests a possible method for representing this information (although, of course, we should bear in mind that in reality this will not resemble a picture in our head).
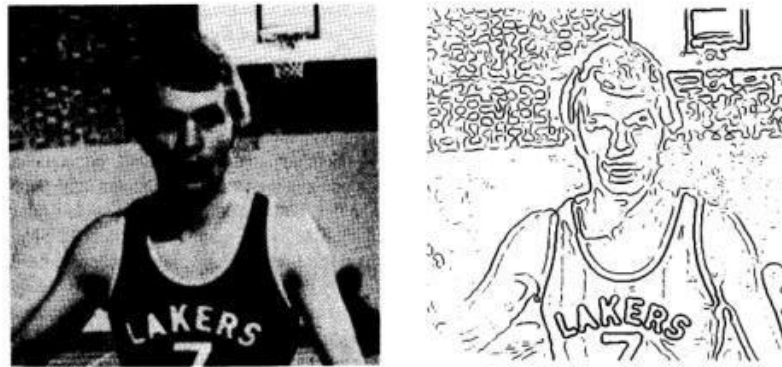

Figure F. Marr (1982). Example of zero-crossing detection using a Laplacian of Gaussian filter
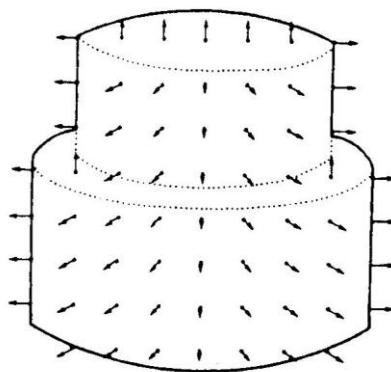

Figure G. Marr (1982). Symbolic representation of the 2½D sketch. Surface orientation indicated by arrows, occluding contours shown with full lines and surface orientation discontinuities with dotted lines.

However, since these descriptions are still in viewer-centred coordinates they must now be transferred into an object-centred frame of reference. This hinges on a process which Marr calls the 3D model representation which can be crudely summarised in the following way. [171] First, the silhouette of the shape is decomposed into primitives which describe the object's principle axes. Next, these are specified as volumes in object-centred coordinates and are then organised in a modular fashion so that individual components can be further decomposed (fig. H). Accordingly, once enough information has been stored in an object-centred description, this can be matched against pre-existent templates in memory, finally allowing recognition to take place. This argument is therefore taken to justify one of Marr's key claims about vision: namely, that when familiar items are seen from a canonical viewpoint (that is, when foreshortening does not substantially deform their appearance) they can be recognised exclusively by way of bottom up processes. [172] Or to put this differently, their identities will be known without judgement or reasoning having to come into play.

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[171] It is useful here to bear in mind the distinction Marr draws between a description and a representation. According to his terminology, 'A *representation* is a formal system for making explicit certain entities or types of information, together with a specification of how the system does this…the result of using a representation to describe a given entity [is] a *description* of the entity in that representation. *Vision*, p. 20 (emphasis in original). For Marr's discussion of the 3D model representation see *Ibid*, chapter 5, 'Representing Shapes for Recognition'.
[172] *Ibid*, pp. 35 – 36; p. 328. Marr refers to 'conventional' rather than 'canonical' viewpoints; I have chosen to use the latter term as it is now more common in the literature.
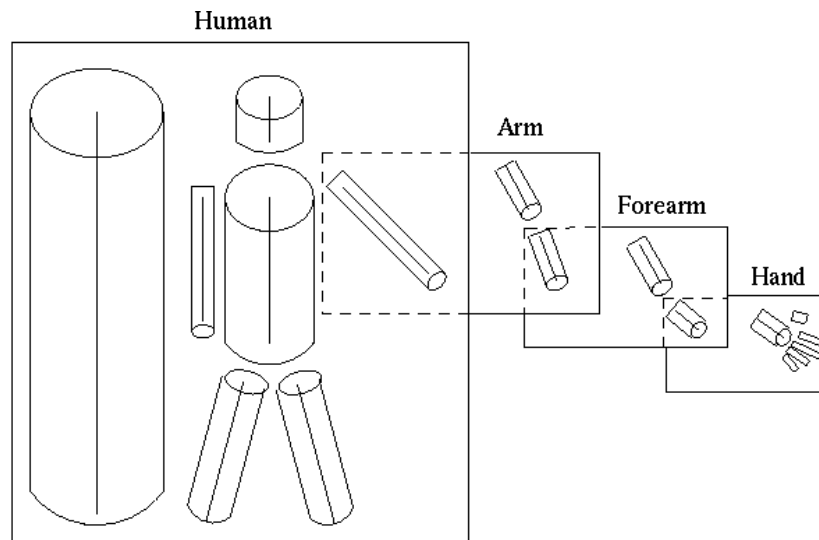
Figure H. Marr (1982). The organisation of shape information in a 3-D model description.

However, what Marr's theory does not account for is the fact that shape information alone will not allow us to distinguish between similar items or track the same object over successive encounters. For instance, if there were two apples on the table I could not tell them apart simply on the basis of shape for in this respect they are too nearly equivalent. A more effective way to capture this difference would therefore be to compare their positions in space. Now, I could make this calculation by locating each apple in relation to my body. However, this would not preserve the constancy of shape for it would require information to be specified about viewpoint. For this reason, the visual percept must somehow present information in a spatial format that is external to the body. Jacob and Jeannerod (and many other theorists besides) have therefore related this to the 'allocentric' frame of reference, a coordinate system that maps object locations independently of viewpoint but relative to each other (fig. E (a)).[173]

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[173] Jacob and Jeannerod, *Ways of Seeing*, p. 103; pp. 193 – 198. The counterintuitive nature of this claim has been pointed out by José Bermúdez who objects that, 'No two things stand in this

What this implies, then, is that I am able to distinguish between the apples by seeing `how they are located in space, not with respect to my body, but with respect to one another.

Figure. E. **The spatial coding of the visual percept and the visuomotor representation**

(Within the figure:)

Visual percept   **Visuomotor representation**

a) Allocentric frame of reference

Spatial location of objects encoded in relation to one another but independent of the perceiver

b) Egocentric frame of reference

Spatial location of object encoded with respect to the perceiver's body and specifically in relation to the executive limb

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[allocentric] relation *simpliciter*. They only do relative to a third thing, which is typically the perceiver.' While Jacob and Jeannerod avoid addressing this quite obvious objection in *Ways of Seeing*, when forced to reply to Bermúdez they state their position more clearly. For example, they say that 'we do not agree that there must be room for some conceptual representation of the *self* in one's visual percept' and 'one can think of (or imagine), but one cannot visually perceive, that standpoint which one is currently occupying.' I take it, therefore, that the allocentric coordinate system is 'viewpoint independent' in the sense that the perceiver's position is factored out of the equation, although these words are not used by the authors themselves. See 'Replies to our Critics', *Psyche*, 13, no. 2 (April 2007), http://psyche.cs.monash.edu.au/symposia/seeing/replies.pdf, consulted 22 July 2007 (emphasis in original).

According to Jacob and Jeannerod, the visuomotor representation must map space in a different format since the ability to perform actions explicitly requires that we situate objects in relation to our body and in correspondence with its sphere of possible movements. What this means, more precisely, is that we need to know the object's position with respect to the executive limb and the vector (that is, the distance and direction) of the movement required to bring it within reach (fig. F (a)).[174] Therefore, instead of this information being encoded in an allocentric format – that is, instead of it stipulating the relative locations of objects – it must be presented in a coordinate system that takes account of the body, or what psychologists refer to as an 'egocentric' frame of reference (fig. E (b)).

But simply knowing the target's location with respect to the body is not sufficient to grasp it. For this purpose, we also need to know something about its structural properties. Two types of information are relevant to this task (fig. F (b)). First, we must compute the overall size of the object in order to scale our grip to suit its dimensions. And second, we must have at our disposal information about its absolute shape – presumably in the form of an object-centred description – so that we can locate stable 'grasp points' and secure a firm grip on its surface. Such points are usually chosen in such a way as to pass through the object's centre of mass and are often located at places of maximal concavity (as is the case with an apple) or maximal convexity (as is the case with a banana).[175]

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[174] *Ibid.*

[175] Jacob and Jeannerod do not consider the properties which are conducive for reaching and grasping in detail. My argument here is informed by Goodale's discussion in 'The Cortical Organisation of Visual Perception and Visuomotor Control', see especially pp. 185 – 191.

Figure F. **Information encoded for reaching and grasping**
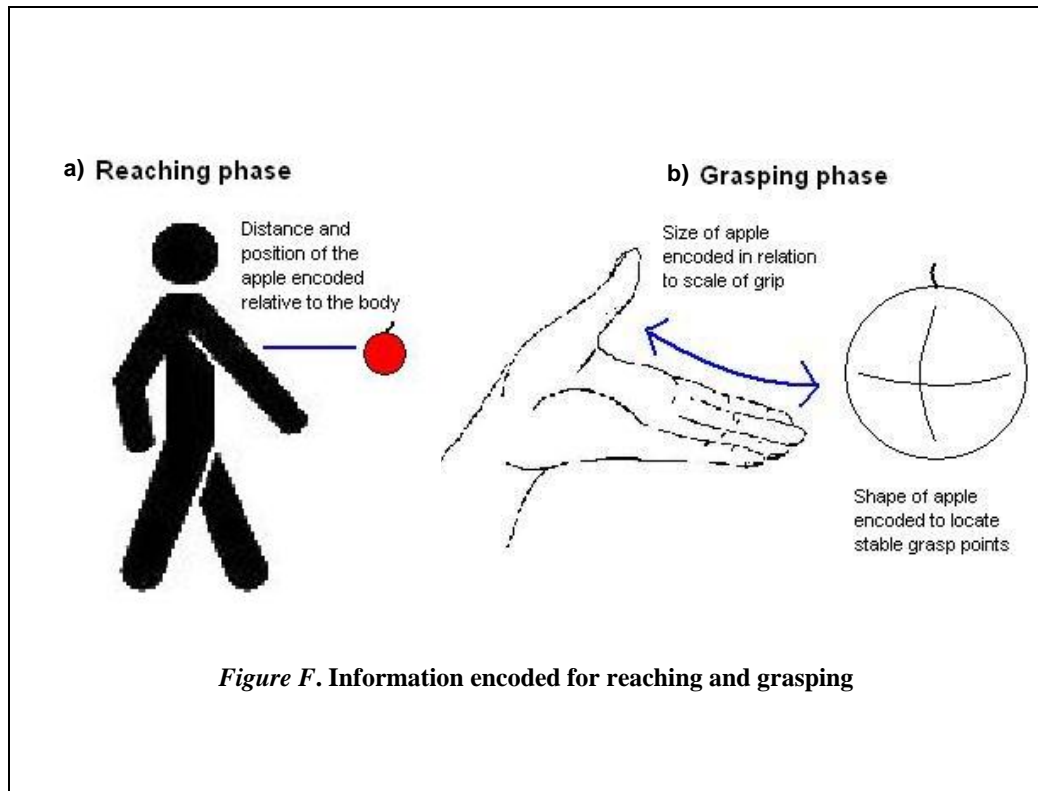
Thus, it will be seen that on this theory it is not so much a case of discarding Marr's account as it is of treating it as a step towards something more complex. There are two reasons for this. First, even though Marr assumes that the purpose of vision is shape recognition, since he commences his analysis at the level of the retinal image, it may be that the lower-level computational operations he describes are pertinent to both semantic and pragmatic processing. For instance, one might suppose that each is contingent on the 2½D sketch since, according to Marr, this is what facilitates object individuation.[176] And second, if information about three-dimensional shape is just as important for grasping an object as it is for identifying what it is, then object-centred descriptions shall be basic to both modes of sight.

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[176] Marr, *Vision*, pp. 270 – 77.

Of course, the plausibility of this hypothesis will ultimately depend on the areas of the visual brain which are involved in the computation of three-dimensional shape and whether these contribute to both ventral and dorsal stream processing. Since parvocellular cells in the retina and the lateral geniculate nucleus are selective for edges and areas in V1 are sensitive to their orientation this might suggest that both pathways have access to shape information since their bifurcation (largely) occurs after V1. [177] It may be however, that while both pathways process information about three-dimensional shape, they are responsive to different aspects of this attribute. For instance, Jacob and Jeannerod cite electrophysical studies which indicate that cells in the inferotemporal cortex (i.e., in the ventral stream) are sensitive to the complex contours of three-dimensional shape, while cells in the anterior intraparietal area (i.e., in the dorsal stream) respond to the motoric properties of shape.[178] To summarise then, it would seem that the ventral stream specifies shape in more detail, while the dorsal stream represents it in a fairly coarse way.

Furthermore, it ought to be noted that the volumetric primitives that Marr relates to the object-centred description do not *only* carry information about shape but also about size and the spatial distribution of shape. [179] This data might

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[177] This claim is supported by the results of an experiment which was designed to test the responses of visuomotor neurons to the presentation of basic three-dimensional shapes. What this study shows is that these neurons not only fire when visual presentation is coupled with grasping movements, but that they are also activated in object fixation tasks alone. Given that these neurons are selective for specific shapes and specific kinds of grasping movements which optimally suit the dimensions of the object, this would suggest that they are in some way responsible for generating motor imagery in the absence of actual movement. What it also seems to imply is that a volumetric description of shape (i.e., an object-centred description) is directly available to the dorsal stream instead of it being a product of ventral stream processing alone. See Akira Murata et al, 'Object Representation in the Ventral Premotor Cortex (Area F5) of the Monkey', *The Journal of Neurophysiology*, 78, no. 4 (October 1997), pp. 2226 – 2230.
[178] *Ways of Seeing*, pp. 183 – 84.
[179] Marr, *Vision*, pp. 300 – 302.

therefore be available for pragmatic and semantic processing as well (that is, in addition to shape information pure and simple). Since Jacob and Jeannerod rarely refer to Marr, it is hard to know what they consider the role of object-centred descriptions to be, or indeed whether they think that this account has been superseded by the dual visual system hypothesis. It might be inferred from their theory, however, that they regard this stage of vision as preliminary to both ways of seeing. For instance, they claim that the visual percept and the visuomotor representation *both* encode information about shape, size and orientation (which would therefore seem to correspond to the information encoded in object-centred descriptions). But while they say that the visual percept allows us to *compare* this information by simultaneously representing at least two distinct items,[180] they state that the visuomotor representation 'can only represent the *absolute* orientation, size and shape of the target.'[181] Thus, the disassociation between these modes of vision may be partly due to the fact that they separately compute object-centred descriptions which are then inputted into distinct frames of reference.

My proposal, therefore, is that it is not necessary to conceive of vision for perception and vision for action as wholly unrelated, for while the visual percept and the visuomotor representation are generically different, they may still extract some of the same information from light. And indeed, while this claim may await

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[180] Since on this account the visual percept allows us to make a comparative judgement, Jacob and Jeannerod claim that it fulfils Jérôme Dokic's constraint of contrastive identification which states that, 'Unless a creature has the resources to make…comparisons among different instantiations of one and the same visual attribute or property, she will not be able to recognise or re-identify the property or attribute in question.' In short, encoding in allocentric coordinates makes recognition possible, encoding in egocentric coordinates does not. *Ways of Seeing*, p. 193.
[181] *Ibid*, p. 198 (emphasis added). For a detailed comparison of these two frames of reference see pp. 191 – 198.

further corroborative evidence, it would at least seem to make sense from an evolutionary point of view. In other words, it is not controversial to speculate that the visual system operates in the most economical or energy efficient way.

4.3 THE SPATIALITY OF SEEING AND THE SPATIALITY OF PICTURING

To return to Willats's theory, we might now conjecture that since he borrows his understanding of vision from Marr, he can make no allowance for these further computational steps or how they bear on the process of picture production. And so, this extended account of seeing might have two implications for his schema which are in line with the amendments we made to Marr's account. First, if the representational language of pictures is parasitic on the early stages of vision (as, for instance, optical denotation systems are said to be on the primal sketch, or line drawings are on the 2½D sketch)[182] then this might mean that they equally serve 'depiction for perception' or 'depiction for action'. And second, if object-centred descriptions proffer the pictorial means for making shapes recognisable they might also allow for an imagery which we experience as graspable too. All in all, therefore, the structural elements of pictures and certain of their concatenations may just as well underpin the recognitional content of a work as they do its embodied effects. Accordingly, this might give us a loose explanation for the incongruity of Picasso's *Rue-de-Bois*: that is, why it could at once be seen as a landscape *and* as a collection of manipulable objects.

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[182] Willats, *Art and Representation*, pp. 152 – 3.

But this will not be the end of the story since vision does not culminate in object-centred descriptions, but with outputs which are distinct and more informationally replete. And so in this respect, it seems necessary to consider the divergent spatiality of the visual percept and the visuomotor representation. Can these differently inflect the spatiality of pictures? And more specifically, can they be identified with different classes of drawing system and the distinct set of mapping rules on which these depend?

In *Art and Representation*, Willats suggests that drawing systems can be parasitic on two stages of vision which Marr identifies as fundamentally distinct. On the one hand, they can be associated with internal visual descriptions (such as the primal and 2½ D sketch) which encode information about shape in relation to a particular point of view. Or, on the other hand, they can be related to the later stages of visual processing whereby constant features of shape are presented in a view-invariant format. So, for example, Willats proposes that it is likely (although not irrefutable) that Vermeer's *The Music Lesson* (fig. 31) is derived from a view, while Andrei Rublev's *The Holy Trinity* (fig. 32) (and more interestingly for our purposes, most Cubist pictures) are structurally related to object-centred descriptions.[183]

However, there is a slight complication here since if any of these are to underpin 'effective' representations, they must approximate to the projective geometry of possible views (which is where 'anomalous' systems such as

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[183] For Willats's discussion of Vermeer see *ibid*, pp. 59 – 61; for his discussion of inverted perspective (the dominant system in Rublev's picture) and its dependency on object-centred descriptions see pp. 65 – 69.

inverted perspective miss out).[184] What Willats therefore believes to be fortuitous for most of the common drawing systems is that they can both be described in terms of primary geometry (that is, with respect to the projective geometry of possible views) and in terms of a secondary geometry (that is, with respect to the two-dimensional geometry of the picture surface).[185] Thus, the crucial claim of his account is that, insofar as the rules for mapping in secondary geometry are determined by the structure of object-centred descriptions, they can be naturally generated rather than having to be consciously learned.[186]

If this hypothesis is sound then children and adults who have not received formal training in art should generally produce pictures which are mapped from object-centred descriptions.[187] According to Willats, this is most evident in the drawings of young children. For instance, in an experiment devised by the author, a group of children aged six to twelve were asked to draw a die presented at eye level so that two of its sides could be simultaneously seen.[188] Interestingly, some of the younger children produced drawings such as the one shown below (fig. K) in which all the spots – including those which were not visible in the view – cohabit a single region. It may therefore be, as Willats suggests, that these children intend the region to stand for the whole volume of the die and are thus deriving their drawings from an object-centred description. And so, in a more typical example such as figure J, the child may be using lines to denote long

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[184] As was discussed in a previous chapter, the second criterion for an effective shape representation is that it is depicted from a general position. See *ibid*, pp. 23 – 24; for a consideration of the lawful concatenation of lines and line junctions see pp. 207 – 214.
[185] *Ibid*, pp. 37 – 69.
[186] For Willats's most explicit statement to this effect, see *ibid*, pp. 317 – 19.
[187] For Willat's discussion of children's drawing development see *ibid*, pp. 287 – 319. For his discussion of the use of object-centred drawing systems in adult's pictures see pp. 186 – 190.
[188] *Ibid*, p. 184 – 185.

volumes such as arms and round regions to denote spherical volumes such as the figures' heads.
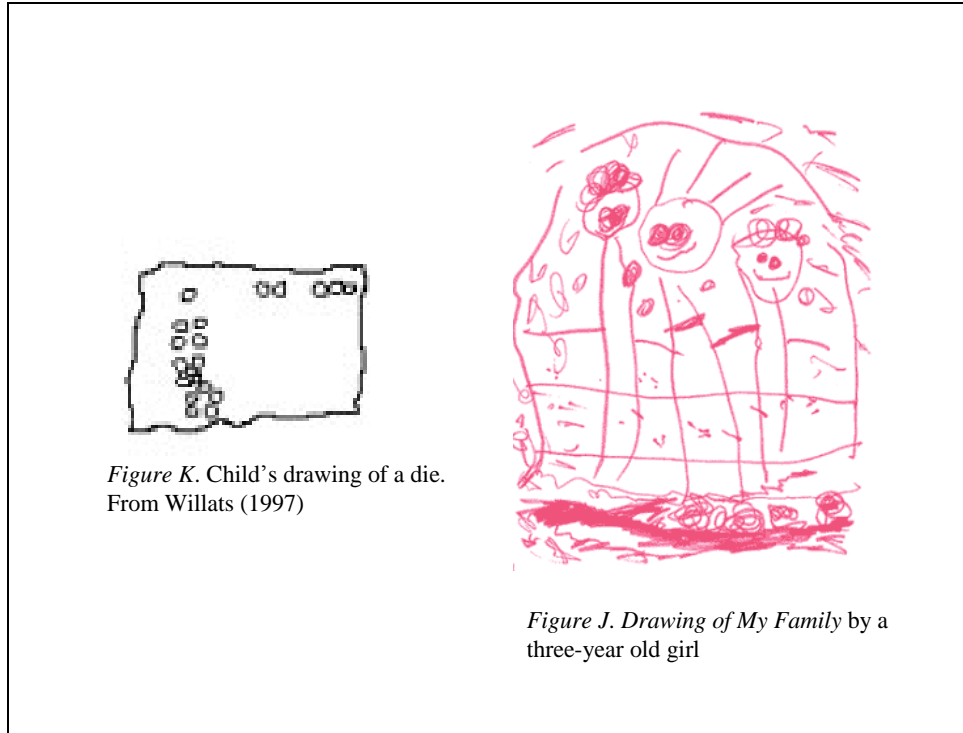
Figure K. Child's drawing of a die. From Willats (1997)

Figure J. Drawing of My Family by a three-year old girl

If we take this claim in conjunction with the argument I have been developing then it seems that any drawing system which derives its mapping rules from object-centred descriptions may transform information about shape from visual percepts *or* from visuomotor representations. But either way, it is hard to see how this process would amount to a spatially coherent depiction (that is, one in which a congruity between distinct parts gives rise to a unified appearance) unless the representation were simply of one discrete object. The reason for this is that object-centred descriptions converge uniquely on one single item and thus do not allow for a global or comparative mapping of

space.[189] For Willats, who is of course talking about representation as a function of what can be recognised in a picture, it is the drawing system's adjustment to, or fortuitous coincidence with, a view which allows it to pattern this global coherence. Thus on his account, most pictures are derived from object-centred descriptions but these are adjusted to views by monitoring spatial relations as they emerge within the picture. He states, for example, that:

> [The rules of secondary geometry are] applied to an object-centred description. Once this has been done […] a view of a scene begins to emerge, and the artist or draughtsman can then continue the picture by adding further details in accordance with the coordinate system set up within this pictorial view.[190]

But while this recursive process may form a substantial part of picture production, one might wonder whether the allocentric and egocentric frames of reference can also inform the artist's construction of space. Now, it seems that the latter, insofar as it only encodes the position of one individuated item in relation to the body, can have no more influence on the global mapping of space than was said of the object-centred description. Therefore, if it does underpin certain compositional schemata (as I shall argue in a following section), then it may be that these are worked out by meditating on the phenomenology of vision

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[189] While Marr proposes that volumetric primitives can decompose the principle axes of an object so that the 3-D model description may capture 'the geometry of shape to an arbitrary level of detail', and thus while it may be that these descriptions can specify structural relationships between the *parts* of a perceived item, if this modular organisation is always local to the object's own axes, then it will make no allowances for the spatial *intervals* between it and other elements in the scene. *Vision*, p. 306.

[190] *Art and Representation*, p. 198.

and by monitoring the progress of the picture[191] so that it is both internally consistent and able to evoke the physicality of sight. However, any spatial coherence that this affords cannot be drawn from the structure of visuomotor representations since, due to their contingency on egocentric coordinates, they do not proffer the relevant cues.[192]

4.4 ALLOCENTRIC SPACE

It may be, however, that such cues are supplied by the allocentric coordinates of the visual percept. The reason for this is that, if this format encodes information about the relative positions of two or more objects, it may stipulate the rules about where to site picture primitives so that a consistent space is mapped *between* distinct elements in the pictorial field. Furthermore, these rules would not be determined *ex post facto* by monitoring the look of a picture as it develops. Nor would they necessarily require that the artist was drawing from life so that the transient information of views was constantly available for reference. Since visual percepts facilitate recognition, presumably their output can be stored in and accessed through long-term memory, thus allaying (but not supplanting) the need for outwardly directed visual attention, whether this is of the picture itself, of other pictures, or of the look of real scenes. In short,

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[191] This idea – and similarly Willats's discussion of the way a view is worked out from the emerging look of the picture – both owe a debt to Wollheim's argument about the dual role of the artist as both the producer and the initial beholder of the work. See 'What the Spectator Sees', especially pp. 101 – 104.

[192] While Paul Smith argues that there is such a thing as a naturally generated pictorial 'grammar' insofar as this relates to vision for perception, he claims that there is no such grammar relating to vision for action as it would be too fragmentary and too piecemeal to warrant this name. Personal correspondence, 24th August 2010.

allocentric coordinates might have an equivalent role to object-centred descriptions – they might allow the representation to develop in a non-arbitrary fashion according to rules which are innately supplied. However, while the latter would underpin the mapping of primitives with respect to a discrete shape or object, the former would give consistency to the intervening space. [193]

But this also generates another set of questions, for if object-centred descriptions are identified with one frame of reference and allocentric coordinates are identified with another, then how should we say that they relate to *one another*? If children have not mastered the more 'advanced' drawing systems such as linear perspective – that is, if they have not yet learnt how to adjust their pictures to views and thus are mainly relying on formats which are more easily encoded in visual memory – will they abide by rules which transform object-centred descriptions or those which transform allocentric coordinates? Should we hypothesise that object-centred descriptions are more likely to underpin the mapping rules employed by younger children since, on the one hand, theirs tends to be a less globally coherent space and, on the other, these rules relate to a less developed phase of vision?[194] Or should we simply say that

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[193] Of course, it is difficult to say what counts as a discrete object either in a real view or in a represented scene. For Marr's comments on this subject see *Vision*, p. 270. Jacob and Jeannerod claim that for something to be considered a visual object it will necessarily be subject to both perceptual individuation (parsing and attribute binding) and conceptual classification (assigning to a stimulus class). *Ways of Seeing*, pp. 139 – 40.

[194] On the face of it, this might seem like a fairly tenuous suggestion for even if there were a correlation between the age of a child and the complexity of the transformational algorithms used in vision, then it would still seem likely that these capacities are developed well in advance of the ability to draw (given, for example, the relatively slow development of the motor skills required to produce meaningful pictures). And even then it might be argued that the computation of object-centred descriptions actually supervenes on the computation of locational coordinates. For instance, developmental studies indicate that the child's ability to track and individuate multiple objects by location (and thus, as Jacob and Jeannerod suggest, by coding in allocentric coordinates) precedes its ability to do so by using featural information such as shape (and so potentially by coding in object-centred descriptions). See Fei Xu and Susan Carey, 'Infants' metaphysics: the case of numerical identity', *Cognitive Psychology*, 30, no. 2 (April 1996), pp.

these two frames of reference are collapsed together in pictures as they are in normal seeing? In other words, if it is not possible to see a shape without seeing its location in a field, should we say that the material these coordinate systems proffer for transformation cannot be distinct and that, as a consequence, it cannot differently affect the appearance of pictures?

I pose these questions, not because I intend to answer them exhaustively – for this would warrant a thesis in its own right – but rather because I wish to make some brief suggestions which, while they are rather speculative in nature, at least have the merit of hinting at the work that is left to be done in this field. First, it is worth pointing out that since there is evidence for attention at multiple levels of spatial description,[195] it may be that we *are* aware of these different frames of reference as they modulate perception. For instance, this tension in seeing might relate to the 'object-horizon structure' that Merleau-Ponty describes. According to the philosopher:

It is necessary to put the surroundings in abeyance the better to see the object, and to lose in background what one gains in focal figure, because to look at an object is to plunge oneself into it…it comes to life and is

111 – 53 and Jacob and Jeannerod *Ways of Seeing*, pp. 191 – 94. However, as I intend to show later, there are still grounds for thinking that younger children's drawings are mapped from object-centred descriptions while only later do they use systems which derive from allocentric coordinates.

[195] For instance, Steven Tipper and Marlene Behrmann write that, 'Increasing evidence…suggests that attention can operate on object- as well as on location-based representations and that accessing one representation rather than another may be a function of the task demands' 'Object-Centred Not Scene-Based Visual Neglect, *Journal of Experimental Psychology*, 22, no. 5 (1996), pp. 1261 – 1278. Presumably, 'location based coordinates' can either refer to allocentric or egocentric frames of reference.

disclosed, while the other objects recede into the periphery and become dormant, while, however, not ceasing to be there.[196]

It may therefore be that things appear to gain volume (or shape constancy) when we focus upon them because, in narrowing our gaze, we reduce the range of allocentric coding – that is, the number of items that can be individuated concurrently – and allow object-centred descriptions to be retrieved more effectively. But this will also imply the reverse situation: if we attend to a wider segment of the visual field, then more objects will retain their identity while simultaneously appearing much flatter. In short, the power of allocentricity will be gained at the expense of volume perception and vice versa. Therefore if this idea has any purchase, then these two opposing pulls – the tension between single-object focus and panoramic sight – may account for the elastic phenomenology of visual attention. And indeed, if Merleau-Ponty is right in suggesting that the object-horizon structure is precisely 'what guarantees the identity of the object'[197] then this play of forces may characterise the process of perception before it is rendered determinate by conceptual thought.

It is therefore plausible that the extraction of object-centred descriptions in semantic vision acts as a constancy mechanism which adjusts the appearance of objects in the direction of their true dimensions. And so, if seeing were wholly dependent on allocentric coordinates, then presumably space would be a pure function of the respective locations of objects and would not seem to come into definition under the attentions of our gaze. Of course, it is difficult (and perhaps

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[196] Merleau-Ponty, *Phenomenology of Perception*, p. 78.
[197] *Ibid.*

futile) to imagine what this would actually look like, and yet it is interesting to consider pictures in precisely these terms, for these evidently *do* structure different kinds of visual space.

It might be, for instance, that images which generalise viewpoint while still being effective for the recognition of shape – such as this drawing of a locomotive in orthogonal projection (fig. L) or this Japanese illustration of the Genji Monogatar (*The Perfumed Prince*) in oblique projection (fig. 33) – form a loose correspondence to the allocentric frame of reference. The reason I suggest this is that each drawing system produces an arrangement that extends uniformly across the representational field without this being afforded its stability by a vanishing point. Therefore, on the one hand it would seem that the problems presented by mapping from object-centred descriptions have been avoided since there is no evidence of the disjunctures which might potentially arise from trying to make discretely perceived volumes agree. But equally, the integrity of these pictures cannot only be a function of their reliance on views, for space is isotropic *between* objects and their parts rather than radiating out from a particular point. In other words, the space is recursive and *eo ipso* cohesive.
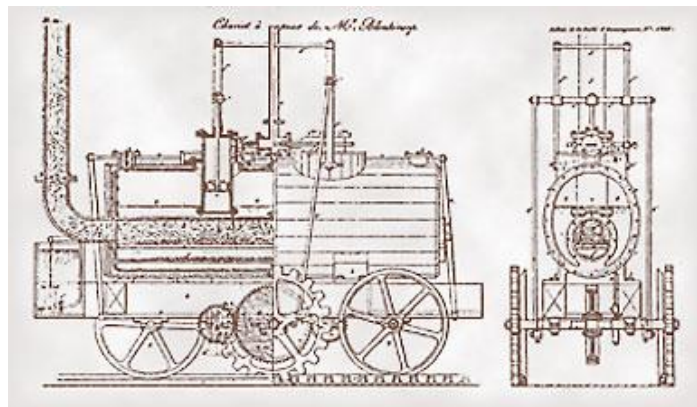

Figure L. Drawing of a locomotive in orthogonal projection

Published in the *Bulletin de la Societe de la d'Encouragement d'Industrie*, 1815

Of course, if we say that the artist is positioned far enough away from the scene that the projection rays reaching the eye are parallel, it is *possible* for each picture to be derived from a view. However, this seems a fairly contrived way of looking at things, particularly in the case of *The Perfumed Prince* since, given its raised vantage point, the artist would have to be stationed somewhere high in the air. Evidently, this is not suggested by the size of the figures unless they had somehow been seen through a telephoto lens.

Furthermore, if we consider the relationship of these pictures to their contexts of reception and use, we may gain an insight into the kinds of function this scene-based arrangement can serve. As Willats notes, for instance, orthogonal projection offers a particular advantage to engineers and architects. This is because, by phasing out the distortions of viewpoint and depth, such pictures can give us accurate information about the shape of an object and (as Willats fails to acknowledge) about the relationship between its parts (or between it and other objects) insofar as they occupy the same plane in space.[198] In contrast, the space constituted by oblique projection, while still arguably based on allocentric coordinates, structures a very different kind of viewing experience. As can be seen by looking at *The Perfumed Prince*, a sense of depth is preserved but unlike the convergence of linear perspective, it runs diagonally across the scene without diminution of scale. In this way, the artist creates a kind of self-contained world, which seems to carry on endlessly, irrespective of the beholder. Thus, as Rudolf Arnheim notes, this kind of 'centreless continuum' is well suited

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[198] For Willats's discussion of orthogonal projection see *Art and Representation*, pp. 43 – 46.

to the Taoist and Zen philosophies of the East which stress, among other things, the equality and unity of man with nature.[199]

However, it might be more accurate to say that the drawing systems this coordinate system underpins are suitable for the purposes of religious depiction more broadly. This is because, by implying a station point which we know we cannot occupy, they effect a departure from realism which may at once safeguard against idolatry while also indicating the juncture between our world and a spiritual realm.[200] For instance, the oblique projection implied by the table in Duccio's *Last Supper* (fig. 34) may help to emphasise the religious significance of the Eucharist by tipping the food up so that it is readily seen and by forging an unlikely, or otherworldly space. And moreover, since Christ occupies the crucial interstice between this system and the converging orthogonals which define the depth of the room, this may further underline his divinity by locating him at the most nodal and anomalous place.

4.5 THE ANOMALY OF LINEAR PERSPECTIVE

Insofar as linear perspective simulates the geometry of light rays that reach the eye from a scene, it would also seem to lack the volume-swelling effect supplied by object-centred descriptions. Nevertheless, we may still speculate that it preserves something of the structure of visual percepts, not only insofar as it

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[199] Rudolf Arnheim, *Art and Visual Perception: A Psychology of the Creative Eye* (Berkeley, Los Angeles & London: University of California Press, 1974), p. 295.

[200] This point is made by several times over by Willats in relation to anomalous combinations of drawing and denotation systems. See, for example, *Art and Representation*, p. 34

tends to team up with optical denotation systems which are approximate to the raw primal sketch (as Willats proposes),[201] but also because it maps space in a loosely allocentric fashion. However, this comes with one important qualification, because while perspective specifies the positions of objects in relation to one another, it also projects their shape and size in relation to a viewpoint – something which a scene-based coordinate system will not permit. Therefore, instead of constituting a homogenous space (as do orthogonal and oblique projection), perspectival constructions at once allow for a co-operation between objects while precipitating a rush into depth towards the vanishing point. And so, if the isotropism of an allocentrically mapped space is accommodated to a third axis pointing away from the viewer – that is, if it not only cancels but *counters* the swelling effect of object-centred descriptions – no wonder perspective can be regarded as an 'infallible device for making things shrink'[202].

For the purposes of exposition, let us consider two works by Rodchenko which constitute extreme examples of this perspectival effect: his *Fire Escape (with a man)* and *Assembling for a Demonstration*, both of the late 1920s (fig. 35 and fig. 36). It seems here that the artist is making a very explicit point about the disjunction between real scene perception and the unalloyed perspective that the camera presents. Counter to the view that photographs are the most faithful correlates to our vision, these works demonstrate the most uncanny degree of

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[201] *Art and Representation*, p. 152. While Willats asserts that certain drawing an denotation systems are 'natural allies', he is also advises that we do not view them dogmatically as such since artists can combine them in unusual ways. Accordingly, he claims that 'the combinations of systems that [artists] use are deliberately chosen, rather than "natural" in the sense of reflecting internal images or descriptions in any direct way.' (P. 158.)

[202] Guillaume Apollinaire, cited in Smith 'How a Cubist Painting Holds Together', p. 83.

deformation, not only in their sharp convergence and their violent shrinkage, but perhaps most unsettlingly in their strange frozen look. On the one hand, the ladder in the first image seems to suck towards the vanishing point vertiginously while simultaneously flattening the empty space which surrounds it, and on the other hand the demonstrators on the street in the second image not only seem far too far away from the woman on the balcony, but moreover they seem 'slippery' – they offer no grip for the eye.

Now, it seems fairly easy to explain this away by saying that, in opposition to natural seeing, the camera has no constancy mechanism. But this ignores the fact that by ossifying an inverted allocentric space – the famous visual pyramid of which Alberti first spoke[203] – photographs and perspective paintings are eminently resistant to our visual probing. This is because they flatten out the gaps between things that in normal perception are ever in flux due to the flexible phenomenology of our visual attention. Or, to put this another way, because the field of our sight is constantly being defined and redefined by the pull of different coordinate systems, perspective will put a halt to this process by fixing the gaps between things and sucking them back into space. In comparison, it may be that the spatial elasticity of a painting by Cézanne such as *Still Life with Plaster Cupid* (fig. 37) is actually closer to the phenomenology of real life perception, even while his 'deformations' tend to strike us as odd.[204]

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[203] Leon Battista Alberti, *'On Painting' and 'On Sculpture'*, ed. C. Grayson (London: Phaidon, 1972), section 8 (pp. 44 – 45). This idea originated in the work of Alhazen. According to Martin Kemp, Leonardo was among the first to cast doubt upon the veracity of this notion, see 'Leonardo and the Visual Pyramid', *Journal of the Warburg and Courtauld Institutes*, 40 (1977), pp. 128 – 149.

[204] For a discussion which is sensitive to this aspect of Cézanne's painting and which makes particular reference to its relationship with touch see Richard Shiff, 'Cézanne's physicality: the politics of touch', in *The Language of Art History*, ed Salim Kemal and Ivan Gaskell (Cambridge: Cambridge University Press), pp.129 – 180.

Indeed, this is exactly the point that Merleau-Ponty seems to be making when he contrasts Cézanne's 'lived perspective' with a 'geometric or photographic one'. For while, on the one hand, photographs, and indeed most paintings 'freeze these distortions…[and] stop the spontaneous movement in which they pile up in perception', in Cézanne's pictures:

> Perspectival distortions are no longer visible in their own right but rather contribute, as they do in natural vision, to the impression of an emerging order, an object in the act of appearing, organising itself before our eyes.[205]

Therefore, if linear perspective bears a fairly contrived relationship to our everyday sight and thus has to be learnt according to conventionalised rules, why are we so ready to assert that it produces the most realistic pictures? Several explanations can be offered for this and perhaps, in truth, they are all mutually reinforcing. The first hinges on the way that we are inclined to consider the nature of visual experience. Rather than thinking of it as something that is durational, admixed with memory and modulated by attention, we tend to understand it as presenting us with a seamless and instantaneously lucid view of the world. This may be an opinion which has issued from the fallacies of 'objective thought'; it may not. But whatever the case, it is very difficult to say what our visual experiences are actually like. And when we do decide to reflect on this process, we adopt a critical attitude – we try to analyse sight – for instance, we shut one eye or keep our heads still, we ignore objects and try to

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[205] Merleau-Ponty, 'Cézanne's Doubt', in *The Maurice Merleau-Ponty Aesthetics Reader: Philosophy and Painting*, ed Galen A. Johnson (Illinois: Northwestern University Press, 1993), pp. 64 – 65.

attend to the coloured patches of the 'visual field'.[206] Perhaps in this respect appearances do most approximate the views afforded by perspective, for in this way we shut out the influence of object-centred descriptions and halt the flow of our visual attention. But crucially, this bears little relation to our experience as it is actually 'lived.'[207]

Of course, this critical mode of vision also has benefits: it recommends itself as objective, as measurable, as mechanisable and as repeatable, thus giving rise to myriad instruments designed to reify sight.[208] And so, it would seem that perspective has two qualities which – aside from the nature of the historical discourse it slots into – have helped to encourage its growth and widen its influence. On the one hand, it seems to clarify sight by making explicit the stabilising effect of our viewpoint, an aspect of our experience which perhaps had not received an adequate criterion until Brunelleschi came along.[209] But precisely because his innovations allowed perspective to be turned into a formula

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[206] Here I am using this term in the sense that J. J. Gibson employs it in his 1950 work, *The perception of the visual world*. According to Gibson, in order to experience the visual field, 'The attitude you should take is that of the perspective draughtsman. It may help if you close one eye. If you persist, the scene comes to approximate to a picture.' Gibson further compares this experience to that of the 'visual world'. Here our attention is drawn to objects and what we see is modulated by constancy effects. Cited by Willats, *Art and Representation*, p. 173.

[207] For instance, speaking of this 'analytic attitude' Merleau-Ponty states that, 'It appears when, instead of yielding up the whole of my gaze to the world, I turn towards this gaze itself and when I ask myself what precisely it is that I see; it does not occur in the natural transactions between my sight and the world, it is a reply to a certain kind of questioning on the part of my gaze, the outcome of a second order or critical vision which tries to know itself in its own particularity, of an 'attention to the pure visual', which I exercise either when I am afraid of being mistaken, or when I want to undertake a scientific study of the spectacle presented.' *Phenomenology of Perception*, p. 263.

[208] For a consideration of these and their varying relation to a discourse of sight see Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge, Mass. & London: MIT Press, 1990).

[209] Referring to Brunelleschi's experiments which highlighted the effects of perspective with the aid of a mirror, Hubert Damisch notes that, while the ancients may have known of this spatial arrangement, Brunelleschi gave it 'the force of science' by presenting it in a demonstrative form. This is the moment, he claims, 'of the inversion of practical interest into theoretical interest.' *The Origin of Perspective*, translated by John Goodman (Massachusetts and London: The MIT Press, 1995), p. 162; p. 157.

– not only one that quickly become doctrine in the Academies, but one that was later proved anew at every click of a shutter – it was seized upon as the shared paradigm of art and science and finally of popular culture (the invention of the cinema being another critical moment in this unfolding history). So perhaps the answer is that perspective strikes us as 'right' not because it is any more so than the 'awkwardness' of Cézanne, but rather because we have become so accustomed to its effects and because the instruments it has given rise to continually assert its authority and make its 'objectivity' available for all to see.

4.6 CHILDREN'S DRAWING DEVELOPMENT

In light of the argument we have so far developed, it is tempting to complicate Willats's view of drawing development so that his schema now interposes a phase of picture production based on allocentric coordinates between one based on object-centred descriptions and one based on views. What this means, in other words, is that the developmental hierarchy which Willats proposes remains the same and so too does his classification of drawing and denotation systems. But instead of correlating age with the complexity of mapping rules derived only from object-centred descriptions, we will consider the series as beginning at this level, adjusting to allocentric coordinates and finally (with the aid of relevant examples and adequate training) transforming material from views. And so, we might tentatively represent this progression accordingly (fig. M):[210]

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[210] While the information in this table is organised by age (top to bottom), I am not suggesting any one to one correspondence between the frames of reference and the drawing and denotation systems. Nevertheless, as I shall presently propose, it may be that certain of these systems are naturally allied to certain frames of reference.

Frame of reference	Drawing systems	Denotation systems
Object-centred coordinates	Topology / extendedness	Regions as picture primitives
	Othogonal projection	
Allocentric coordinates	Horizontal and vertical oblique projection	Lines as picture primitives
Viewer-centred coordinates	Oblique projection	Line junctions as picture primitives
	Perspective	

Let me explain more fully how this revised schema conforms to Willats's view and how it differs. Firstly, I agree with him that the earliest drawings produced by children – namely, those in topological geometry (roughly from around three years of age to seven)[211] – most likely derive their mapping rules from object-centred descriptions. In this system only the most basic properties of objects such as enclosure and extendedness are preserved and only rudimentary spatial relations such as connectedness and separation. Therefore, in drawing b of the table in Willats's experiment (fig. A), it would seem that regions are being used to denote three-dimensional volumes, as for example, the tipped up view of the tabletop and the saucepan suggest. However, more crucially for my argument, it appears that spatial relations only cohere insofar as they indicate the shape of objects themselves, and only then with respect to their canonical axes, as the child's drawing of the saucepan shows. Conversely, there is very little attempt to preserve the intervals *between* things – in drawing b, for instance, the items which are on the table have been dislocated in space so that their relation to one another is only very loosely preserved (note that while objects are

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[211] Age can only be imprecisely correlated with the different phases of drawing development since, as Willats notes, this depends 'very much on the individual child, the nature and complexity of the task, and the object to be drawn.' *Art and Representation*, p. 310. The age correlations I make here are largely based on his findings.

represented as above the table, their lateral spatial order has been lost altogether). Thus, if the mapping rules for depicting these cues are derived from allocentric coordinates, then it might be suggested that children who employ topological geometry have not yet mastered their use.

On the other hand, it is difficult to generalise about systems in orthogonal projection and horizontal and vertical oblique projection. Here it seems a question of assessing individual drawings to seek out anomalies which suggest the influence of object-centred descriptions, or of finding evidence of an attempt to map spatial relationships as they exist between objects (and thus, on my hypothesis, of an attempt to derive rules from the allocentric frame of reference). Indeed, it might be speculated that this stage of development (roughly from nine to twelve years of age) is a transitional period where different kinds of compromise can be struck between indicating the volumetric qualities of objects and representing their discrete positions in an allocentrically mapped space.

The reason for suggesting this is that if these two frames of reference convene in normal perception (thus making different aspects of the visual field available to our gaze), then it will take some practice to detach one from the other as the child tries to make representations which more effectively resemble real scenes. As with Willats's earlier definition, an 'effective representation' is one that both shows a scene from a possible and a general position. But, on my reappraisal of this notion, no longer does this mean simply producing recognisable shapes and accommodating these to views (either views worked out from within the picture or matched to real scenes). Rather, it means something

more definite: namely, a method for representing the intervening space between different objects. Thus, it might be said that only after the child has mastered these allocentrically derived rules and can therefore image a space which is globally coherent will he or she be able to progress to views. For without some way of figuring interstitial relations, a view – which is by definition a panoramic experience – can never be depicted in an adequate way.

While I have not rigorously tested this theory, I decided to assess its plausibility by asking a group of twenty-nine children from this age group to draw a picture of their house.[212] The idea behind this was that, insofar as they were representing something from memory, they should either be mapping from object-centred descriptions, allocentric coordinates or using some mode of drawing which strikes a balance between the two. In other words, this would test the relative priority afforded to these different mnemonic formats, while minimising the possibility that the children were mapping from views.

Of the twenty-nine pictures, seven could not be strictly classified due to the use of anomalous combinations of drawing and denotation systems; ten – by far the most significant proportion – were in orthogonal projection; three were in vertical oblique projection and three were in oblique projection; two were in true horizontal oblique projection and a further one used this system whilst

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[212] This was an informal experiment performed in a classroom in April 2008, the mean age of the children was 11.2 years. The children were given fifteen minutes to draw while being supervised by a teacher and myself; no photographs or pictures were allowed in the room. However, given that the sample was relatively small and the criteria were not adequately stipulated, the validity of this hypothesis cannot be said to depend on these results. Rather, the purpose of doing this research was to generate examples which gave me a better purchase on the mental processes involved at this critical age.

committing the 'flat bottom error'[213]; finally one was in divergent perspective and two showed evidence of naive perspective insofar as they used converging orthogonals to indicate the side face of the house. Seven children used rulers to render edges exactly,[214] while twelve represented the house's face so that it was continuous with the bottom edge of the paper, thus failing to make its relation to the ground plane explicit.
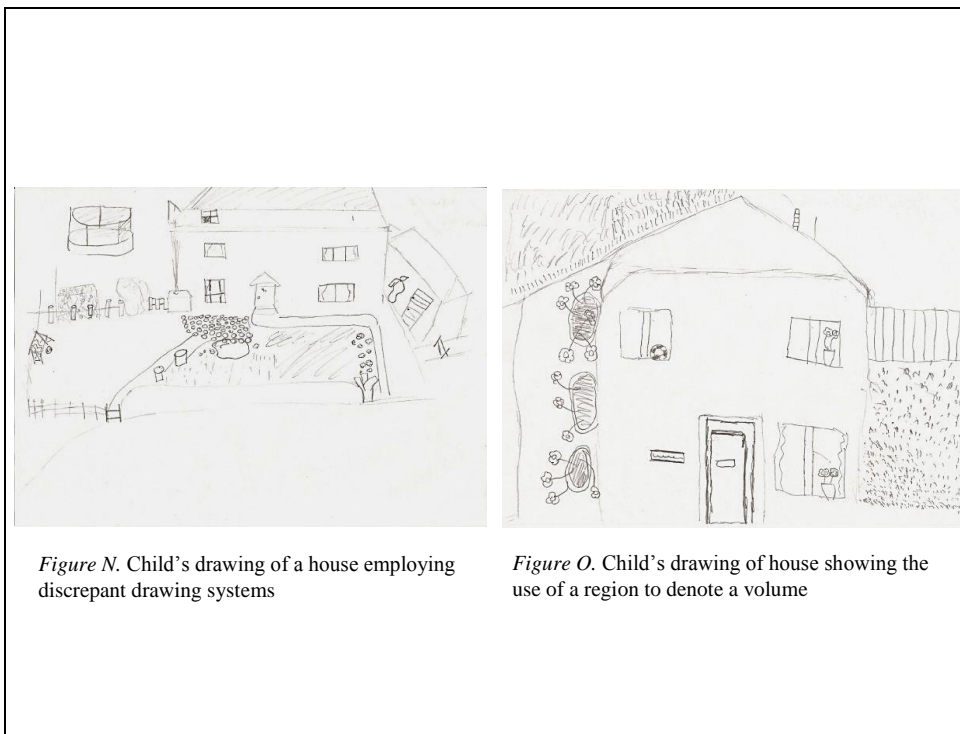
Figure N. Child's drawing of a house employing discrepant drawing systems

Figure O. Child's drawing of house showing the use of a region to denote a volume

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[213] This refers to the mistake children commonly make of depicting a cubic object so that the bottom edge of its side face is continuous with the horizontal line representing the bottom of the front face while representing its top edge obliquely.

[214] It might be said that the children's preference for using rulers was related to the fact that this instrument facilitates a metrical, and hence an allocentric, mapping of space.
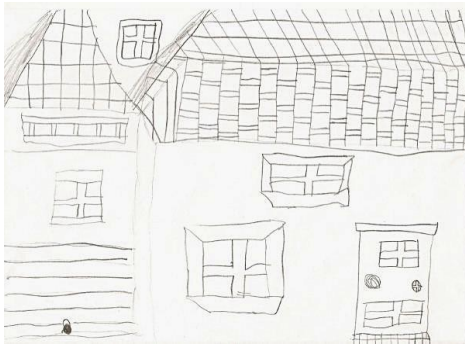
Figure P. Child's drawing of a house in which the roof is drawn from multiple points of view
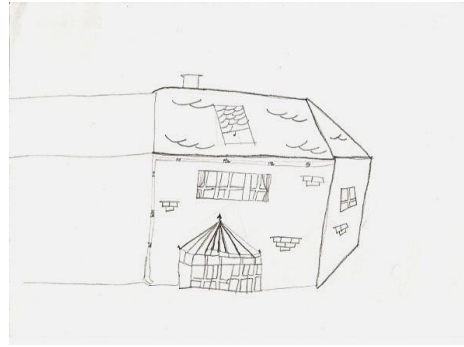
Figure Q. Child's drawing of a house showing evidence of naïve perspective and of a recursive application of the mapping rules using a coordinate system set up within the pictorial view
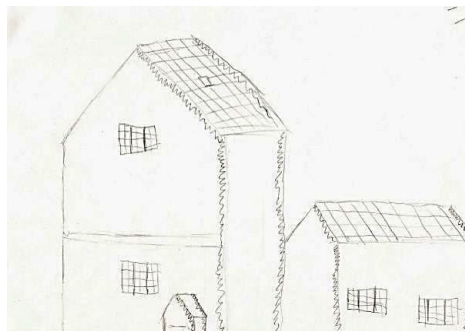
Figure R. Child's drawing of houses with an inconsistent use of horizontal oblique projection
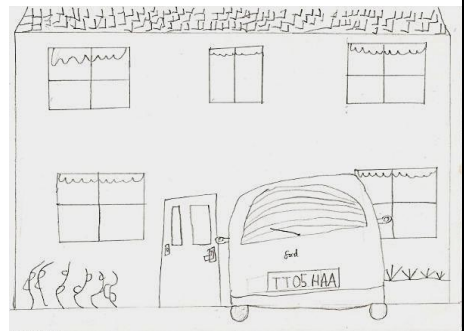
Figure S. Child's drawing of a house in orthogonal projection

Figure T. Child's drawing of a house in vertical oblique projection

Out of the seven anomalous drawings, it seemed that most of the inconsistencies arose from the children's attempt to convey recession in pictures whose other dominant features indicated other types of spatial arrangement. For instance, in figure N the child has represented the house in orthogonal projection while the annex at the side is rendered in a rough approximation to oblique projection. So here it could be that a denotation system in which regions represent volumes (e.g., the front face of the house) conflicts with one where lines represent edges (e.g., the roof and sides of the annex). In support of Willat's theory, there are several quite obvious examples in this grouping of the children attempting to convey the volumetric qualities of shape rather than its appearance from a specific point of view. For instance, in figure O the flower boxes have been 'glued' to the side of the house as if, instead of an edge, this line belonged to a region indicating a three-dimensional shape. And a similar thing could be

said of figure P in which the roof is tipped up to show us its other side and the attic window gainsays perspective and instead is flipped out to show us a view from head on.

But while it may be that many of these pictures are derived from object-centred coordinates so that the child first describes the volume of the house as a region and then adds specific details (such as curtains, window frames, tiles and so on), in others there is evidently an attempt to adopt a different set of principles so that the space is given a more unified effect. However, it would seem that this is not only (or not always) generated in a recursive manner by extending the mapping rules applied to the house out to the scene in which it is nested (as for instance may be the case in figure Q). And nor is this self-evidently an attempt to accommodate viewer-centred coordinates, for in only one (and possibly two) of these pictures does the spatial distribution imply a convergence into depth (see also figure Q). Rather, what may be at stake, particularly if we consider drawings such as figure R, is an emerging desire to treat items as apart from the viewer and independent of one another – in other words, to structure a space which is imparted its cohesion by allocentric coordinates.

I wish to suggest that drawings in this vein have several structural features in common. First, the denotation system will no longer map regions as volumes. Instead, these shall relate to faces, lines will correspond to edges and line junctions to corners, and sometimes (but not always) to points of occlusion. The reason for this, as I have already suggested, is that if scene-based coordinates are to be mapped in a relatively faithful way then a method must be

found for preserving the relations between multiple objects (and perhaps also between their parts if they are widely distributed in space). What this means, therefore, is that the denotation system must proffer more fine-grained information about the structure of shape, something which the topological denotation system is not equipped to do.

On the other hand, an allocentrically derived drawing system must be capable of evenly distributing these elements so that they sit within a unified space, but in a way which does not imply a perspectival arrangement (and so, in this respect, the arrangement might be compared to a mapping in Euclidian geometry). [215] What this means in practice is that objects must be represented as if they occupy a single, homologous plane, or, in terms of projective geometry one in which the light rays reaching the eye from a scene are parallel. For instance, this space might be flat and frontal as in this drawing in orthogonal projection (fig. S), or isotropically recessional as is perhaps the case with figure T if it is interpreted as a drawing in vertical oblique projection. In light of the discrepant orientations of the two houses in figure R, it might therefore be said that the child is attempting to produce a transformation from allocentric coordinates – meaning that she is attempting to show the relative locations of the structures in a view-invariant space – but has not yet quite learned how to apply these rules consistently. And so, in sum – and depending on the evidence presented by the individual drawing – orthogonal projection and the parallel

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[215] I make this statement cautiously, for I do not intend this reference to Euclidian geometry to bring to mind Jean Piaget's theory of drawing development. Unlike Piaget, I do not think that these varieties of view-invariant pictorial space are derived from conceptual schemata which become available through the child's increasing knowledge of the world. Rather, I think the child is drawing on the computational outputs of semantic processing, which is to say, products of seeing which are innately supplied. For Piaget's theory see J. Piaget and B. Inhelder, *The Child's Conception of Space* (London: Routledge and Kegan Paul, 1956).

oblique systems might potentially derive their principles from this variety of visual space.

But if it is assumed that children who are old enough to produce coherent representations already possess the requisite visual capacities to compute both object-centred and allocentric descriptions, then we might lastly wish to ask why this developmental sequence is said to take the course that it does. In other words, why should it be that children begin by deriving their mapping rules from object-centred descriptions and only then proceed to make use of an allocentic frame of reference? In this respect, there is little conflict with the view presented by Willats, since it is not a question of assessing the relative complexity of the visual algorithms involved (if indeed, it makes any sense to compare them in this way). Rather, as the author proposes, the crucial consideration is the complexity of the mapping rules as they are described in terms of secondary geometry.[216] And therefore, since topology is the most straightforward system in this respect – for instance, the rule for depicting enclosure might simply be 'when the object is enclosed by another, represent the enclosed object within the outline representing the surface of the enclosing object'[217] – it will plausibly be the method to which young children are initially drawn.

But insofar as the motor driving drawing development is the desire to produce pictures whose content can be recognised more easily (which, pace Willats, is *not* simply a matter of shape representation) the limitations of topology will spur the child on to seek alternative means. However, this is where

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[216] Willats, *Art and Representation*, p. 291.
[217] *Ibid*, p. 75.

a complexity arises, for while this might be achieved by applying more complex transformational algorithms to an object-centred description, it might also be achieved by mapping from allocentric coordinates as well. This is because, since each approach is able to capture more fine-grained information about the structure of visual percepts – for instance, in the case of the former, the complexity of contour and in the case of the latter, the distribution of elements in space – each shall result in a representation which is more easily perceived. And furthermore, it may be hard to track mapping rules back to these different sources in vision, since the algorithms they stipulate – and thus the kinds of marks that they engender – may not be easily separated, especially if the child is in the grip of a transitional phase. More precisely, it may be difficult to decide what properly belongs to shape as a more precisely specified, although still volumetrically described structure, and what belongs to space as a more holistic mapping between parts. Indeed, this might be like trying to draw a distinction between what it means to see something in focus and what it means to see something as an individuated object in a field.

When it comes to considering children's drawings or indeed the drawings of untutored adults, it might therefore be useful to consider the kind of task that has been set or that the individual has set for themselves. If, for example, the challenge is to represent a landscape (something which is expansive by nature) then it may be likely that a mapping from an allocentric frame of reference will be preferred. If, on the other hand, a more proximate space is to be rendered, then there might instead be a tendency to derive mapping rules from object-centred

descriptions, for when things are seen close up they reduce and obscure the view of other items in the visual field.

4.7 CÉZANNE AND THE RESCULPTING OF PICTORIAL SPACE

So far we have not considered the difference between what most people do when they make pictures and what artists do when they make pictorial art. While it is not possible to draw any clear distinctions, there are reasons for thinking that the artist's approach is different. For a start, we would expect a person who is trained in representational conventions to know these rules by way of formalised schema so that certain drawing and denotation systems can be selected in order to meet the demands of a task. But of course, when we relate these tasks to systems such as patronage, or more broadly, when we consider art as a cultural and hence as an institutionalised practice, it becomes clear that these choices may be limited or fixed in advance. Such was the case for a long time in the West with regards to linear perspective, this being the system that tradition prescribed, the Academy disseminated and the patron endorsed. And even though vanishing points shifted and duplicated over the years, the essential formula remained the same: namely, to represent a space that receded cohesively away from the eye.

A shift occurred in the nineteenth century due to the convergence of numerous factors: perhaps most vitally the advent of industrialised capitalism and its creation of a new middle class able and willing to invest in art. Therefore, with this new social structure the possibilities for art expanded since a freer

market meant more patrons and a more diversified taste. Moreover, this was a world in which artists no longer felt that the Renaissance tradition offered them the necessary means to produce pictures that were adequate to their experience or which were adequately expressive of the environment around them. Therefore, perhaps the confluence of these factors in some way motivated Cézanne to sit and 'germinate' in front of his motif,[218] so that through this profound reflection on vision he could let nature assert itself over convention in guiding the development of his pictorial style. Of course, in this respect, his path had already been cleared by the Impressionists, and before them by the Realists, the Romantics and the Barbizon school. But Cézanne's art brought to life something which, although it had other precedents, was only truly anticipated by the work of Courbet: an aesthetic which seems to accommodate the body of viewer by collapsing her space into its own. [219] I would propose, therefore, that these innovations helped to break the grip of linear perspective, supplanting its synoptic, decarnalised view of the world with one that invoked the bodily contingency of sight.

An idea of how this was actually drawn out through the formal structure of Cézanne's art can perhaps be gleaned from his comment that:

> [The eye] becomes concentric by looking and working. What I mean is that, in an orange, a ball, a head, there is a culminating point; and this

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[218] According to Merleau-Ponty (who attributes this comment to Madame Cézanne), the artist would 'look at everything with widened eyes, "germinating" with the countryside.' 'Cézanne's Doubt', p. 67. It seems that Merleau-Ponty is here paraphrasing one, or several, statements made by Joachim Gasquet, who speaks vividly of Cézanne's almost physical relation to his motif in his memoir on the artist. See Chapter 1, note 80.

[219] See Michael Fried, *Courbet's Realism* (Chicago: University of Chicago Press, 1990).

point is always closest to our eye; the edges of objects always recede towards a centre place on our eye level.[220]

What this seems to indicate is that Cézanne had noted a certain salience in vision whereby, instead of flattening out and receding, things projected out towards the eye. And perhaps, therefore, we might say that he had come to attend to the life which seeing instils into things by honing in upon them and thus describing their volume in an object-centred frame. But, of course, how to represent this phenomenon would inevitably be a problem for the artist, since while the three-dimensionality of objects may be given some indication by aspects of the denotation system such as tonal modelling,[221] these local effects will tend to be counterbalanced by the demand to give cohesion to the interstitial space. And, as we have seen, since this normally entails using drawing systems which fix relationships so that they are isotropic across a field, it will also normally conceal the elasticity of sight. This is why perspective, in inviting the eye to glide into depth, or oblique projection, in inviting it to sweep across in parallels, prevent us from obtaining a visual 'grip' upon objects, thereby undermining the salience that they have in real life.

It would seem that Cézanne tackled this problem by loosening his outlines, by modelling in colour and most crucially by permitting for a slippage

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[220] Letter to Bernard, 25 July 1904. Reproduced in *The Courtauld Cézannes*, ed. Stephanie Buck, John House, Ernst Vegelin Van Claerbergen & Barnaby Wright (London: Paul Holberton Publishing, 2008), p. 157.

[221] According to Willats, tonal modelling is a variety of optical denotation system. I think that it is important to note that when this representational device is spread across the scene in the manner of chiaroscuro, it will act in support of allocentrically derived drawing systems by further homogenising the interstitial space. This is perhaps one reason its effect was subverted by Cézanne and more particularly by the Cubists. For Willats's discussion see *Art and Representation*, pp. 133 – 135.

between distinct planes in space. For what this latter device effected was essentially a disruption of the homogeneity of the pictorial field, allowing it to ebb and flow rather than forming a smooth continuum in which the salience of objects is disciplined by the unity of the space. Thus, instead of consistently using one drawing system in a picture, Cézanne tended to splice several together, hiding their joins at the critical points – a fact that Paul Smith has particularly drawn attention to in his work and which he likens to a loosening of 'grammar' for 'poetic effect'.[222] Finally, therefore, we might note two consequences of this 'poetry' which shall prepare us for a more detailed consideration of the tactility of Cubism. First, if what Cézanne inhibits in doing this is the panoramic phenomenology of allocentric sight and if what he emphasises are the volume swelling effects of object-centred descriptions, then essentially it will seem as if the space of the picture is brought within our reach.[223] And second, if the representational field is structured so that it is not homogenous but rather has peaks and troughs, then it will invite the eye to probe space and to 'palpate' discrete objects in a manner that distinctly recalls the phenomenology of touch.[224]

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[222] 'Cézanne's Primitive Perspective or the 'View from Everywhere'' (unpublished) and personal correspondence. Smith also makes this point in relation to Cubism, see 'How a Cubist Picture Hangs Together' in *Art of the Twentieth Century*, ed Jason Gaiger and Paul Wood (London: Yale University Press/Open University, 2003), p. 81. Willats draws this analogy but does not treat it as an effect of hiding the seams between drawing systems. See *Art and Representation*, p. 251.

[223] My discussion here is very much informed by Richard Shiff's article, 'Cézanne's physicality: the politics of touch'. I have attempted to expand this account by giving it some basis in the psychology of vision.

[224] Again, the term 'palpate' is one I borrow from Merleau-Ponty, who states, for example, that 'the look…envelops, palpates, espouses the visible things.' *The Visible and the Invisible*, ed Claude Lefort (Illinois: Northwestern University Press, 1968), p. 133.

4.8 PICTURING TACTILITY: THE VISUOMOTOR CUES OF EARLY CUBISM

It is evident from several statements made by Braque that he and Picasso had understood the flattening effects of perspective and that they intended their pictures to structure a very different kind of space. In this respect, two of his comments particularly stand out: first that, 'Scientific perspective…forces the objects in a picture to disappear from the beholder instead of bringing them within his reach as a painting should.'[225] And second that 'Visual space separates objects from each other. Tactile space separates us from objects. The tourist looks at the site. The artilleryman hits the target (the trajectory is the prolongation of his arm.)'[226]

It might be argued, therefore, that in making these observations Braque had intuited the phenomenology of space which is given by egocentric coordinates for, as will be recalled, these encode the location of an object in relation to our body. Therefore, it could be that he and Picasso appealed directly to this mode of seeing by constructing their pictures in a way that recalls the structural constituents of vision for action. The purpose of this section is to substantiate this claim by showing how a particular painting which is representative of the early Cézannian period of Cubism (1908 – 1909) asks us to surrender imaginatively to a particular kind of physical response. This can be

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[225] J. Richardson, 'The Power of Mystery', *The Observer*, 1st December 1957. Cited in Mullins, *Braque*, p. 128

[226] *Le jour et la nuit, Cahiers de Georges Braque*, 1917 – 1952 (Paris: Gallimard, 1952), p. 26. This translation is from Christine Poggi, *In Defiance of Painting: Cubism, Futurism, and the Invention of Collage* (New Haven and London: Yale University Press, 1992), p. 97

classed as 'manual prehension': a form of touching which we enact with our hands in order to reach and grasp objects within our near personal space.

The painting I shall consider is Picasso's *Houses on the Hill, Horta de Ebro* (fig. 16). This work has already been discussed in detail by Paul Smith who, by adopting Willats's theory of pictures, argues that it combines several drawing and denotation systems so that it at once 'retain[s] the semblance of a view, while achieving a fully three-dimensional look.'[227] This is effected, he claims, through Picasso's use of a pictorial 'grammar' which obtains a general coherence by mapping sufficient information from viewer-centred descriptions, while yielding a sense of volume (and hence of tactility) by combining elements in such a way that they seem to correspond to object-centred descriptions. Therefore, for Smith, the work gains its physicality by replacing the isotropic, recessional space of traditional depiction (or more precisely, of linear perspective) with a seamless fusion of representational systems that emphasise the constancy of three-dimensional shape.

I wish my treatment of this picture to be read against the backdrop of this one, but now with several important qualifications in mind. First, while Smith supposes that the effect of tactility is achieved by recombining representational systems which, in their pure form, facilitate shape recognition (because on Willats's account they are parasitic on internal representations which do the same thing), I shall argue that this effect is wrought in a more direct way, that is, by drawing on a stratum of vision which serves the purpose of action performance.

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[227] Paul Smith, 'How a Cubist Picture Hangs Together', p. 81.

But importantly, this does not negate Smith's account of the tactual qualities of this picture for, in many respects, the elements he attributes this to can themselves be ascribed to this immediate source.

Therefore, turning to Picasso's picture, let us start by considering spatial relations and how these may be thought to correspond to egocentric coordinates. As noted above, this frame of reference specifies the position of the object with respect to the body and therefore stipulates a one to one relationship between target and viewer. An approximation to this is, I think, achieved in this picture by allowing each form to assume independence from its surroundings. Picasso structures this experience in two different ways. First, he uses incisive lines to define the contours of objects so that each seems to distinguish itself from its neighbours. And second, he uses different drawing systems to map different forms so that each appears to inhabit its own dimension of space. For instance, the building at the extreme left, the two nearest to the horizon and the one at the bottom right all possess orthogonals which converge towards a vanishing point, but since they do not agree on the location of this point, it is not possible to see them as occupying a unified space. The building in the centre, on the other hand, seems to be rendered in a modified form of vertical oblique projection so that the roof is tilted up towards the picture plane and seems to coextend with the front. Oblique projection also makes an appearance at the back right, and finally the house at the bottom is depicted in inverted perspective which perhaps makes this the most disruptive area of the picture.

In this respect, it is difficult to compare the locations of depicted items since spatial relations are only coherent between parts of the same form – and even then only loosely – and are less easy to stabilise as our gaze pans across the scene. Since the space is not therefore strictly allocentric, neither it is optimal for object recognition. Indeed, when we do ascribe identities to forms it seems to be specific details that give the game away like the door, the chimney and the gable of the roof. Nevertheless, the scene is not simply experienced as a chaotic melange of forms since Picasso is careful to preserve harmony at a more holistic level. He achieves this in two different ways. First, by limiting his palette, he balances colours and tones evenly throughout the picture. And second, he creates areas of ambiguity at critical points in the picture – for example, by bringing edges into alignment (false attachment) and by blurring the boundaries between discrete spatial planes (*passage*) – which serves to unify different parts of the scene and thereby creates a global coherence. Thus, while individual forms seem to demand that we engage with them uniquely, if we survey the picture more generally they also appear to partake of a more cohesive space.[228]

As I said earlier, the visuomotor representation specifies the location of objects so that we can compute the distance and direction of our movements towards them, but this is always on the condition that they occupy a space which is close to the body. Consequently, if *Houses on the Hill* is to simulate a space for manual prehension, it must suggest that forms are within reach of our hands. The cohesion of space at the global level serves this purpose since it collapses local spatial relations and tilts forms up towards the picture plane so that they are

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[228] This account of the coherence of *Houses on the Hill* is particularly indebted to Paul Smith's treatment, see especially pp. 84 – 85.

experienced as being equally close. The top and bottom areas of the picture are also crucial in this process. On the one hand, the high point of the horizon and the materialisation of the sky into gradated facets block the passage of spatial recession. Conversely, the ground plane appears to intersect with the space of the viewer, especially since the foreground house is shorn off at the edge and is not therefore contained within the picture. Moreover, since the space constituted at this edge seems to slip away from under our feet, we have the sense of being positioned directly over the scene – an angle which seems secured by the upward tilt of the roofs of the three central buildings.[229] Taken together, these cues therefore describe a proximate space in which each form can offer itself to the touch.

Discrete forms also seem to exhibit properties which make them appropriate for grasping. Size, for instance, is a major factor in this equation since the actual measurements of the elements we decipher (from a standard viewing distance, that is) roughly approximate the dimensions of objects which we could accommodate within the scale of our grip. To encode a target for action we also need to be sensitive to its three-dimensional shape, and this is something that Picasso makes explicit it a number of ways. First, he often presents us with more information about the structure of shape than could be possibly gleaned from a single point of view. For instance, the splayed perspective of the house in the centre makes it appear as if seen from two different angles at once. This

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[229] This idea is crucial to Rosalind Krauss's discussion of *Houses on the Hill* in 'The Motivation of the Sign' in W. Rubin, K. Varnedoe and L. Zelevansky, *Picasso and Braque: A Symposium* (New York: Museum of Modern Art / Abrams, 1992), see especially pp. 266 – 271. I shall return to Krauss's argument in the following chapter on collage and construction.

therefore allows us to conceive shape in volumetric terms or, in other words, in terms of an object-centred description.

And yet, even when buildings are rendered in such a way as to imply a single viewpoint, they are often presented at an angle which is optimal for deducing shape. This means, in practice that the vertex where different planes in a polyhedral shape meet is presented head-on to the viewer so that the relations between surfaces are made explicit, as for instance is the case with the building on the right and the one directly above it. The inconsistent chiaroscuro also contributes to the distinction of planes by emphasising the sheer difference of their orientations rather than merely emphasising the extrinsic condition of light. And finally, by rendering the impression of form so vividly, Picasso also allows us to imagine where we might place our fingers if we were to grasp the object since we can sense which surfaces would yield the most stable grasp points and, specifically, which combination we would choose in order to locate the centre of mass.

By analysing this picture, I hope to have indicated a few of the ways in which Picasso thematises the cues of space, shape and size which relate to visuomotor processing. To put this in terms that are easier to grasp, I think that these landscapes exemplify Merleau-Ponty's dictum that seeing is not primarily a matter of 'I think' but rather of 'I can'.[230] And yet, as I suggested earlier, these two things do not have to be regarded as mutually exclusive, neither in vision nor in representational pictures insofar as they owe their structure to sight. This last

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[230] Merleau-Ponty, *Phenomenology of Perception*, p. 159. To be exact, this is a claim that the philosopher makes about consciousness, but since it is presented in the context of a discussion about sight, I shall take it to apply equally to the latter.

assertion is, of course, the basic premise of Willats's account, but I hope now to have extended the implications of this claim a little. For while his theory of representation can only make space for recognitional seeing and its convergence with thought, I have tried to reveal how depiction may also hinge upon a more embodied and intersensory stratum of sight.

Accordingly, the basic structural overlap of these two modes of vision, and particularly their mutual dependence on object-centred descriptions, may be why Smith is able to use the representational systems that Willats describes – and yet which the latter understands in terms of *shape recognition* – to account for the tactility of Picasso's picture. But, on the other hand, if Picasso has developed a pictorial grammar which is principally based on visuomotor cues, then this may be why *Houses on the Hill* deploys a mixture of drawing and denotation systems and yet does not lose its feeling of coherence. For then, instead of simply amalgamating 'separate systems' and forcing them to comply – as would be the prediction from Willats's account – these pieces of the jigsaw would slot together to form a pictorial syntax of its own kind. And what is more, this would not be continuous with the kind of seeing that hides its operations behind thought. Rather, it will represent and engender the actual unfolding of natural sight: it will be the Cubist 'space before reason' that Jean Paulhan describes.[231]

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[231] Jean Paulhan, 'Peindre en Dieu (1960) in *Oeuvres complètes* V. (Paris: Le Cercle du Livre Précieux, 1970), p. 40.

CHAPTER 5

Meaning and Motor Intentionality in Synthetic Cubism

…Those actions in which I habitually engage incorporate their instruments into themselves and make them play a part in the original structure of my own body. As for the latter, it is my basic habit, the one which conditions all others, and by means of which they are mutually comprehensible.

– Maurice Merleau-Ponty[232]

5.1 THE MOTIVATION OF THE SIGN

I wish to begin this chapter by considering Rosalind Krauss's reading of Picasso's *Houses on the Hill, Horta de Ebro* (fig. 16) in her important essay, 'The Motivation of the Sign'.[233] According to Krauss, the space of this picture can be read in two distinct ways, each one suggestive of a different mode of perception. This duplicity is said to arise from the way that the artist configures the edges of discrete forms so that they globally articulate the shape of a diamond

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[232] *Phenomenology of Perception*, p. 104.
[233] In W. Rubin, K. Varnedoe and L. Zelevansky, *Picasso and Braque: A Symposium* (New York: Museum of Modern Art / Abrams, 1992), pp. 261 – 287; for Krauss's discussion of *Houses on the Hill* and its implications see particularly pp. 266 – 71.

with its points joined up across the centre. Thus, on the one hand, the houses may be seen as reinforcing the two-dimensionality of this form, allowing it to be perceived as a lozenge-shaped 'relief plane' which rises parallel to the picture and squarely confronts our upright regard (fig. 38).[234] But, on the other hand, this configuration can engender the unstable gestalt of a pyramid, so that its tip may either seem to drop into depth or jut forwards towards the viewer (fig. 39). Therefore Krauss contends that when this pyramid inverts, we feel as if we are suspended above it, looking down along the vertical axis of our body and into a yawning space below. And so, unlike the relief plane which is said to emphasise the frontality of the visual field, she claims that this destabilisation of the ground plane induces an awareness of our body and thereby thematises the sense of touch.[235]

Having identified this disjunction in *Houses on the Hill*, Krauss uses it to trace a trajectory through Picasso's Cubism which she states finds no parallel in the contemporaneous work of Braque. For while she observes that the latter treats touch and vision as 'functions of the same interlocking network'[236], she claims that the former, in subscribing to the view of associative psychology,

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[234] By 'relief plane', Krauss means a pictorial space which is suggestive of the shallow and frontal appearance of bas relief. She also refers to this as the 'diaphane', which implies that it is something that lets light pass through without being totally transparent. See *Ibid*, p. 266 and note 238.

[235] According to Krauss, this 'is a depth which takes its cues from quite another zone of the sensorium, for it is a depth that occurs when the ground gives way below one's feet, a depth that is a function of touch, of the carnal extension of one's body.' *Ibid*, p. 268.

[236] *Ibid*, p. 270. Here Krauss is specifically talking about Braque's works of 1908 – 09. These are said to be distinct from Picasso's works at Horta insofar as Braque uses the device of *passage* to engender a relief plane which encompasses the whole of the representational field. Krauss suggests that the consistency of this space secures the union between vision and touch in his work. Later this idea is used to support her argument that his art 'never moves beyond the iconically structured sign toward the symbolic one' (p. 264).

wishes to stress the distinction between these two modes of perception. [237] Thus, according to this analysis, Picasso believes that that there is a disunity between vision and touch and thinks that it is only by recourse to memory and judgement that their inputs are combined. And so, in his Horta pictures and other works of this period:

> Picasso seems to be playing with the way that one and the same set of marks can open out onto two separate sensory tracks: one, a visual stratum, the other a tactile one; the first a registration of the frontality of the optical field, the diaphane, the second a descriptor of all those kinaesthetic cues upon which the perception of depth depends. And in this oscillation what seems significant is the constant unravelling of what we can think of as the perceptual plenum, a disintegration of it into the unsynthesized possibility of two separately marked sensory channels. [238]

However, according to Krauss's deconstructive logic, this approach will inevitably spell its own end. And more specifically, it will erode Picasso's faith

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[237] See *Ibid*, pp. 269 – 70. It is unclear whether Krauss thinks that Picasso was directly influenced by associative psychology or whether she thinks that he reached this conclusion in an intuitive manner. However, as Christine Poggi points out, this notion of sensory experience may have been familiar to the Cubists through Adolf Hildebrand's famous book *The Problem of Form in Painting and Sculpture* which was translated into French in 1903. See Poggi, *In Defiance of Painting: Cubism, Futurism, and the Invention of Collage* (New Haven and London: Yale University Press, 1992), p. 270, note 37. I shall consider the tenability of this historical reading in a following section.

[238] Krauss 'The Motivation of the Sign', p. 268 – 69. Krauss borrows the term 'diaphane' from Leo Steinberg, who uses it in his article 'The Philosophical Brothel' to stress the assertive frontality of certain figures in *Les Demoiselles D'Avignon* and their juxtaposition with (and thus essential separation from) those we view as if from above. On Steinberg's view, this is a strategy which is used to ensnare the viewer's gaze, thus making him (and this gender is evidently presupposed by the content of the work) a constituent part of the scene. I would suggest that it is precisely the trauma associated with this form of physicalised seeing which is sublimated in the Cubist works. Krauss also implies this when she claims that the movement towards Synthetic Cubism is born of the desire to 'objectify [this experience] at the level of the sign'. See Krauss, 'The Motivation of the Sign', p. 272 and Steinberg, 'The Philosophical Brothel', *October*, 44 (Spring 1988), p. 60.

in the idea of depiction as visual resemblance – the notion that pictures derive their content and comprehensibility by imitating the look of the world. This is because if depiction turns on the logic of visual resemblance, and if vision is further conceived as a purely optical phenomenon, then pictures will only non-arbitrarily depict aspects of light and surface and not tactile cues relating to volume and depth. And so on this understanding, a pictorial representation will not directly evoke the form of an object or indicate its position in a recessional space. Therefore, as Picasso comes to reach this conclusion, Krauss claims that he will gradually erase 'touch from the field of the visual'.[239] For instance, she considers his displacements of flesh in *Girl with a Mandolin* (fig. 40) as poignantly expressing this renunciation of touch.[240] The teleology of this argument will accordingly map out two choices for the artist as he edges ever closer to the total elimination of these cues: either he will have to abandon representation completely, or he will have to make his art legible in a entirely different way.

For Krauss, Picasso takes the second route and more specifically he comes to understand depiction in a way that parallels the structural linguistics of Ferdinand de Saussure.[241] In other words, he intuits that pictorial signification is

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[239] *Ibid*, p. 271.
[240] For instance, she states that this picture 'resonates with [a] sense of consternation at the thought that the extraordinary unity of the sensory plenum…is no longer available'. *Ibid*.
[241] Saussure laid the ground for this theory in a series of lectures at the University of Geneva between 1906 and 1911. Notes from these lectures were compiled and published posthumously under the title *Course in General Linguistics* in 1916. Of course, Picasso could not have known of this theory and so Krauss would seem to be suggesting that he reached this conclusion in an intuitive way. On the other hand, Yve-Alain Bois relates this to Picasso's encounter with African art and in particularly to his purchase of a Grebo mask in the summer of 1912. See, for instance, 'Kahnweiler's Lesson', *Representations*, no. 18 (Spring 1987), pp. 33 – 68. However, it should be pointed out that the idea of art having a language of its own (that is, one that does not depend on the logic of visual resemblance) was one of the main tenets of the symbolist aesthetic.

less dependent on the look of things in the world (that is, on the iconic link between a sign and its referent) than it is upon the arbitrary connection between a material signifier and its conceptual signified (in pictorial terms, the link between a specific configuration of marks and what we take them to mean). And more precisely, he is said to understand how meaning is constituted through the *difference* between signs. That is, like Saussure, he realises that the system as a whole and the form of its articulation at any one time determines the meaning of the individual signifier by ascribing it a value through its opposition to neighbouring signs.[242] Hatched lines, for example, might be taken to represent a patch of shadow because, on the one hand they are not triangles or planes, and on the other hand, they are placed in relation to pictorial elements that make this a viable reading. Consequently, for Krauss, this slippage hails the arrival of Synthetic Cubism, for no longer will Picasso use iconic means to suggest the experience of depth. Instead he will 'write' its signifiers on the surface of his canvas, thus emphasising how depiction functions in a language-like way. Thus, instead of his pictorial signs resembling things in the world, they will be shown to draw their meaning from the internal organisation of the picture itself.

On Krauss's reading, therefore, the collages are characterised by their insistent frontality since the illusions of depth and volume are 'nowhere to be

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Picasso's connection to this milieu may therefore have shaped his approach to the legibility of pictorial signs.

[242] Saussure states that 'In language there are only differences. Even more important: a difference generally implies positive terms between which the difference is set up; but in language there are only differences *without positive terms*. Whether we take the signified or the signifier, language has neither ideas or sounds that existed before the linguistic system but only conceptual and phonetic differences that have issued from the system. The idea or phonic substance that a sign contains is of less importance than the other signs that surround it.' *Course in General Linguistics*, trans. Wade Baskin (New York and London: McGraw-Hill, 1966), p. 120.

seen'. [243] Instead, she claims that Picasso alludes to these qualities by using signs that are symbolic – that is, signifiers that refer to a concept in a purely conventional and arbitrary way. As a case in point she cites his *Violin* of late 1912 (fig. 41). Two aspects of this image are cited in support of this argument. The first of these is the vast difference in size between each of the *f*-holes which, by being sandwiched between elements which pronounce the flatness of the surface, are prevented from iconically figuring a turn into depth. Rather, their exaggerated discrepancy is said to assert their function as symbols so that they act as a 'suspended emblem of foreshortening'. [244] The second piece of evidence is Picasso's use of the newspaper cuttings. The contours of these fragments not only connect them to the body of the violin, but they also indicate that they are two disconnected halves of the same piece of paper. And since in silhouetting the instrument, one has been flipped over to show its reverse, Krauss claims that this inversion inscribes on the pictorial surface the notion of the violin's back through a purely formal opposition between signs.

5.2. THE MUTABILITY OF THE SIGN: PICASSO'S *VIOLIN*

I have begun this chapter with a detailed account of Krauss's essay, for not only does my argument run parallel to the one that she develops, but it will also challenge many of her claims. However, it is not that I think that this approach is wholly mistaken. I concur with Krauss and the other advocates of this semiological interpretation that in turning to collage Picasso meditates on the

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[243] Krauss, 'The Motivation of the Sign', p. 263 (emphasis added).
[244] *Ibid.*

relational character of pictorial signs and that he problematises the notion of iconic resemblance.[245] And yet, it seems to me that what is at stake in the transition from Analytic to Synthetic Cubism[246] is not so much a straightforward shift to a symbolic mode of signification. Rather, I think that these works ask to be read on multiple levels thereby emphasising the inherent mutability of signs.[247]

To introduce this argument, let us take the newspaper cuttings in *Violin* as an example. Now, if we consider these elements individually they seem to be deprived of any substantive connection to a referent. In other words, we would not recognise a violin solely on the basis of these scraps. Thus, their meaning is secured through their relation to neighbouring elements, which then gives credence to the semiological view. But nevertheless, when we consider their role within this pictorial matrix, they may also be seen as participating in the creation of an iconic sign. This is because the left edge of each element helps to describe the silhouette of the violin by substituting for the discontinuities and distortions in the charcoal drawing. And so, by assisting in the definition of the violin's contour, these fragments provide crucial information about the structure of its shape. Therefore, in light of Marr's theory of vision we might see these elements

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[245] Other theorists who take this approach include Yve-Alain Bois, Jean Laude, Pierre Daix and Pierre Dufour.

[246] While these terms perhaps obscure the fluid development of Cubism, I have nevertheless chosen to follow convention by distinguishing between the Cézannian, Analytic and Synthetic phases of the movement. The words 'analytic' and 'synthesis' were first used by Daniel-Henri Kahnweiler in his 1920 book *The Rise of Cubism* (*Der Weg zum Kubismus*) and were popularised by Alfred H.Barr in works such as *Cubism and Abstract Art* (1936).

[247] In making this claim, I shall appeal to Charles Sanders Pierce's classification of signs, using his three main categories of icon, index and symbol. The assumption I make in doing this is that visual signs can never straightforwardly be read as symbols. Instead they tend to operate in a polysemic way so that resemblance and convention inflect one another. This approach has been informed by Michael Leja's article 'Pierce's Visuality and the Semiotics of Art' in which he argues that Pierce adopted a similar view of the visual sign's hybridity. See *A Companion to Art Theory*, ed. Paul Smith and Carolyn Wilde (Oxford: Blackwell, 2002), pp. 303 – 316.

as necessary to (but not sufficient for) the construction of an iconic sign. In other words, if the pasted papers a) fill in for the missing information in the charcoal drawing so that we are able to compute an object-centred description of its shape and b) permit this object-centred description to be matched to a schema in memory (for example, by allowing it to be adequately distinguished from other three-dimensional shapes) then they will help to establish a relationship of resemblance between the violin pictured and the mnemonic coding of a violin perceived.

In a similar way, it may also be possible to view the right-hand element as non-arbitrarily invoking the presence of depth. For not only is this fragment displaced from its sister element in a manner which is consistent with the artist's indications of oblique projection (evidenced, for instance, by the parallel lines which cradle the bottom of the violin), but it also coincides with the marks which define the fleeing edge of the object, thus connecting it to a point which we see as furthest away. Therefore, counter to Krauss's claim about the insistent frontality of this collage, there is a sense in which these pasted papers *can* be seen as both structuring and belonging to an illusory space. And more to the point, if these elements partake of the logic of oblique projection, then their spatiality (both in terms of their placement by the artist and in terms of the illusion they help to establish) may not be determined in a wholly conventional or arbitrary manner. For if oblique projection is naturally affiliated with the allocentric mapping of visual space, then the pasted papers will not simply suggest depth by way of a formal opposition. Instead, their position and the network of relationships in which they are embedded will additively refer us

back to this structural feature of visual perception. In short, we can see depth in the picture because Picasso's placement of its elements is parasitic on the spatial cues that facilitate seeing in the world.

But nonetheless, the phenomenology of this space is dysmorphic; there is a sense of coherence, but this is forever sliding from view. In part, this may be due to the way that the collage's flatness – its adherence to the 'optical plane' if we may use Krauss's terminology – can come to figure in, and indeed monopolise, our visual attention. This is because, in making a theme of the sheer materiality of the newspaper scraps, Picasso invites us to inspect the literal presence of the surface and (as has often been noted) the status of the artwork as an object in its own right. But in considering the actuality of these papers as opposed to their role in figuration, we may do more than simply register the collage's physicality. In addition, we may view them as testament to the process of creation by attending to the crudeness of Picasso's cuts and tears.[248] In this respect, then, we can treat these elements as bearing the indexical marks of the artist's activities, thus allowing us to imaginatively reconstruct the procedures entailed in making the work.

It would seem, therefore, that *Violin* makes itself amenable to different interpretations depending on the way that our attention is spread. Thus, to put this in terms that can be applied to pictures in general, we might speak of a

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[248] This is a reading suggested by Richard Shiff in his essay 'Cézanne's Physicality: The Politics of Touch', see esp. pp. 160 – 166. Here, Shiff claims that in making his handiwork perceptible Picasso invites us to consider the picture 'under a tactile mode of description' (p. 162). The implications of this idea shall be considered in more detail later in this chapter.

formal, a representational and a literal reading.[249] By adopting the formalist position, our tactic is to focus on the relationships established between the compositional elements themselves. Or to put this another way, we treat the system of depiction as if it is has no truck with the anterior world. This therefore lends credibility to the semiological view since it draws attention to the way that meaning can be generated through the oppositional and multiplicative effects of signs. On a representational reading, conversely, we treat the picture in terms of its referential content by tracing visual resemblances between pictorial elements (either singly or collectively) and things in the world. In short, this will be an approach which privileges the iconicity of signs and which ascribes them a meaning from outside the work. And finally, we might read the picture in a literal way by exclusively considering its material aspects, for instance, its facture, medium and physical structure. However, since scrutinising the artwork in this manner can lead us to discern indexical marks, it can also catalyse reflection on how (and by whom) the picture was made.[250]

Therefore, in light of this framework, it is not that Picasso has passed from one mode of signification to another. Rather, he has composed his collage so that it facilitates different readings rather than submitting only to one. This means that Krauss and her associates are right in saying that iconic resemblance

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[249] Evidently, these are related to the symbolic, iconic and indexical modes of signification. However, in speaking of 'readings' instead of significatory modes, my point is that meaning depends as much on the interpretant as it does on the referential capacities of the sign.

[250] However, as many art historians have pointed out, when this leads to the treatment of the indexical mark as a sign of its maker's particular psychology or mental state it can result in an approach that is highly problematic. This is because, firstly, there is no necessary connection between an artist's personality and his or her mark-making process and secondly, even if there were, it may not bear substantially on the meaning of the picture. This psycho-biographical reading of the indexical mark is evident, for instance, in Harold Rosenberg's notion of 'action painting'; see 'The American Action Painters' in *Tradition of the New* (New York: Ayers Company Publishers, 1959), pp. 23 – 39.

is no longer a priority for the artist – and to this extent, they might also be right in saying that his Synthetic Cubism inaugurates a new tradition in art.[251] However, this advance cannot be characterised as a straightforward shift to symbolic representation since Picasso exploits his medium in three different ways. First, he often breaks the picture into individual components that fail to signify things in the world; second he also allows them to additively refer by invoking a non-arbitrary connection to sight; and third he draws attention to their literal qualities so that they can at once be read as articulations of the surface and as palimpsests of the constructive act. I would argue, therefore, that these works are intended to create a tussle between different interpretations. In other words, Picasso strikes a balance between the legibility of different kinds of pictorial sign.

5.3 PICASSO'S METAPHOR: *VIOLIN AND SHEET MUSIC*

In considering Picasso's *Violin* my purpose has been to show how our reading of the newspaper fragments can shift between different interpretations and how, more specifically, we can consider them as symbolic, iconic and indexical signs. What I have therefore been intimating is that it is precisely this kind of slippage that engenders the semantic ambiguity of Picasso's Synthetic Cubism. But of course, there are other metamorphic qualities that we can perceive in the papier collés and it is still incumbent upon us to account for these. To give this

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[251] For instance, Yve-Alain Bois claims that Picasso's Synthetic Cubism is the origin 'of a new era in the history of Western sculpture'. 'Kahnweiler's Lesson', p. 38.

hypothesis a little more force, let us therefore consider a further example in which this shift in meaning takes a more manifest form.

The work I shall focus on, *Violin and Sheet Music* of autumn 1912 (fig. 42), is representative of an effect which Picasso exploited throughout his career. This usually goes by the name of 'visual metaphor', that is, the capacity of an artwork to represent two (or more) things by drawing attention to the properties that they share. But, how should we say that this twin evocation is effected in pictorial terms – how, for instance, does the formal language of the 1912 collage doubly refer to a head and a violin? Of course, on a semiological reading this cannot depend upon the sign's direct relation to two different referents which themselves possess analogous properties, since this relationship is supposedly an arbitrary one. Thus, according to Yve-Alain Bois it is instead a product of Picasso increasing the 'value' of the sign – another Saussurian concept which can be summarised as the idea that the fewer signs there are in a system the more significations they will have to bear.[252] Accordingly, Picasso's strategy is said to be one in which he severely restricts his formal repertory so that the individual signifier – insofar as it is only opposed to a handful of other signs – is forced to encompass a much wider range of meaning. For instance, the paper element at the left of the picture can be seen as an ear and as the contour of a violin because, on the one hand, its contextual position makes each interpretation viable and, on

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[252] For Bois's discussion of *Violin and Sheet Music* and the series of collages to which it belongs see 'The Semiology of Cubism' in W. Rubin, K. Varnedoe and L. Zelevansky, *Picasso and Braque: A Symposium* (New York: Museum of Modern Art / Abrams, 1992), pp. 188 – 90; for his treatment of the concept of value see 'Kahnweiler's Lesson', pp. 50 – 52. Saussure's most famous example of value is the difference between the English word 'sheep' and the French word 'mouton'. In this pairing, the word 'mouton' is said to have a greater value, for unlike the distinction between sheep and mutton in English, the French have no separate word to refer to the meat that is eaten. Therefore the meaning of the word 'mouton' is distended in French. Saussure, *Course in General Linguistics*, pp. 115 – 16; discussed in *Ibid*, p. 51.

the other hand, this context is not differentiated enough to allow one reading to trump the other. Thus, for Bois, Picasso is thematising 'the minimum level of semantic articulation a shape is obliged to perform to be read as a sign.'[253]

Now, we can certainly agree with Bois that this picture possesses a minimum of formal elements and that if any of the middle four that constitute the head / violin were excluded one or both of these interpretations would fail. And it is also true that the contextual situation of these elements secures their meaning so that seen in isolation they would not refer to anything at all. But is this enough to prove that the metaphor depends on symbolic signification alone? This seems a hard pill to swallow for several reasons. First of all, this semiological reading would seem to imply that objects in the world are seen discretely, thus justifying the view that iconic signification operates in a one-to-one way. However, if our foray into visual science has taught us anything it is that object discrimination depends on seeing the relative position of things in a field, that is, it depends on the spatial coding of allocentric coordinates. Accordingly, we would not perceive an object unless there were sufficient spatial cues to establish a comparative relation between its constituent parts and nor would we be able to see a visual resemblance between a depicta and an object unless the pictorial field preserved sufficient of these cues. Thus, at its minimum level of differentiation, no pictorial element will signify an object iconically for it will not permit a spatial comparison to be made.[254]

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[253] *Ibid*, p. 190.
[254] Indeed this makes us wonder what Bois and the other semiologists consider a discrete sign to be.

To return to *Violin and Sheet Music* we might therefore assert that both the additive constitution of shape by the four central elements and the spatial relations between each one allow the metaphor to work in an iconic way. Let us start by considering the pasted papers as cooperatively describing the silhouette of an object. In this respect, it is clear that we would struggle to recognise this form as a head, although we might have more luck in seeing it as a violin. But while the latter reading is more convincing, the structure of this shape is also sufficiently analogous to the outline of a head to not rule out this identification entirely. However, what is more important to this reading is the supplementary information provided by the individual components. And more particularly, this interpretation would seem to hinge on the relative size and shape and most crucially on the spatial distribution of the double-arced form, the black quarter-circle and the holes cut out of the blue central element. It might be said, therefore, that these elements are positioned in relation to one another and in relation to the total contour so that they finally secure the reading of the head by preserving the allocentric coordinates that perception encodes. In other words, even if the relative shape and size of these papers crudely relates them to an ear, mouth and nose, it is only by way of their placement in space that they will come to assume the perceptual gestalt of a face.

Of course, the juxtaposition of these three paper elements also internally fractures the form of the violin. However, these fissures do not fundamentally disturb its identity. This is not only due to the reinforcement of this reading by the additive shape but also to the presence of individual elements which lend themselves to the articulation of the violin's features (consider, for instance, the

role of the white paper in describing its neck). Finally, however, it is the allocentric constituents shared by both the violin and head which facilitate the transition between different readings and thereby allow the pun to occur. This bridging function is particularly the role of the slits in the blue paper element. For due to the spatial interval between each one and their relationship to the form as a whole, they may equally stand in for sound holes or for eyes.[255] Thus it may be that these slits form the perceptual pivot of the image by catalysing the reconfiguration of its gestalt. In this respect, then, it is not only the internal organisation of the picture that secures the possibility of two different readings. Rather it is the shaping of formal relations so that they at once derive from and thematise the structural similarity between two distinctive objects of sight.[256]

5.4 THE BODILY PHENOMENOLOGY OF SYNTHETIC CUBISM

The ideas in the two previous sections can be summarised by saying that Picasso disrupts the *semantic* coherence of the picture but prevents it from collapsing into complete illegibility. In other words, representation still 'works' – the image still has a figurative content – but the viewer must build this up in a piecemeal way. The artist explored many different permutations of this effect between 1912 and 1914. Sometimes it is the insertion of a self-sustaining iconic element which permits recognition to take place. And when this happens, the iconic field may

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[255] In a like manner, the white pasted paper may be seen as articulating the neck of the violin or as a hat (or perhaps hair) crowning the head. However, since it would seem to correspond more strongly to the shape of the violin, it does not act as the vital passage between these two readings.
[256] For an alternative reading which also considers the iconic function of Picasso's collages see Roger Rothman and Ian Verstegen, 'Arnheim's Lesson: Cubism, Collage and Gestalt Psychology', *The Journal of Aesthetics and Art Criticism*, 65, no. 3 (Summer 2007), pp. 287 – 298.

extend to recruit non-mimetic elements, as we saw was the case with *Violin*. At other times, no individual component can be considered iconic, and yet figurative meaning may still be recovered through the artist's affirmation of an allocentric space. However, neither one of these strategies allows recognition to proceed straightforwardly to its goal. Rather we are forced to chase meaning around the picture by piecing together the partial evidence of its fragments and clues. This is therefore the sense in which Picasso's collages address us as games, as his frequent cropping of the word 'Jou' from *Journal* implies (fig. 43).

But while the complexities of this issue could be thrashed out interminably, my purpose in this section is to consider a different aspect of Picasso's Synthetic Cubism. In this respect, I shall no longer be concerned with the legibility of the picture, or what I have referred to as its 'semantic' dimension. Instead, I shall treat the 'pragmatic' aspect of the collages, that is, the way they can structure bodily experiences and in particular how they can mobilise imaginary manual activities. I have already hinted at this experience when I spoke of Picasso's use of the newspaper clippings in *Violin*. But here I was solely treating this as a function of the work's literal surface and the artist's emphasis on the indexical sign. However, in order to begin this analysis properly, it is necessary to start by considering the spatial ambiguity of these works for, as I hope to make explicit, this is vital to their production of a physical effect.

While Clement Greenberg's discussion of the 'opticality' of Synthetic Cubism may seem far removed from this issue, the description he gives in his 1959 essay 'Collage' would nevertheless appear to hint at the motor

intentionality of this space. On this view, the peculiarity of the collages is that, in producing an oscillation between flatness and depth, they seem to 'encompass fictive space *in front of the surface* as well as behind it.'[257] For instance, we can observe this effect if we return again to *Violin*. In this case, we have already noted how, in attending to the sheer material presence of the pasted paper, we become aware of the literal flatness of the picture's surface. However, this experience only holds to the extent that we broadly distribute our visual attention and see the newspaper elements as locked into place by – and thus co-existing on the same literal plane as – the charcoal drawing. But when we come to focus on the elements themselves, and particularly when we become absorbed by their ragged cut and torn edges, they can seem to stand apart from, and thus float above, the sparse, white ground. Therefore, by way of the conjunction of these two effects – our ability to discern the artist's activities and the apparent lift of the pasted papers off the support – we may come to envisage these elements as planes or surfaces which can be shifted and manipulated in various ways. In this respect, then, we may not only 'read' the rotation of the newspaper as a symbolic inscription of '/back/ or /behind/.'[258] Instead, by attending to the constructed nature of these fragments and by seeing them as floating in an ambiguous space, we may find ourselves identifying with the motions of turning that this activity entails.

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[257] Greenberg, 'Collage' (1959) in *Art and Culture: Critical Essays* (Boston: Beacon Press, 1961), p. 77. (My emphasis). In his discussion of the collages, Greenberg distinguishes between a depth which is suggested 'pictorially' – that is, one that seems to recede behind the literal surface – and one that is suggested 'optically' – that is, one that is established on top of the surface. On my understanding, however, the word 'optical' is somewhat misleading as it does not capture the peculiar – and more specifically, the tactile – phenomenology of this space. In her essay Krauss makes no reference to this spatial aspect as it would obviously conflict with her characterisation of the collages as 'inexorably flat' ('The Motivation of the Sign', p. 262). On the other hand, Yve-Alain Bois does attempt to reconcile this effect with a semiological reading, claiming that real space could only be incorporated 'once it had been transformed into a sign' ('Kahnweiler's Lesson', p. 55). I will return to this argument in the following chapter.
[258] Krauss, 'The Motivation of the Sign', p. 263.

Clearly, this effect is different from that which characterises Cézannian Cubism, and the means to obtain it have accordingly changed. In considering Picasso's picture of *La Rue des Bois* (fig. 27), I claimed that this work elicits sensations of reaching and grasping, or what is sometimes referred to as 'manual prehension'. Thus, in analysing the composition of *Houses on the Hill* I attempted to show how Picasso maps the visual cues which relate to this variety of action into the language of pictorial illusion, that is, into the space of the 'third domain'. However, these later works require a different explanation for two basic reasons. First, the artist has adjusted his medium so that bodily experience is primarily engendered through the perception of actual materials and indexical marks. In other words, this it is not simply a matter of visual *illusion*, even while the 'floating' space may be characterised as an illusionistic one. And second, unlike the aesthetic of *Houses on the Hill*, we are no longer invited to imagine ourselves reaching out to grip illusory volumes. Instead, I would claim that the actions elicited by the collages relate to specific manipulations such as sliding or tearing or in certain cases they correspond to the use of particular tools. Accordingly, it would seem that these pictures present us with a constructive 'work space' where we can imaginatively participate in the creative act.

To give a little more weight to this argument, let us consider a further example: Picasso's *Landscape of Céret* of spring 1913 (fig. 44). While this work possesses pockets of recession and points of visible flatness, in general its space seems established above or on top of the drawing plane. This effect depends on two separate, but crucially interrelated strategies. On the one hand it hinges on

Picasso's loose attachment of the elements to the surface so that their corners float away from – and thus cast shadows on – the paper support. And on the other hand it depends on the depicted shadows which cling to the elements and which accordingly establish the illusion of a shallow 'pictorial' depth. Therefore, since depicted and real shadows seem to merge, the whole shape of each pasted paper element no longer appears as if it is stuck down to surface. Instead, drawing momentum from the literal float of the corners, each seems to detach from the material ground and hover indeterminately in the space above. Thus, by way of this conflation of reality and illusion, the papers appear to flutter towards our bodies and so, I would argue, they seem capable of being rearranged and slid around.

This effect of manipulability further unfolds through the crudeness of Picasso's collage technique. As previously noted, this is because by attending to the jagged snips and the frayed edges (and possibly even the wrinkles left behind by the glue), we may refer these marks back to the activities of cutting, tearing and pasting. And thus through our acquaintance with these procedures, we may come to imagine performing them ourselves. However, what is striking about this particular work (and more generally, about the series of collages to which it belongs – see for example, figure 45 and figure 46) is the way that this effect is further developed through the artist's use of dressmaker's pins. [259] For these not only make a theme of the literal removability of the papers, but they also speak of the humble and unassuming nature of the tailor's craft. And so, in sum, the

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[259] Picasso began using pins in his compositions at the end of 1912 and made this a regular feature of his work in the spring of 1913. As Christine Poggi has pointed out, these pins may be interpreted as humorous references to Braque's trompe l'œil nails which the latter used in paintings such as *Violin and Palette* and *Violin and Pitcher* of 1909 – 10. See Poggi, *In Defiance of Painting*, p. 19.

signs of making which are spread over the surface of the collage index the kinds of activities which we all can engage in and which we are likely to have performed in the past. It may therefore be that this rough-shodden appearance joins with the floating effect of the papers. If so then it will be the combined force of these two aspects which structures the bodily aesthetic of the work.

Perhaps, then, we might draw out the significance of Picasso's procedure by relating it to Merleau-Ponty's discussion of the 'sedimentation of habit': the idea that objects speak to us as 'poles of action' by way of the bodily familiarity we have with them. For instance, the philosopher offers the example of the wallet-maker, Schneider, who:

[…] when put in front of his scissors, needle and familiar tasks, does not need to look for his hands or his fingers, because they are […] potentialities already mobilised by the perception of scissors or needle, the central end of those 'intentional threads' which link him to the object's given.[260]

However, while Schneider can still perform these habitual movements, he has lost the capacity to spontaneously perform 'abstract' movements – such as mimicking another person's actions or pointing to a part of his body[261] – due to

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[260] Merleau-Ponty, *Phenomenology of Perception*, p. 121.
[261] Merleau-Ponty defines 'abstract' movements as those which are 'not relevant to any actual situation, such as moving arms or legs to order…' These are compared to 'concrete' movements which are those non-conceptualised acts which we habitually perform, such as walking or swatting a fly when it lands on our skin. In terms of seeing, this might therefore be related to the distinction between 'vision for perception' and 'vision for action' (and indeed, this is very much suggested by the philosopher's reference to 'grasping' and 'pointing' or *Greifen* and *Zeigen*). *Ibid*, p. 118; pp. 130 – 31.

the brain damage he suffered in the war. Instead, he must first conceptualise these motions – meaning that he must first look for their reference points in an 'objective' (or perhaps, an allocentric) space[262] – thus producing them in a slow and laborious manner. For Merleau-Ponty, then, this pathological case discloses the operations of normal perception. And more precisely it shows that 'the acquisition of a habit is…the motor grasping of a motor significance'[263], so that the repetitive actions we daily engage in and the tools we habitually use (our ability to drive a car, for instance) are incorporated into, and are comprehended by way of, our bodies. Or to put this differently, they become a form of practical knowledge – a knowledge 'in the hands'[264] – which is accessible to us without requiring the top-down contributions of thought. Schneider's incapacities therefore indicate that only the habits which were acquired before his injury remain intact. His body cannot 'catch' and 'comprehend' new significances, and for this reason the world of his experience is:

> […] readymade or congealed, whereas for the normal person his projects polarize the world, bringing magically to view a host of signs which guide action, as notices in the museum guide the visitor.[265]

But this account only seems to consider the motor habits that *directly* connect the subject to his or her perceptual surroundings. For instance, it may

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[262] See especially *ibid*, pp. 118 – 129. Merleau-Ponty contrasts this objective experience of space to the normal bodily experience of it as a zone of potential activity. For example, he states, that 'The normal person *reckons with* the possible, which thus, without shifting from its position as a possibility, acquires a sort of actuality. In the patient's case, however, the field of actuality is limited to what is met with in the shape of a real contact or is related to these data by some explicit process of deduction' (p. 125). In neuropsychological terms, we might therefore say that Schneider cannot generate motor imagery.

[263] *Ibid*, p. 165.

[264] *Ibid*, p. 166

[265] *Ibid*, p. 165; p. 129.

help to explain why actually perceived scissors (or perhaps, iconic representations of them) address the body as instruments of cutting, thus eliciting the appropriate grip and pincer-like action. However, if we want to know how we invest the signs of *another person's* activity with significance then we might turn to neuroscience, and more particularly to the theory of 'embodied simulation' for a clue.[266]

This theory has developed from the identification of 'mirror neurons', which are cells in the posterior parietal lobe that discharge when one and the same action is both performed *and* perceived.[267] It has been proposed, therefore, that by connecting our own goal-directed movements to those which we see other people perform – that is, through each of these experiences producing the same 'action representation' – this neural network allows us to understand the intentions of others by evoking a 'motor resonance' with the acts we observe. And so, according to this view the 'mirror system' could instruct our ability to mimic and to empathise with other members of our species in a 'bottom-up' way.[268] If mimicry is therefore involved in the learning of culturally specific activities such as the use of tools (as Jacob and Jeannerod and several others have argued)[269] then there may be a scientifically justified reason for claiming that Picasso's collages evoke a motor resonance. We might say, for instance, that the movements involved in making the artwork are familiar to the viewer having

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[266] For a summary of this theory and its implications see Vittorio Gallese and Alvin Goldman, 'Mirror neurons and the simulation theory of mind-reading', *Trends in Cognitive Sciences*, 2, no. 12 (December 1998) pp. 493 – 501.

[267] These neurons were first identified in the early 1990s. For the first papers on this subject see Di Pellegrino et al., 'Understanding motor events: a neurophysiological study' *Experimental Brain Research,* 91 (1992), pp. 176 – 80 and Rizzolatti et al., 'Premotor cortex and the recognition of motor actions', *Cognitive Brain Research*, 3 (1995), pp. 131 – 41.

[268] This identification will be much stronger with our conspecifics because we share the same neural architecture, cultural surroundings and ecological 'niche'.

[269] See Jacob and Jeannerod, *Ways of Seeing*, p. 226 – 236.

been encoded in her memory as 'motor schemata'.[270] Accordingly, these will be activated when perception delivers the relevant cues. [271]

The final question, therefore, is whether an indexical mark can be considered a 'relevant cue'? Of course, it is clear from the start that seeing the residua of actions is not the same as seeing the deed being done (that is, we do not actually bear witness to Picasso making the work). Nevertheless, for these motor schemata to become useful to us in everyday perception, we must have some way of knowing when the situation around us makes them germane. If we therefore *recognise* that Picasso's marks have been caused in a particular fashion – for instance, through the familiar activities of cutting and tearing – then it may be that 'vision for perception' is first required to activate these schemata. This would mean that a 'literal reading' (in the sense I outlined earlier) is a necessary precursor to our bodily identification with the work.

Accordingly, if Picasso's collages draw us closer to the creative process, then this may be due to the bodily acquaintance we have with the activities evidenced by his indexical marks. But crucially, this effect will be prevented from replicating the banal experiences of everyday life due to the way that the artwork reorganises – and in Picasso's case complicates – our perception of the world. Thus, as the picture plane presses forward into actual space, it will not simply be assimilated to the logic of reality; instead, it will invest reality with the

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[270] Jacob and Jeannerod define this as the 'internal representation of a recipe […] for the manipulation of tools. *Ibid*, p. 216.

[271] According to Jacob and Jeannerod, motor schemata 'can be triggered exogenously when an individual perceives a token of the […] action performed by another agent.' They also suggest that such a token may not only be the perception of the action itself, but also the mere perception of tools. *Ibid*, pp. 217 - 18

quality of art.[272] In summary, therefore, if familiar motions become absorbed by our bodies – if they become pre-reflexive or 'sedimented' habits – then by resituating these activities in an aesthetic space the artist may 'defamiliarise' perception.[273] Thus, by way of a kind of 'phenomenological reduction' he may reawaken our 'wonder in the face of the world'. [274]

5.5 CUBISM DIVIDED: PICASSO AND BRAQUE

Does Braque's version of Synthetic Cubism similarly evoke this 'constructive work space'? I wish to suggest that it does not and that this therefore indicates a key point of disjuncture between his practice and that of Picasso. For a start, Braque always cut and laid his papers onto the support with great care and attention so that the indexical signs of making – while perceptible – are not visible in the same assertive, eye-grabbing way. And moreover, while Picasso's compositions are usually quite 'open' and spreading, thus allowing their contents to 'spill out' into the space of the viewer, Braque's compositions seem comparatively self-contained and closed. Consider, for instance, his *Violin and Glass* of 1912 – 13 (fig. 47), a work which is roughly contemporaneous with Picasso's *Landscape of Céret*. In this picture, we see the artist playing his collage elements off against the taut, linearly structured scaffolding of the drawing. But while this play of forms produces a shifting space by way of its transparencies,

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[272] Yve-Alain Bois makes a similar point when he says that Picasso transforms reality 'into a sign.' I shall address this point in my conclusion.

[273] According to Bois, the concept of 'defamiliarisation' or *ostranenie* was first discussed in relation to Cubism by Roman Jakobson, who drew this idea from the work of Victor Shklovsky. See 'The Semiology of Cubism', pp. 177 – 80.

[274] Merleau-Ponty, *Phenomenology of Perception*, p. xv.

overlappings and superimpositions – and while it thereby creates a certain sense of 'float' – at the same time this is regimented by the grid-like composition and by the way the paper elements loosely mimic the shape of the frame.

It is this sense of elements being interlocked within an internally tensile space that I think Braque has carried over from an earlier phase of Cubism and in this respect, he has not made the transition that is evident in his associate's work. And more specifically, I would suggest that the goal of Braque's Synthetic Cubism is an extension of the aim of his Analytic works: namely, the desire to transform the experience of touch into a *perceptual* language of pictorial form. That Braque viewed touch as central to his project is evident from several statements he made later in his life. For instance, he proclaimed that:

> What particularly attracted me [to Cubism] was the materialisation of this new space that I felt to be in the offing. So I began concentrating on still-lifes, because in the still-life you have a tactile, I might almost say a manual space…This answered to the hankering I have always had to touch things and not merely see them.[275]

Now, of course, I have also been claiming that Picasso was interested in evoking sensations of touch. However, I would suggest that Braque's concern with this modality was different in two important respects. First, his art never creates the incongruity that is evident in his colleague's pictures for he does not see a philosophical problem in transforming tactile experience into something

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[275] Dora Vallier, 'Braque, la peinture et nous', *Cahiers d'art*, 20, no. 1, October 1954, p. 14. Quoted in Edwin Mullins, *Braque* (London: Thames and Hudson, 1968), pp. 40 – 41.

that is visually perceived. Or, to put this another way, Braque does not seem to draw a distinction between our visual *recognition* of the tactile properties of surfaces and the indeterminate physical appeal they have for our bodies by way of *enactive* sight. Thus, unlike Picasso, he does not attempt to represent this last experience as something that is unique and different from the semantic phenomenology of vision. In real terms this means that Braque's artworks can combine literally tactile materials such as sand and sawdust with pictorial forms that either metaphorically or associatively figure the cues of touch. For instance, in *The Fruitdish* of 1912 (fig. 48) he makes tactility both a function of what we recognise in the picture by iconically representing the grainy appearance of wood and also a function of what we literally perceive by mixing sand in with the paint. In Picasso's pictures, on the other hand, what we recognise and what we tactually sense cannot be so easily combined. [276]

Furthermore, I would suggest that Braque's conception of touch is quite specific: perhaps due to his early investigations of Cézannian *passage* he seems to consider it largely in terms of *haptic* perception. [277] On this view, therefore, the aim of Braque's Cubism in all its phases is to produce an aesthetic experience whereby we are invited to imagine running our hands and fingertips over a surface, exploring its different angles and inflections in a piecemeal and cumulative way. Thus, in light of the argument I have so far developed, this will

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[276] This might be related to Krauss's claim that Braque treats touch and vision as 'functions of the same interlocking network.' 'The Motivation of the Sign', p. 270. Bois also makes a similar point when he says of Braque's concern with touch that '[his] concept of the sign always remained synecdochical (hence fundamentally iconic)' 'The Semiology of Cubism', p. 194.
[277] According to Susanna Millar, the term 'haptic' perception refers to 'the combination of inputs from touch and movement' particularly involving 'exploring and scanning movements'. Conversely, I understand the word 'tactile' to embrace all forms of touch-like experience. See Millar, *Space and Sense*, p. 2. For Braque's early use of Cézannian *passage* see his pictures of L'Estaque of 1908 and of La Roche Guyon of 1909.

mean that his Cubist practice differs from Picasso's since the latter begins with a concern for manual prehension and later makes constructive activity a theme.

Nevertheless, this 'haptic' concern is evident in the work of both artists in the years 1909 to 1911. Take, for instance, Braque's *Clarinet and Bottle of Rum on a Mantelpiece* of 1911 (fig. 49). In general, the tactile effect of this work is contingent on the artist's use of faceting to shatter the picture plane and his use of *passage* and shading to make the fragments seem as if they are equally within reach of our hands. However, what makes this space seem *specifically haptic* is the way our gaze is invited to proceed along specific vectors and how it then lights upon particular forms and textures as if replicating the exploratory movements of touch.[278]

The scrolled edge of the mantelpiece, for instance, upon drawing our eye to its sensuous curves, almost appears to detach from the surface and float forward into our space (fig. 49 detail (a)). However, by tracing the flow of its curves, we reach a point where it seems to be hinged to the picture plane by a crisscross of lines. By their upward thrust, these lines then lead to a circular form which, by being the lightest element in the composition, has already made a grab for our attention. Yet, on closer inspection, this area is so thinly painted that it reveals the weave of the canvas, a fact that is made even more emphatic by the dark impastoed brushstrokes on the right. As a result, this element which had

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[278] For a consideration of the movements involved in haptic perception see *Ibid*, chapter four 'Hand movements and spatial reference in shapes and small-scale space' pp. 71 - 97. In reviewing evidence of Braille reading tasks, Millar notes that subjects tend to employ dynamic scanning actions and rely on specific tactile details to guide their movements. It might therefore be suggested that Braque's picture visually thematise the tactile cues that direct these manual activities.

first seemed to push forward assimilates to the literal surface of the work. A network of similarly incongruous effects traces its way around the whole central area of the canvas creating a perpetual ebb and flow of space, only briefly being interrupted by the trompe l'œil nail which both paradoxically anchors the picture and constitutes its most ambiguous zone (fig. 49 detail (b)). An appropriate analogy for this work would therefore seem to be one relating to tactile – and more specifically to haptic – perception, which is presumably why the words 'bas-relief' are so often invoked.[279]

I would therefore suggest that this concern dominated Braque's Cubism even after he had begun to explore the medium of papier collé.[280] And so, while this innovation may have allowed him to simplify the composition, to employ a wider variety of textures and to reintroduce local colour, these works nevertheless retain the manual effects of the previous few years. In other words, they continue to evoke metaphorical and metonymic exchanges between visual perception and haptic touch.[281] It would seem, for instance, that Braque intended

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[279] For instance, Greenberg uses this term numerous times in 'Collage'.

[280] Braque's first papier collé was *Fruit Dish and Glass* of September 1912; this was followed a few months later by Picasso's, *Guitar, Sheet Music and Glass* (dated from after 18th November, 1912). It should be pointed out that Braque pioneered many of the key (material) developments of Cubism. It is known, for example, that he was the first to introduce lettering and the imitation of faux bois into his works and to mix his paint with sand and other extraneous materials and more recently it has come to light that he also made the first paper constructions (August 1912, no surviving examples). On the other hand, Picasso is credited with making the first collage (*Still Life with Chair Caning*, May 1912), and it is also sometimes contended that his cardboard guitars of autumn 1912 were the first 'true' Cubist constructions insofar as Braque's (dated as early as 1911) were intended as working models. For a generally accepted account of the chronology of Cubism see *Picasso and Braque: Pioneering Cubism* (exh. cat., Museum of Modern Art, New York, 24 September 1989 – 16 January 1990) ed. William Rubin (New York: Thames and Hudson, 1989), pp. 2 – 3.

[281] My use of rhetorical figures to describe Braque's strategy is indebted to Richard Shiff's essay 'Cézanne's Physicality' in which he describes Cézanne's oeuvre in similar terms. However, pace Shiff, I would suggest that Cézanne, like Picasso, does not so much refer to touch by employing visual metaphors (as Braque often does). Instead, I would argue that his pictures evoke the *difference* between recognitional seeing and enactive perception. Shiff cannot say this since he does not consider sight to have its own tactile dimension, that is, he does not possess the concept of 'vision for action'.

his *faux bois* papers to function as visual signs for texture, that is, as pictorial elements which can be associatively referred to tactile sensations but which are not distorted by visual perspective.[282] And colour is equally intended to disclose a material aspect; for instance, Braque stated to Dora Vallier that, 'I saw how much colour depends on material. Take an example: dip two white pieces of cloth, but of different materials in the same pigment: their colour will be different.'[283]

But these are concerns that have vanished from Picasso's Synthetic Cubism; and in any case, it seems that they were never *straightforwardly* there. What then should we say *is* different about Picasso's collage practice? As Krauss notes, this seems to have something to do with the way that touch is held separate from vision. But does this mean that tactility has been totally eliminated from the work? Does it now only appear in the form of a symbolic 'inscription'?

In my opinion, Richard Shiff has got a little closer to the truth in describing the specific mechanics of this dichotomy. In speaking of Picasso's collage practice he states that the artist 'often configured "literal" cuts [that is, the marks of 'cutting, tearing, binding and folding'] so that the distinction between visual illusion and tactile physicality becomes a necessary part of any attentive description of the picture.' [284] This can be seen, he claims, in a work such as *Bowl with Fruit, Violin, and Wine Glass* of 1913 (fig. 50), especially if we consider the five pasted papers bearing images of apples and pears in the top

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[282] For a detailed discussion of the role of *faux bois* in Braque's collages see Poggi, *In Defiance of Painting*, pp. 91 – 105.
[283] Vallier, 'Braque, la peinture et nous', p. 17; quoted in *Ibid*, p. 15.
[284] Shiff, 'Cézanne's Physicality: The Politics of Touch', p. 162.

left-hand corner. For while these are most immediately *seen* as three fruits occluding two more distant ones, any closer inspection destroys this illusion for it makes apparent the non-continuity between the shape of the paper and the edges of the fruit. And so, by refusing to allow these two aspects to cohere, Shiff claims that Picasso entreats the viewer to apply two distinct 'modes of description' to the picture. On the one hand, the collage is treated as a space of visual illusion, a disembodied zone where substance and meaning are present only to the eye. And on the other hand, the picture is treated as a literal object animated by indexical marks, a physical zone where 'touch implies dispersal of interest and energy'.[285]

If this argument is at all plausible (and it seems to me that it is) then perhaps the crucial issue in making sense of Picasso's Cubism *as a whole* is that of saying how the incongruous effect of a picture such as *Houses on the Hill* develops into and prefigures the dichotomous effect of the collages. In the next section I shall try to specify what this principle is and in doing so I shall offer an alternative to Krauss's account.

5.6 THE SEMANTICS AND PRAGMATICS OF PICASSO'S CUBISM

While Krauss claims that *Houses on the Hill* polarises the experience of vision and touch, I think that it instead wedges apart vision for perception and vision for action. Therefore, rather than the incongruity of this image being an effect of the

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[285] *Ibid*, p. 165

tension between seeing a relief plane and sensing a chasm beneath our feet, I would suggest that it can be expressed as the difference between 'seeing that' there are houses and 'seeing how' to manipulate them as building block-like forms. Of course, there is an overlap between these two explanations: both register the fact that there is something peculiar about the imagery which heightens our sense of physical embodiment and in this way both refer to the modality of touch. And both acknowledge that this is in some way estranged from our normal experience of vision and that by attending to the picture in a different way, a semblance of this normality will still be preserved. However, I would contend that Krauss's argument fails to provide the relevant concepts to makes sense of this distinction, and while this paves the way for her final conclusion, it fails to shed light on the tension between semantic and pragmatic attention that Picasso's collages produce.

Picasso's problematic as I therefore understand it is one of evoking the phenomenology of enactive seeing while demonstrating its difference from recognitional sight. And so I would propose that the dichotomy structured by *Houses on the Hill* is due to his use of one and the same set of marks to figure visual cues that signal the graspable qualities of objects while allowing these to be perceived as distant entities in a landscape. Therefore while Krauss attributes the forward thrust of this picture to Picasso's assertion of the relief plane, I would ascribe it to his thematisation of cues relating to manual prehension. Conversely, while she treats recession as generating the carnal phenomenology of the painting, I would consider it as sustaining recognition by loosely approximating an allocentric space. Therefore, it may be the very slippage of this

space from an allocentric to egocentric phenomenology that generates our sense of vertigo – and therefore of heightened bodily presence – when enactive seeing takes priority over perception. And when Krauss notes that the 'inverted pyramid' may flip out, this may be evidence of a similar shift in our attentional mode.

Let me show in more detail how my argument compares to the unfolding logic of Krauss's account. As will be recalled, Krauss implies that Picasso subscribes to an associationalist view of perception and thus considers the experience of vision and touch to be fundamentally disjunctive and to be coordinated by way of memory alone. But since he would then presumably regard pictures as only directly engendering visual experiences, his project to bracket out tactility would seem to be quite illogical from the start. In other words, there is little sense in trying to carve out a distinct zone of carnality if one believes that pictures are purely visual objects and cannot *eo ipso* produce this effect. But if – as Krauss seems to be saying – this realisation only struck Picasso during or after the summer spent in Horta, there is still of course the possibility that this view *negatively* informed his subsequent development.[286] In other words, from circa 1910 to 1912, Picasso may have been progressively relinquishing the iconic or illusionistic visual signs that are associated with

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[286] According to Krauss, the sense of disjunction in Houses on the Hill is 'what Picasso took from Cézanne, even more certainly that the lesson about the continuity of relief' (and accordingly, it is implied that his Cubism departs from Braque's on this point.) However, Krauss does not make it clear why this disjunction should motivate the artist's subsequent 'withdrawal' of touch, which to my mind creates something of a puzzle. Presumably, *Houses on the Hill* either activates a tactile phenomenology and it does so using non-iconic means (i.e., Picasso does not adopt the strategies of trompe l'œil to render this effect, and he does not simply depict objects that we *recognise* as being tactual) or it fails to induce this sensation, in which case there would be no disjunction for Krauss to note. Therefore, if we take the former interpretation to be correct, Picasso would (presumably) consider his project as successful and there would be no need for him to renounce tactility *tout court*, only to stress its non-reliance on the recognisibility of objects, and thus, in pictorial terms, on iconic or illusionist means. See 'The Motivation of the Sign', p. 268.

tactility (and so, on this view, with volume and depth). However, if the artist did consider this as a phase of removal and erasure – if every picture he produced were experienced as a 'passionate relation to loss'[287] – one wonders why he would continue to pursue this iconoclastic path unless he has already glimpsed the semiological solution lying ahead.

Therefore, instead of foisting this teleology on his art, perhaps we might take the key observations from Krauss's account and conceptualise them differently. In this respect, she draws attention to two important aspects of his work that need explaining insofar as they seem to bear significantly on his future development: first, Picasso *does* undermine iconic representation, and second, the look of his pictures *does* seem to cleave the viewing experience in two. However, to say – as she does – that these twin facts are explained (and thus that the principle of his evolution is illuminated) by his ghettoisation and later elimination of tactile cues would seem to wilfully ignore the nature of the experience that has been reported by others. In other words, many have spoken of the appearance of Picasso's pictures (particularly in the middle years of Cubism) not as *loosing* their substantiality but as *gaining* in their physical effect.[288]

I would argue, therefore, that Krauss erroneously equates greater flatness with a lack of tactility.[289] Accordingly, while it may be true that there is a

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[287] *Ibid*, p. 271.
[288] For references to this interpretation see Chapter 2, note 96.
[289] For instance, in one and the same paragraph, Krauss moves from the idea that 'in its developing, Analytic years, the Cubism of Picasso and Braque pronounced the impenetrable frontality of the pictorial surface more obstinately and resolutely than had any style before it' to the claim that, 'the asceticism [of this style] had almost totally renounced the possibility that the

tendency towards 'lateral spread' in the paintings and while it may also be true that under a certain mode of description the collages look 'inexorably flat'[290], this is not to say that their palpability diminishes and finally disappears. What it may mean, instead, is that this experience is being structured in a distinct manner, and more particularly in a way that is no longer contingent on iconic signs. Or to put this differently, Picasso may have wished to create this effect without imitating the *determinate* appearance of objects and thus he may have been trying to show how their tactile appeal is different from the aspect they present to recognitional sight. In order to do so, therefore, he would need to stress the disjunction between two aspects of vision which in everyday experience are normally collapsed into one.[291]

In any case, why should we suppose that Picasso viewed depth and volume as solely experienceable through touch? Krauss traces this back to the influence of associationalist psychology, a claim which initially sounds plausible due to the prevalence of this view around the turn of the century. But equally it is evident that the hegemony of this discourse was being challenged at the beginning of the 1900s, and in this respect the work of Henri Poincaré may stand

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two dimensions of the visual field could ever afford its viewer direct and unmediated access to that other world of tactile completeness…' *Ibid*, pp. 261 – 62.

[290] Both citations, *Ibid*, p. 262.

[291] According to Melvyn Goodale, 'vision for action' is not 'normally available to awareness', but it nevertheless *modulates* consciousness. 'The Cortical Organisation of Visual Perception' in *An Invitation to Cognitive Science*, p. 207. The same point has been made with regards to the distinction between the 'body schema' (the somatosensory site of our motor habits and reflexive actions) and the 'body image' (our beliefs about, and conscious experience of, the body). For instance, Shaun Gallagher claims that '…various aspect of the body schemata have an effect on the way subjects perceive their own bodies, that is, changes in the body schemata lead to changes in body images.' Indeed, this might be said to be the whole premise of Merleau-Ponty's account. See 'Body Schema and Intentionality' in *The Body and the Self*, ed. José Luis Bermúdez, Anthony Marcel and Naomi Eilan (Massachusetts: MIT Press, 1998), p. 237.

as a possible source for a different conception of sight.[292] Poincaré's philosophy

differed sharply from that of the associationalists since he did not consider touch

to be wholly distinct from vision, and thus he did not treat depth as a dimension

which could not directly be seen. Rather, his theoretical speculations

fundamentally opposed this way of thinking by proposing that visual space was

articulated through the capacities of the body. In other words, movement and

touch were considered *preparatory* to sight and thus would inflect it from the

inside and not from the top-down. For instance, in his widely read work *The

Value of Science* of 1905 he made the claim that:

> […] to localise an object simply means to represent to oneself the
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> movements that would be necessary to reach it. It is not a question of
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> representing the movements themselves in space, but solely of
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> representing to oneself the muscular sensations which accompany these
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> movements and which do not presuppose the existence of space.[293]

Now, it would seem likely that Braque was familiar with this idea and

that he understood it as implying a distinction between two kinds of space and,

by implication, between two modes of picturing. For instance, we might recall

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[292] Regardless of whether Picasso had read Poincaré's work, it is quite possible that these ideas were known to him through his contact with figures such as Jean Metzinger and Maurice Princet. Princet was an enthusiastic advocate of Poincaré's ideas who contributed significantly to theoretical discussions of the Puteaux Cubists. Furthermore, Metzinger implies a connection between this idea and Picasso's art when he claims in his 'Note sur la peinture' that 'Cézanne showed us forms living in the reality of light, Picasso brings us a material account of their real life of the mind – he lays out a free, mobile perspective, from which that ingenuous mathematician Maurice Princet has derived a whole geometry.' *Pan*, Oct. – Nov. 1910, p. 650; cited in Linda Dalrymple Henderson, *The Fourth Dimension and Non-Euclidian Geometry in Modern Art* (Princeton: Princeton University Press, 1983), p. 64. For a discussion of these connections see Henderson's work, especially chapter 2 'Cubism and the New Geometries'.
[293] Henri Poincaré, *The Value of Science* (1905) cited in Jacob and Jeannerod, *Ways of Seeing*, p. 194.

his statement that 'Visual space separates objects from each other. Tactile space separates us from objects. The tourist looks at the site. The artilleryman hits the target (the trajectory is the prolongation of his arm.)[294] Of course, Picasso was never quite so open about his theoretical views, particularly when there was a danger of them being read into his art. Nevertheless, given his and Braque's close partnership over these years it is more than plausible that he was thinking along similar lines.

However, while it would seem that Braque understood this cleaving of experience to relate to two types of *space*, I would suggest that for his colleague it was more a question of *visual experience in toto*. Accordingly, if Picasso is attempting to draw a distinction between two separate experiences, then perhaps it is not so much that of vision and touch per se but rather of two distinct aspects that are *internal* to sight. Thus, if he were to adopt Poincaré's terms, one half of this coupling would be the world as it is seen through the filter of experience and judgement and the other half would be the localisation of objects through an intuitive awareness of the body's capacity to move. Or, to put this another way, this distinction would be analogous to that between 'vision for perception' and 'vision for action'.

As an aside, we might also note that Poincaré's approach had an earlier precedent in the work of Hippolyte Taine. In its general outline, Taine's theory of perception appears to suggest an associationalist view. Thus, in his 1870 work, *De l'Intelligence*, he claims that seeing has two distinct stages. First, sensations

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[294] Cited in Poggi, *In Defiance of Painting*, p. 97.

of light are registered on the retina and form a meaningless melange of patches of colour[295] and second, these sensations are organised through memory and experience, thus leading to the recognisable world that we consciously perceive. However, when considering how we come to localise objects, Taine adds a further qualification to this view. This 'localising judgement', he argues, can either be composed of 'tactile and muscular images or visual images'.[296] But while this former 'muscular atlas' is built up through repeated experience, it is nevertheless said to be necessary and anterior to the 'visual atlas' which presides over our conscious visual judgements of space.

Taine would therefore appear to be expressing a view which anticipates both that of Poincaré and of Merleau-Ponty: namely, that primordial perception is a bodily affair. But even more interesting for our purposes is Cézanne's proclaimed affinity to the theorist and particularly, it seems, to this strand of his thought. For instance, he stated to Joachim Gasquet that 'I like muscles, beautiful colours, blood. I am like Taine and what's more I am a painter. I am a sensualist.'[297] Therefore if, as I have been suggesting, the Cubists' main inheritance from Cézanne was his concern with a physicalised form of vision, then we might say that this develops in tune with a burgeoning discourse of sight.[298]

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[295] According to Taine, this first stage of vision is equivalent to the way a newborn child sees. Therefore, as several historians have noted, this idea may have been a source for the Impressionist aesthetic, particularly given that several of these artists expressed their desire to see like a child. See Chapter 1, p. 2 notes 6 and 7.

[296] Hippolye Taine, *On Intelligence*, translated by T. D. Haye (New York: Holt and Williams, 1872; first published 1870), p. 302. For Taine's full discussion of this subject see Book II, Chapter II 'External Perception and the Education of the Senses', pp. 285 – 337.

[297] *Joachim Gasquet's Cézanne: A Memoir with Conversations*, trans. Christopher Pemberton (London: Thames and Hudson, 1991), p. 133.

[298] This progression was suggested to me by Paul Smith. Smith has also discussed the connection between Cézanne and Taine in several articles. See for instance, 'Cézanne's primitive self and

But regardless of whether Picasso and Braque were familiar with Poincaré's work, this text also hints at a characteristic of space which, even if it were only intuited by the artists, may explain why they began to favour still life over landscape. For if spaces are measured by way of the body's capacity to move, then those which are nearer at hand will necessarily give us a greater sense of immediacy. [299] We might therefore propose that the artists began their Cubist experiments with landscapes because these were the works that had most impressed them in Cézanne's oeuvre. In other words, their choice of subject had largely been arbitrary because they had not begun with any particular strategy in mind, only a desire to take their forebear's innovations one step further. However, in analysing his construction of pictorial space and in exaggerating his techniques though their own landscape painting, they may have come to understand a more elusive quality of Cézanne's aesthetic: the fact that it evokes a physicalised seeing which is at most its robust when it is performed within the zone of the body. Or as Braque explains this decision:

> […] I worked after nature. This is even what directed me towards the still
> life. There I found a more objective element than landscape. The

related fictions' in *The Life and the Work: Art and Biography*, ed. C. Salas (Oxford University Press, 2007).
[299] Neuropsychological studies would also seem to support this view since ventral stream processing has been shown to be principally responsible for distance perception while dorsal stream processing appears to function most effectively in peripersonal space. See Peter H. Weiss et al, 'Neural consequences of acting in near versus far space: a physiological basis for clinical disassociations', *Brain*, vol. 123 (2000), pp. 2531 – 2541. Merleau-Ponty has also noted this distinction, claiming that distance 'expresses […] that the thing is beginning to slip away from the grip of our gaze and is less closely allied to it. Distance is what distinguishes this loose and approximate grip from the complete grip which is proximity.' *Phenomenology of Perception*, pp. 304 – 05.

discovery of the tactile space that put my arm in motion before the landscape invited me to look for an even closer, palpable contact.[300]

Therefore, pace Krauss, this implies that *nearness* can be as much a cue for touch as volume can be; and conversely depth – or in pictorial terms, the representation of the object turning or receding away from the frontal plane – may actually weaken this sense. Accordingly, the denial of recession through faceting and – in the most extreme expression of this – Picasso's innovation of 'piercing of closed form'[301] may serve to evoke a proximal and hence, a physically present space. Tactility, in other words, is not so much eliminated as spread across the representational field in a depth-denying way. Perhaps, then, this concern with the touch-like qualities of proximal space pre-empts the assertive frontality of the collages. However, in Picasso's practice this change in medium will recast the tactile aesthetic in an entirely new light, for he will now achieve this effect by emphasising the presence of literal materials and indexical marks. Thus, lodged within the ambiguity of a hovering space, these elements will seem to rise and fall in our visual awareness as the motor intentional threads of perception exercise their grip.

What then of the semantic dimension of seeing in Picasso's oeuvre? How is this held separate but nevertheless kept in play? The answer may be that he

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[300] Cited in Jacques Lassaigne, 'Un Entretien avec Georges Braque', p. 6; translation by Poggi, *In Defiance of Painting*, p. 98. In an interview with Dora Vallier, the artist also claimed that, 'When a still life is no longer in reach of the hand, it ceases to be a still life.' Cited in *Ibid.*
[301] This is a slightly altered version of Kahnweiler's claim that in the summer 1910 'Picasso had pierced closed form'. By this Kahnweiler seems to mean that the artist had developed a strategy in which a grid-like scaffolding is imposed upon objects so that their contours bleed into one another and form a series of interpenetrating planes. See *The Rise of Cubism*, trans. Henry Aronson (New York: Witterborn Schultz Inc., 1949), p. 10.

composes his works so that they make a theme of the way that recognition deploys a different mode of attention, or perhaps what we might refer to as a different kind of 'visual spread'. His works, as we have already discussed, often strain at the boundaries of perceptual legibility while nevertheless promising that meaning is there to be found. This strategy is effected in several different ways: it can be due to the dispersal of iconic signification across a collection of arbitrary elements; it may be a consequence of the same set of materials pointing towards two different referents; or it may be a question of juxtaposing the mimetic and the arbitrary so that we are required to perceptually fill in the gaps. But in each case this seems to call for a similar feat: we must gather together fragmentary pieces of evidence and synthesise them into a unified whole. And accordingly, this in itself necessitates a particular kind of seeing wherein we scan the picture or dilate our gaze in order to totalise the representational field. What then is this panoramic sight if it is not an allocentric form of vision? If so then this will be very different from the proximal attunement of our bodies to the 'constructive workspace'.

CONCLUSION

From Two Dimensions to Three: The Legacies of Pictorial Phenomenology

Space: that which is not looked at through a keyhole, not through an open door.

Space does not exist for the eye only: it is not a picture: *one wants to live in it*.

– El Lissitzky [302]

6.1 STYLE VERSUS VIEWING

My argument in this thesis has largely focussed on the pictorial structuring of bodily space and not its implications for the *history* of art. Nevertheless, I would contend that these implications are broad and that they have not yet received the attention they deserve. This does not mean, of course, that various modern movements have not been considered in light of this phenomenological concept; we need only to think of the rhetoric surrounding Minimalism to know that this is not true.[303] But it would seem to me that what is missing from these discussions is a sense of how this began as a *pictorial* concern and how it may even have

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[302] 'Proun Space, the Great Berlin Art Exhibition of 1923', reproduced in *El Lissitzky 1890 – 1941: Architect, Painter, Photographer, Typographer*, ed. Jan Debbaut (Madrid and Paris: Eindhoven, 1990), p. 35.

[303] See for example, Robert Morris, 'Notes on Sculpture 1 - 3', published in 3 issues of *Artforum*, 4, no.6 (Feb 1966); 5, no.2 (Oct 1966); 5, no. 10 (Summer 1967); reprinted in *Art in Theory 1900-2000*, ed. Charles Harrison and Paul Wood (Oxford: Blackwell, 2003), pp. 828 – 835.

contributed to the picture's decline as a medium of art. My purpose in this concluding chapter is therefore to review this little considered tendency and to suggest how vital it has been to the development of modern aesthetics and how it may still be relevant to the art of today.

Before commencing this discussion let me say a few brief words about how such a history might proceed if it were to be more fully worked out. So far I have suggested a continuity between the concerns of Cézanne and those of the Cubists and I have mentioned that this was never straightforwardly a matter of style. In other words, while Picasso and Braque clearly borrowed certain representational techniques from the master, their investigation of these was not launched for its own sake and extended far beyond the remit of formal concerns. If we are therefore to describe the nature of this connection, we should not speak of a style but of an aesthetic effect. And more precisely, we should not speak of the picture as something passively observed but as something that structures the activity of looking and which depends on this activity in order to be made whole. In short, we should consider the intercommunication between the artwork and the beholder, or what we might simply refer to as the *viewing* experience.

When we therefore speak of the subsequent history of this pictorial concern, we are not so much considering something that can be referred to the qualities of the artwork itself, even while it may be that certain methods of formal organisation are better at engendering it than others. Rather, the identification of this tendency will rest on our noting the kind of seeing an artwork gives rise to: what I have variously discussed as a 'physicalised sight',

'enactive seeing' or 'bodily phenomenology'. Accordingly, the Cubists' claim to Cézanne's legacy was not strictly stylistic (if we take this word to refer only to the compositional ordering of marks in a picture[304]). Instead, they might be said to continue his project by developing and differentiating aspects of the bodily thematic set in motion by his work. And equally, if there is tendency that carries on from this point then it may not be one in which a continuity is detectable at the level of form.

Perhaps then, if we were to go into detail about the post-Cubist development of this theme we would have to follow our noses in pursuit of a history of reception. That is, if an embodied phenomenology is the defining characteristic of this trend, then what people say about the artworks in question will be of vital importance. But it is far too late in the day to think about attempting such a historical survey. Instead, my purpose in the following few pages is simply to draw attention to some key examples of this tendency in the twentieth century and to broadly consider the relations between them and their debt to the art so far discussed. What I hope this will show is that pictorial concerns helped to shape later developments in three-dimensional media. Or to put this another way, what began as a aesthetics of pictures transformed into an aesthetics of real space.

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[304] Of course, other interpretations of style are possible. For instance, when Wollheim speaks of the 'individual style' of the artist he means a relation to the medium which is patterned through a set of psychomotor competencies and which, therefore, may develop and change while still retaining an invariable core. See *Painting as an Art*, pp. 26 – 36.

6.2 FROM COLLAGE TO CONSTRUCTION

Taking my cue from Greenberg, I argued in the last chapter that certain of Picasso's collages have the effect of seeming to push pictorial space out in front of the literal surface. And indeed, in light of the actual protrusion of the papers – not only in terms of their corners and creases, but also in terms of their layered adhesion to the ground – they disrupt the surface in a way that is perhaps unprecedented in the history of art. But while these might be actual fragments seen in actual space and while, moreover, they might be nothing more than the detritus of everyday life – pieces of newspaper, tickets, bottle labels and so forth – the picture does not thereby become just another thing in the world.[305] Instead it somehow transforms its surroundings and perhaps, more precisely, it makes real space seem more alive by drawing the habitual body out from its background of generality.[306] I would suggest, accordingly, that it is the desire to increase (or perhaps to test) the scope of this aesthetic transformation by pushing the representational field ever further forward into real space that led Picasso to produce his first *Guitar* construction (fig. 51). In this sense, therefore, it may have been his interest in the shamanistic power of African masks and not just

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[305] For a discussion of the relation between Cubist collage and popular culture see Poggi, *In Defiance of Painting*, chapter 5 'Cubist Collage, the Public, and the Culture of Commodities', pp. 124 – 163 and Robert Rosemblum, 'Picasso and the Typography of Cubism', in *Picasso in Retrospect*, ed. Roland Penrose and John Golding (London: Granada, 1981), pp. 32 – 47. For readings which attend to the written and political content of the newspaper fragments Picasso employed see David Cottington, 'What the Papers Say: Politics and Ideology in Picasso's Collages of 1912', *Art Journal*, 47, no. 4, Revising Cubism (Winter 1988), pp. 350 – 359 and Patricia Leighton, 'Picasso's Collages and the Threat of War, 1912 – 13', *The Art Bulletin*, 67, no. 4 (December 1985), pp. 653 – 672.

[306] The word 'generality' is often employed by Merleau-Ponty to describe the nature of the pre-reflexive life which subtends conscious thought. See for instance, *Phenomenology of Perception*, p. 250 and p. 296.

their formal or semiological qualities (as Yve-Alain Bois has argued)[307], which made them so vital to the development of his art (fig. 52).

In considering Picasso's assemblages such as *Guitar Player* of 1913 (fig. 53), Bois predictably understands them as further evidence of the artist's semiological project. Thus he claims, that the actuality of the objects and the spaces incorporated by this artwork – the *real* guitar, the *real* table, the *real* newspaper and so forth – can hold their ground without 'being swallowed up by the real space of objects' since they are embedded within a network of formal oppositions. In other words, they have been bracketed off from ordinary life and transformed into signs by being made to play a role in a system of differences. Thus empty space also becomes a 'mark' and can be 'formally' employed because it too has been incorporated into this symbolic matrix. [308] For Bois, therefore, this is what Tatlin learns from his visit to Picasso's studio on the Boulevard Raspail in 1913.[309] And so – it is implied – begins 'a new era in the history of Western sculpture.'[310]

While this argument is compelling, I wish to suggest that Tatlin's debt to Picasso can be differently construed and that by rethinking this connection we might see a different historical trajectory emerge. Let us return to the *Guitar*

[307] In both 'Kahnweiler's Lesson' and 'The Semiology of Cubism' Bois argues that Picasso's Synthetic Cubism was born of a newfound understanding of the structural characteristics of African art. He traces this to Picasso's acquisition of a Grebo mask in summer 1912, claiming that this was the 'epiphany' which led to the artist's first *Guitar* construction (October 1912) and which later determined his approach to papier collé.
[308] All quotes from 'Kahnweiler's Lesson', p. 54.
[309] The date of Tatlin's visit to Picasso is not exactly known, however most authors assume, following the suggestion of Troels Andersen, that it was in spring-summer 1913. Accordingly, this would have meant that he saw the Guitar Player assemblage. See Margaret Rowell, 'Vladimir Tatlin: Form / Faktura', *October*, 7, Soviet Revolutionary Culture (Winter, 1978), pp. 83 – 108.
[310] Bois, 'Kahnweiler's Lesson', p. 38.

Player again and reconsider its supposed 'transformation' of real space. In this instance, I would agree with Bois that space sheds its literality by becoming enmeshed with and inflected by the formal structure of the artwork. However, I would qualify this by saying that the transformation will never be complete, for any space which is encountered first hand – and particularly one that coincides with our zone of potential activity – will always in the first place belong to our bodies. Picasso's strategy, as I therefore conceive it, is to break open the compositional structure of the artwork so that actual and representational space will be bridged without allowing the latter to collapse into the former. Thus the experience produced will neither be literal and mundane nor purely formal and symbolic. Instead, it will seem that the real world adjusts itself to the imaginary world of Cubism and conversely it may invest the Cubist picture space with a more physical depth.

I would therefore propose that Tatlin learned two things from his encounter with the works in Picasso's studio. First, having seen the collages and having noted Picasso's thematisation of the indexical mark, he may have understood that there is a human significance – and perhaps more precisely a motor significance – invested in literal materials which can be revealed through the very act of construction. And second, having witnessed the assemblages he may have understood that this aesthetic can be extended into – and indeed may disclose something latent within – the democratic and bodily zone of actual space. Thus it might be suggested that this understanding informs the open structures of his 'corner reliefs' and their refusal to sit flat to the wall (fig. 54). In this case, they would neither make reality succumb to their formal organisation

and nor would they simply be incorporated into the fabric of the real. Instead, they would bind these aspects together and would come to function as animators of the lived dimension of bodily space.

To see how this principle may have been adopted and further explored within the Russian avant-garde tradition, we might turn to the work of El Lissitzky and particularly to his 'Proun Room' of 1923. This piece was produced for the Great Berlin Art Exhibition after the artist had been assigned a small gallery in which to display his work. However, unlike most of the other participants, El Lissitzky did not exhibit a discrete series of pictures in a conventional manner. Instead he distributed coloured, geometrical elements across the walls and ceiling thus encircling the spectator in a total 'Proun space'. As the artist therefore explained in his essay to accompany the exhibition, this was not the traditional space of passive and detached viewership which delivered itself only to the eye. Rather, it would facilitate movement and dynamic interaction: in his words it would 'impel everyone to automatically perambulate it'.[311] And most importantly, it would be a transformation of reality for utopian purposes, or as the artist had earlier put it when describing his Proun drawings:

Proun begins as a level surface, turns into a model of three-dimensional space, and goes on to construct all the objects of everyday life.[312]

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[311] El Lissitzky, 'Proun Space', p. 35.
[312] From De Stijl, Year V, no. 6 (June 1922) reprinted in Sophie Lissitzky-Küppers, *El Lissitzky: Life, Letters, Texts* (London: Thames and Hudson, 1980), p. 344.

But whatever utopian potential El Lissitzky saw in this project, it would soon be quelled by the proscriptions of the Soviet state. Thus, the dream to unleash the power of embodied spectatorship would inevitably have to be put on hold.

6.3 THE AESTHETICS OF DIS/ORIENTATION

It would seem at this point that the trail goes cold since few other artists of the post-Cubist generation appear to have espoused these phenomenological concerns. And indeed, I would suggest that there is a period of latency before this bodily thematic is taken up again. But while most art historians locate this point in the 1960s with Minimalism and consider it as the product of a different history,[313] I think we might view Abstract Expressionism as a key inheritor of this tendency and therefore treat it as bridging the gap with Cubism.[314] Accordingly, my intention in this section is to make a few brief remarks about this line of phenomenological enquiry, taking the colour-field paintings of Barnett Newman as my main example.

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[313] For a consideration of the historical development of Minimalism see, Thierry de Duve, *Kant after Duchamp* (Cambridge, Mass.: MIT Press, 1996), esp. 'The Monochrome and the Blank Canvas') and for the most famous (or notorious) treatment of its bodily aesthetic see Michael Fried, 'Art and Objecthood' in *Art and Objecthood: Essays and Reviews* (Chicago and London: The University of Chicago Press, 1998), pp. 148 – 172.

[314] Cubism has often been treated as a source of Abstract Expressionism. This may be largely due to the influence of Clement Greenberg's argument that the American avant-garde had extended the Cubist's articulation of literal flatness (See, for instance, 'The Decline of Cubism', *Partisan Review*, no, 3 (1948)). However, a more concrete relation between these two movements might be established by way of the figure of John Graham, who was a key promoter of Abstract Expressionism and whose writings on art (and particularly on the work of Picasso) were widely read by many of the artists. Of key importance in this respect is the exhibition Graham organised at the New York McMillen Gallery in 1942 entitled 'French and American Artists'. This show included works by Picasso and Braque alongside those of soon-to-be Abstract Expressionists such as Jackson Pollock, Willem de Kooning and Lee Krasner. See Megan McShea, 'A Finding Aid to the John Graham Papers, 1799 – 1988' in the *Archives of American Art*, http://www.aaa.si.edu/collectionsonline/grahjohn.

Interpretations of Newman's work have often focussed on the capacity of his paintings to produce spiritual or sublime experiences and in this respect the ideas of Romanticism, Existentialism and Jewish Mysticism have variously been invoked.[315] Yet however we construe the expressive aims of his art, it seems clear from his own words on the subject that these ends were to be arrived at through the constitution of a particular kind of space. For instance, in a 1962 interview he described his project in the following terms:

> Is space where the orifices are in the faces of people talking to each other, or is it not between the glance of their eyes as they respond to each other? Anyone standing in front of my paintings must feel the vertical domelike vaults encompass him to awaken an awareness of his being alive in the sensation of complete space.[316]

Now, I would suggest that what Newman is talking about here is precisely a form of egocentric space, for as the first clause in his statement suggests, it is not the comparative relation between features per se that interests him, but rather the relationship between one body and another. (Remember, allocentric space involves the spatial relation between objects, egocentric space involves the relation between the perceiver and an object). Perhaps, then, this will remind us of El Lissitzky's emphasis on the bodily relation of the spectator to his 'Proun Room' or maybe it will take us even further back to Braque's

[315] See for instance, Thomas B. Hess's discussion of Newman's 'secret symmetry' in *Barnett Newman* (exh. cat, New York: Museum of Modern Art, 1971 – 2) and Renée van de Vall, 'What Consciousness Forgets: Lyotard's Concept of the Sublime' in *A Companion to Art Theory*, ed. Paul Smith and Carolyn Wilde (Oxford: Blackwell, 2002), pp. 360 – 69.
[316] 'Barnett Newman Interview with Dorothy Gees Seckler' reprinted in *Art in Theory 1900-2000*, ed. Charles Harrison and Paul Wood (Oxford: Blackwell, 2003), pp. 783 – 84.

description of space as 'the prolongation of [an] arm'. But nevertheless, it would seem that Newman's conception of space operates at a different level of magnification. It will be vault-like or, as he further describes it, 'a spatial dome of 180 degrees going in all four directions', something which recalls the experience of 'walk[ing] the tundra.'[317] Therefore, this will not be like the tabletop space of a still life, nor the enclosed dimensions of a room, but rather it will call to mind the endlessly receding expanse of an open landscape.

In phenomenological terms how should we characterise the effect of this kind of space? What is it like to be surrounded by the empty plains of the Canadian tundra Newman imagined (fig. 56)? The first point to make about such a landscape is that it is invariably featureless and flat. Thus when one walks from one point to the next the view does not unfold in a continually changing pattern, or rather the perspective alters whilst essentially remaining the same. Accordingly, the horizon is increasingly felt as a ring around our body since every point on its circumference anticipates and reinforces the next. And equally, because there are few landmarks to enable us to gain our bearings we can easily become lost and disorientated. Space then becomes something that bears down upon us for there is no mediating term between our bodies and the open expanse of the plain.

Can we therefore invoke the ideas of Merleau-Ponty to describe this kind of space? Perhaps we can, but not in the terms that we have previously used, for this experience seems to undermine the usual bodily structuring of the

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[317] *Ibid*, p. 784; p. 783.

phenomenal field. And more specifically, we might say that this is not the zone criss-crossed by the threads of motor intentionality that we normally encounter. Rather, since salient objects do not stand out from this field it will also contain a dearth of the perceptual 'poles' that guide and orientate our actions. Therefore, if our bodies stand in stark comparison to the horizon and to this alone, then this relationship will come to characterise the entire physiognomy of the perceptual field. Or as Newman described the space he was seeking, '[it] is where I can feel all four horizons, not just the horizon in front of me or in back of me because then the experience of space exists only as a volume'.[318] The alternative to the 'volume' would therefore be the 'space-dome'.

To get a rough idea of how Newman attempts to engender this effect let us consider his imposing eight-by-eighteen foot canvas, *Vir Heroicus Sublimis* (fig. 57). Now, it is quite evident that the monumental proportions of this picture mean that we cannot take it all in at one glance. And furthermore, since Newman recommended that this work be seen from a close viewing distance, this was clearly the effect he intended and wished to reinforce.[319] What this means, therefore, is that the velvety red of the surface will saturate our visual field and the light that reflects off it will bathe us in a luminous glow. And so, if we become seduced by this field instead of attending to the 'zips' or the materiality of the surface, then it may seem to wrap itself around us and permeate our skin. Unfocused staring such as this (comparable, perhaps, to our inability to fixate objects when we are tired) will accordingly set our bodies adrift as we fail to

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[318] *Ibid*, p. 783.
[319] This work was first exhibited at the Betty Parson's Gallery where it was accompanied by a sign stating: 'There is a tendency to look at large pictures from a distance. The large pictures in this exhibition are intended to be seen from a short distance.' Quoted in *Barnett Newman* (exh cat.), ed. Ann Temkin (Philadelphia Museum of Art, 2002), p. 178.

latch onto a determinate perceptual anchor – or perhaps a 'pole of action' – outside of ourselves. This would then seem close to the experience of 'dedifferentiation' described by the critic Anton Ehrenzweig whereby 'the boundaries between the inside and outside world melt away and we feel engulfed and trapped inside the work of art.'[320]

Nevertheless, a description of this kind does not do justice to the work since Newman never allows us to become fully immersed in this Zen-like state. Instead, the total effect of the picture depends upon a dialectical act of looking wherein the absorptive pull of the field is counterbalanced by the five intervals of the slender zips and the scumbled paint on the surface. In other words, there is always a tension between specific details and the womb-like background against which they are set. Therefore these elements might be described as things we encounter in a similar way as we encounter the horizon line and the few animating features of the tundra: they act as intentional poles we cast our attention towards in an attempt to give articulation to the space. Perhaps, then, since these details cannot quite be stabilised or 'gripped' they throw us back onto the perceptual resources of our body and make us aware of it as the anchor of our experience or our 'point of view' on the world. Indeed, Newman's own comments on his practice would seem to suggest something of this kind:

> One thing that I am involved in about painting is that the painting should
> give a man a sense of place: that he knows he's there, so he's aware of
> himself. In that sense he related to me when I made the painting because

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[320] Anton Ehrenzweig, *The Hidden Order of Art* (London: Weidenfeld & Nicholson, 1967), p. 135.

in that sense I was there. Standing in front of my paintings you had a sense of your own scale. The onlooker in front of my painting knows that he's there.[321]

Finally, then, we might ask what bearing this approach to painting and its attendant effects had on the future development of art? I would suggest that there are two ways in which artists have taken this particular aesthetic forward. On the one hand, there is the strand exemplified by Minimalism which extends Newman's concerns with bodily presence and the articulation of 'place' and scale (fig. 58).[322] And on the other hand, there is the strand which seems to take its lesson from the dissolving expanse of the colour-field and the promise (or threat) of entropy and absorption which it entails. This concern first becomes evident in the early 1970s work of West-Coast 'Light and Space' artists such as James Turrell (fig. 59) and – as can also be said of the Minimalist aesthetic – is quickly absorbed into a more general vernacular of three-dimensional art.[323] Thus at this point we reach a juncture in the history of art, since in the wake of this explosion of new media the picture seems to become a moribund form.

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[321] David Sylvester, 'Newman, In Conversation with David Sylvester', *The Listener*, 88, no. 2263 (10 August 1972), p. 169.

[322] For a discussion of these concerns see Morris 'Notes on Sculpture 1 - 3' and Donald Judd, 'Specific Objects', first published in Arts Yearbook, 8 (New York, 1965), pp. 74 – 82; reprinted in *Art in Theory 1900-2000*, pp. 824 - 828

[323] 'Light and Space' was the West Coast's response to Minimalism. Instead of stressing the literality of the object, these artists produced dematerialised spaces in which the contingent effects of light and atmosphere become vital to the experience of the work. For a discussion of this movement see Claire Bishop, *Installation Art: A Critical History* (London: Tate Publishing, 2005), pp. 56 – 60.

6.4 PHYSICALISED SEEING, PHENOMENOLOGY AND ART

The suggestions made in the previous section no doubt leave much to be explained. But the point has not so much been to trace these developments in detail, but merely to outline a possibly continuity between the *evocation* of physicalised seeing through pictures and the concern with *actual* sensory engagement which has become so central to contemporary art. Evidently, Newman's work should not be considered the only source for this trend. Rather it was due to a confluence of interests, the most important of which was the translation of the *Phenomenology of Perception* into English in 1962. But since Merelau-Ponty considered Cézanne's art as a fully realised phenomenological project in itself, it could be said that we have come right back to the point where we began.

How, then, should we summarise this peculiar aesthetic? For a start, it should be observed that Cézanne did not simply 'invent' it, even though he may have given it its first explicit expression. This is not only because it was already coming to life in the work of earlier artists (Courbet's art particularly springs to mind[324]). But more importantly there is a sense in which this was not something 'made' but 'found'[325], for it lay buried within the structure of vision itself. My argument has therefore been that Cézanne produced a 'criterion' of sight, that is, he gave public expression to an aspect of vision which is experienceable by all but is generally hidden under the reified appearances of conceptualising sight.

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[324] See Michael Fried, *Courbet's Realism* (Chicago: University of Chicago Press, 1990).
[325] See Shiff, *Cézanne and the End of Impressionism*, esp. pp. 68 – 69 & pp. 223 – 230.

More precisely, this can be characterised as the enactive and physical relation we have with the world: the category of sight called 'vision for action'.

But one last question still needs to be addressed: why did the expression of this mode of vision crystallise into an imperative at this particular moment in time? Why did Cézanne feel the need to drink in the natural world so profoundly that he became aware of this latent form of sight? When considering the changes that occurred in the nineteenth century art historians have often been noted that the onset of modernism brought with it an overriding tendency towards the effect of flatness in pictures. For T. J. Clark, therefore – whose explanation of this is perhaps the most well-regarded – this stress on flatness is due to the alienating effects of modern, spectacular society and it is essentially the thematisation of this non-substantial seeing in art that effects this change in style.[326] I would suggest, however, that Cézanne's attempts to capture a different bodily form of seeing which is consistent with an attempt to *re-invest* the visual field with the 'thickness' that it has lost through the spectacle of capital. Therefore, unlike the work of Manet and the Impressionists, his is not a style informed by the 'generalised illusion' of the city. Rather, it is one developed through a profound meditation on nature. In short, it is a rejoinder and an antidote to the flattening experience of the modern, capitalist world.

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[326] T. J. Clark, *The Painting of modern life* (New Jersey: Princeton University Press, 1986).

Illustrations

Bibliography

Alberti, Leon Battista, *'On Painting' and 'On Sculpture'*, ed. C. Grayson (London: Phaidon, 1972)

Antliff, Robert Mark, 'Bergson and Cubism: A Reassessment', *Art Journal*, 47, no. 4 (Winter, 1988), pp. 341 – 349.

Apollinaire, Guillaume, *The Cubist Painters*, translated, with commentary, by Peter Read (Berkeley and Los Angeles: University of California Press, 2004).

Arnheim, Rudolf, 'Inverted Perspective in Art: Display and Expression', *Leonardo*, 5, no. 2 (Spring, 1972), pp. 125 – 135.

Arnheim, Rudolf, *Art and Visual Perception: A Psychology of the Creative Eye* (Berkeley, Los Angeles & London: University of California Press, 1974)

Arnheim, Rudolf, 'Some Comments on J. J. Gibson's Approach to Picture Perception', *Leonardo* 12, no. 2 (Spring 1979), pp. 121 – 122.

Baldwin, Thomas (ed), *Reading Merleau-Ponty* (London and New York: Routledge, 2007).

Bann, Stephen, 'Semiotics' in *The Cambridge History of Literary Criticism*, vol. 8, From Formalism to Structuralism, ed. Raman Selden (Cambridge University Press, 1995), pp. 85 – 109.

Barnett Newman (exhibition catalogue, Philadelphia Museum of Art, 24 March – 7 July 2002 and Tate Modern, London, 19 September 2002 – 5 January 2003), ed. Ann Temkin (Philadelphia Museum of Art, 2002).

Baxandall, Michael, *Painting and Experience in Fifteenth-Century Italy* (Oxford University Press, 1988, 2nd Edition, first published 1972).

Beardsley, Monroe C; Rudolf Arnheim, 'An Exchange of Views on Gestalt Psychology and Aesthetic Explanation', *Leonardo* 14, no. 3 (Summer 1981), pp. 220 – 223.

Bermúdez, José Luis, 'From Two Visual Systems to Two Forms of Content?', *Psyche*, 13, no. 2 (April 2007), http://psyche.cs.monash.edu.au/symposia/seeing/Bermudez.pdf, consulted 22 July 2007.

Biederman, Irving, 'Recognition-by-Components: A Theory of Human Image Understanding', *Psychological Review*, 94, no. 2 (1987), pp. 115-147

Bishop, Claire, *Installation Art: A Critical History* (London: Tate Publishing, 2005).

Bois, Yve-Alain and Katharine Streip, 'Kahnweiler's Lesson', *Representations*, no. 18 (Spring 1987), pp. 33 – 68.

Bois, Yve-Alain, 'The Semiology of Cubism' in W. Rubin, K. Varnedoe and L. Zelevansky, *Picasso and Braque: A Symposium* (New York: Museum of Modern Art / Abrams, 1992), pp. 169 – 209.

Bowlt, John E. (ed), *Russian Art of the Avant-Garde: Theory and Criticism 1902 – 1934* (New York: The Viking Press, 1976).

Braddick, Oliver, 'The many faces of motion perception', in *The Artful Eye*, ed Richard Gregory, Priscilla Heard and David Rose (Oxford University Press, 1995)

Braque: The Late Works (exhibition catalogue, Royal Academy of Arts, London, 23 January 1997 – 6 April 1997), ed. John Golding, Sophie Bowness and Isabelle Monod-Fontaine (New Haven and London: Yale University Press, 1997).

Bruce, Vicki, Patrick R. Green and Mark A. Georgeson, *Visual Perception: Physiology, Psychology, and Ecology* (East Sussex: Psychology Press Ltd, 1996, 3rd edition, first published 1984)

Burgin, Victor, *The End of Art Theory: Criticism and Postmodernity* (London: Macmillan, 1986), chapter, 'Seeing Sense', pp. 146 – 87.

Bruner, Jermone S., 'Organization of Early Skilled Action', *Child Development*, 44, no. 1 (March 1973), pp. 1 – 11.

Bryson, Norman, *Vision and Painting: The Logic of the Gaze* (London: Macmillan, 1983).

Callen, Anthea, 'Degas' Bathers: Hygiene and Dirt – Gaze and Touch' in *Dealing with Degas: Representations of Women and the Politics of Vision*, ed. Richard Kendell and Griselda Pollock (London: Pandora Press, 1992), pp. 159 – 185.

Callen Bell, Janis, 'Perspective', in *The Groves Dictionary of Art*, ed Jane Turner (London: Macmillan, 1997), 24, pp. 485 – 95.

Campen, Cretien van, 'Artistic and Psychological Experiments with Synesthesia', Leonardo 32, no. 1 (1999), pp. 9 – 14.

Camfield, William A., 'Juan Gris and the Golden Section', *The Art Bulletin*, 47, no. 1 (March 1965), pp. 128 – 134.

Casco, Clara and Daniela Guzzon, 'The aesthetic experience of 'contour binding'', *Spatial Vision*, 21, no. 3 – 5 (2008), pp. 291 – 314.

Cézanne and Poussin: The Classical Vision of Landscape (exhibition catalogue, National Gallery of Scotland, Edinburgh, 9 August – 21 October 1990), ed. Richard Verdi (Edinburgh: National Galleries of Scotland in association with Lund Humphries Publishers Ltd, 1990).

Chave, Anna C., 'New Encounters with Les Demoiselles d'Avignon: Gender, Race, and the Origins of Cubism', *The Art Bulletin*, 76, no. 4 (December 1994), pp. 597 – 611.

Church, Jennifer, ''Seeing As' and the Double Bind of Consciousness', *Journal of Consciousness Studies* 7, no. 8 – 9 (2000), pp. 99 – 111.

Clark, Andy, 'Vision as Dance? Three Challenges for Sensorimotor Contingency Theory', *Psyche*, 12, no. 1 (March 2006), http://psyche.cs.monash.edu.au/symposia/noe/Clark.pdf, consulted 26 June 2007.

Clark, T. J., *The Painting of modern life: Paris in the art of Manet and his followers* (New Jersey: Princeton University Press, 1986).

Clowes, M. B., 'On seeing things', *Artificial Intelligence*, 2, no. 1, pp. 76 – 116.

Cohen, Walter, 'Spatial and Textural Characteristics of the Ganzfeld', *The American Journal of Psychology*, 70, no. 3 (September 1957), pp. 403 – 410.

Cohen, Walter, 'Colour Perception in the Chromatic Ganzfeld', *The American Journal of Psychology*, 71, no. 2(June 1958), pp. 390 – 394.

Colby, Carol L and Michael E. Goldberg, 'Space and Attention in Parietal Cortex', *Annual Review of Neuroscience*, 23 (1999) pp. 319 – 49.

Cottington, David, 'What the Papers Say: Politics and Ideology in Picasso's Collages of 1912', *Art Journal*, 47, no. 4, Revising Cubism (Winter 1988), pp. 350 – 359.

Cox, Neil, *Cubism* (Art and Ideas) (London: Phaidon, 2000)

Crary, Jonathan, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge, Mass. & London: MIT Press, 1990).

Crowther, Paul, 'Merleau-Ponty: Perception into Art', *British Journal of Aesthetics* 22, no. 2 (Spring 1982), pp. 138 – 49.

Crowther, Paul, *Art and Embodiment: from aesthetics to self-consciousness* (Oxford: Clarendon Press, 1993).

Damisch, Hubert, 'Five Notes for a Phenomenology of the Photographic Image', *October* 5, Photography (Summer 1978), pp. 70 – 72.

Damisch, Hubert, *The Origin of Perspective*, translated by John Goodman (Massachusetts and London: The MIT Press, 1995. First published 1987 by Flammarion, Paris).

Jan Debbaut (ed.), *El Lissitzky 1890 – 1941: Architect, Painter, Photographer, Typographer*, (Madrid and Paris: Eindhoven, 1990.

Doran, Michael (ed), *Conversations with Cézanne*, translated by Julie Lawrence Cochran (London & Berkely: University of California Press, 2001).

Duhamel, Jean-René, Carol L. Colby and Michael E. Goldberg, 'The Updating of the Representation of Visual Space in Parietal Cortex by Intended Eye Movements', *Science*, New Series, 255, no. 5040 (January 1992) pp. 90 – 92.

Durand, Frédo, 'An Invitation to Discuss Computer Depiction', *Proceedings of the 2nd international symposium on Non-photorealistic animation and rendering*, Annecy, France (New York: ACM, 2002), http://portal.acm.org/citation.cfm?id=508550, consulted 21 May 2009.

Duve, Thierry de, *Kant after Duchamp* (Cambridge, Massachusetts: MIT Press, 1996)

Ehrenzweig, Anton, *The Hidden Order of Art: A Study in the Psychology of Artistic Imagination* (London: Weidenfeld & Nicholson, 1967).

Eisenman, Stephen F. (ed), *Nineteenth Century Art: A Critical History* (London: Thames and Hudson, 1994).

Fisher, Dominique, 'Jean Paulhan: Towards a Poetic / Pictural Space', *The French Review*, 61, no. 6 (May 1988), pp. 878 – 883.

Florman, Lisa, 'The Flattening of "Collage"', *October*, 102 (Autumn 2002), pp. 59 – 86.

Fried, Michael, *Courbet's Realism* (Chicago: University of Chicago Press, 1990).

Fried, Michael, *Art and Objecthood: Essays and Reviews* (Chicago and London: The University of Chicago Press, 1998), 'Art and Objecthood' (first published 1967), pp. 148 – 172.

Fry, Edward F., *Cubism* (London: Thames and Hudson, 1966).

Fry, Edward F., 'Picasso, Cubism, and Reflexivity', *Art Journal*, 47, no. 4 (Winter 1988), pp. 296 – 310.

Galen, Johnson A., *The Maurice Merleau-Ponty Aesthetics Reader: Philosophy and Painting*, (Illinois: Northwestern University Press, 1993).

Gallagher, Shaun, 'Body Schema and Intentionality' in The Body and the Self, ed. José Luis Bermúdez, Anthony Marcel and Naomi Eilan (Massachusetts: MIT Press, 1998), pp. 225 – 244.

Gallese, Vittorio and Alvin Goldman, 'Mirror neurons and the simulation theory of mind-reading', *Trends in Cognitive Sciences*, 2, no. 12 (December 1998) pp. 493 – 501.

Gallese, Vittorio, Laila Craighero, Luciano Fadiga and Leonardo Fogassi, 'Perception Through Action', *Psyche*, 10 January 2003, http://psyche.cs.monash.edu.au/v5/psyche-5-21-gallese.html, consulted 18 June 2007.

Gallese, Vittorio, 'Embodied simulation: From neurons to phenomenal experience', *Phenomenology and the Cognitive Sciences*, 4, no. 1 (March 2005), http://www2.unipr.it/~gallese/PCS2005.pdf, consulted 4 August 2007.

Gasquet, Joachim, *Joachim Gasquet's Cézanne: A Memoir with Conversations*, trans. Christopher Pemberton (London: Thames and Hudson, 1991).

Gibson, James J, 'The Information Available in Pictures', *Leonardo* 4, no. 1 (Winter 1971), pp. 27 – 35.

Gibson, James J, 'On Information Available in Pictures (Continued)', *Leonardo* 6, no. 3 (Summer 1973), pp. 284 – 285.

Gibson, James J, 'The Ecological Approach to the Visual Perception of Pictures', *Leonardo* 11, no. 3 (Summer 1978), pp. 227 – 235.

Gibson, James J, *The Ecological Approach to Visual Perception* (New Jersey: Lawrence Erlbaum Associates, Inc., 1986, orig. ed., 1979).

Giovannelli, Alessandro, 'Goodman's Aesthetics', *The Stanford Encyclopedia of Philosophy (Summer 2005 Edition)*, ed. Edward N. Zalta, http://plato.stanford.edu/archives/sum2005/entries/goodman-aesthetics/, consulted 20 January 2007.

Golding, John, *Cubism: A History and an Analysis* (London: Faber and Faber Ltd, 1959).

Gombrich, E. H, *Art and Illusion* (London: Phaidon, 1977, 5th edition, first published 1960)

Gombrich, E. H, 'Moment and Movement in Art', *Journal of the Warburg and Courtauld Institutes* 27, (1964), pp. 293 – 306.

Gombrich, E. H, 'Expression and Communication', in *Meditations on a Hobby Horse* (London: Phaidon, 1965), pp. 56 – 69.

Gombrich, E. H, 'Standards of Truth: The Arrested Image and the Moving Eye', *Critical Inquiry* 7, no. 2 (Winter 1980), pp. 237 – 273.

Goodale, Melvyn A and A. David Milner, 'Separate visual pathways for perception and action', *Trends in Neuroscience*, 15, no. 1 (1992) pp. 20 – 25.

Goodale, Melvyn Alan, 'Action Insight: The Role of the Dorsal Stream in the Perception of Grasping', *Neuron*, 47, no. 3 (August 2005), pp. 328 – 329.

Goodman, Nelson, *Of Mind and Other Matters* (Cambridge, Mass. & London: Harvard University Press, 1984)

Goodman, Nelson, *Languages of Art: An Approach to a Theory of Symbols* (Indianapolis and Cambridge: Hackett Publishing Company, Inc: 1976)

Gordon, Ian. E, *Theories of Visual Perception* (West Sussex: John Wiley & Sons Ltd, 2001, 2nd edition, first published 1997)

Gray, Christopher, *Cubist Aesthetic Theories* (Baltimore: John Hopkins Press, 1953).

Graziano, Michael S. A, Gregory S. Yap and Charles G. Gross, 'Coding of Visual Space by Premotor Neurons', *Science*, New Series, 66, no. 5187 (November 1994) pp. 1054 – 1057.

Graziano, Michael S. A and C. G. Gross, 'The representation of extrapersonal space: A possible role for bimodal, visual-tactile neurons', in *Cognitive Neurosciences*, ed M. S Gazzaniga (Cambridge: MIT Press, 1995), pp. 1021 – 1034.

Graziano, Michael S. A., 'Where is my arm? The relative role of vision and proprioception in the neuronal representation of limb position', *Neurobiology*, 96 (August 1999), pp. 10418 – 10421.

Greenberg, Clement, 'Collage' (1959) in *Art and Culture: Critical Essays* (Boston: Beacon Press, 1961), pp. 70 – 83.

Gregory, Richard L, *Eye and Brain: The Psychology of Seeing* (Oxford University Press, 1998, 5th edition, first published 1972)

Hayes Tucker, Paul, 'Picasso, Photography, and the development of Cubism', *The Art Bulletin*, 64, no. 2 (June 1982), pp. 288 – 299.

Heard Hamilton, George, 'Cézanne, Bergson and the Image of Time', *College Art Journal*, 16, no. 1 (Autumn 1956), pp.2 – 12.

Helmholtz, Hermann von, 'On the Relation of Optics to Painting' in *Popular Lectures on Scientific Subjects*, translated by E. Atkinson (London: Longmans, Green and Co., 1891), pp. 73 – 138

Henderson, Linda Dalrymple, 'Italian Futurism and "The Fourth Dimension"', *Art Journa*l, 41, no. 4, Futurism (Winter 1981), pp. 317 – 323.

Henderson, Linda Dalrymple, *The Fourth Dimension and Non-Euclidian Geometry in Modern Art* (Princeton: Princeton University Press, 1983).

Hintikka, Jaacko, *The Intentions of Intentionality and Other New Models for Modalities* (Dordrecht and Boston: Reidel Publishing Co., 1975), Chap. 11, 'Concept as Vision: On the Problem of Representation in Modern Art and in Modern Philosophy'.

Huffman, D. A., 'Impossible objects as nonsense sentences' in B. Metzler and D. Mitchie (ed.), *Machine Intelligence*, vol. 6 (Edinburgh University Press, 1971), pp. 295 – 323.

Isaacson, Joel, 'Constable, Duranty, Mallarmé, Impressionism, Plein Air, and Forgetting', *The Art Bulletin* 76, no. 3 (September, 1994), pp. 427 – 450.

Jacob, Pierre and Marc Jeannerod, *Ways of Seeing: The scope and limits of visual cognition* (Oxford University Press, 2003)

Jacob, Pierre, 'Why Visual Experience is Likely to Resist Being Enacted', *Psyche*, 12, no. 1 (March 2006), http://psyche.cs.monash.edu.au/symposia/noe/Jacob.pdf, consulted 26 June 2007.

Jacob, Pierre and Marc Jeannerod, 'Précis of Ways of Seeing, the Scope and Limits of Visual Cognition', *Psyche*, 13, no. 2 (April 2007), http://psyche.cs.monash.edu.au/symposia/seeing/Precis.pdf, consulted 22 July 2007.

Jacob, Pierre and Marc Jeannerod, 'Replies to our Critics', *Psyche*, 13, no. 2 (April 2007), http://psyche.cs.monash.edu.au/symposia/seeing/replies.pdf, consulted 22 July 2007.

Jay, Martin, *Downcast Eyes: The Denigration of Vision in Twentieth-Century French Thought* (Berkeley, Los Angeles and London: University of California Press, 1993).

Jolles, Adam, 'The Tactile Turn: Envisioning a Postcolonial Aesthetic in France', *Yale French Studies*, no. 109, Surrealism and Its Others (2006), pp. 17 – 38.

Judd, Donald, 'Specific Objects', *Arts Yearbook*, 8 (New York: 1965); reprinted in *Art in Theory 1900-2000*, ed. Charles Harrison and Paul Wood (Oxford: Blackwell, 2003), pp. 824 – 828.

Kahnweiler, Daniel-Henry, *The Rise of Cubism*, translated by Henry Aronson (New York: Witterborn Schultz Inc., 1949)

Kaprow, Allan, 'Notes on the Creation of a Total Art' in *Essays on the Blurring of Art and Life*, ed Jeff Kelley (Berkeley, Los Angeles and London: University of California Press, 1993), pp. 10 – 12.

Katz, David, *The World of Colour* (London: Kegan Paul, Tench, Trubner & Co. Ltd., 1935)

Kemp, Martin, 'Leonardo and the Visual Pyramid', *Journal of the Warburg and Courtauld Institutes*, 40 (1977), pp. 128 – 149.

Kendell, Richard (ed), *Cézanne and Poussin: A Symposium* (Sheffield: Sheffield Academic Press, 1993).

Kosslyn, Stephen M. and Daniel N. Osherson (ed), *An Invitation to Cognitive Science*, vol. II, Visual Cognition (Cambridge, Massachusetts: The MIT Press, 1995, second edition)

Kourtzi, Zoe and Nancy Kanwisher, 'Activation in Human MT/MST by Static Images with Implied Motion', *Journal of Cognitive Neuroscience*, 12, no. 1 (2000) pp. 48 – 55.

Krauss, Rosalind E., *Passages in Modern Sculpture* (Cambridge, Massachusetts: The MIT Press, 1977).

Krauss, Rosalind, 'In the Name of Picasso', *October*, 16, Art World Follies (Spring 1981), pp. 5 – 22.

Krauss, Rosalind, 'The Motivation of the Sign' in W. Rubin, K. Varnedoe and L. Zelevansky, *Picasso and Braque: A Symposium* (New York: Museum of Modern Art / Abrams, 1992), pp. 261 – 287.

Lamberts, K., N. Brockdorff and E. Heit, 'Perceptual processes in matching and recognition of complex pictures', *Journal of Experimental Psychology: Human Perception and Performance* 28, no. 5 (October 2002), pp. 1176-1191.

Laporte, Paul M., 'Cubism and Science', *The Journal of Aesthetics and Art Criticism*, 7, no. 3 (March 1949), pp. 243 – 256.

Laporte, Paul M., 'Cubism and Relativity with a Letter of Albert Einstein', *Leonardo*, 21, no. 3 (1988), pp. 313 – 315.

Leighton, Patricia, 'Picasso's Collages and the Threat of War, 1912 – 13', *The Art Bulletin*, 67, no. 4 (December 1985), pp. 653 – 672.

Leighton, Patricia, 'Revising Cubism', *Art Journal*, 47, no. 4, Revising Cubism (Winter 1988), pp. 269 – 276.

Leja, Michael, 'Pierce's Visuality and the Semiotics of Art' in *A Companion to Art Theory*, ed. Paul Smith and Carolyn Wilde (Oxford: Blackwell, 2002), pp. 303 – 316.

Leslie, Alan M, Fei Xu, Patrice D. Tremoulet and Brian J. Scholl, 'Indexing and the object concept: developing 'what' and 'where' systems', *Trends in Cognitive Sciences*, 2, no. 1 (January 1998) pp. 10 – 18.

Lesser, Wendy, 'Degas's' Nudes' in *His Other Half: Men looking at Women Through Art* (Cambridge, Mass. & London: Harvard University Press, 1991), pp. 53 – 80.

Lewison, Jeremy, *Looking at Barnett Newman* (London: August, 2002)

Light, Paul, 'The development of view-specific representation considered from a socio-cognitive standpoint' in *Visual order: The nature and development of pictorial representation*, ed. N. H Freeman and M. V. Cox (Cambridge University Press, 1985) pp. 214 – 230.

Lissitzky-Küppers, Sophie, *El Lissitzky: Life, Letters, Texts* (London: Thames and Hudson, 1980).

Livingstone, Margaret, *Vision and Art: The Biology of Seeing* (New York: Harry N. Abrams Inc, 2002)

Loeb, A. L., 'Art, Science and History: On Linda Henderson's "The Fourth Dimension and Non-Euclidian Geometry in Modern Art', *Leonardo*, 18, no. 3 (1985), pp. 193 – 196.

Lycan, William G, 'Enactive Intentionality', *Psyche*, 12, no. 1 (March 2006), http://psyche.cs.monash.edu.au/symposia/noe/Lycan.pdf, consulted 26 June 2007.

Marr, David, *Vision: A Computational Investigation into the Human Representation and Processing of Visual Information* (New York: W.H Freeman and Company, 1982)

Maynard, Patrick, *Drawing Distinctions: the Varieties of Graphic Expression* (Ithaca and London: Cornell University Press, 2005)

McGinn, Marie, *Wittgenstein and the Philosophical Investigations* (London: Routledge, 1997), pp. 177 – 204.

McShea, Megan 'A Finding Aid to the John Graham Papers, 1799 – 1988' in the *Archives of American Art*, http://www.aaa.si.edu/collectionsonline/grahjohn, consulted 16 October 2010.

Merleau-Ponty, Maurice, *Phenomenology of Perception*, translated by Colin Smith (London: Routledge, 1962)

Merleau-Ponty, Maurice, *The Visible and the Invisible*, ed Claude Lefort (Illinois: Northwestern University Press, 1968)

Milner, A. David and Melvyn A. Goodale, 'The Visual Brain in Action', *Psyche*, 10 January 2003, http://psyche.cs.monash.edu.au/v4/psyche-4-12-milner.html, consulted 18 June 2007.

Moran, Dermot, *Introduction to Phenomenology* (London: Routledge, 2000).

Moran, Dermot and Timothy Mooney (ed), *The Phenomenology Reader* (London: Routledge, 2002), part X, 'Maurice Merleau-Ponty: Embodied Perception', pp. 421 – 459.

Morris, Robert, 'Notes on Sculpture 1 - 3', published in 3 issues of *Artforum*, 4, no.6 (Feb 1966); 5, no.2 (Oct 1966); 5, no. 10 (Summer 1967); reprinted in *Art in Theory 1900-2000*, ed. Charles Harrison and Paul Wood (Oxford: Blackwell, 2003), pp. 828 – 835.

Morris, Robert, 'Notes on Sculpture 4: Beyond Objects' *Artforum*, New York, 5, (April 1969); reprinted in *Art in Theory 1900-2000*, ed. Charles Harrison and Paul Wood (Oxford: Blackwell, 2003), pp. 881 – 885.

Morris, Robert, 'Cézanne's Mountains', *Critical Inquiry*, 24, no. 3 (Spring, 1988), pp. 814 – 829.

Mullins, Edwin, *Braque* (London: Thames and Hudson, 1968).

Murata, Akira, Luciano Fadiga, Leonardo Fogassi, Vittorio Gallese, Vassilis Raos and Giacomo Rizzolatti, 'Object Representation in the Ventral Premotor Cortex (Area F5) of the Monkey, *The Journal of Neurophysiology*, 78, no. 4 (October 1997), pp. 2226 – 2230.

Newman, Barnet, 'Barnett Newman Interview with Dorothy Gees Seckler' reprinted in *Art in Theory 1900-2000*, ed. Charles Harrison and Paul Wood (Oxford: Blackwell, 2003), pp. 783 – 785.

Noë, Alva and J. Kevin O'Regan, 'A sensorimotor account of vision and visual consciousness', *Behavioural and Brain Sciences* 24, no. 5 (October 2001), pp. 939 – 1031.

Noë, Alva, *Action in Perception* (Cambridge, Mass. & London: The MIT Press, 2004)

Noë, Alva, 'Précis of Action in Perception', *Psyche*, 12, no. 1 (March 2006), http://psyche.cs.monash.edu.au/symposia/noe/Noe_precis.pdf, consulted 26 June 2007.

Ortega y Gasset, José, 'On Point of View of the Arts', *Partisan Review*, 16 (August 1949) pp. 822 – 836.

Panofsky, Erwin, *Perspective as Symbolic Form*, translated with an introduction by Christopher S. Wood (New York: Zone Books, 1991).

Peacocke, Christopher, 'Does Perception have a Nonconceptual Content?', *The Journal of Philosophy*, 98, no. 5 (May 2001) pp. 239 – 264.

Phillips, Antonia & Richard Wollheim, 'Representation', in *The Groves Dictionary of Art*, ed Jane Turner (London: Macmillan, 1997), 26, pp. 221 – 26.

Picasso and Braque: Pioneering Cubism (exhibition catalogue, Museum of Modern Art, New York, 24 September 1989 – 16 January 1990) ed. William Rubin (New York: Thames and Hudson, 1989).

Pierno, Andrea Cristiano, Caterina Ansuini and Umberto Castiello, 'Motor Intentions versus Social Intentions: One System or Multiple Systems?', *Psyche*, 13, no. 2 (April 2007), http://psyche.cs.monash.edu.au/symposia/seeing/Pierno.pdf, consulted 22 July 2007.

Pinker, Steven, *The Language Instinct: The New Science of Language and Mind* (London: Penguin, 1994)

Pinker, Steven, *How the Mind Works* (London: Penguin, 1997), chapter 4, 'The Mind's Eye', pp. 211 – 98.

Plomer, Aurora, *Phenomenology, Geometry and Vision* (Aldershot: Avebury, 1991)

Podro, Michael, 'The painters' analogies and their theories 1845 – 80', in *French 19th century painting and literature*, ed Ulrich Finke (Manchester: Manchester University Press, 1972).

Poggi, Christine, *In Defiance of Painting: Cubism, Futurism, and the Invention of Collage* (New Haven and London: Yale University Press, 1992).

Priest, Stephen, 'Maurice Merleau-Ponty, *Phenomenology of Perception* (1945): How is the Third-Person Perspective Possible?', in *The Classics of Western Philosophy: A Reader*, ed Jorge J. E. Garcia, Gregory M. Reichberg and Bernard N. Schumacher (Oxford: Blackwell, 2003) pp. 525 – 532.

Prinz, Jesse, 'Putting the Brakes on Enactive Perception', *Psyche*, 12, no. 1 (March 2006), http://psyche.cs.monash.edu.au/symposia/noe/Prinz.pdf, consulted 26 June 2007.

Pylyshyn, Zenon W, 'Situating vision in the world', *Trends in Cognitive Sciences*, 4, no. 5 (May 2000) pp. 197 – 207.

Ramachandran, V. S and William Hirstein, 'The Science of Art: A Neurological Theory of Aesthetic Experience', *Journal of Consciousness Studies*, 6, nos. 6 – 7 (1999), pp. 15 – 51.

Reff, Theodore, 'Cézanne and Poussin', *Journal of the Warburg and Courtauld Institutes*, 23, no. 1 / 2 (Jan. – Jun., 1960), pp. 150 – 174.

Robbins, Daniel J., 'Sources of Cubism and Futurism', *Art Journal*, 41, no. 4, Futurism (Winter, 1981), pp. 324 – 327.

Robert Morris: From Mnemosyne to Clio: The Mirror to the Labyrinth (exhibition catalogue, Musée Art Contemporain, Lyon, 1998-1999-2000), ed. Thierry Raspail, Anne Bertrand, Robert Morris, Thierry Prat (Lyon: Musée Art Contemporain, 2000).

Rosenthal, Mark, *Understanding Installation Art: From Duchamp to Holzer* (Munich: Prestel Verlag, 2003).

Rosemblum, Robert, 'Picasso and the Typography of Cubism', in *Picasso in Retrospect*, ed. Roland Penrose and John Golding (London: Granada, 1981), pp. 32 – 47.

Rothko, Mark, *The Artist's Reality: Philosophies of Art*, ed. Christopher Rothko (New Haven and London: Yale University Press, 2004)

Rothko: The Late Series (exhibition catalogue, Tate Modern, London, 26 September 2008 – 1 February 2009), ed. Achim Borchardt-Hume (London: Tate, 2008).

Rothman, Roger and Ian Verstegen, 'Arnheim's Lesson: Cubism, Collage and Gestalt Psychology', *The Journal of Aesthetics and Art Criticism*, 65, no. 3 (Summer 2007), pp. 287 – 298.

Rowell, Margaret, 'Vladimir Tatlin: Form / Faktura', *October*, 7, Soviet Revolutionary Culture (Winter, 1978), pp. 83 – 108.

Rowlands, Mark, 'Sensorimotor Activity', *Psyche*, 12, no. 1 (March 2006), http://psyche.cs.monash.edu.au/symposia/noe/Rowlands.pdf, consulted 26 June 2007.

Sacks, Oliver, *The Man Who Mistook His Wife For A Hat* (London, Duckworth, 1985), chapter 1, 'The Man Who Mistook His Wife For A Hat', pp. 7 – 21.

Sacks, Oliver, *An Anthropologist on Mars* (London: Picador, 1996), chapter 1, 'The Case of the Colour-blind Painter', pp. 1 – 38.

Saussure, Ferdinand de, *Course in General Linguistics*, translated by Wade Baskin (New York and London: McGraw-Hill, 1966)

Schapiro, Meyer, 'On Some Problems in the Semiotics of Visual Art: Field and Vehicle in Image-Signs', *Simiolus: Netherlands Quarterly for the History of Art*, 6, No. 1 (1972 - 1973), pp. 9-19.

Schapiro, Meyer, 'The Apples of Cézanne: An Essay on the Meaning of Still-life' in *Modern Art: 19th and 20th Centuries* (New York: Braziller, 1979), pp. 1 – 38.

Schier, Flint, *Deeper into Pictures* (Cambridge University Press, 1986)

Shiff, Richard, *Cézanne and the End of Impressionism: A Study of the Theory, Technique and Critical Evaluation of Modern Art* (Chicago and London: The University of Chicago Press, 1984).

Shiff, Richard, 'Cézanne's physicality: the politics of touch', in *The Language of Art History*, ed. Salim Kemal and Ivan Gaskell (Cambridge University Press, 1991), pp.129 – 180.

Shiff, Richard, 'Constructing Physicality', *Art Journal*, 50, no. 1 (Spring 1991), pp. 42 – 47.

Siewert, Charles, 'Is the Appearance of Shape Protean?', *Psyche*, 12, no. 1 (March 2006), http://psyche.cs.monash.edu.au/symposia/noe/Siewert.pdf, consulted 26 June 2007.

Smith, Neil, *Chomsky: Ideas and Ideals* (Cambridge University Press, 1999).

Smith, Paul, *Interpreting Cézanne* (London: Tate, 1996)

Smith, Paul, 'Wittgenstein, Description, and Adrian Stokes (on Cézanne)', in *A Companion to Art Theory*, ed. Paul Smith and Carolyn Wilde (Oxford: Blackwell, 2002), pp. 196 – 214.

Smith, Paul, 'How a Cubist Painting Holds Together', in *Art of the Twentieth Century*, ed. Jason Gaiger and Paul Wood (London: Yale University Press/Open University, 2003), pp. 62 – 89.

Smith, Paul, 'Cézanne's primitive self and related fictions' in *The Life and the Work: Art and Biography*, ed. C. Salas (Oxford University Press, 2007).

Smith, Paul, ''Real Primitives': Cézanne, Wittgenstein, and the nature of aesthetic quality' in J. Harris (ed.), *Value, Art, Politics* (Liverpool University Press, 2007).

Smith, Paul, 'Pictorial Grammar: Chomsky, John Willats, and the Rules of Representation' forthcoming publication, to appear in *Art History* in 2011.

Steinberg, Leo, 'The Philosophical Brothel', *October*, 44 (Spring 1988), pp. 7 – 74.

Stokes, Adrian, 'Colour and Form' in *The Critical Writings of Adrian Stokes*, ed Lawrence Gowing, vol. II, 1937 –1958 (London: Thames and Hudson, 1978), pp. 8 – 83.

Stokes, Adrian, 'Cézanne' in *The Critical Writings of Adrian Stokes*, ed Lawrence Gowing, vol. II, 1937 –1958 (London: Thames and Hudson, 1978), pp. 258 – 272.

Stokes, Adrian, 'Reflections on the Nude', in *The Critical Writings of Adrian Stokes*, ed. Lawrence Gowing, vol. III, 1955 –1967 (London: Thames and Hudson, 1978), section 4, 'Art and embodiment', pp. 324 – 330.

Stuckey, Charles, 'Monet's Art and the Act of Vision', in John Rewald and Frances Weitzenhoffer (ed), *Aspects of Monet: A Symposium on the Artist's Life and Times* (New York: Abrams, 1984), pp. 106 – 21.

Summers, David, '"Form," Nineteenth-Century Metaphysics, and the Problem of Art Historical Description', *Critical Inquiry*, 15, no. 2 (Winter, 1989), pp. 372 – 406.

Summers, David, 'Conditions and conventions: on the disanalogy of art and language', in *The Language of Art History*, ed. Salim Kemal and Ivan Gaskell (Cambridge University Press, 1991) pp.181 – 212.

Sylvester, David 'Newman, In Conversation with David Sylvester' [Interview taped in 1965], *The Listener*, 88, no. 2263 (10 August 1972), p. 169.

Taine, Hippolye, *On Intelligence*, translated by T. D. Haye (New York: Holt and Williams, 1872; first published 1870).

Thorpe, Simon, Denis Fize and Catherine Marlot, 'Speeds of processing in the human visual system', *Nature*, 381 (6 June 1996) pp. 520 – 22.

Tipper, Steven and Marlene Behrmann, 'Object-Centred Not Scene-Based Visual Neglect, *Journal of Experimental Psychology*, 22, no. 5 (1996), pp. 1261 – 1278.

Vos, Johannes J., 'Depth in colour: a history of a chapter in physiologie optique amusante', *Clinical and Experimental Optometry*, 91, no. 2 (March 2008), pp. 139 – 147.

Weiss, Peter H., John C. Marshall, Gilbert Wunderlich, Lutz Tellmann, Peter W. Halligan, Hans-Joachim Freund, Karl Zilles and Gereon R. Fink, 'Neural consequences of acting in near versus far space: a physiological basis for clinical disassociations', *Brain*, vol. 123 (2000), pp. 2531 – 2541.

Wellman, Carl 'Wittgenstein's Conception of a Criterion', *The Philosophical Review*, 71, no. 4 (October 1962), pp. 433 – 447.

Willats, John, 'The Representation of Extendedness in Children's Drawings of Sticks and Discs', *Child Development*, 63, no. 3 (June 1992) pp. 692 – 710.

Willats, John, *Art and Representation: New Principles in the Analysis of Pictures* (New Jersey: Princeton University Press, 1997)

Willats, John, 'The Third Domain: The Role of Pictorial Images in Picture Perception and Production', *Axiomathes*, 13 (2002), pp. 1 – 15

Willats John and Frédo Durand, 'Defining Pictorial Style: Lessons from Linguistics and Computer Graphics', *Axiomathes*, 15, No. 3. (September 2005), pp. 319-351.

Williams, Forrest, 'Cézanne and French Phenomenology', *The Journal of Aesthetics and Art Criticism*, 12, no. 4 (June 1954), pp. 481 – 492.

Wittgenstein, Ludwig, *Philosophical Investigations*, translated by G. E. M. Anscombe (Oxford: Blackwell, 1953), pp. 193 – 206e.

Wölfflin, Heinrich, *Principles of Art History: The Problem of the Development of Style in Later Art*, translated by M. D. Hottinger (London: G. Bell, 1932, translation from 7th German Edition, first published 1915).

Wollheim, Richard, *Art and its objects*, 2nd ed. (Cambridge University Press, 1980), Essay V, 'Seeing-as, seeing-in, and pictorial representation', pp. 205 – 226.

Wollheim, Richard, *Painting as an Art* (London: Thames and Hudson, 1987)

Wollheim, Richard, *On Formalism and its Kinds* (Barcelona: Fundació Antoni Tàpies, 1995)

Wollheim, Richard, 'On Formalism and Pictorial Organisation', *The Journal of Aesthetics and Art Criticism*, 59, no. 2 (Spring 2001), pp. 127 – 137.

Xu, Fei and Susan Carey, 'Infants' metaphysics: the case of numerical identity', *Cognitive Psychology*, 30, no. 2 (April 1996), pp. 111 – 53.

Ye, Ming, Arthur Bradley, Larry N. Thibos and Xiaoxiao Zhang, 'Interocular Differences in Transverse Chromatic Aberration Determine Chromostereopsis for Small Pupils', *Vision Research*, 31, no. 10 (January 1991), pp. 1787 – 1796.

Zeki, Semir, 'Art and the Brain', *Journal of Consciousness Studies* 6, no. 6 – 7 (June – July 1999), pp. 76 – 96.

Zeki, Semir, *Inner Vision: An Exploration of Art and the Brain* (Oxford University Press, 1999).

Zahavi, Dan, *Husserl's Phenomenology* (California: Stanford University Press, 2003).

Ziardy Delue, Rachael, 'Pissarro, Landscape, Vision, and Tradition', *The Art Bulletin* 80, no. 4 (December 1998), pp. 718 – 736.